# THE DATASHEET OF

# DLW5ATN272SQ2L

C31E.pdf
Mar. 26,2019

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INNOVATOR IN ELECTRONICS

# SMD/BLOCK Type
# EMI Suppression Filters EMIFIL®

**EU RoHS Compliant**

- All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment."
- For more details, please refer to our web page, "Murata's Approach for EU RoHS" (http://www.murata.com/en-eu/support/compliance/rohs).

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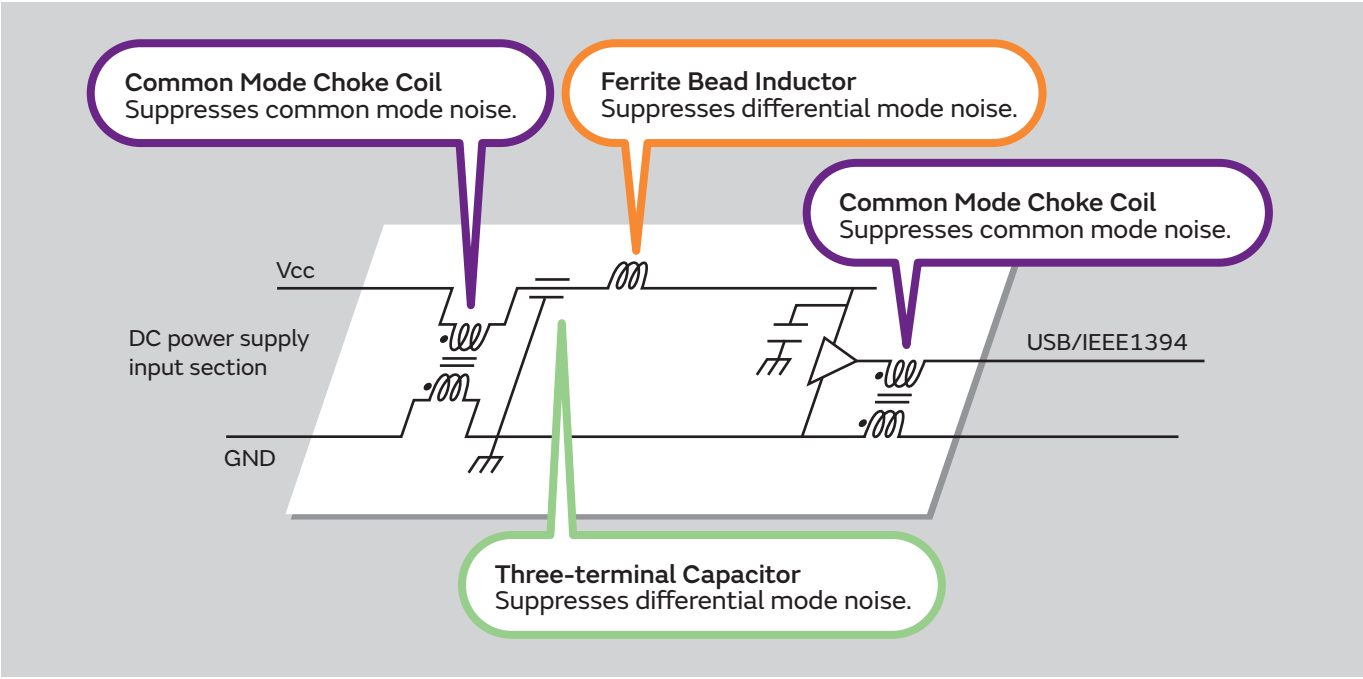
Please check the MURATA website (**https://www.murata.com/**) if you cannot find a part number in this catalog.

# Selection Guide for Noise Suppression Filters

## Features & Suitable Circuits

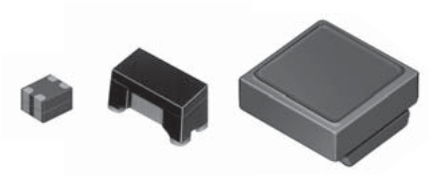
| Type<br>Representative series name | Features | Suitable Circuits |
|---|---|---|
| **Ferrite Bead**<br>**BLM/BLA Series**<br> | · Miniaturized<br>· GND connection unnecessary<br>· Effective at low impedance line | · Application set with less noise radiation<br>· Low impedance line |
| **Capacitor Type**<br>**NFM/NFA/NFE/ NFL/NFW Series**<br> | · Great noise suppression effect<br>· With effect as bypass capacitor (Lineup for Power)<br>· Good noise separation from signal (LC filter for Signal)<br>· Effective at high impedance line | · Application set with higher noise radiation<br>· High impedance line<br>· Circuit with bypass capacitor<br>· Circuit driven by high frequency |
| **Common Mode Choke Coil**<br>**DLW/DLM/DLP Series**<br> | · Possible to suppress noise with less affect of ultra-high-speed signal<br>· Significant improvement in common mode noise<br>· Less magnetic saturation by current | · High-speed differential signal line<br>· I/F cable driver<br>· Power line |

## Example



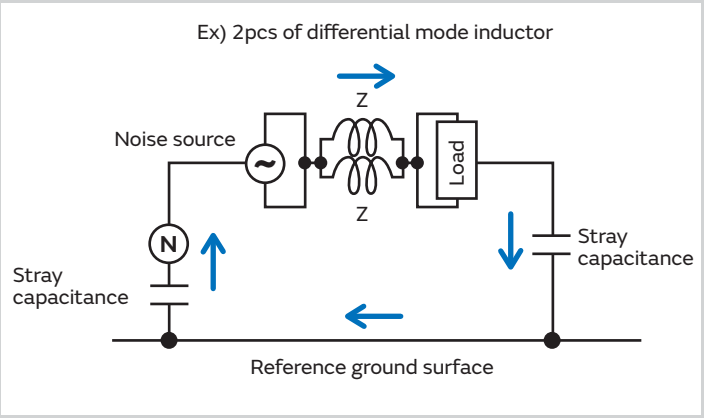
# Selection Guide for Noise Suppression Filters

## Advantages to Using Common Mode Choke Coils



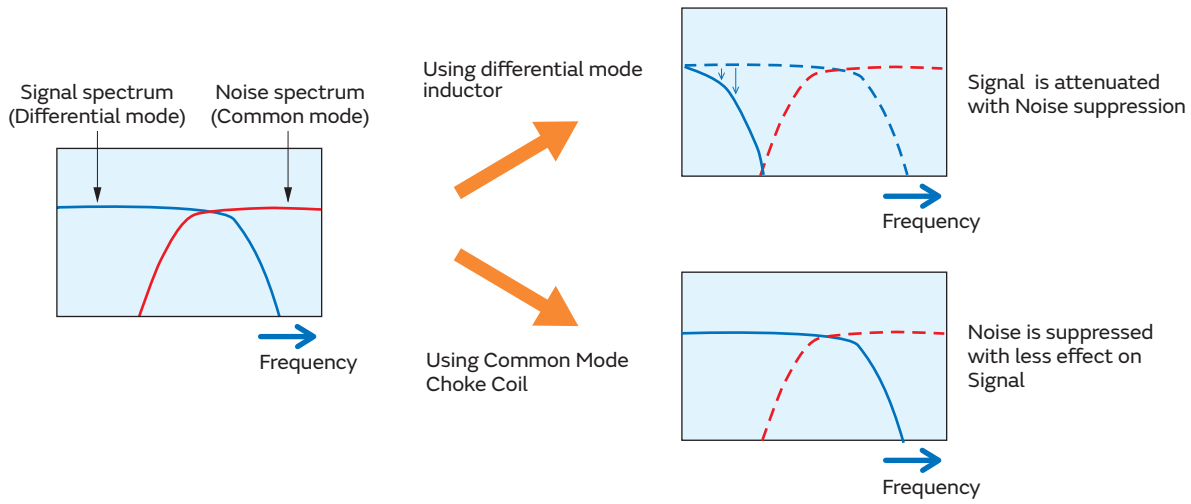
### 1. Great Effect for Common Mode Noise

Differential mode inductors work as a half impedance for common mode noise.
Common Mode Choke Coils are effective for common mode noise.




### 2. Possible to Suppress Noise with Less Effect on the Ultra-High-Speed Signal

Common Mode Choke Coils can suppress Noise with less effect on the Signal, even if the frequency range of Signal and Noise are the same, because they separate each conductive mode of current.

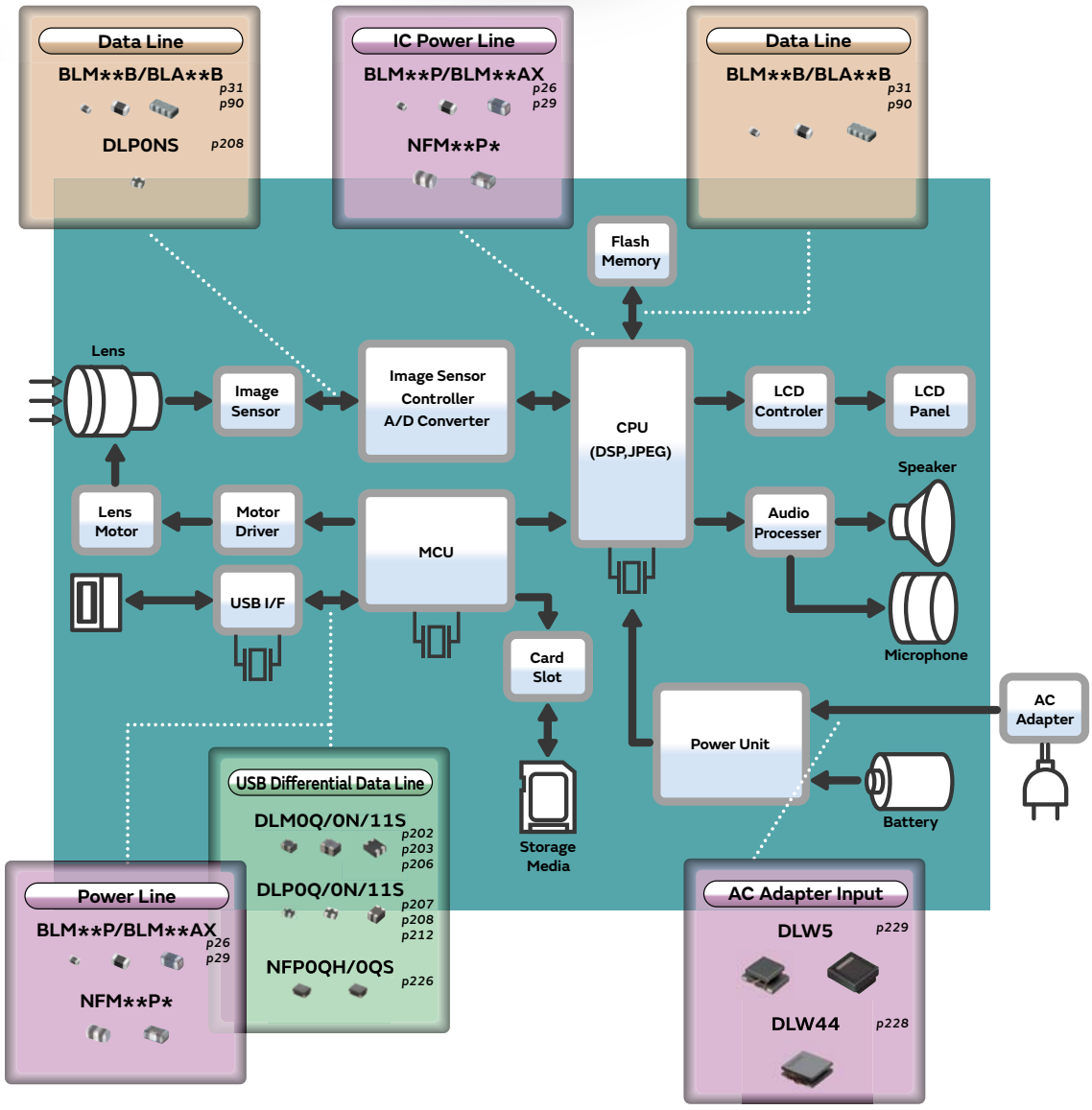



### 3. Less Magnetic Saturation by Current

Common Mode Choke Coils are effective for noise suppression of DC power lines, due to their less magnetic saturation at high power current, which comes from their construction of cancelling magnetic flux of the differential mode current at each coil.

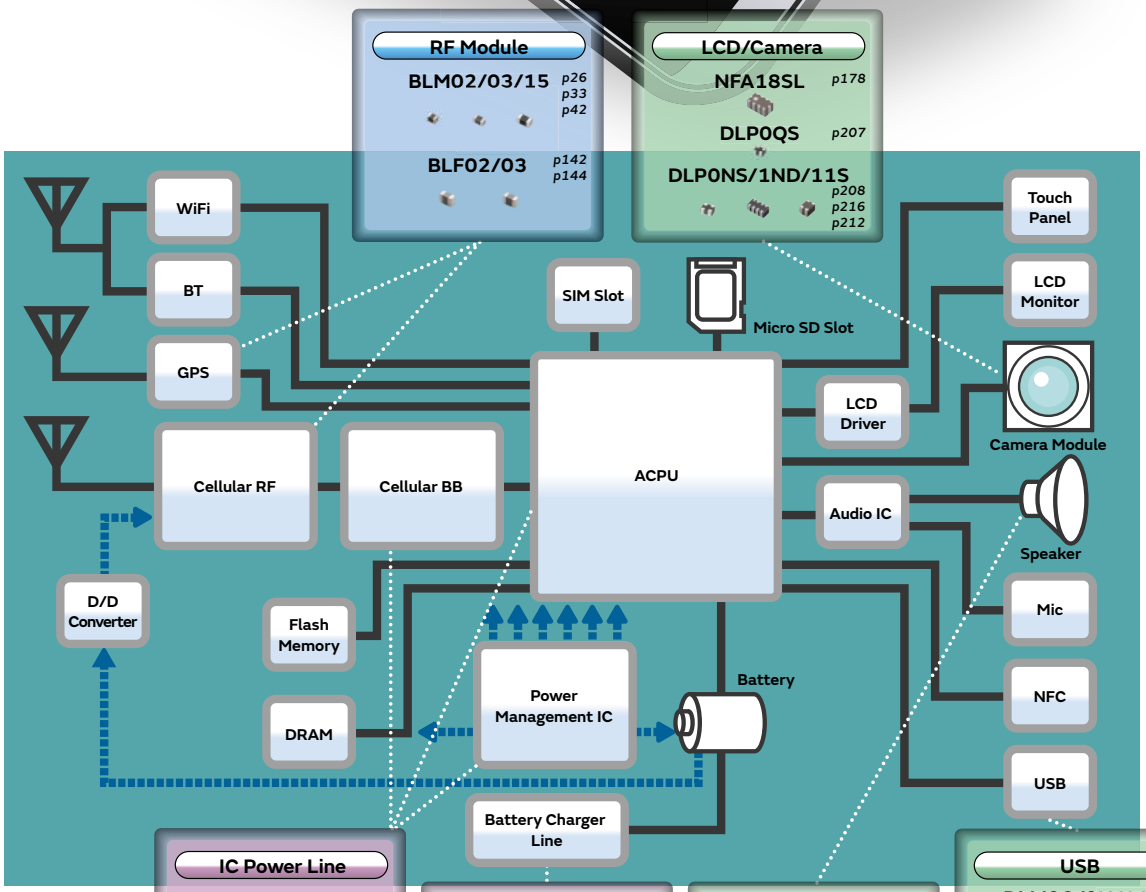
# EMI Filter Selection by Application

## Digital Still Camera
### Application Sample



# EMI Filter Selection by Application

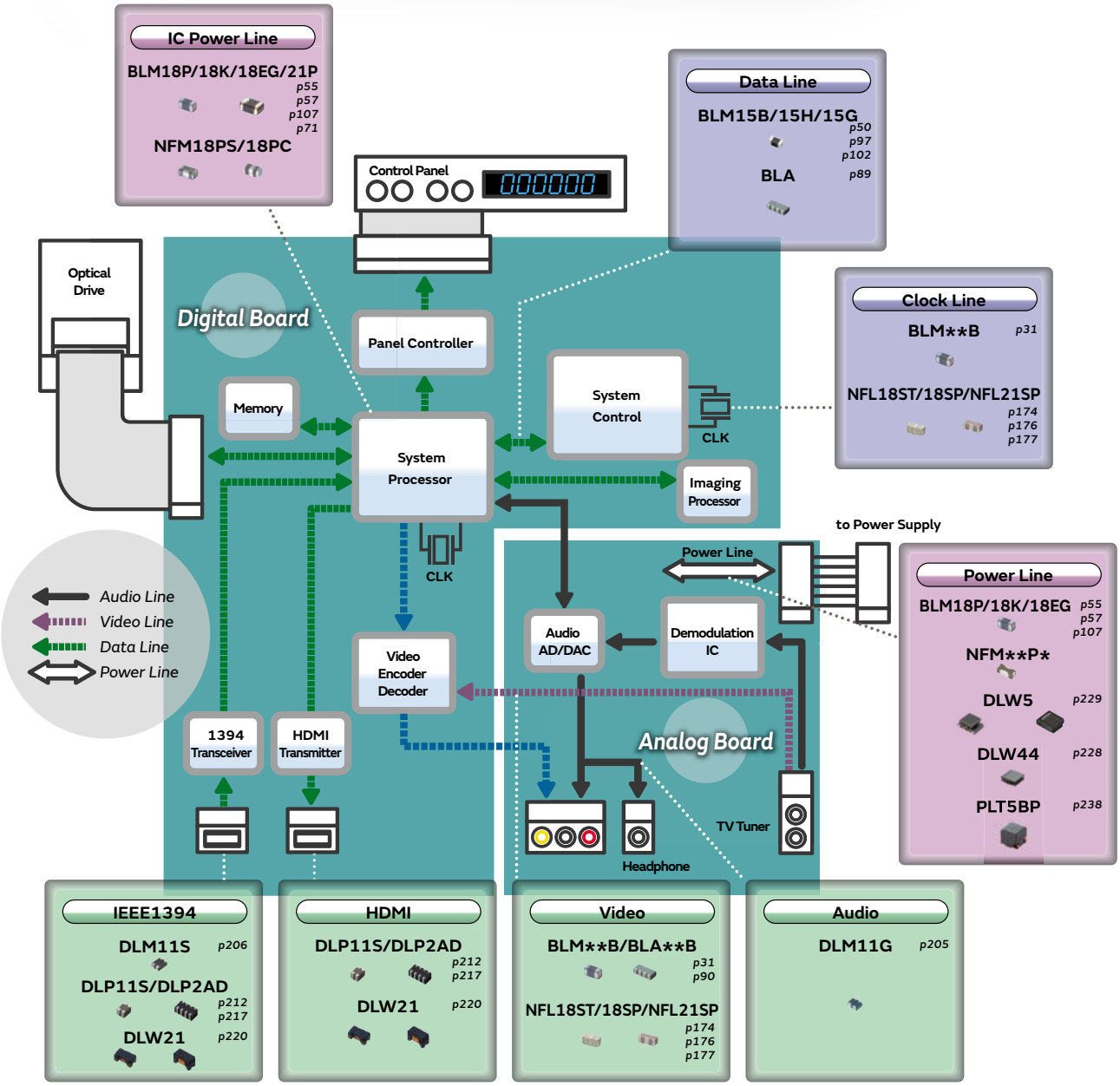
## Smartphone
### Application Sample



# EMI Filter Selection by Application

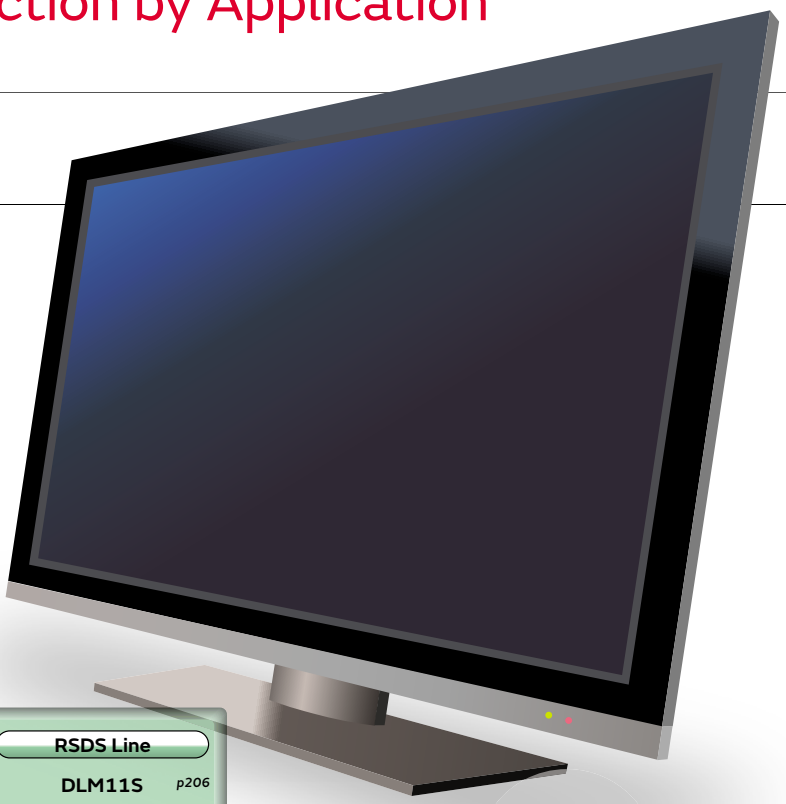
## Blu-ray/DVD

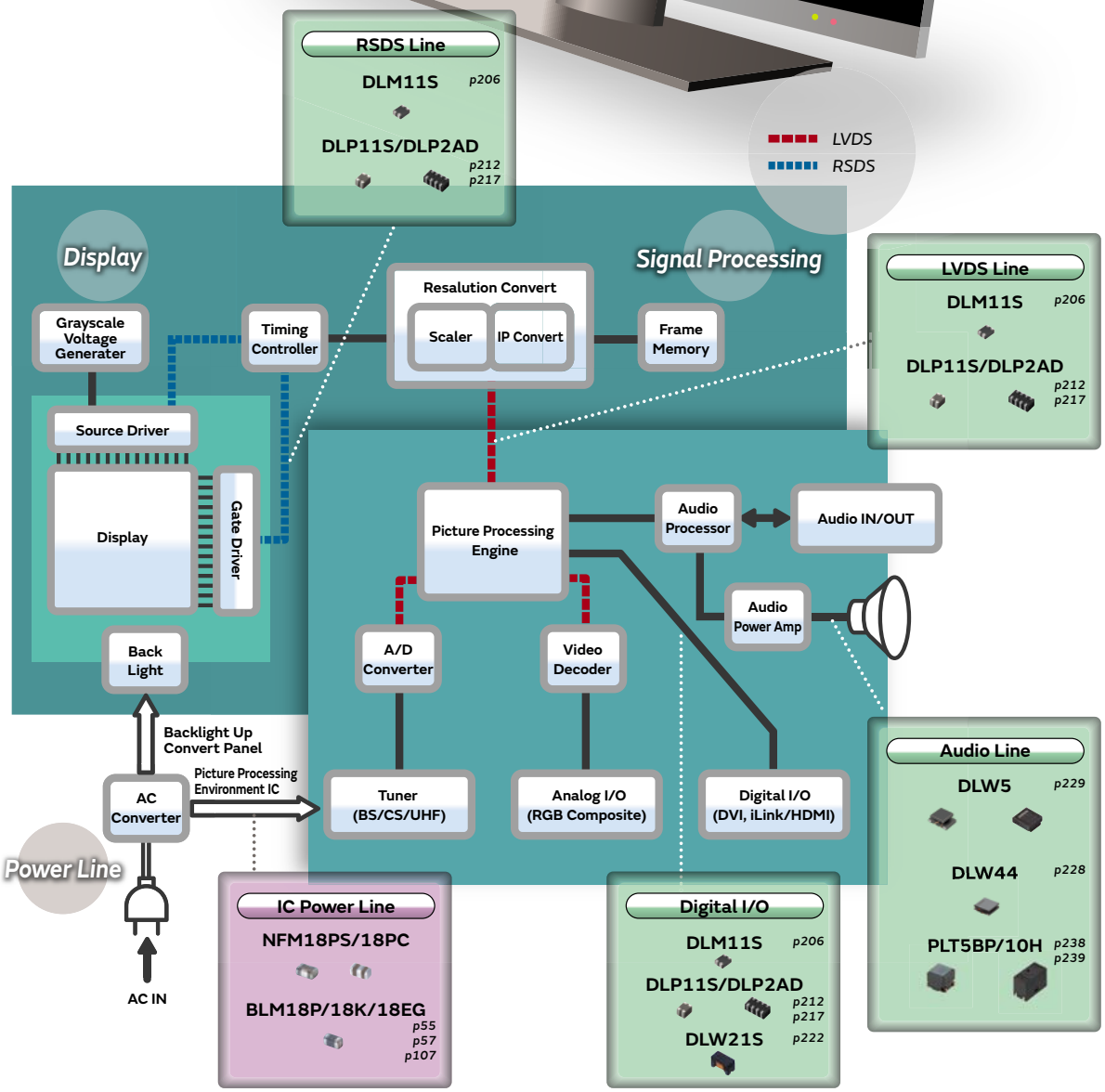
Application Sample



# EMI Filter Selection by Application

## LCD-TV
### Application Sample





# EMI Filter Selection by Circuits and Noise Frequency

## Chip Ferrite Bead / Chip EMIFIL®

**Noise Frequency**

| | | Circuit Type: Power Line | Circuit Type: General Signal Line Under 10MHz | Circuit Type: High-Speed Signal Line Over 10MHz |
|---|---|---|---|---|
| Noise Frequency: Under 1GHz | Inductor Type (Suppression Effect: Normal) | **BLF02JD** 01005(0402) p142<br>**BLM02AX** 01005(0402) p29<br>**BLF03JD** 0201(0603) p144<br>**BLM03AX** 0201(0603) p38 | | **BLM02BX/BC/BB** 01005(0402) p31<br>**BLM03B** 0201(0603) p39<br>**BLM15BX** 0402(1005) p53<br>**BLM15B** 0402(1005) p50<br>**BLM18B** 0603(1608) p65<br>**BLM21B** 0805(2012) p77 |
| | | **BLM03PG** 0201(0603) p33 | **BLM03AG** 0201(0603) p36<br>**BLM15AG** 0402(1005) p47<br>**BLM18A** 0603(1608) p62 | |
| | | Low DC Resistance / High Current Type<br>**BLM02PX** 01005(0402) p26<br>**BLM02KX** 01005(0402) p28<br>**BLM03PX** 0201(0603) p34 | | |
| | | **BLM15AX** 0402(1005) p48 | | |
| | | **BLM15PX** 0402(1005) p44<br>**BLM15P** 0402(1005) p42<br>**BLM15KD** 0402(1005) p46<br>**BLM18P** 0603(1608) p55<br>**BLE18P** 0603(1608) p145<br>**BLM21P** 0805(2012) p71<br>**BLM31P** 1206(3216) p83<br>**BLE32P** 1210(3225) p146<br>**BLM41P** 1806(4516) p86 | **BLM18T** 0603(1608) p64<br>**BLM18R** 0603(1608) p69<br>**BLM21A** 0805(2012) p75<br>**BLM21R** 0805(2012) p80 | |
| | | Low DC Resistance Type<br>**BLM18K** 0603(1608) p57<br>**BLM18S** 0603(1608) p59<br>**BLM21S** 0805(2012) p73<br>**BLM31S** 1206(3216) p85<br>**BLM31KN** 1206(3216) p81<br>**BLT5BPT** 2020(5050) p88 | | |
| | | | Array Type<br>**BLA2AA** 0804(2010) p89<br>**BLA31A** 1206(3216) p92 | Array Type<br>**BLA2AB** 0804(2010) p90<br>**BLA31B** 1206(3216) p93 |
| | Capacitor Type (Suppression Effect: High) | T Circuit Filter Feed-Through Type<br>**NFE31PT** 1206(3216) p172<br>**NFE61PT** 2706(6816) p173 | | LC Combined<br>**NFL18ST** 0603(1608) p174<br>**NFL18SP** 0603(1608) p176<br>**NFL21SP** 0805(2012) p177<br>**NFW31SP** 1206(3216) p184 |
| | | Block Type<br>**BNX022/023/028/029** p256 | | Array Type (LC Combined)<br>**NFA18SL/SD** 0603(1608) p178<br>**NFA21SL** 0805(2012) p182 |
| Noise Frequency: GHz Band (800MHz to 2.5GHz) | Inductor Type (Suppression Effect: Normal) | **BLF02RD** 01005(0402) p143<br>**BLM18HE** 0603(1608) p103 | **BLM03HG** 0201(0603) p94<br>**BLM15HG** 0402(1005) p97<br>**BLM18HG** 0603(1608) p103<br>**BLM18HK** 0603(1608) p103 | **BLM03HD** 0201(0603) p94<br>**BLM03HB** 0201(0603) p94<br>**BLM15HD** 0402(1005) p97<br>**BLM15HB** 0402(1005) p97<br>**BLM18HD** 0603(1608) p103<br>**BLM18HE** 0603(1608) p103<br>**BLM18HB** 0603(1608) p103 |
| | | **BLM03E** 0201(0603) p96<br>**BLM15E** 0402(1005) p99<br>**BLM18E** 0603(1608) p107 | | |
| | Capacitor Type (Suppression Effect: High) | | | LC Combined<br>**NFL18ST** 0603(1608) p174 |
| | | | | Array Type (LC Combined)<br>**NFA18SL/SD** 0603(1608) p178<br>**NFA21SL** 0805(2012) p182 |
| Noise Frequency: High-GHz Band (10GHz to 100GHz) | Inductor Type | | **BLM15GG** 0402(1005) p102<br>**BLM18G** 0603(1608) p109 | **BLM15GA** 0402(1005) p102 |

## Noise Filter for Audio Line

| | | Circuit Type | |
|---|---|---|---|
| | | Noise Filter For Audio Line | |
| | | Earphone | Speaker |
| Noise Frequency | Noise Frequency: Under 1GHz | | **NFZ18SM_10** 0603(1608) p129<br>**NFZ2MSM_10** 0806(2016) p131<br>**NFZ32SW_10** 1210(3225) p132 |
| | Noise Frequency: Over 1GHz | **NFZ03SG_10** 0201(0603) p126<br>**NFZ15SG_10** 0402(1005) p127 | **NFZ15SG_11** 0402(1005) p127 |

## Noise Filter for LED Line

| | | Circuit Type |
|---|---|---|
| | | Noise Filter For LED Lighting Equipment |
| Noise Frequency | Noise Frequency: Under 1MHz | **NFZ2HBM_10** 1008(2520) p133<br>**NFZ32BW_11** 1210(3225) p135<br>**NFZ32BW_10** 1210(3225) p135<br>**NFZ5BBW_10** 2020(5050) p139 |

## Chip Common Mode Choke Coils

| Circuit Type | | | |
|---|---|---|---|
| DC Power Line | High Speed Differential Signal Line | | Audio Line |
| | High-Speed Signal Line (USB2.0/LVDS/IEEE1394/mipi etc.) | Ultra-High-Speed Differential Signal Line (HDMI/DVI/Display Port/USB3.0 etc.) | |
| **DLW44S** 1515(4040) p228<br>**DLW5AH** 2014(5036) p229<br>**DLW5AT** 2014(5036) p231<br>**DLW5BS** 2020(5050) p229<br>**DLW5BT** 2020(5050) p236 | **DLM0QSN** 025020(0605) p202<br>**DLM0NSN** 03025(0806) p203<br>**DLM11S** 0504(1210) p206<br>**DLP0NSC** 03025(0806) p208<br>**DLP0NSN** 03025(0806) p208<br>**DLP11SN** 0504(1210) p212<br>**DLP11RN** 0504(1210) p210<br>**DLW21H** 0805(2012) p220<br>**DLW21S_S** 0805(2012) p222<br>**DLW21S_X** 0805(2012) p222<br>**DLP31S** 1206(3216) p215<br>**DLW31S** 1206(3216) p225 | **NFP0QHB** 025020(0605) p226<br>**NFP0QSB** 025020(0605) p226<br>**DLM0QSB** 025020(0605) p202<br>**DLP0QSA** 025020(0605) p207<br>**DLM0NSB** 03025(0806) p203<br>**DLP0NSA** 03025(0806) p208<br>**DLP11SA** 0504(1210) p212<br>**DLP11RB** 0504(1210) p210<br>**DLP11TB** 0504(1210) p214<br>**DLW21S_HQ** 0805(2012) p222 | **DLM11G** 0504(1210) p205<br>**DLW5AT** 2014(5036) p231<br>**DLW5BT** 2020(5050) p236 |
| High Current Type<br>**PLT10HH** 12.9mm×6.6mm p239<br>**PLT5BPH** 2020(5050) p238 | Array Type<br>**DLP1ND** 05025(1506) p216<br>**DLP2ADN** 0804(2010) p217<br>**DLP31D** 1206(3216) p219 | Array Type<br>**DLP2ADA** 0804(2010) p217 | |

# Product Guide

## BLM/BLA/BLT

Chip Ferrite Bead

| Part Number | | Size Code in inches (mm) | Impedance | | Rated Current |
|---|---|---|---|---|---|
| | | | at 100MHz | at 1GHz | |
| **BLM02PX*** | p26 | 01005 (0402) | 10Ω to 60Ω | - | 500mA to 1.1A |
| **BLM02KX*** | p28 | 01005 (0402) | 10Ω to 18Ω | - | 1.2A to 1.5A |
| **BLM02AX** | p29 | 01005 (0402) | 10Ω to 240Ω | - | 200mA to 750mA |
| **BLM02BB/BC** | p31 | 01005 (0402) | 10Ω to 100Ω | 95Ω to 240Ω | 125mA to 250mA |
| **BLM02BX*** | p32 | 01005 (0402) | 120Ω to 240Ω | - | 240mA to 350mA |
| **BLM03PG** | p33 | 0201 (0603) | 22Ω to 33Ω | - | 750mA to 900mA |
| **BLM03PX*** | p34 | 0201 (0603) | 22Ω to 120Ω | - | 900mA to 1.8A |
| **BLM03AG** | p36 | 0201 (0603) | 10Ω to 1000Ω | - | 100mA to 500mA |
| **BLM03AX** | p38 | 0201 (0603) | 10Ω to 1000Ω | - | 200mA to 1A |
| **BLM03BB/BC/BD** | p39 | 0201 (0603) | 10Ω to 600Ω | - | 100mA to 300mA |
| **BLM03BX** | p41 | 0201 (0603) | 1000Ω to 1800Ω | - | 140mA to 170mA |
| **BLM15PD*/PG** | p42 | 0402 (1005) | 10Ω to 120Ω | - | 1A to 2.2A |
| **BLM15PX*** | p44 | 0402 (1005) | 33Ω to 600Ω | - | 900mA to 3A |
| **BLM15KD*** | p46 | 0402 (1005) | 20Ω to 120Ω | - | 1.5A to 3.8A |
| **BLM15AG** | p47 | 0402 (1005) | 10Ω to 1000Ω | - | 300mA to 1A |
| **BLM15AX** | p48 | 0402 (1005) | 10Ω to 1000Ω | - | 350mA to 1.74A |
| **BLM15BA/BB/BC/BD** | p50 | 0402 (1005) | 5Ω to 1800Ω | - | 100mA to 500mA |
| **BLM15BX** | p53 | 0402 (1005) | 75Ω to 1800Ω | - | 250mA to 600mA |
| **BLM18PG*** | p55 | 0603 (1608) | 30Ω to 470Ω | - | 1A to 3A |
| **BLM18KG*** | p57 | 0603 (1608) | 26Ω to 1000Ω | - | 1A to 6A |
| **BLM18SD*/SG*/SN*** | p59 | 0603 (1608) | 22Ω to 330Ω | - | 1.5A to 8A |
| **BLM18AG** | p62 | 0603 (1608) | 120Ω to 1000Ω | - | 450mA to 800mA |
| **BLM18TG** | p64 | 0603 (1608) | 120Ω to 1000Ω | - | 100mA to 200mA |
| **BLM18BA/BB/BD** | p65 | 0603 (1608) | 5Ω to 2500Ω | - | 150mA to 800mA |
| **BLM18RK** | p69 | 0603 (1608) | 120Ω to 1000Ω | - | 200mA |
| **BLM21PG*** | p71 | 0805 (2012) | 22Ω to 330Ω | - | 1.5A to 6A |
| **BLM21SN*/SP*** | p73 | 0805 (2012) | 30Ω to 1000Ω | - | 1.6A to 8.5A |
| **BLM21AG** | p75 | 0805 (2012) | 120Ω to 1000Ω | - | 600mA to 1A |
| **BLM21BB/BD** | p77 | 0805 (2012) | 5Ω to 2700Ω | - | 200mA to 1A |
| **BLM21RK** | p80 | 0805 (2012) | 120Ω to 1000Ω | - | 200mA |
| **BLM31KN*** | p81 | 1206 (3216) | 120Ω to 1000Ω | - | 2A to 6A |
| **BLM31PG*** | p83 | 1206 (3216) | 33Ω to 600Ω | - | 1.5A to 6A |
| **BLM31SN*** | p85 | 1206 (3216) | 50Ω | - | 12A |
| **BLM41PG*** | p86 | 1806 (4516) | 60Ω to 1000Ω | - | 1.5A to 6A |
| **BLT5BPT_LN1*** | p88 | 2020 (5050) | 68Ω | - | 11A |
| **BLA2AAG** (4 circuits array) | p89 | 0804 (2010) | 120Ω to 1000Ω | - | 50mA to 100mA |
| **BLA2ABB/BD** (4 circuits array) | p90 | 0804 (2010) | 10Ω to 1000Ω | - | 50mA to 200mA |
| **BLA31AG** (4 circuits array) | p92 | 1206 (3216) | 30Ω to 1000Ω | - | 50mA to 200mA |
| **BLA31BD** (4 circuits array) | p93 | 1206 (3216) | 120Ω to 1000Ω | - | 50mA to 150mA |
| **BLM03HB/HD/HG** | p94 | 0201 (0603) | 190Ω to 1800Ω | 750Ω to 3000Ω | 100mA to 200mA |
| **BLM03EB*** | p96 | 0201 (0603) | 25Ω to 50Ω | 105Ω to 255Ω | 400mA to 600mA |
| **BLM15HB/HD/HG** | p97 | 0402 (1005) | 120Ω to 1800Ω | 500Ω to 2700Ω | 200mA to 300mA |
| **BLM15EG*** | p99 | 0402 (1005) | 120Ω to 220Ω | 145Ω to 270Ω | 700mA to 1.5A |
| **BLM15EX*** | p100 | 0402 (1005) | 120Ω to 470Ω | 170Ω to 630Ω | 950mA to 1.8A |
| **BLM15GA/GG** | p102 | 0402 (1005) | 75Ω to 470Ω | 600Ω to 1200Ω | 200mA to 300mA |
| **BLM18HB/HD/HE*/HG/HK** | p103 | 0603 (1608) | 120Ω to 1500Ω | 400Ω to 1700Ω | 50mA to 800mA |
| **BLM18EG*** | p107 | 0603 (1608) | 100Ω to 600Ω | 140Ω to 700Ω | 500mA to 2A |
| **BLM18GG** | p109 | 0603 (1608) | 470Ω | 1800Ω | 200mA |

* The derating of rated current is required for some items according to the operating temperature on each product page.

# NFZ_S

Noise filter for audio lines

| Part Number | Size Code in inches (mm) | Impedance | | | | Rated Current |
|---|---|---|---|---|---|---|
| | | at 1MHz | at 100MHz | at 900MHz | at 1.7GHz | |
| **NFZ03SG** p126 | 0201 (0603) | - | - | 330Ω to 1600Ω | 400Ω to 1200Ω | 180mA to 305mA |
| **NFZ15SG** p127 | 0402 (1005) | - | - | 100Ω to 4600Ω | 160Ω to 1800Ω | 270mA to 1.1A |
| **NFZ18SM*** p129 | 0603 (1608) | - | 120Ω to 700Ω | - | - | 800mA to 1.25A |
| **NFZ2MSM** p131 | 0806 (2016) | - | 100Ω to 600Ω | - | - | 2.5A to 4A |
| **NFZ32SW** p132 | 1210 (3225) | 3.2Ω to 6.8Ω | 300Ω to 900Ω | - | - | 2.05A to 2.55A |

* The derating of rated current is required for some items according to the operating temperature on each product page.

# NFZ_B

Noise filter for LED lighting equipment

| Part Number | Size Code in inches (mm) | Impedance (at 1MHz) | Rated Current |
|---|---|---|---|
| **NFZ2HBM** p133 | 1008 (2520) | 1.5Ω to 60Ω | 400mA to 1.2A |
| **NFZ32BW*** p135 | 1210 (3225) | 3.3Ω to 880Ω | 200mA to 2.9A |
| **NFZ5BBW*** p139 | 2020 (5050) | 2.9Ω to 140Ω | 1.05A to 4A |

* The derating of rated current is required for some items according to the operating temperature on each product page.

# BLF

Frequency specified noise filter

| Part Number | Size Code in inches (mm) | Target Frequency | Rated Current |
|---|---|---|---|
| **BLF02JD*** p142 | 01005 (0402) | 700MHz | 330mA to 380mA |
| **BLF02RD*** p143 | 01005 (0402) | 2.4GHz | 200mA to 330mA |
| **BLF03JD*** p144 | 0201 (0603) | 700MHz | 480mA |

* The derating of rated current is required for some items according to the operating temperature on each product page.

# BLE

Noise filter for power charger lines

| Part Number | Size Code in inches (mm) | Impedance (at 100MHz) | Rated Current |
|---|---|---|---|
| **BLE18PS*** p145 | 0603 (1608) | 8.5Ω | 8A |
| **BLE32PN** p146 | 1210 (3225) | 26Ω to 30Ω | 10A |

* The derating of rated current is required for some items according to the operating temperature on each product page.

# LQW_CA

Inductor for audio line noise suppression

| Part Number | Size Code in inches (mm) | Inductance | Rated Current |
|---|---|---|---|
| **LQW04CA_00** p147 | 03019 (0805) | 60nH to 510nH | 200mA to 620mA |
| **LQW15CA_00** p148 | 0402 (1005) | 22nH to 2000nH | 130mA to 1300mA |
| **LQW18CA_00** p150 | 0603 (1608) | 32nH to 580nH | 450mA to 2200mA |

# NFE

Feed-Through Chip EMI Filters

| Part Number | Size Code in inches (mm) | Capacitance | Rated Current |
|---|---|---|---|
| **NFE31PT** p172 | 1206 (3216) | 22pF to 2200pF | 6A |
| **NFE61PT** p173 | 2706 (6816) | 33pF to 4700pF | 2A |

# NFL/NFA/NFW

LC Combined Chip EMI Filters

| Part Number | Size Code in inches (mm) | Nominal Cut-off Frequency | Rated Current |
|---|---|---|---|
| **NFL18ST** p174 | 0603 (1608) | 50MHz to 500MHz | 75mA to 200mA |
| **NFL18SP** p176 | 0603 (1608) | 150MHz to 500MHz | 100mA |
| **NFL21SP** p177 | 0805 (2012) | 10MHz to 500MHz | 100mA to 300mA |
| **NFA18SL** (4 circuits array) p178 | 0603 (1608) | 50MHz to 480MHz | 25mA to 100mA |
| **NFA18SD** (4 circuits array) p181 | 0603 (1608) | 180MHz to 200MHz | 25mA |
| **NFA21SL** (4 circuits array) p182 | 0805 (2012) | 50MHz to 330MHz | 20mA to 100mA |
| **NFW31SP** p184 | 1206 (3216) | 10MHz to 500MHz | 200mA |

# DLM/DLP/DLW/NFP

Common Mode Choke Coil/Common Mode Noise Filter

| Part Number | Size Code in inches (mm) | Common Mode Impedance (at 100MHz) | Rated Current |
|---|---|---|---|
| **DLM0QS** (Limited for differential signal interface line) p202 | 025020(0605) | 12Ω to 90Ω | 50mA to 150mA |
| **DLM0NS** (Limited for differential signal interface line) p203 | 03025(0806) | 12Ω to 90Ω | 100mA to 160mA |
| **DLM11G** p205 | 0504(1210) | 600Ω | 100mA |
| **DLM11S** p206 | 0504(1210) | 45Ω to 90Ω | 100mA |
| **DLP0QS** p207 | 025020(0605) | 7Ω to 35Ω | 100mA |
| **DLP0NS** p208 | 03025(0806) | 7Ω to 120Ω | 75mA to 110mA |
| **DLP11R** p210 | 0504(1210) | 15Ω to 45Ω | 100mA |
| **DLP11S** p212 | 0504(1210) | 35Ω to 330Ω | 80mA to 180mA |
| **DLP11T** p214 | 0504(1210) | 80Ω | 100mA |
| **DLP31S** p215 | 1206(3216) | 120Ω to 550Ω | 100mA |
| **DLP1ND** (2 circuits array) p216 | 05025(1506) | 35Ω to 90Ω | 60mA to 100mA |
| **DLP2AD** (2 circuits array) p217 | 0804(2010) | 35Ω to 280Ω | 80mA to 150mA |
| **DLP31D** (2 circuits array) p219 | 1206(3216) | 90Ω to 440Ω | 70mA to 160mA |
| **DLW21H** p220 | 0805(2012) | 67Ω to 180Ω | 200mA to 330mA |
| **DLW21S** p222 | 0805(2012) | 67Ω to 920Ω | 160mA to 400mA |
| **DLW31S** p225 | 1206(3216) | 90Ω to 2200Ω | 200mA to 370mA |
| **NFP0Q** p226 | 025020(0605) | 90Ω | 100mA |
| **DLW44S*** p228 | 1515(4040) | 100Ω to 2400Ω | 1.1A to 3.1A |
| **DLW5AH_SQ2/DLW5BS_SQ2*** p229 | 2014(5036)/2020(5050) | 190Ω to 4000Ω | 200mA to 5A |
| **DLW5AT_SQ2*** p231 | 2014(5036) | 110Ω to 2700Ω | 1A to 5A |
| **DLW5AT_MQ2*** p233 | 2014(5036) | 50Ω to 1100Ω | 2A to 6A |
| **DLW5AT_TQ2*** p234 | 2014(5036) | 110Ω to 500Ω | 2A to 5A |
| **DLW5BS_TQ2*** p235 | 2020(5050) | 500Ω to 800Ω | 1A to 2A |
| **DLW5BT_SQ2*** p236 | 2020(5050) | 100Ω to 1400Ω | 1.5A to 6A |
| **DLW5BT_TQ2*** p237 | 2020(5050) | 100Ω to 1400Ω | 2A to 6A |

* The derating of rated current is required for some items according to the operating temperature on each product page.

# PL□

Large Current Common Mode Choke Coil for Automotive Available

| Part Number | Size Code in inches (mm) | Common Mode Impedance (at 10MHz) | Rated Current |
|---|---|---|---|
| **PLT5BPH*** p238 | 2020(5050) | 100Ω to 500Ω | 3.1A to 5.6A |
| **PLT10HH*** p239 | (12.9×6.6) | 45Ω to 1000Ω | 6A to 18A |

* The derating of rated current is required for some items according to the operating temperature on each product page.

# BNX

Block Type EMIFIL®

| | Part Number | Rated Voltage | Rated Current |
|---|---|---|---|
| SMD Type | **BNX02□*** p256 | 6.3Vdc to 100Vdc | 20A |
| Lead Type | **BNX01□*** p258 | 25Vdc to 50Vdc | 15A |

* The derating of rated current is required for some items according to the operating temperature on each product page.

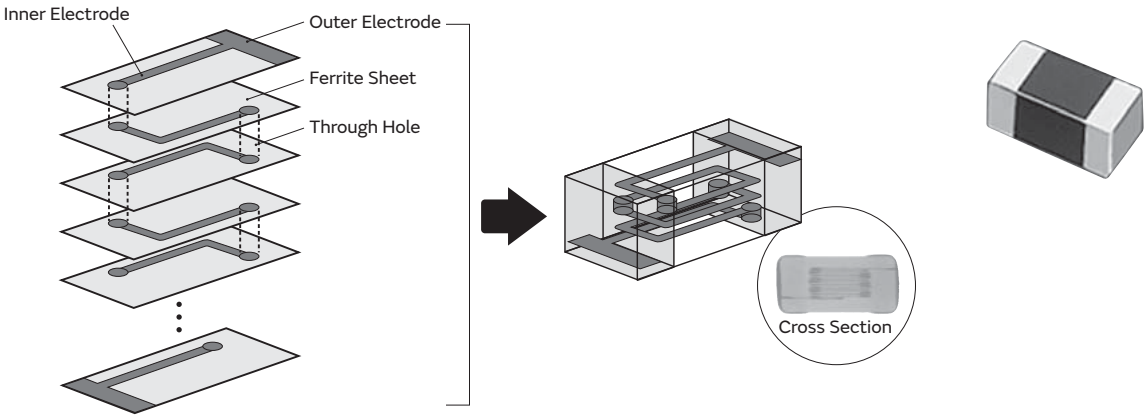
# MEMO

## Chip Ferrite Bead
## BLM/BLA/BLT Series

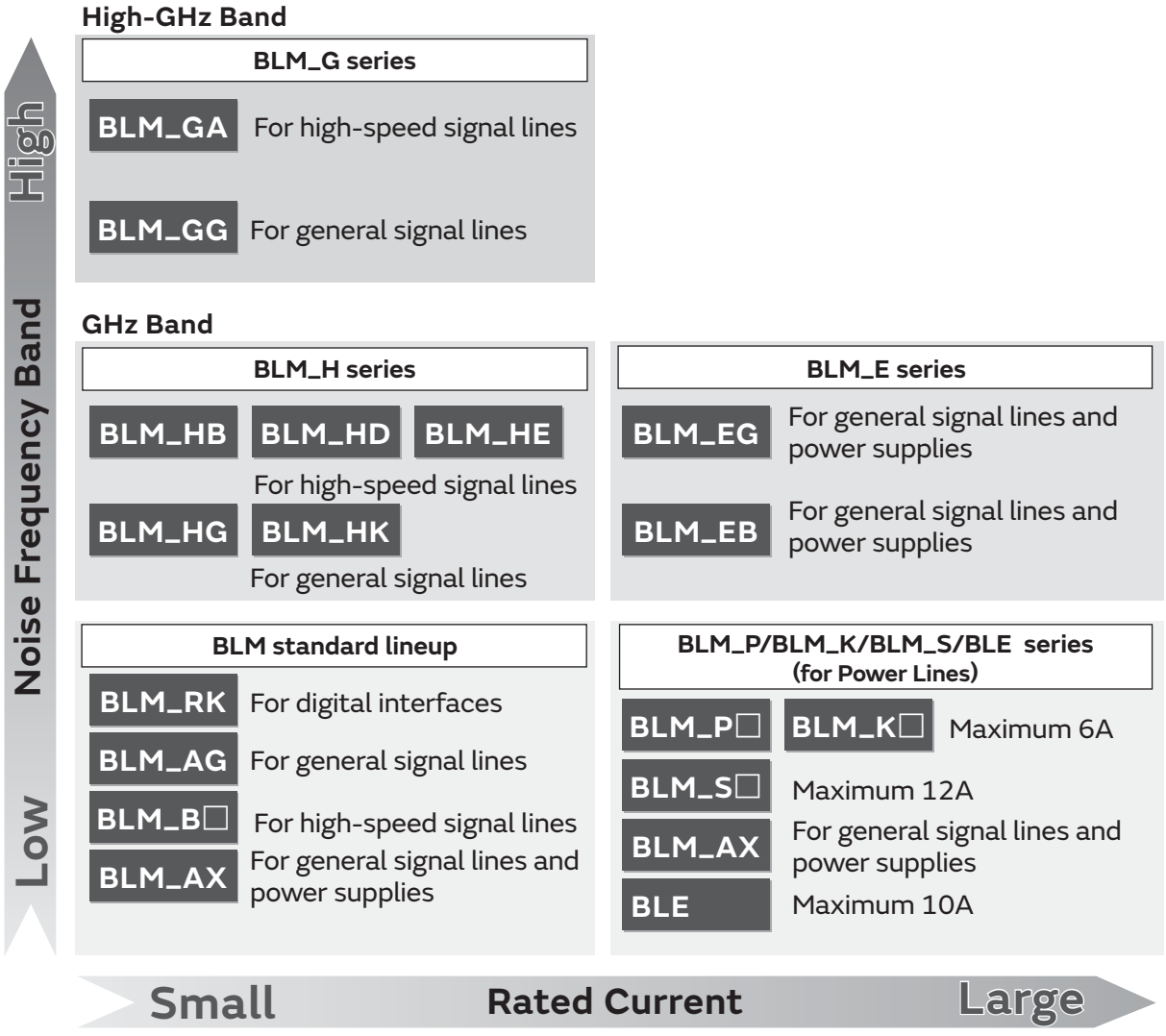
Series Introduction ····· p16
Part Numbering ····· p18
Series Lineup ····· p19
Product Detail ····· p26
⚠Caution/Notice ····· p110
Soldering and Mounting ····· p111
Packaging ····· p115

# Chip Ferrite Bead (BL□) Series Introduction

## ●Example of Chip Ferrite Bead BLM Series Structure




## ●Lineup Classification of Chip Ferrite Bead

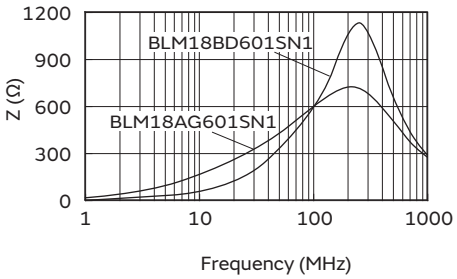


# Chip Ferrite Bead (BL□) Series Introduction

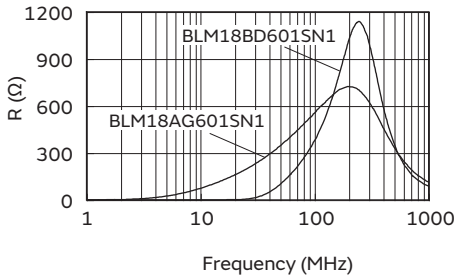
## ●Difference between BLM A type and B type (HG type vs HD/HB/HE type)

A type: Impedance curve rises from low frequency range. Suppresses noise in a wide frequency range.
B type: Impedance curve rises sharply. Less damage to signal waveforms.

Comparison of Impedance Curve

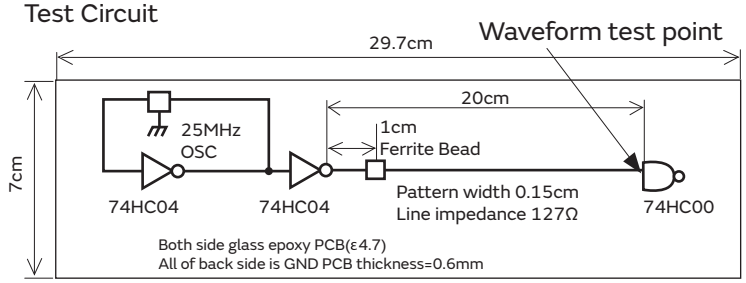



Comparison of Resistance Element




Comparison of Test Effect (25MHz)

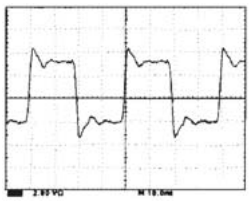
Test Circuit



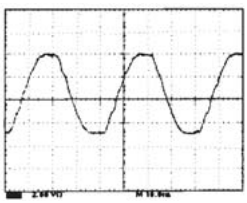

BLM_B Series has less damage to high-speed signal waveform.

Waveform

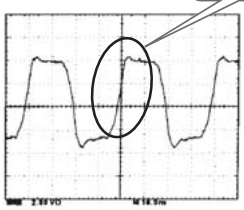
No filter



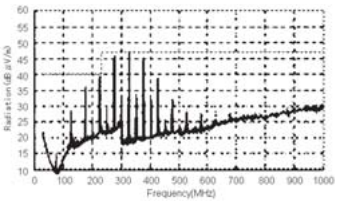
BLM18AG601SN1

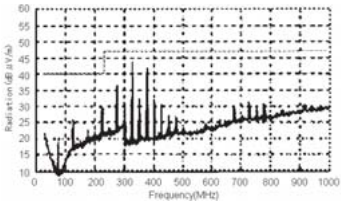


BLM18BD601SN1

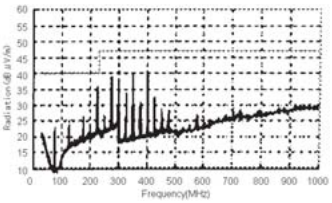



Spectrum




Spectrum has been reduced from low frequency range.




Noise frequency has been reduced without reducing signals of low frequency.

## Part Numbering

### Chip Ferrite Bead

(Part Number) BL M 18 AG 102 S N 1 D
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶Product ID

| Product ID | |
|---|---|
| BL | Chip Ferrite Beads |

❷Type

| Code | Type |
|---|---|
| A | Array Type |
| M | Ferrite Bead Single Type |
| T | Assembly Type |

❹Characteristics/Applications

| Code *1 | Characteristics/Applications |
|---|---|
| AG | For General Use |
| AX | |
| TG | |
| BA | For High-speed Signal Lines |
| BB | |
| BC | |
| BD | |
| BX | |
| KD | For Power Lines |
| KG | |
| KN | |
| KX | |
| PD | |
| PG | |
| PX | |
| PT | |
| SD | |
| SG | |
| SN | |
| SP | |
| RK | For Digital Interface |
| HG | For GHz Band General Use |
| EB | For GHz Band High-speed Signal Lines (Low Direct Current Type) |
| EG | For GHz Band General Use (Low DC Resistance Type) |
| EX | |
| HB | For GHz Band High-speed Signal Lines |
| HD | |
| HE | |
| HK | For GHz Band Digital Interface |
| GA | For High-GHz Band High-speed Signal Lines |
| GG | For High-GHz Band General Use |

*1 Frequency characteristics vary with each code.

❸Dimensions (LxW)

| Code | Dimensions (LxW) | Size Code (inch) |
|---|---|---|
| 02 | 0.4x0.2mm | 01005 |
| 03 | 0.6x0.3mm | 0201 |
| 15 | 1.0x0.5mm | 0402 |
| 18 | 1.6x0.8mm | 0603 |
| 2A | 2.0x1.0mm | 0804 |
| 21 | 2.0x1.25mm | 0805 |
| 31 | 3.2x1.6mm | 1206 |
| 41 | 4.5x1.6mm | 1806 |
| 5B | 5.0x5.0mm | 2020 |

❺Impedance

Expressed by three figures. The unit is in ohm (Ω) at 100MHz. The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

❻Electrode

Expressed by a letter.

Ex.)

| Code | Electrode |
|---|---|
| S/F/T | Sn Plating |
| A | Au Plating |
| L | Lead-Free Solder Plating |

❼Category

| Code | Category |
|---|---|
| N | For General-Purpose |

❽Number of Circuits

| Code | Number of Circuits |
|---|---|
| 1 | 1 Circuit |
| 4 | 4 Circuits |

❾Packaging

| Code | Packaging |
|---|---|
| K | Embossed Taping (ø330mm Reel) |
| L | Embossed Taping (ø180mm Reel) |
| B | Bulk |
| J | Paper Taping (ø330mm Reel) |
| D | Paper Taping (ø180mm Reel) |

# Series Lineup

## BLM/BLA/BLT

Chip Ferrite Bead

| Type | Size Code in inches (mm) | Thickness (mm) | Part Number | Impedance | | Rated Current |
|---|---|---|---|---|---|---|
| | | | | at 100MHz | at 1GHz | |
| For Power Lines | 01005 (0402) | 0.2 | **BLM02PX100SN1** p26 | 10Ω±5Ω | - | 1.1A |
| | | 0.2 | **BLM02PX220SN1** p26 | 22Ω±25% | - | 750mA |
| | | 0.2 | **BLM02PX330SN1** p26 | 33Ω±25% | - | 550mA |
| | | 0.2 | **BLM02PX600SN1** p26 | 60Ω±25% | - | 500mA |
| | | 0.3 | **BLM02KX100SN1** p28 | 10Ω±5Ω | - | 1.5A |
| | | 0.3 | **BLM02KX180SN1** p28 | 18Ω±25% | - | 1.2A |
| Universal Type [Power Lines/Signal Lines] | | 0.2 | **BLM02AX100SN1** p29 | 10Ω±5Ω | - | 750mA |
| | | 0.2 | **BLM02AX700SN1** p29 | 70Ω±25% | - | 300mA |
| | | 0.2 | **BLM02AX121SN1** p29 | 120Ω±25% | - | 250mA |
| | | 0.2 | **BLM02AX241SN1** p29 | 240Ω±25% | - | 200mA |
| For High-Speed Signal Lines | | 0.2 | **BLM02BB101SN1** p31 | 100Ω±25% | - | 125mA |
| | | 0.2 | **BLM02BC100SN1** p31 | 10Ω±5Ω | 95Ω±50% | 250mA |
| | | 0.2 | **BLM02BC220SN1** p31 | 22Ω±25% | 240Ω±40% | 200mA |
| | | 0.2 | **BLM02BX121SN1** p32 | 120Ω±25% | - | 350mA |
| | | 0.2 | **BLM02BX151SN1** p32 | 150Ω±25% | - | 280mA |
| | | 0.2 | **BLM02BX241SN1** p32 | 240Ω±25% | - | 240mA |
| For Power Lines | 0201 (0603) | 0.3 | **BLM03PG220SN1** p33 | 22Ω±25% | - | 900mA |
| | | 0.3 | **BLM03PG330SN1** p33 | 33Ω±25% | - | 750mA |
| | | 0.3 | **BLM03PX220SN1** p34 | 22Ω±25% | - | 1.8A |
| | | 0.3 | **BLM03PX330SN1** p34 | 33Ω±25% | - | 1.5A |
| | | 0.3 | **BLM03PX800SN1** p34 | 80Ω±25% | - | 1A |
| | | 0.3 | **BLM03PX121SN1** p34 | 120Ω±25% | - | 900mA |
| For General Signal Lines | | 0.3 | **BLM03AG100SN1** p36 | 10Ω (Typ.) | - | 500mA |
| | | 0.3 | **BLM03AG700SN1** p36 | 70Ω (Typ.) | - | 200mA |
| | | 0.3 | **BLM03AG800SN1** p36 | 80Ω±25% | - | 200mA |
| | | 0.3 | **BLM03AG121SN1** p36 | 120Ω±25% | - | 200mA |
| | | 0.3 | **BLM03AG241SN1** p36 | 240Ω±25% | - | 200mA |
| | | 0.3 | **BLM03AG601SN1** p36 | 600Ω±25% | - | 100mA |
| | | 0.3 | **BLM03AG102SN1** p36 | 1000Ω±25% | - | 100mA |
| Universal Type [Power Lines/Signal Lines] | | 0.3 | **BLM03AX100SN1** p38 | 10Ω (Typ.) | - | 1A |
| | | 0.3 | **BLM03AX800SN1** p38 | 80Ω±25% | - | 500mA |
| | | 0.3 | **BLM03AX121SN1** p38 | 120Ω±25% | - | 450mA |
| | | 0.3 | **BLM03AX241SN1** p38 | 240Ω±25% | - | 350mA |
| | | 0.3 | **BLM03AX601SN1** p38 | 600Ω±25% | - | 250mA |
| | | 0.3 | **BLM03AX102SN1** p38 | 1000Ω±25% | - | 200mA |
| For High-Speed Signal Lines (Sharp Impedance Curve) | | 0.3 | **BLM03BB100SN1** p39 | 10Ω±25% | - | 300mA |
| | | 0.3 | **BLM03BB220SN1** p39 | 22Ω±25% | - | 200mA |
| | | 0.3 | **BLM03BB470SN1** p39 | 47Ω±25% | - | 200mA |
| | | 0.3 | **BLM03BB750SN1** p39 | 75Ω±25% | - | 200mA |
| | | 0.3 | **BLM03BB121SN1** p39 | 120Ω±25% | - | 100mA |
| | | 0.3 | **BLM03BC330SN1** p39 | 33Ω±25% | - | 150mA |
| | | 0.3 | **BLM03BC560SN1** p39 | 56Ω±25% | - | 100mA |
| | | 0.3 | **BLM03BC800SN1** p39 | 80Ω±25% | - | 100mA |
| | | 0.3 | **BLM03BD750SN1** p39 | 75Ω±25% | - | 300mA |
| | | 0.3 | **BLM03BD121SN1** p39 | 120Ω±25% | - | 250mA |
| | | 0.3 | **BLM03BD241SN1** p39 | 240Ω±25% | - | 200mA |
| | | 0.3 | **BLM03BD471SN1** p39 | 470Ω±25% | - | 215mA |
| | | 0.3 | **BLM03BD601SN1** p39 | 600Ω±25% | - | 200mA |
| | | 0.3 | **BLM03BX102SN1** p41 | 1000Ω±25% | - | 170mA |
| | | 0.3 | **BLM03BX182SN1** p41 | 1800Ω±25% | - | 140mA |

Continued on the following page. ↗

| Type | Size Code in inches (mm) | Thickness (mm) | Part Number | Impedance | | Rated Current |
|---|---|---|---|---|---|---|
| | | | | at 100MHz | at 1GHz | |
| For Power Lines | 0402 (1005) | 0.5 | **BLM15PD300SN1** p42 | 30Ω±25% | - | 2.2A |
| | | 0.5 | **BLM15PD600SN1** p42 | 60Ω±25% | - | 1.7A |
| | | 0.5 | **BLM15PD800SN1** p42 | 80Ω±25% | - | 1.5A |
| | | 0.5 | **BLM15PD121SN1** p42 | 120Ω±25% | - | 1.3A |
| | | 0.5 | **BLM15PG100SN1** p42 | 10Ω (Typ.) | - | 1A |
| | | 0.5 | **BLM15PX330SN1** p44 | 33Ω±25% | - | 3A |
| | | 0.5 | **BLM15PX600SN1** p44 | 60Ω±25% | - | 2.5A |
| | | 0.5 | **BLM15PX800SN1** p44 | 80Ω±25% | - | 2.3A |
| | | 0.5 | **BLM15PX121SN1** p44 | 120Ω±25% | - | 2A |
| | | 0.5 | **BLM15PX181SN1** p44 | 180Ω±25% | - | 1.5A |
| | | 0.5 | **BLM15PX221SN1** p44 | 220Ω±25% | - | 1.4A |
| | | 0.5 | **BLM15PX331SN1** p44 | 330Ω±25% | - | 1.2A |
| | | 0.5 | **BLM15PX471SN1** p44 | 470Ω±25% | - | 1A |
| | | 0.5 | **BLM15PX601SN1** p44 | 600Ω±25% | - | 900mA |
| | | 0.5 | **BLM15KD200SN1** p46 | 20Ω±25% | - | 3.8A |
| | | 0.5 | **BLM15KD300SN1** p46 | 30Ω±25% | - | 3.1A |
| | | 0.5 | **BLM15KD121SN1** p46 | 120Ω±25% | - | 1.5A |
| For General Signal Lines | | 0.5 | **BLM15AG100SN1** p47 | 10Ω (Typ.) | - | 1A |
| | | 0.5 | **BLM15AG700SN1** p47 | 70Ω (Typ.) | - | 600mA |
| | | 0.5 | **BLM15AG121SN1** p47 | 120Ω±25% | - | 550mA |
| | | 0.5 | **BLM15AG221SN1** p47 | 220Ω±25% | - | 450mA |
| | | 0.5 | **BLM15AG601SN1** p47 | 600Ω±25% | - | 300mA |
| | | 0.5 | **BLM15AG102SN1** p47 | 1000Ω±25% | - | 300mA |
| Universal Type [Power Lines/Signal Lines] | | 0.5 | **BLM15AX100SN1** p48 | 10Ω±5Ω | - | 1.74A |
| | | 0.5 | **BLM15AX300SN1** p48 | 30Ω±25% | - | 1.1A |
| | | 0.5 | **BLM15AX700SN1** p48 | 70Ω±25% | - | 780mA |
| | | 0.5 | **BLM15AX121SN1** p48 | 120Ω±25% | - | 700mA |
| | | 0.5 | **BLM15AX221SN1** p48 | 220Ω±25% | - | 600mA |
| | | 0.5 | **BLM15AX601SN1** p48 | 600Ω±25% | - | 500mA |
| | | 0.5 | **BLM15AX102SN1** p48 | 1000Ω±25% | - | 350mA |
| For High-Speed Signal Lines (Sharp Impedance Curve) | | 0.5 | **BLM15BA050SN1** p50 | 5Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BA100SN1** p50 | 10Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BA220SN1** p50 | 22Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BA330SN1** p50 | 33Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BA470SN1** p50 | 47Ω±25% | - | 200mA |
| | | 0.5 | **BLM15BA750SN1** p50 | 75Ω±25% | - | 200mA |
| | | 0.5 | **BLM15BB050SN1** p50 | 5Ω±25% | - | 500mA |
| | | 0.5 | **BLM15BB100SN1** p50 | 10Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BB220SN1** p50 | 22Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BB470SN1** p50 | 47Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BB750SN1** p50 | 75Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BB121SN1** p50 | 120Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BB221SN1** p50 | 220Ω±25% | - | 200mA |
| | | 0.5 | **BLM15BC121SN1** p50 | 120Ω±25% | - | 350mA |
| | | 0.5 | **BLM15BC241SN1** p50 | 240Ω±25% | - | 250mA |
| | | 0.5 | **BLM15BD750SN1** p50 | 75Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BD121SN1** p50 | 120Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BD221SN1** p50 | 220Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BD471SN1** p50 | 470Ω±25% | - | 200mA |
| | | 0.5 | **BLM15BD601SN1** p50 | 600Ω±25% | - | 200mA |
| | | 0.5 | **BLM15BD102SN1** p50 | 1000Ω±25% | - | 200mA |

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| Type | Size Code in inches (mm) | Thickness (mm) | Part Number | Impedance | | Rated Current |
|---|---|---|---|---|---|---|
| | | | | at 100MHz | at 1GHz | |
| For High-Speed Signal Lines (Sharp Impedance Curve) | 0402 (1005) | 0.5 | **BLM15BD152SN1** p50 | 1500Ω±25% | - | 190mA |
| | | 0.5 | **BLM15BD182SN1** p50 | 1800Ω±25% | - | 100mA |
| | | 0.5 | **BLM15BX750SN1** p53 | 75Ω±25% | - | 600mA |
| | | 0.5 | **BLM15BX121SN1** p53 | 120Ω±25% | - | 600mA |
| | | 0.5 | **BLM15BX221SN1** p53 | 220Ω±25% | - | 450mA |
| | | 0.5 | **BLM15BX471SN1** p53 | 470Ω±25% | - | 350mA |
| | | 0.5 | **BLM15BX601SN1** p53 | 600Ω±25% | - | 350mA |
| | | 0.5 | **BLM15BX102SN1** p53 | 1000Ω±25% | - | 300mA |
| | | 0.5 | **BLM15BX182SN1** p53 | 1800Ω±25% | - | 250mA |
| For Power Lines Standard Type | 0603 (1608) | 0.8 | **BLM18PG300SN1** p55 | 30Ω (Typ.) | - | 1A |
| | | 0.8 | **BLM18PG330SN1** p55 | 33Ω±25% | - | 3A |
| | | 0.8 | **BLM18PG600SN1** p55 | 60Ω (Typ.) | - | 1A |
| | | 0.8 | **BLM18PG121SN1** p55 | 120Ω±25% | - | 2A |
| | | 0.8 | **BLM18PG181SN1** p55 | 180Ω±25% | - | 1.5A |
| | | 0.8 | **BLM18PG221SN1** p55 | 220Ω±25% | - | 1.4A |
| | | 0.8 | **BLM18PG331SN1** p55 | 330Ω±25% | - | 1.2A |
| | | 0.8 | **BLM18PG471SN1** p55 | 470Ω±25% | - | 1A |
| For Power Lines Low DC Resistance Type | | 0.8 | **BLM18KG221SN1** p57 | 220Ω±25% | - | 2.2A |
| | | 0.8 | **BLM18KG331SN1** p57 | 330Ω±25% | - | 1.7A |
| | | 0.8 | **BLM18KG471SN1** p57 | 470Ω±25% | - | 1.5A |
| | | 0.8 | **BLM18KG601SN1** p57 | 600Ω±25% | - | 1.3A |
| | | 0.8 | **BLM18KG102SN1** p57 | 1000Ω±25% | - | 1A |
| | | 0.6 | **BLM18KG260TN1** p57 | 26Ω±25% | - | 6A |
| | | 0.6 | **BLM18KG300TN1** p57 | 30Ω±25% | - | 5A |
| | | 0.6 | **BLM18KG700TN1** p57 | 70Ω±25% | - | 3.5A |
| | | 0.6 | **BLM18KG101TN1** p57 | 100Ω±25% | - | 3A |
| | | 0.6 | **BLM18KG121TN1** p57 | 120Ω±25% | - | 3A |
| | | 0.8 | **BLM18SD220SN1** p59 | 22Ω±25% | - | 6A |
| | | 0.8 | **BLM18SG330SN1** p59 | 33Ω±25% | - | 6A |
| | | 0.5 | **BLM18SG260TN1** p59 | 26Ω±25% | - | 6A |
| | | 0.5 | **BLM18SG700TN1** p59 | 70Ω±25% | - | 4A |
| | | 0.5 | **BLM18SG121TN1** p59 | 120Ω±25% | - | 3A |
| | | 0.5 | **BLM18SG221TN1** p60 | 220Ω±25% | - | 2.5A |
| | | 0.5 | **BLM18SG331TN1** p60 | 330Ω±25% | - | 1.5A |
| | | 0.6 | **BLM18SN220TN1** p60 | 22Ω±7Ω | - | 8A |
| For General Signal Lines | | 0.8 | **BLM18AG121SN1** p62 | 120Ω±25% | - | 800mA |
| | | 0.8 | **BLM18AG151SN1** p62 | 150Ω±25% | - | 700mA |
| | | 0.8 | **BLM18AG221SN1** p62 | 220Ω±25% | - | 700mA |
| | | 0.8 | **BLM18AG331SN1** p62 | 330Ω±25% | - | 600mA |
| | | 0.8 | **BLM18AG471SN1** p62 | 470Ω±25% | - | 550mA |
| | | 0.8 | **BLM18AG601SN1** p62 | 600Ω±25% | - | 500mA |
| | | 0.8 | **BLM18AG102SN1** p62 | 1000Ω±25% | - | 450mA |
| | | 0.6 | **BLM18TG121TN1** p64 | 120Ω±25% | - | 200mA |
| | | 0.6 | **BLM18TG221TN1** p64 | 220Ω±25% | - | 200mA |
| | | 0.6 | **BLM18TG601TN1** p64 | 600Ω±25% | - | 200mA |
| | | 0.6 | **BLM18TG102TN1** p64 | 1000Ω±25% | - | 100mA |
| For High-Speed Signal Lines (Sharp Impedance Curve) | | 0.8 | **BLM18BA050SN1** p65 | 5Ω±25% | - | 500mA |
| | | 0.8 | **BLM18BA100SN1** p65 | 10Ω±25% | - | 500mA |
| | | 0.8 | **BLM18BA220SN1** p65 | 22Ω±25% | - | 500mA |
| | | 0.8 | **BLM18BA470SN1** p65 | 47Ω±25% | - | 300mA |
| | | 0.8 | **BLM18BA750SN1** p65 | 75Ω±25% | - | 300mA |

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| Type | Size Code in inches (mm) | Thickness (mm) | Part Number | Impedance | | Rated Current |
|---|---|---|---|---|---|---|
| | | | | at 100MHz | at 1GHz | |
| For High-Speed Signal Lines (Sharp Impedance Curve) | 0603 (1608) | 0.8 | **BLM18BA121SN1** p65 | 120Ω±25% | - | 200mA |
| | | 0.8 | **BLM18BB050SN1** p65 | 5Ω±25% | - | 800mA |
| | | 0.8 | **BLM18BB100SN1** p65 | 10Ω±25% | - | 700mA |
| | | 0.8 | **BLM18BB220SN1** p65 | 22Ω±25% | - | 700mA |
| | | 0.8 | **BLM18BB470SN1** p65 | 47Ω±25% | - | 600mA |
| | | 0.8 | **BLM18BB600SN1** p65 | 60Ω±25% | - | 600mA |
| | | 0.8 | **BLM18BB750SN1** p65 | 75Ω±25% | - | 600mA |
| | | 0.8 | **BLM18BB121SN1** p65 | 120Ω±25% | - | 550mA |
| | | 0.8 | **BLM18BB141SN1** p65 | 140Ω±25% | - | 500mA |
| | | 0.8 | **BLM18BB151SN1** p65 | 150Ω±25% | - | 450mA |
| | | 0.8 | **BLM18BB221SN1** p65 | 220Ω±25% | - | 450mA |
| | | 0.8 | **BLM18BB331SN1** p65 | 330Ω±25% | - | 400mA |
| | | 0.8 | **BLM18BB471SN1** p65 | 470Ω±25% | - | 300mA |
| | | 0.8 | **BLM18BD470SN1** p65 | 47Ω±25% | - | 500mA |
| | | 0.8 | **BLM18BD121SN1** p65 | 120Ω±25% | - | 300mA |
| | | 0.8 | **BLM18BD151SN1** p65 | 150Ω±25% | - | 300mA |
| | | 0.8 | **BLM18BD221SN1** p65 | 220Ω±25% | - | 250mA |
| | | 0.8 | **BLM18BD331SN1** p65 | 330Ω±25% | - | 250mA |
| | | 0.8 | **BLM18BD421SN1** p65 | 420Ω±25% | - | 250mA |
| | | 0.8 | **BLM18BD471SN1** p65 | 470Ω±25% | - | 250mA |
| | | 0.8 | **BLM18BD601SN1** p65 | 600Ω±25% | - | 200mA |
| | | 0.8 | **BLM18BD102SN1** p65 | 1000Ω±25% | - | 200mA |
| | | 0.8 | **BLM18BD152SN1** p65 | 1500Ω±25% | - | 150mA |
| | | 0.8 | **BLM18BD182SN1** p65 | 1800Ω±25% | - | 150mA |
| | | 0.8 | **BLM18BD222SN1** p65 | 2200Ω±25% | - | 150mA |
| | | 0.8 | **BLM18BD252SN1** p65 | 2500Ω±25% | - | 150mA |
| For Digital Interface Lines | | 0.8 | **BLM18RK121SN1** p69 | 120Ω±25% | - | 200mA |
| | | 0.8 | **BLM18RK221SN1** p69 | 220Ω±25% | - | 200mA |
| | | 0.8 | **BLM18RK471SN1** p69 | 470Ω±25% | - | 200mA |
| | | 0.8 | **BLM18RK601SN1** p69 | 600Ω±25% | - | 200mA |
| | | 0.8 | **BLM18RK102SN1** p69 | 1000Ω±25% | - | 200mA |
| For Power Lines | 0805 (2012) | 0.85 | **BLM21PG220SN1** p71 | 22Ω±25% | - | 6A |
| | | 0.85 | **BLM21PG300SN1** p71 | 30Ω (Typ.) | - | 4A |
| | | 0.85 | **BLM21PG600SN1** p71 | 60Ω±25% | - | 3.5A |
| | | 0.85 | **BLM21PG121SN1** p71 | 120Ω±25% | - | 3A |
| | | 0.85 | **BLM21PG221SN1** p71 | 220Ω±25% | - | 2A |
| | | 0.85 | **BLM21PG331SN1** p71 | 330Ω±25% | - | 1.5A |
| | | 0.85 | **BLM21SN300SN1** p73 | 30Ω±10Ω | - | 8.5A |
| | | 0.85 | **BLM21SP700SN1** p73 | 70Ω±25% | - | 6A |
| | | 0.85 | **BLM21SP111SN1** p73 | 110Ω±25% | - | 5A |
| | | 0.85 | **BLM21SP181SN1** p73 | 180Ω±25% | - | 4A |
| | | 0.85 | **BLM21SP331SN1** p73 | 330Ω±25% | - | 2.8A |
| | | 0.85 | **BLM21SP471SN1** p73 | 470Ω±25% | - | 2.5A |
| | | 0.85 | **BLM21SP601SN1** p73 | 600Ω±25% | - | 2.3A |
| | | 0.85 | **BLM21SP102SN1** p73 | 1000Ω±25% | - | 1.6A |
| For General Signal Lines | | 0.85 | **BLM21AG121SN1** p75 | 120Ω±25% | - | 1A |
| | | 0.85 | **BLM21AG151SN1** p75 | 150Ω±25% | - | 1A |
| | | 0.85 | **BLM21AG221SN1** p75 | 220Ω±25% | - | 900mA |
| | | 0.85 | **BLM21AG331SN1** p75 | 330Ω±25% | - | 800mA |
| | | 0.85 | **BLM21AG471SN1** p75 | 470Ω±25% | - | 700mA |
| | | 0.85 | **BLM21AG601SN1** p75 | 600Ω±25% | - | 700mA |

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| Type | Size Code in inches (mm) | Thickness (mm) | Part Number | Impedance | | Rated Current |
|---|---|---|---|---|---|---|
| | | | | at 100MHz | at 1GHz | |
| For General Signal Lines | 0805 (2012) | 0.85 | **BLM21AG102SN1** p75 | 1000Ω±25% | - | 600mA |
| For High-Speed Signal Lines (Sharp Impedance Curve) | | 0.85 | **BLM21BB050SN1** p77 | 5Ω±25% | - | 1A |
| | | 0.85 | **BLM21BB600SN1** p77 | 60Ω±25% | - | 800mA |
| | | 0.85 | **BLM21BB750SN1** p77 | 75Ω±25% | - | 700mA |
| | | 0.85 | **BLM21BB121SN1** p77 | 120Ω±25% | - | 600mA |
| | | 0.85 | **BLM21BB151SN1** p77 | 150Ω±25% | - | 600mA |
| | | 0.85 | **BLM21BB201SN1** p77 | 200Ω±25% | - | 500mA |
| | | 0.85 | **BLM21BB221SN1** p77 | 220Ω±25% | - | 500mA |
| | | 0.85 | **BLM21BB331SN1** p77 | 330Ω±25% | - | 400mA |
| | | 0.85 | **BLM21BB471SN1** p77 | 470Ω±25% | - | 400mA |
| | | 0.85 | **BLM21BD121SN1** p77 | 120Ω±25% | - | 350mA |
| | | 0.85 | **BLM21BD151SN1** p77 | 150Ω±25% | - | 350mA |
| | | 0.85 | **BLM21BD221SN1** p77 | 220Ω±25% | - | 350mA |
| | | 0.85 | **BLM21BD331SN1** p77 | 330Ω±25% | - | 300mA |
| | | 0.85 | **BLM21BD421SN1** p77 | 420Ω±25% | - | 300mA |
| | | 0.85 | **BLM21BD471SN1** p77 | 470Ω±25% | - | 300mA |
| | | 0.85 | **BLM21BD601SN1** p77 | 600Ω±25% | - | 300mA |
| | | 0.85 | **BLM21BD751SN1** p77 | 750Ω±25% | - | 250mA |
| | | 0.85 | **BLM21BD102SN1** p77 | 1000Ω±25% | - | 250mA |
| | | 0.85 | **BLM21BD152SN1** p77 | 1500Ω±25% | - | 250mA |
| | | 0.85 | **BLM21BD182SN1** p77 | 1800Ω±25% | - | 250mA |
| | | 1.25 | **BLM21BD222SN1** p77 | 2250Ω (Typ.) | - | 250mA |
| | | 1.25 | **BLM21BD272SN1** p77 | 2700Ω±25% | - | 200mA |
| | | 0.85 | **BLM21BD222TN1** p77 | 2200Ω±25% | - | 200mA |
| For Digital Interface Lines | | 0.85 | **BLM21RK121SN1** p80 | 120Ω±25% | - | 200mA |
| | | 0.85 | **BLM21RK221SN1** p80 | 220Ω±25% | - | 200mA |
| | | 0.85 | **BLM21RK471SN1** p80 | 470Ω±25% | - | 200mA |
| | | 0.85 | **BLM21RK601SN1** p80 | 600Ω±25% | - | 200mA |
| | | 0.85 | **BLM21RK102SN1** p80 | 1000Ω±25% | - | 200mA |
| For Power Lines | 1206 (3216) | 1.6 | **BLM31KN121SN1** p81 | 120Ω±25% | - | 6A |
| | | 1.6 | **BLM31KN271SN1** p81 | 270Ω±25% | - | 4.5A |
| | | 1.6 | **BLM31KN471SN1** p81 | 470Ω±25% | - | 4A |
| | | 1.6 | **BLM31KN601SN1** p81 | 600Ω±25% | - | 2.9A |
| | | 1.6 | **BLM31KN801SN1** p81 | 800Ω±25% | - | 2.5A |
| | | 1.6 | **BLM31KN102SN1** p81 | 1000Ω±25% | - | 2A |
| | | 1.1 | **BLM31PG330SN1** p83 | 33Ω±25% | - | 6A |
| | | 1.1 | **BLM31PG500SN1** p83 | 50Ω (Typ.) | - | 3.5A |
| | | 1.1 | **BLM31PG121SN1** p83 | 120Ω±25% | - | 3.5A |
| | | 1.1 | **BLM31PG391SN1** p83 | 390Ω±25% | - | 2A |
| | | 1.1 | **BLM31PG601SN1** p83 | 600Ω±25% | - | 1.5A |
| | | 1.1 | **BLM31SN500SN1** p85 | 50Ω±12.5Ω | - | 12A |
| | 1806 (4516) | 1.6 | **BLM41PG600SN1** p86 | 60Ω (Typ.) | - | 6A |
| | | 1.6 | **BLM41PG750SN1** p86 | 75Ω (Typ.) | - | 3.5A |
| | | 1.6 | **BLM41PG181SN1** p86 | 180Ω±25% | - | 3.5A |
| | | 1.6 | **BLM41PG471SN1** p86 | 470Ω±25% | - | 2A |
| | | 1.6 | **BLM41PG102SN1** p86 | 1000Ω±25% | - | 1.5A |
| For Power Lines | 2020 (5050) | 5.0 | **BLT5BPT680LN1** p88 | 68Ω (Typ.) | - | 11A |
| For General Signal Lines | 0804 (2010) | 0.5 | **BLA2AAG121SN4** p89 | 120Ω±25% | - | 100mA |
| | | 0.5 | **BLA2AAG221SN4** p89 | 220Ω±25% | - | 50mA |
| | | 0.5 | **BLA2AAG601SN4** p89 | 600Ω±25% | - | 50mA |
| | | 0.5 | **BLA2AAG102SN4** p89 | 1000Ω±25% | - | 50mA |

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| Type | | Size Code in inches (mm) | Thickness (mm) | Part Number | | Impedance at 100MHz | Impedance at 1GHz | Rated Current |
|---|---|---|---|---|---|---|---|---|
| For High-Speed Signal Lines | | 0804 (2010) | 0.5 | BLA2ABB100SN4 | p90 | 10Ω±25% | - | 200mA |
| | | | 0.5 | BLA2ABB220SN4 | p90 | 22Ω±25% | - | 200mA |
| | | | 0.5 | BLA2ABB470SN4 | p90 | 47Ω±25% | - | 200mA |
| | | | 0.5 | BLA2ABB121SN4 | p90 | 120Ω±25% | - | 50mA |
| | | | 0.5 | BLA2ABB221SN4 | p90 | 220Ω±25% | - | 50mA |
| | | | 0.5 | BLA2ABD750SN4 | p90 | 75Ω±25% | - | 200mA |
| | | | 0.5 | BLA2ABD121SN4 | p90 | 120Ω±25% | - | 200mA |
| | | | 0.5 | BLA2ABD221SN4 | p90 | 220Ω±25% | - | 100mA |
| | | | 0.5 | BLA2ABD471SN4 | p90 | 470Ω±25% | - | 100mA |
| | | | 0.5 | BLA2ABD601SN4 | p90 | 600Ω±25% | - | 100mA |
| | | | 0.5 | BLA2ABD102SN4 | p90 | 1000Ω±25% | - | 50mA |
| For General Signal Lines | | 1206 (3216) | 0.8 | BLA31AG300SN4 | p92 | 30Ω±25% | - | 200mA |
| | | | 0.8 | BLA31AG600SN4 | p92 | 60Ω±25% | - | 200mA |
| | | | 0.8 | BLA31AG121SN4 | p92 | 120Ω±25% | - | 150mA |
| | | | 0.8 | BLA31AG221SN4 | p92 | 220Ω±25% | - | 150mA |
| | | | 0.8 | BLA31AG601SN4 | p92 | 600Ω±25% | - | 100mA |
| | | | 0.8 | BLA31AG102SN4 | p92 | 1000Ω±25% | - | 50mA |
| For High-Speed Signal Lines | | | 0.8 | BLA31BD121SN4 | p93 | 120Ω±25% | - | 150mA |
| | | | 0.8 | BLA31BD221SN4 | p93 | 220Ω±25% | - | 150mA |
| | | | 0.8 | BLA31BD471SN4 | p93 | 470Ω±25% | - | 100mA |
| | | | 0.8 | BLA31BD601SN4 | p93 | 600Ω±25% | - | 100mA |
| | | | 0.8 | BLA31BD102SN4 | p93 | 1000Ω±25% | - | 50mA |
| For GHz | For High-Speed Signal Lines | 0201 (0603) | 0.3 | BLM03HB191SN1 | p94 | 190Ω±25% | 1150Ω±40% | 150mA |
| | | | 0.3 | BLM03HB401SN1 | p94 | 400Ω±25% | 1850Ω±40% | 125mA |
| | | | 0.3 | BLM03HD102FN1 | p94 | 1000Ω±25% | 2300Ω±40% | 135mA |
| | | | 0.3 | BLM03HD152FN1 | p94 | 1500Ω±25% | 2700Ω±40% | 120mA |
| | | | 0.3 | BLM03HD182FN1 | p94 | 1800Ω±25% | 3000Ω±40% | 100mA |
| | | | 0.3 | BLM03HD331SN1 | p94 | 330Ω±25% | 750Ω±40% | 200mA |
| | | | 0.3 | BLM03HD471SN1 | p94 | 470Ω±25% | 1000Ω±40% | 175mA |
| | | | 0.3 | BLM03HD601SN1 | p94 | 600Ω±25% | 1500Ω±40% | 150mA |
| | | | 0.3 | BLM03HD102SN1 | p94 | 1000Ω±25% | 2300Ω±40% | 120mA |
| | For General Signal Lines | | 0.3 | BLM03HG601SN1 | p94 | 600Ω±25% | 1000Ω±40% | 150mA |
| | | | 0.3 | BLM03HG102SN1 | p94 | 1000Ω±25% | 1800Ω±40% | 125mA |
| | | | 0.3 | BLM03HG122SN1 | p94 | 1200Ω±25% | 2000Ω±40% | 100mA |
| | Universal Type [Power Lines/Signal Lines] | | 0.3 | BLM03EB250SN1 | p96 | 25Ω±25% | 105Ω±40% | 600mA |
| | | | 0.3 | BLM03EB500SN1 | p96 | 50Ω±25% | 255Ω±40% | 400mA |
| | For High-Speed Signal Lines (Sharp Impedance Curve) | 0402 (1005) | 0.5 | BLM15HB121SN1 | p97 | 120Ω±25% | 500Ω±40% | 300mA |
| | | | 0.5 | BLM15HB221SN1 | p97 | 220Ω±25% | 900Ω±40% | 250mA |
| | | | 0.5 | BLM15HD601SN1 | p97 | 600Ω±25% | 1400Ω±40% | 300mA |
| | | | 0.5 | BLM15HD102SN1 | p97 | 1000Ω±25% | 2000Ω±40% | 250mA |
| | | | 0.5 | BLM15HD182SN1 | p97 | 1800Ω±25% | 2700Ω±40% | 200mA |
| | For General Signal Lines | | 0.5 | BLM15HG601SN1 | p97 | 600Ω±25% | 1000Ω±40% | 300mA |
| | | | 0.5 | BLM15HG102SN1 | p97 | 1000Ω±25% | 1400Ω±40% | 250mA |
| | Universal Type [Power Lines/Signal Lines] | | 0.5 | BLM15EG121SN1 | p99 | 120Ω±25% | 145Ω (Typ.) | 1.5A |
| | | | 0.5 | BLM15EG221SN1 | p99 | 220Ω±25% | 270Ω (Typ.) | 700mA |
| | | | 0.5 | BLM15EX121SN1 | p100 | 120Ω±25% | 170Ω±40% | 1.8A |
| | | | 0.5 | BLM15EX221SN1 | p100 | 220Ω±25% | 300Ω±40% | 1.3A |
| | | | 0.5 | BLM15EX331SN1 | p100 | 330Ω±25% | 450Ω±40% | 1.1A |
| | | | 0.5 | BLM15EX471SN1 | p100 | 470Ω±25% | 630Ω±40% | 950mA |
| | For High-GHz Band Noise For High-Speed Signal Lines | | 0.5 | BLM15GA750SN1 | p102 | 75Ω±25% | 1000Ω±40% | 200mA |
| | For High-GHz Band Noise For General Signal Lines | | 0.5 | BLM15GG221SN1 | p102 | 220Ω±25% | 600Ω±40% | 300mA |

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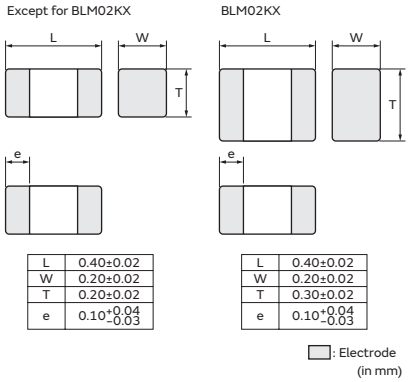
| Type | | Size Code in inches (mm) | Thickness (mm) | Part Number | Impedance | | Rated Current |
|---|---|---|---|---|---|---|---|
| | | | | | at 100MHz | at 1GHz | |
| For GHz | For High-GHz Band Noise For General Signal Lines | 0402 (1005) | 0.5 | **BLM15GG471SN1** p102 | 470Ω±25% | 1200Ω±40% | 200mA |
| | For High-Speed Signal Lines (Sharp Impedance Curve) | 0603 (1608) | 0.8 | **BLM18HB121SN1** p103 | 120Ω±25% | 500Ω±40% | 200mA |
| | | | 0.8 | **BLM18HB221SN1** p103 | 220Ω±25% | 1100Ω±40% | 100mA |
| | | | 0.8 | **BLM18HB331SN1** p103 | 330Ω±25% | 1600Ω±40% | 50mA |
| | | | 0.8 | **BLM18HD471SN1** p103 | 470Ω±25% | 1000Ω (Typ.) | 100mA |
| | | | 0.8 | **BLM18HD601SN1** p103 | 600Ω±25% | 1200Ω (Typ.) | 100mA |
| | | | 0.8 | **BLM18HD102SN1** p103 | 1000Ω±25% | 1700Ω (Typ.) | 50mA |
| | | | 0.8 | **BLM18HE601SN1** p103 | 600Ω±25% | 600Ω (Typ.) | 800mA |
| | | | 0.8 | **BLM18HE102SN1** p103 | 1000Ω±25% | 1000Ω (Typ.) | 600mA |
| | | | 0.8 | **BLM18HE152SN1** p103 | 1500Ω±25% | 1500Ω (Typ.) | 500mA |
| | For General Signal Lines | | 0.8 | **BLM18HG471SN1** p103 | 470Ω±25% | 600Ω (Typ.) | 200mA |
| | | | 0.8 | **BLM18HG601SN1** p103 | 600Ω±25% | 700Ω (Typ.) | 200mA |
| | | | 0.8 | **BLM18HG102SN1** p103 | 1000Ω±25% | 1000Ω (Typ.) | 100mA |
| | For Digital Interface Lines | | 0.8 | **BLM18HK331SN1** p103 | 330Ω±25% | 400Ω±40% | 200mA |
| | | | 0.8 | **BLM18HK471SN1** p103 | 470Ω±25% | 600Ω±40% | 200mA |
| | | | 0.8 | **BLM18HK601SN1** p103 | 600Ω±25% | 700Ω±40% | 100mA |
| | | | 0.8 | **BLM18HK102SN1** p103 | 1000Ω±25% | 1200Ω±40% | 50mA |
| | Universal Type [Power Lines/Signal Lines] | | 0.8 | **BLM18EG121SN1** p107 | 120Ω±25% | 145Ω (Typ.) | 2A |
| | | | 0.8 | **BLM18EG221SN1** p107 | 220Ω±25% | 260Ω (Typ.) | 2A |
| | | | 0.8 | **BLM18EG471SN1** p107 | 470Ω±25% | 550Ω (Typ.) | 500mA |
| | | | 0.8 | **BLM18EG601SN1** p107 | 600Ω±25% | 700Ω (Typ.) | 500mA |
| | | | 0.5 | **BLM18EG101TN1** p107 | 100Ω±25% | 140Ω (Typ.) | 2A |
| | | | 0.5 | **BLM18EG221TN1** p107 | 220Ω±25% | 300Ω (Typ.) | 1A |
| | | | 0.5 | **BLM18EG331TN1** p107 | 330Ω±25% | 450Ω (Typ.) | 500mA |
| | | | 0.5 | **BLM18EG391TN1** p107 | 390Ω±25% | 520Ω (Typ.) | 500mA |
| | For High-GHz Band Noise | | 0.8 | **BLM18GG471SN1** p109 | 470Ω±25% | 1800Ω±30% | 200mA |

## Chip ferrite bead

# BLM02PX Series 01005/0402(inch/mm)

### Appearance/Dimensions




| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.20±0.02 |
| e | $0.10^{+0.04}_{-0.03}$ |

| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.30±0.02 |
| e | $0.10^{+0.04}_{-0.03}$ |

: Electrode
(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 20000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

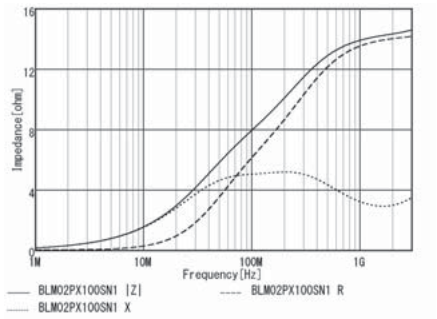
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| **BLM02PX100SN1□** | 10Ω±5Ω | 1.1A | 850mA | 0.05Ω |
| **BLM02PX220SN1□** | 22Ω±25% | 750mA | 550mA | 0.11Ω |
| **BLM02PX330SN1□** | 33Ω±25% | 550mA | 400mA | 0.2Ω |
| **BLM02PX600SN1□** | 60Ω±25% | 500mA | 350mA | 0.25Ω |

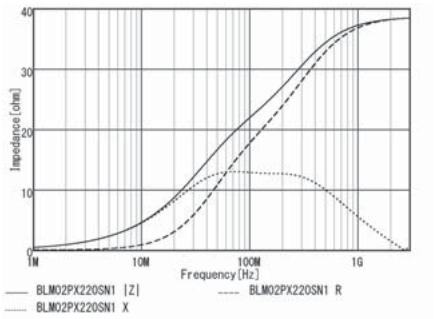
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

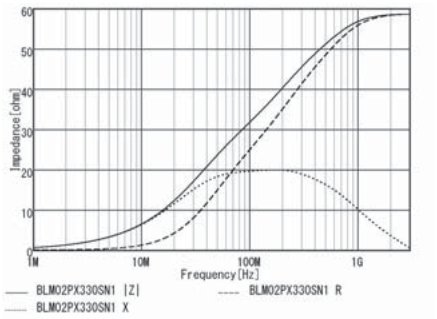
**BLM02PX100SN1**



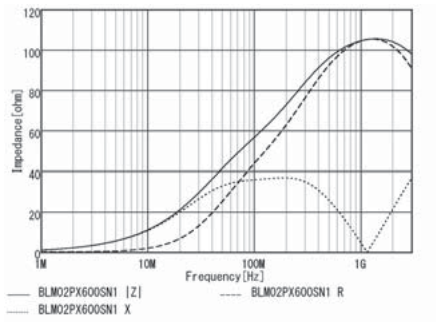

**BLM02PX220SN1**




**BLM02PX330SN1**




**BLM02PX600SN1**

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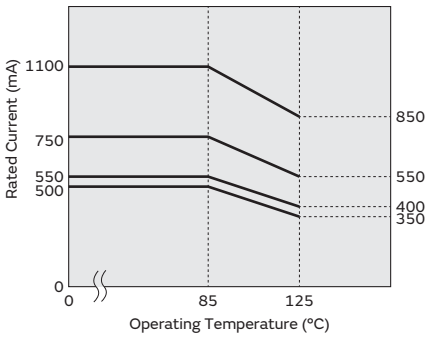
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM02PX series.
Please apply the derating curve shown in chart according to the operating temperature.

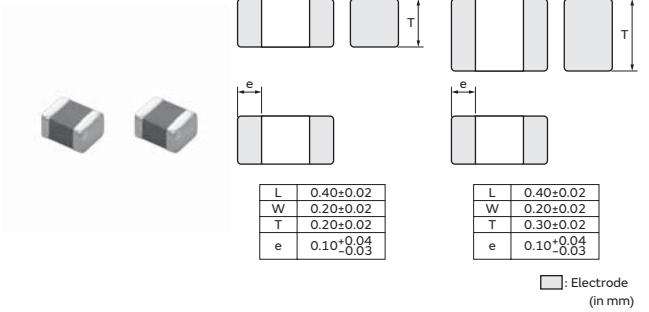
Derating of Rated Current



## Chip ferrite bead

# BLM02KX Series 01005/0402(inch/mm)

### Appearance/Dimensions




| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.20±0.02 |
| e | 0.10 +0.04 −0.03 |

| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.30±0.02 |
| e | 0.10 +0.04 −0.03 |

: Electrode
(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

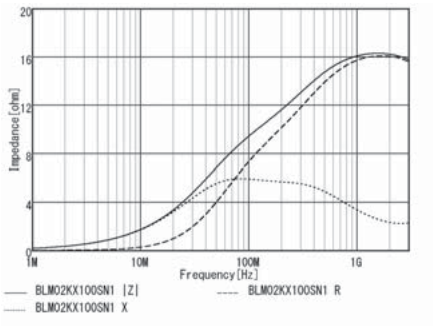
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM02KX100SN1□ | 10Ω±5Ω | 1.5A | 1.25A | 0.03Ω |
| BLM02KX180SN1□ | 18Ω±25% | 1.2A | 950mA | 0.045Ω |

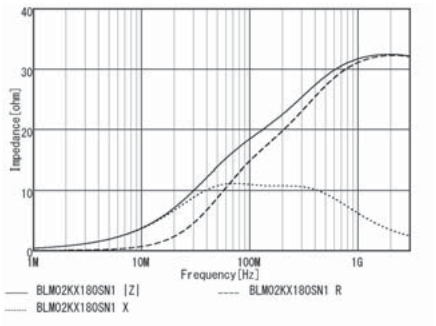
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

BLM02KX100SN1



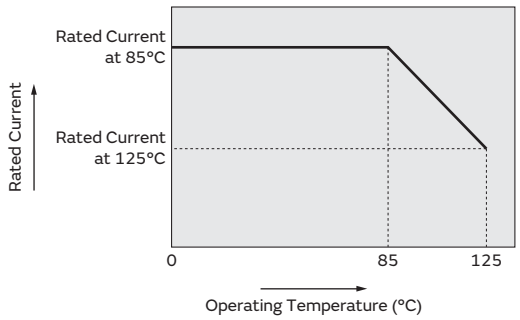

BLM02KX180SN1




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for this series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



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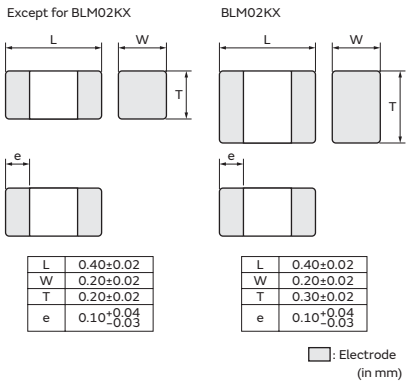
## Chip ferrite bead

# BLM02AX Series 01005/0402(inch/mm)

### Appearance/Dimensions




| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.20±0.02 |
| e | 0.10 +0.04 −0.03 |

| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.30±0.02 |
| e | 0.10 +0.04 −0.03 |

: Electrode
(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 20000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

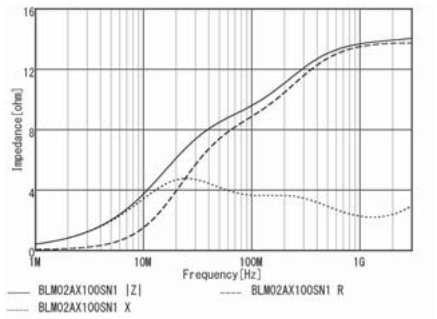
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM02AX100SN1□ | 10Ω±5Ω | 750mA | 750mA | 0.07Ω |
| BLM02AX700SN1□ | 70Ω±25% | 300mA | 300mA | 0.36Ω |
| BLM02AX121SN1□ | 120Ω±25% | 250mA | 250mA | 0.5Ω |
| BLM02AX241SN1□ | 240Ω±25% | 200mA | 200mA | 0.9Ω |

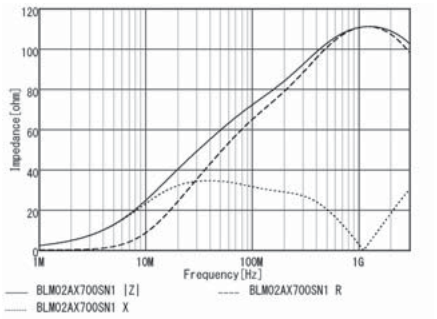
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

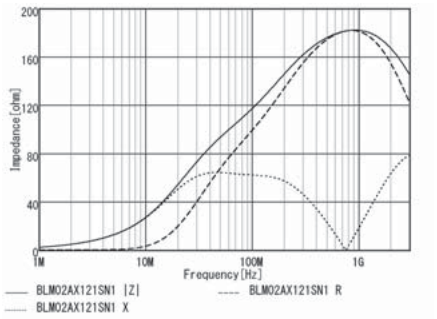
**BLM02AX100SN1**



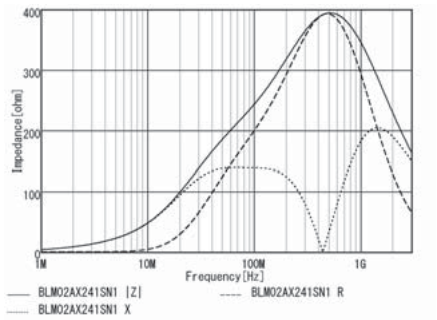

**BLM02AX700SN1**




**BLM02AX121SN1**




**BLM02AX241SN1**



# Chip Ferrite Bead (BLM□□AX Series) Feature Advantage

## Excellent for Both Signal and Power Lines.
## Multi Function Chip Ferrite Bead BLM□□AX Series

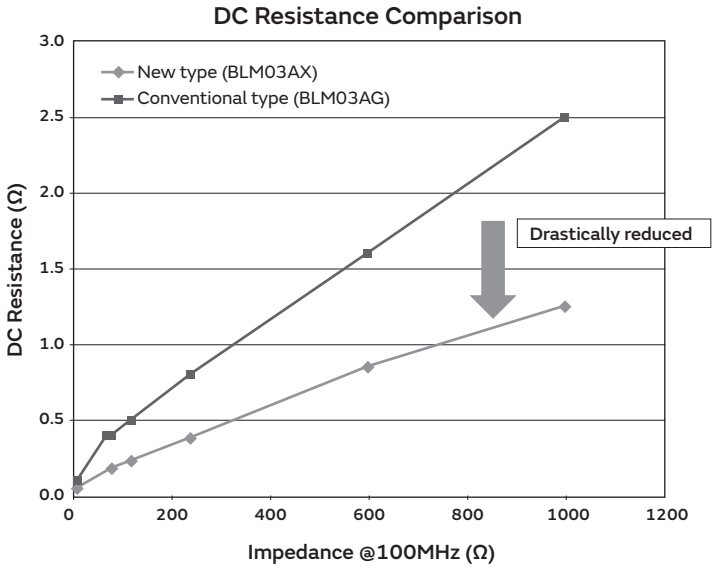
### Feature

- 1/2 the DC resistance than conventional type utilizing the latest technology
  New ferrite material
  Optimum ferrite firing condition
  Fine piling technology
  Advanced coil pattern design technology
- Improved stability of performance at heat shock
- Wide line-up from 10 to 1000ohm(@100MHz) useful for signal line

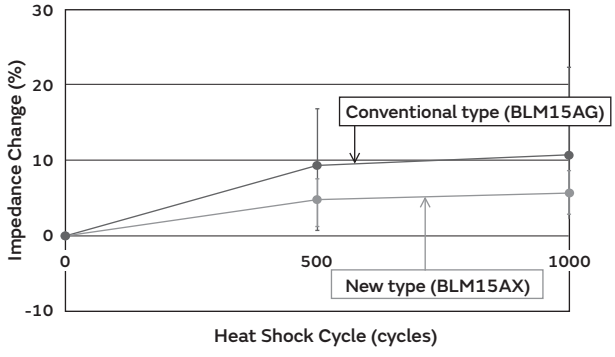
### Advantage

- High Rated Current
  Good for miniaturization of high power equipment
- Lower Voltage down at Ferrite bead
  Good for Battery driven equipment by saving running voltage margin
- Higher Reliability

**Drastically Reduced DC Resistance**



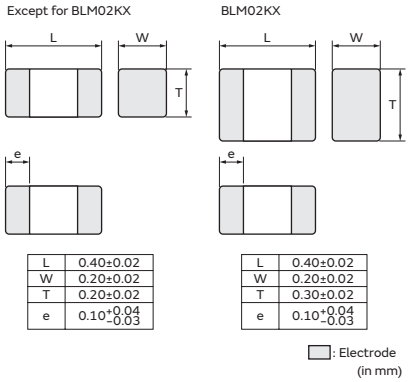

**Test Result - Heat Shock**



## Chip ferrite bead

# BLM02BB/BC Series 01005/0402(inch/mm)

### Appearance/Dimensions




| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.20±0.02 |
| e | $0.10^{+0.04}_{-0.03}$ |

| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.30±0.02 |
| e | $0.10^{+0.04}_{-0.03}$ |

: Electrode
(in mm)

### Packaging

BLM02BB101SN1 only

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 20000 |
| L | ø180mm Embossed Tape | 40000 |

All except for BLM02BB101SN1

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 20000 |
| L | ø180mm Embossed Tape | 40000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

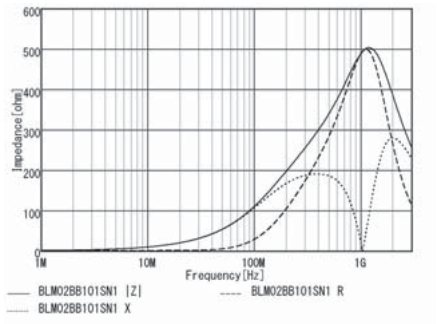
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Impedance at 1GHz | Impedance at 2GHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|---|---|
| **BLM02BB101SN1□** | 100Ω±25% | - | - | 125mA | 125mA | 2Ω |
| **BLM02BC100SN1□** | 10Ω±5Ω | 95Ω±50% | 140Ω±50% | 250mA | 250mA | 0.5Ω |
| **BLM02BC220SN1□** | 22Ω±25% | 240Ω±40% | 340Ω±40% | 200mA | 200mA | 0.9Ω |

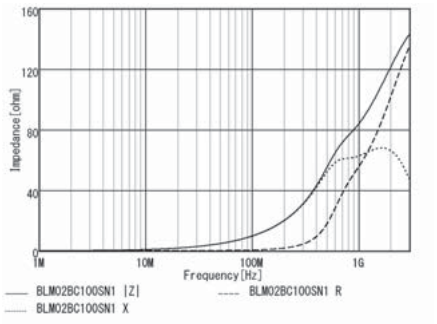
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

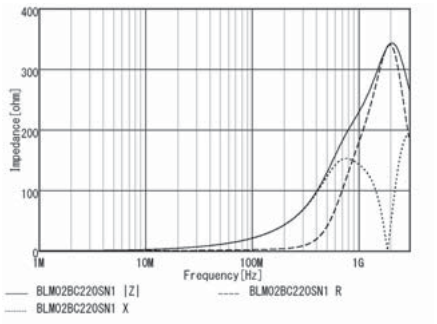
**BLM02BB101SN1**




**BLM02BC100SN1**



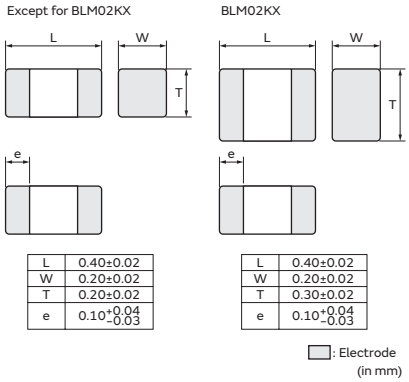

**BLM02BC220SN1**



## Chip ferrite bead

# BLM02BX Series 01005/0402(inch/mm)

### Appearance/Dimensions




| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.20±0.02 |
| e | 0.10 +0.04 −0.03 |

| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.30±0.02 |
| e | 0.10 +0.04 −0.03 |

: Electrode
(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 20000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

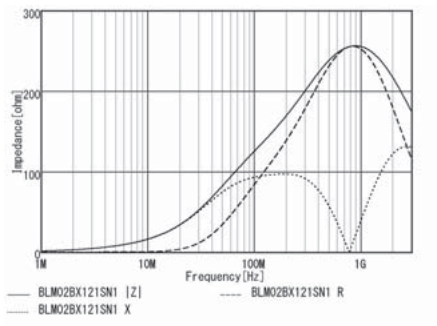
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM02BX121SN1□ | 120Ω±25% | 350mA | 240mA | 0.5Ω |
| BLM02BX151SN1□ | 150Ω±25% | 280mA | 200mA | 0.7Ω |
| BLM02BX241SN1□ | 240Ω±25% | 240mA | 160mA | 1.1Ω |

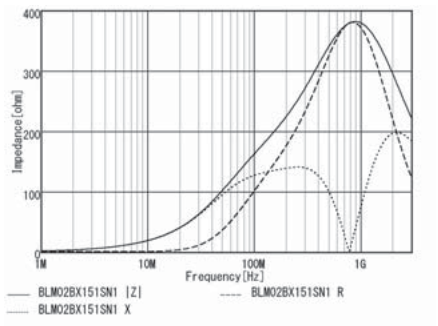
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

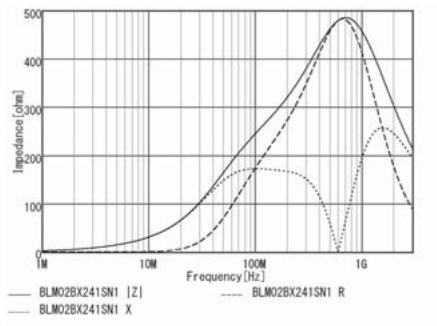
BLM02BX121SN1




BLM02BX151SN1



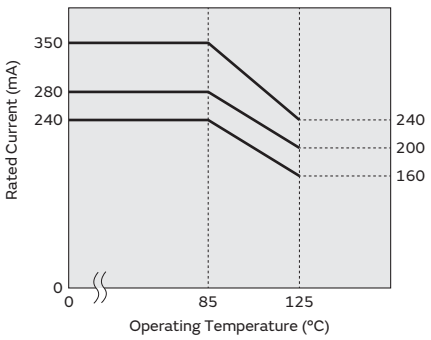

BLM02BX241SN1




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM02BX series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



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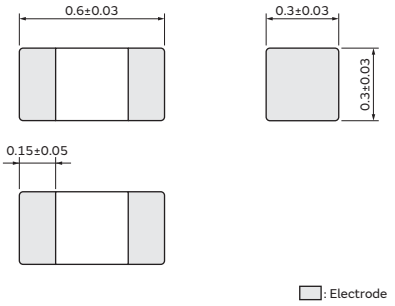
## Chip ferrite bead

# BLM03PG Series 0201/0603(inch/mm)

### Appearance/Dimensions




(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

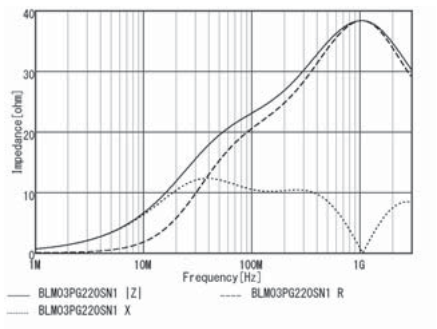
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM03PG220SN1□ | 22Ω±25% | 900mA | 900mA | 0.065Ω |
| BLM03PG330SN1□ | 33Ω±25% | 750mA | 750mA | 0.09Ω |

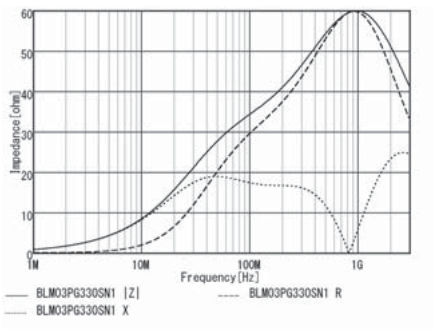
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

BLM03PG220SN1




BLM03PG330SN1



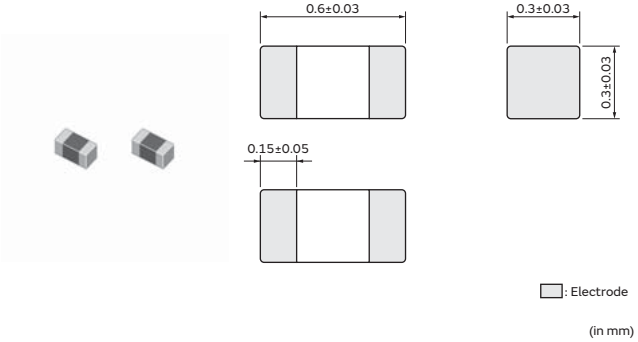



muRata

## Chip ferrite bead

# BLM03PX Series 0201/0603(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

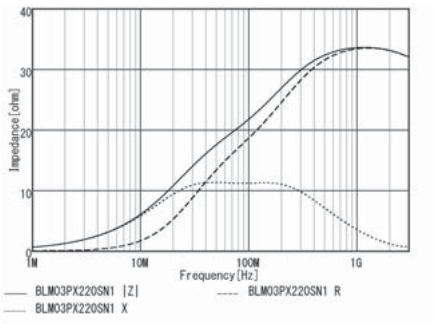
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM03PX220SN1□ | 22Ω±25% | 1.8A | 1.45A | 0.04Ω |
| BLM03PX330SN1□ | 33Ω±25% | 1.5A | 1.2A | 0.055Ω |
| BLM03PX800SN1□ | 80Ω±25% | 1A | 800mA | 0.13Ω |
| BLM03PX121SN1□ | 120Ω±25% | 900mA | 700mA | 0.16Ω |

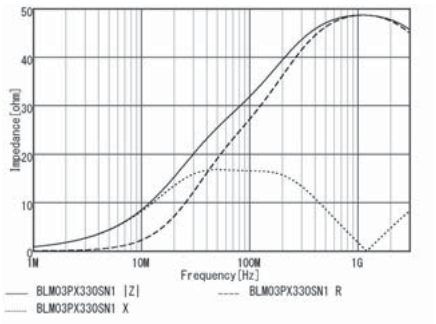
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

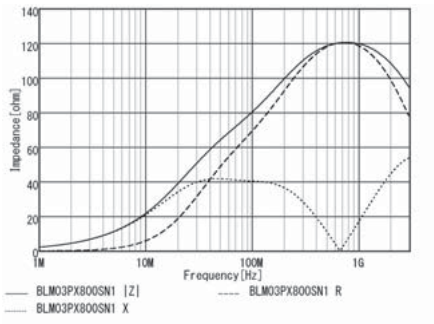
**BLM03PX220SN1**



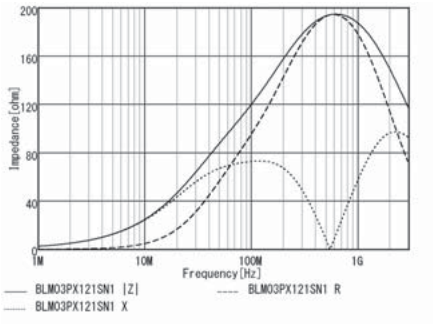

**BLM03PX330SN1**




**BLM03PX800SN1**




**BLM03PX121SN1**

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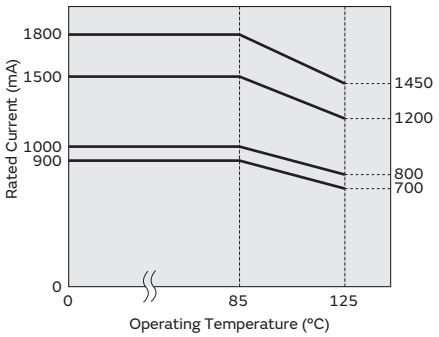
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM03PX_S□1 series.
Please apply the derating curve shown in chart according to the operating temperature.

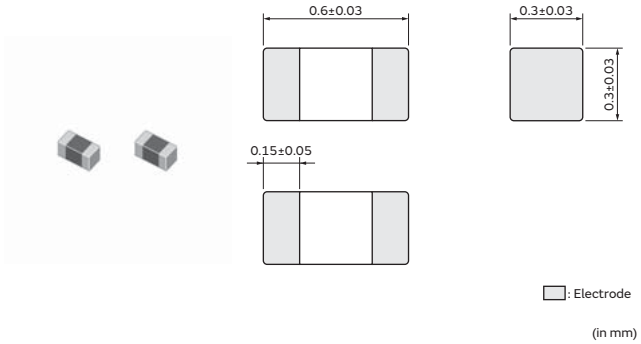
Derating of Rated Current



## Chip ferrite bead

# BLM03AG Series 0201/0603(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

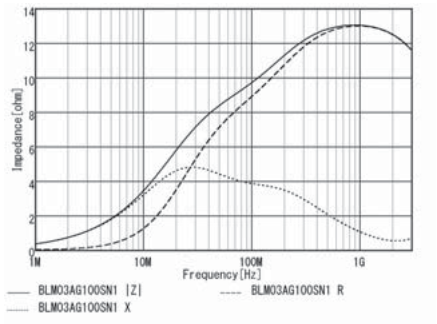
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM03AG100SN1□ | 10Ω(Typ.) | 500mA | 500mA | 0.1Ω |
| BLM03AG700SN1□ | 70Ω(Typ.) | 200mA | 200mA | 0.4Ω |
| BLM03AG800SN1□ | 80Ω±25% | 200mA | 200mA | 0.4Ω |
| BLM03AG121SN1□ | 120Ω±25% | 200mA | 200mA | 0.5Ω |
| BLM03AG241SN1□ | 240Ω±25% | 200mA | 200mA | 0.8Ω |
| BLM03AG601SN1□ | 600Ω±25% | 100mA | 100mA | 1.5Ω |
| BLM03AG102SN1□ | 1000Ω±25% | 100mA | 100mA | 2.5Ω |

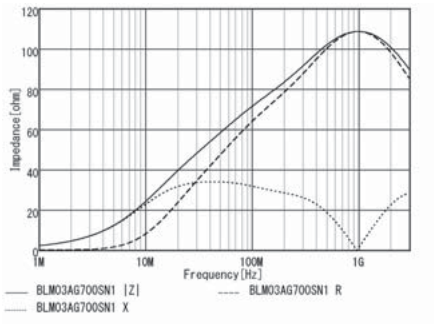
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

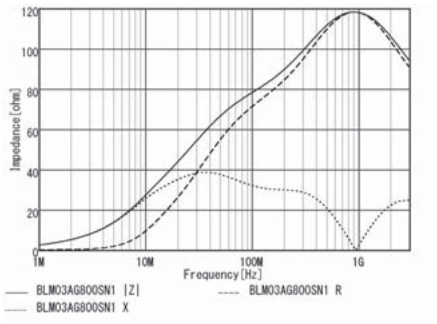
**BLM03AG100SN1**



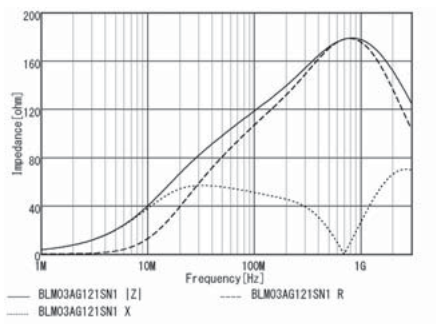

**BLM03AG700SN1**



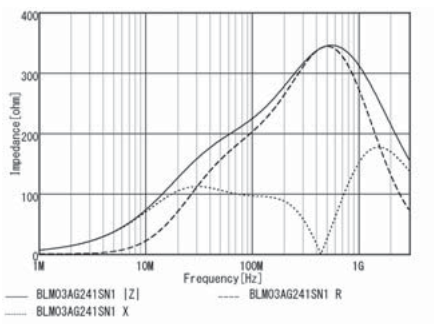

**BLM03AG800SN1**



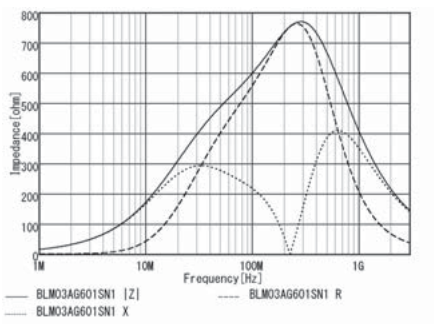

**BLM03AG121SN1**




**BLM03AG241SN1**




**BLM03AG601SN1**

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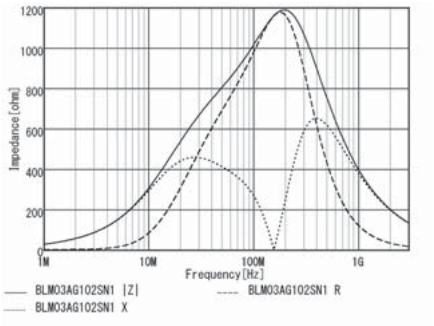
## Z-f characteristics

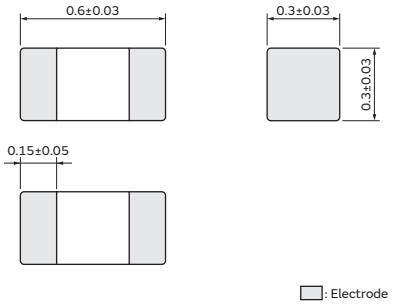
**BLM03AG102SN1**



## Chip ferrite bead

# BLM03AX Series 0201/0603(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

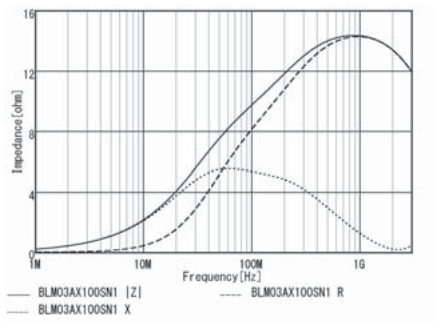
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM03AX100SN1□ | 10Ω(Typ.) | 1A | 1A | 0.05Ω |
| BLM03AX800SN1□ | 80Ω±25% | 500mA | 500mA | 0.18Ω |
| BLM03AX121SN1□ | 120Ω±25% | 450mA | 450mA | 0.23Ω |
| BLM03AX241SN1□ | 240Ω±25% | 350mA | 350mA | 0.38Ω |
| BLM03AX601SN1□ | 600Ω±25% | 250mA | 250mA | 0.85Ω |
| BLM03AX102SN1□ | 1000Ω±25% | 200mA | 200mA | 1.25Ω |

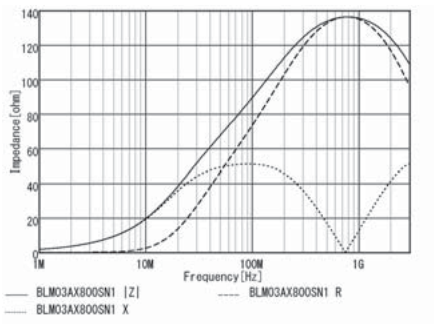
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

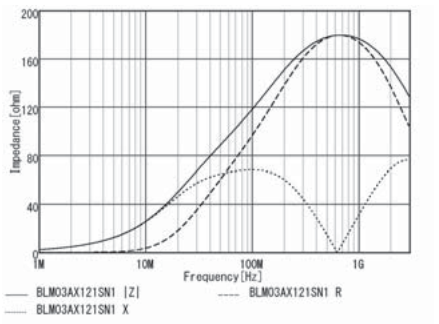
**BLM03AX100SN1**



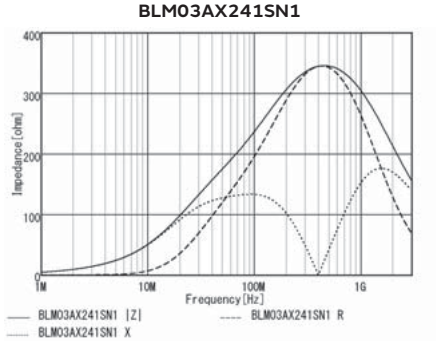

**BLM03AX800SN1**



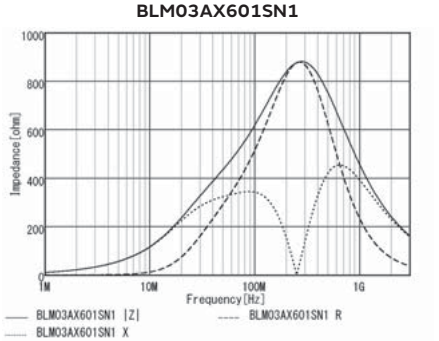

**BLM03AX121SN1**



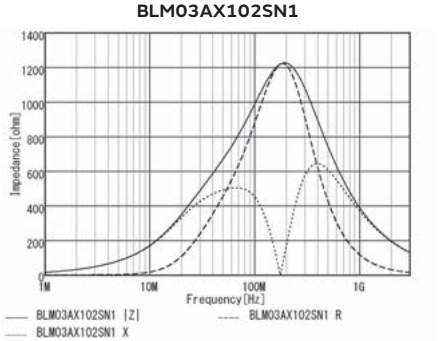

**BLM03AX241SN1**




**BLM03AX601SN1**



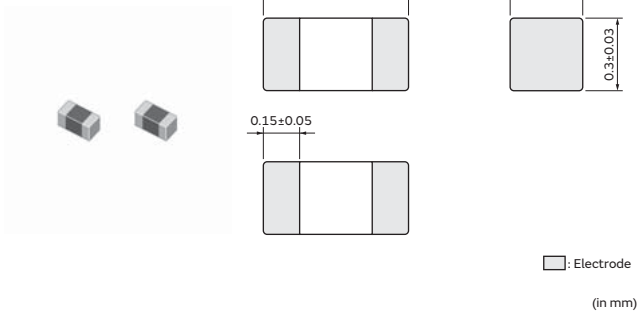

**BLM03AX102SN1**



## Chip ferrite bead

# BLM03BB/BC/BD Series 0201/0603(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

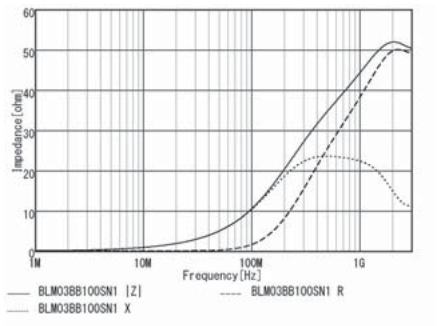
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM03BB100SN1□ | 10Ω±25% | 300mA | 300mA | 0.4Ω |
| BLM03BB220SN1□ | 22Ω±25% | 200mA | 200mA | 0.5Ω |
| BLM03BB470SN1□ | 47Ω±25% | 200mA | 200mA | 0.7Ω |
| BLM03BB750SN1□ | 75Ω±25% | 200mA | 200mA | 1Ω |
| BLM03BB121SN1□ | 120Ω±25% | 100mA | 100mA | 1.5Ω |
| BLM03BC330SN1□ | 33Ω±25% | 150mA | 150mA | 0.85Ω |
| BLM03BC560SN1□ | 56Ω±25% | 100mA | 100mA | 1.05Ω |
| BLM03BC800SN1□ | 80Ω±25% | 100mA | 100mA | 1.4Ω |
| BLM03BD750SN1□ | 75Ω±25% | 300mA | 300mA | 0.4Ω |
| BLM03BD121SN1□ | 120Ω±25% | 250mA | 250mA | 0.5Ω |
| BLM03BD241SN1□ | 240Ω±25% | 200mA | 200mA | 0.8Ω |
| BLM03BD471SN1□ | 470Ω±25% | 215mA | 215mA | 1.5Ω |
| BLM03BD601SN1□ | 600Ω±25% | 200mA | 200mA | 1.7Ω |

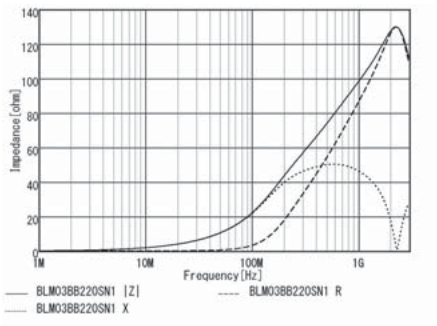
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

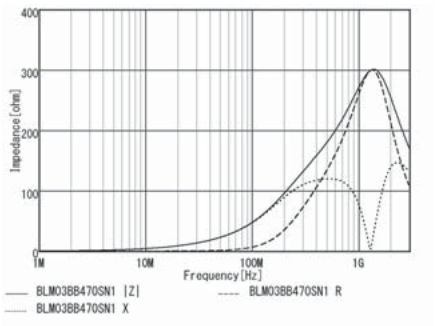
**BLM03BB100SN1**




**BLM03BB220SN1**




**BLM03BB470SN1**

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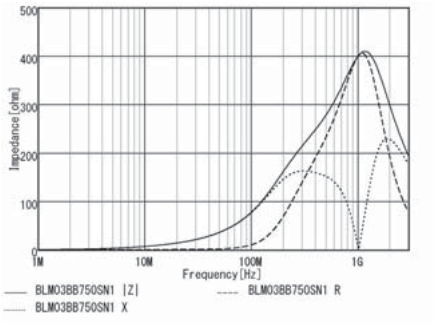
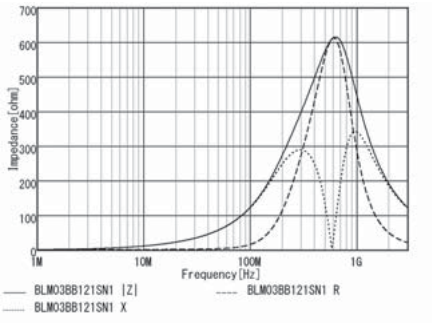
## Z-f characteristics

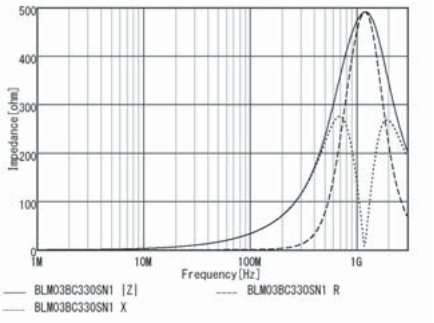
**BLM03BB750SN1**



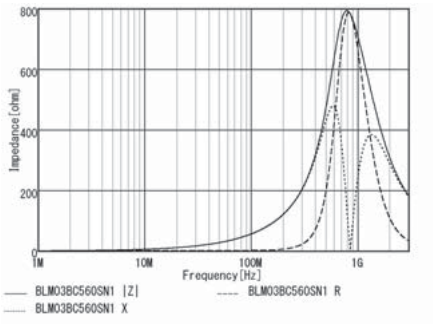

**BLM03BB121SN1**



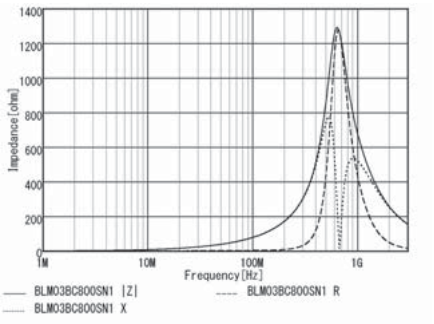

**BLM03BC330SN1**



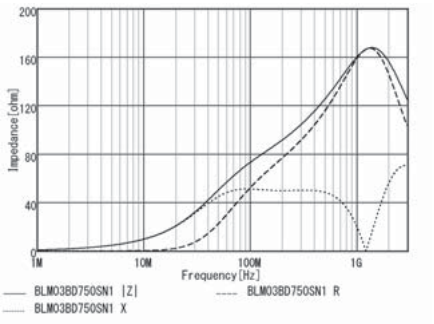

**BLM03BC560SN1**



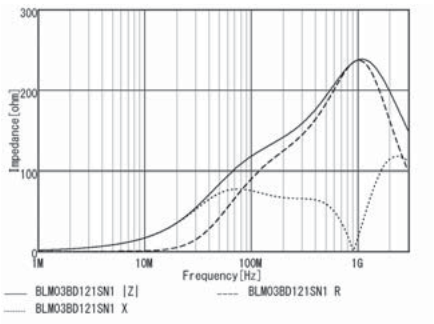

**BLM03BC800SN1**



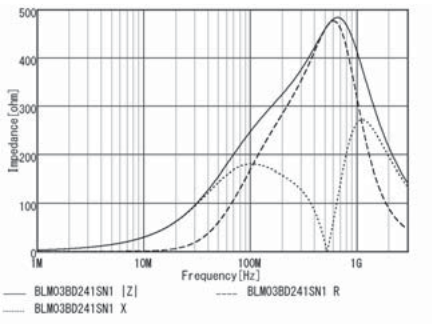

**BLM03BD750SN1**



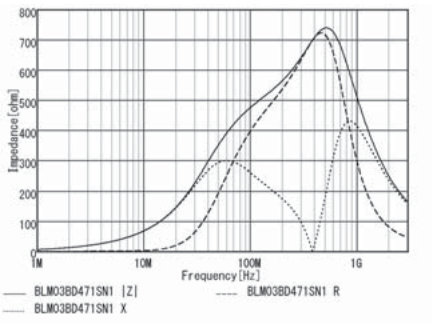

**BLM03BD121SN1**



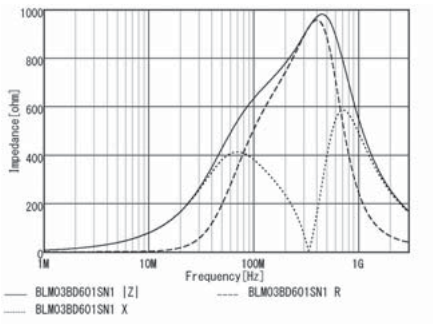

**BLM03BD241SN1**




**BLM03BD471SN1**



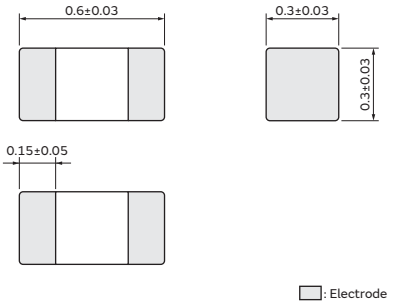

**BLM03BD601SN1**



## Chip ferrite bead

# BLM03BX Series 0201/0603(inch/mm)

### Appearance/Dimensions




(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

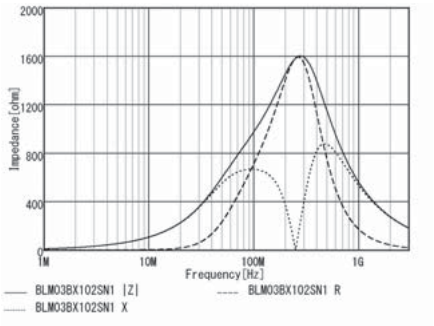
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM03BX102SN1□ | 1000Ω±25% | 170mA | 170mA | 1.7Ω |
| BLM03BX182SN1□ | 1800Ω±25% | 140mA | 140mA | 2.5Ω |

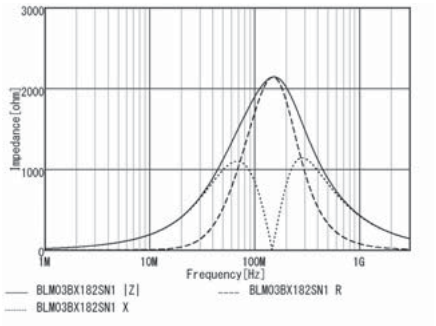
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

BLM03BX102SN1



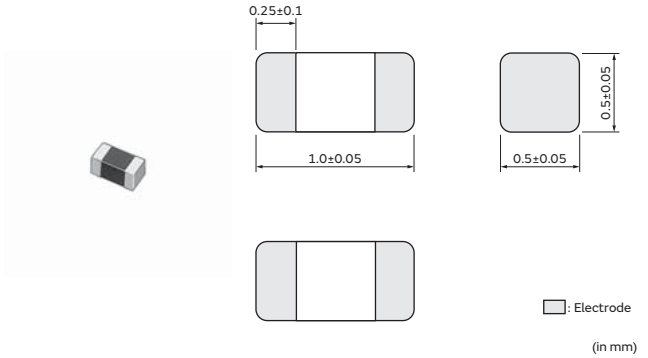

BLM03BX182SN1



## Chip ferrite bead

# BLM15PD/PG Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

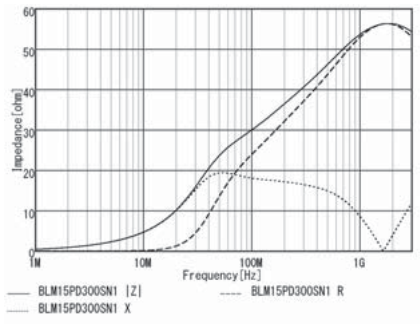
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM15PD300SN1□ | 30Ω±25% | 2.2A | 1.4A | 0.035Ω |
| BLM15PD600SN1□ | 60Ω±25% | 1.7A | 1.1A | 0.06Ω |
| BLM15PD800SN1□ | 80Ω±25% | 1.5A | 1A | 0.07Ω |
| BLM15PD121SN1□ | 120Ω±25% | 1.3A | 900mA | 0.09Ω |
| BLM15PG100SN1□ | 10Ω(Typ.) | 1A | 1A | 0.025Ω |

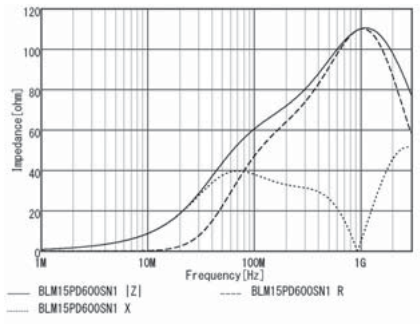
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

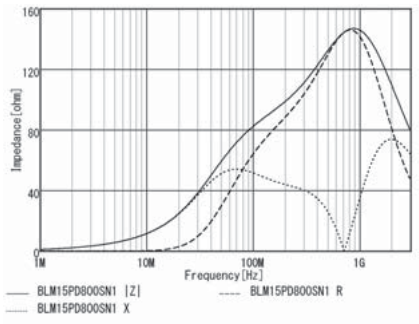
BLM15PD300SN1



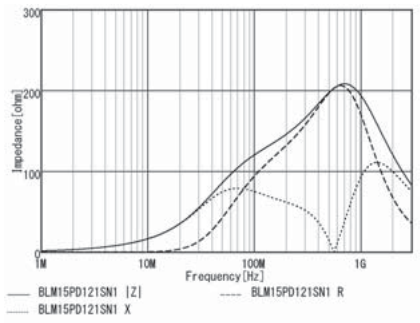

BLM15PD600SN1



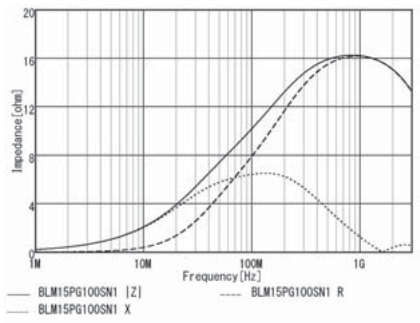

BLM15PD800SN1




BLM15PD121SN1




BLM15PG100SN1

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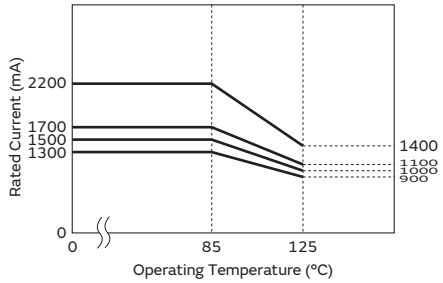
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM15PD series.
Please apply the derating curve shown in chart according to the operating temperature.

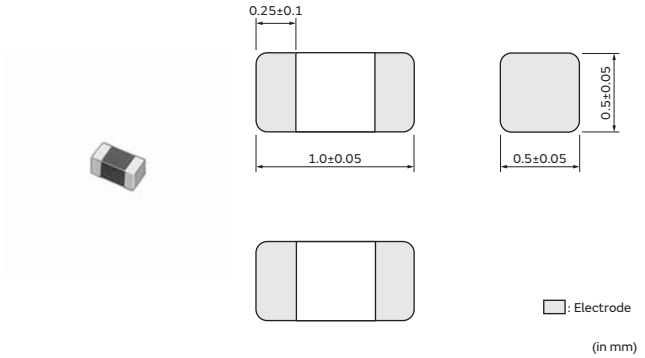
Derating of Rated Current



## Chip ferrite bead

# BLM15PX Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

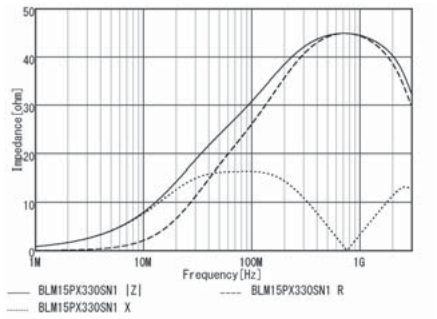
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM15PX330SN1□ | 33Ω±25% | 3A | 1.7A | 0.022Ω |
| BLM15PX600SN1□ | 60Ω±25% | 2.5A | 1.4A | 0.032Ω |
| BLM15PX800SN1□ | 80Ω±25% | 2.3A | 1.3A | 0.038Ω |
| BLM15PX121SN1□ | 120Ω±25% | 2A | 1.1A | 0.055Ω |
| BLM15PX181SN1□ | 180Ω±25% | 1.5A | 800mA | 0.09Ω |
| BLM15PX221SN1□ | 220Ω±25% | 1.4A | 800mA | 0.1Ω |
| BLM15PX331SN1□ | 330Ω±25% | 1.2A | 700mA | 0.15Ω |
| BLM15PX471SN1□ | 470Ω±25% | 1A | 600mA | 0.2Ω |
| BLM15PX601SN1□ | 600Ω±25% | 900mA | 500mA | 0.23Ω |

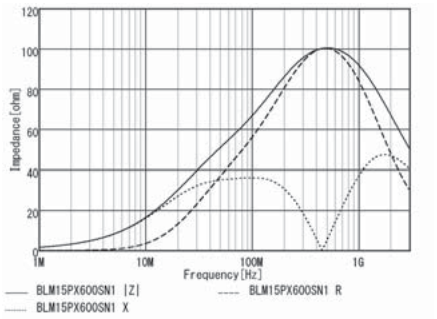
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

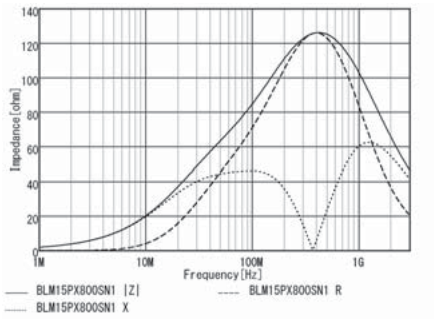
**BLM15PX330SN1**



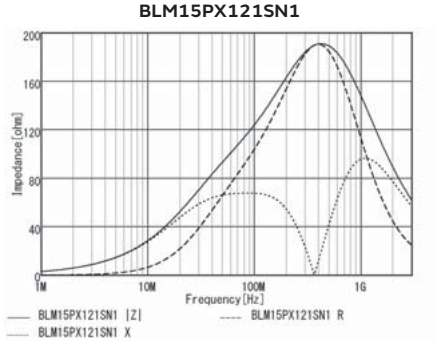

**BLM15PX600SN1**



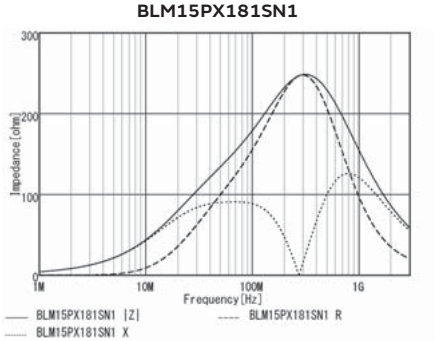

**BLM15PX800SN1**



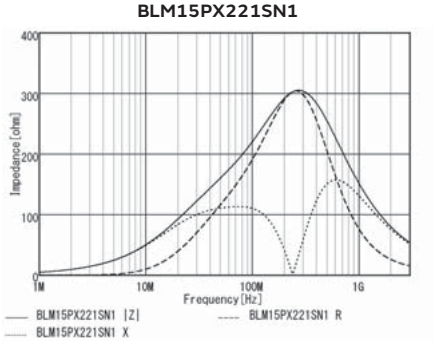

**BLM15PX121SN1**




**BLM15PX181SN1**




**BLM15PX221SN1**

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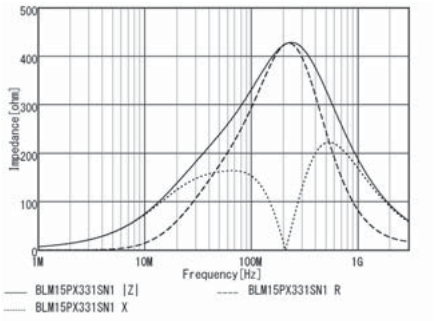
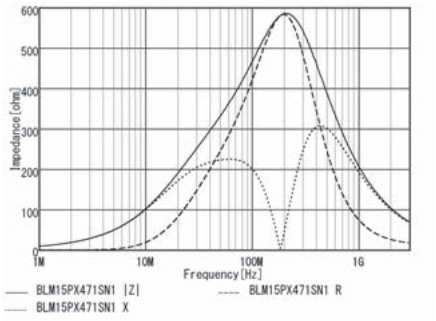
## Z-f characteristics

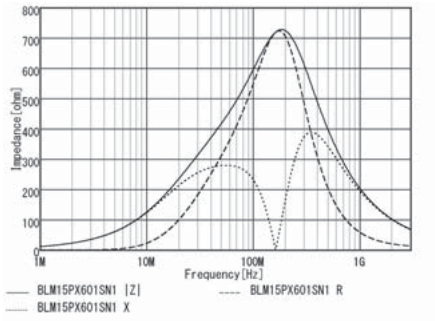
**BLM15PX331SN1**




**BLM15PX471SN1**



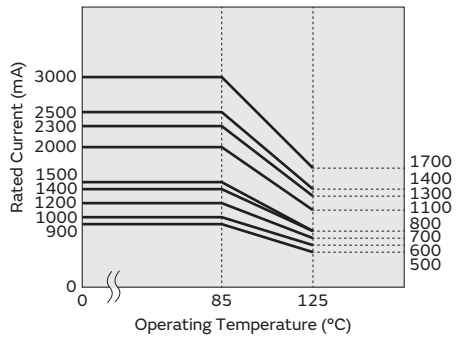

**BLM15PX601SN1**




## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM15PX series.
Please apply the derating curve shown in chart according to the operating temperature.

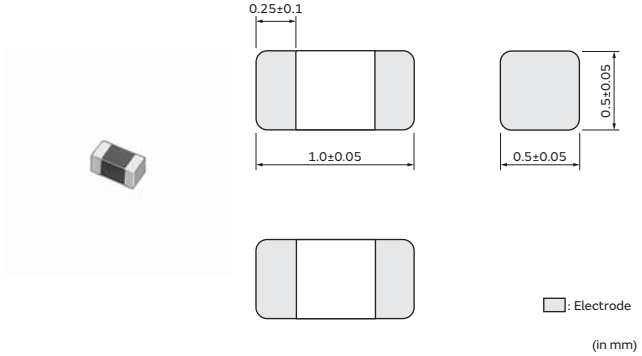
Derating of Rated Current



## Chip ferrite bead

# BLM15KD Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

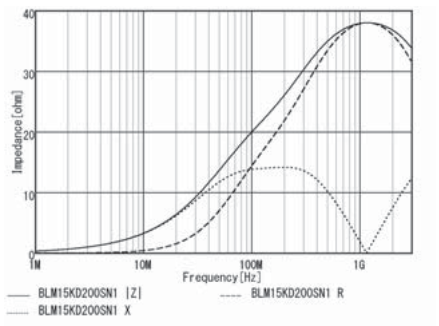
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM15KD200SN1□ | 20Ω±25% | 3.8A | 2.35A | 0.011Ω |
| BLM15KD300SN1□ | 30Ω±25% | 3.1A | 1.9A | 0.017Ω |
| BLM15KD121SN1□ | 120Ω±25% | 1.5A | 930mA | 0.07Ω |

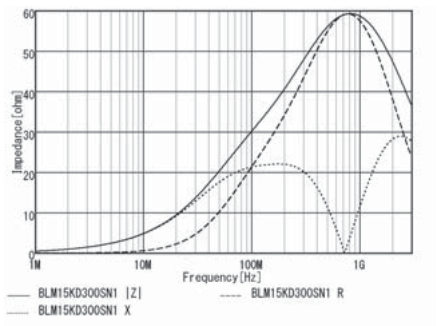
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

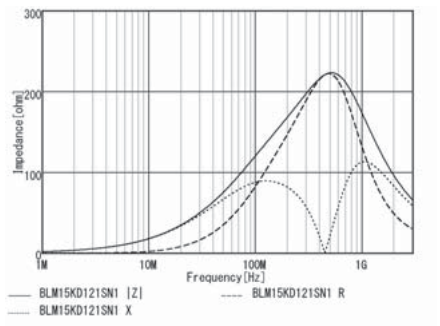
**BLM15KD200SN1**




**BLM15KD300SN1**



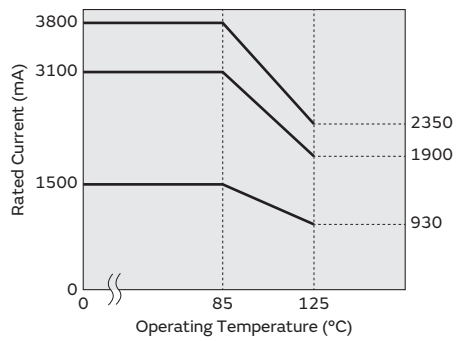

**BLM15KD121SN1**




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM15KD_SN1 series.
Please apply the derating curve shown in chart according to the operating temperature.

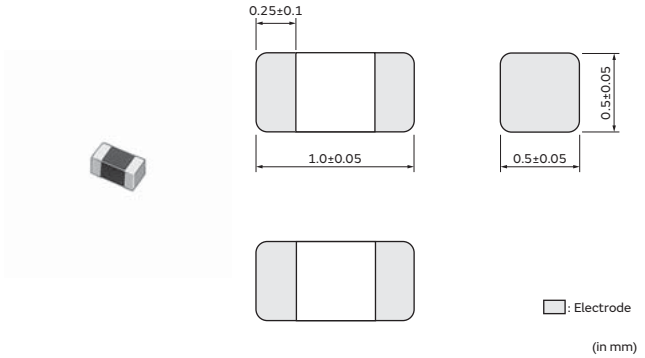
Derating of Rated Current



## Chip ferrite bead

# BLM15AG Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

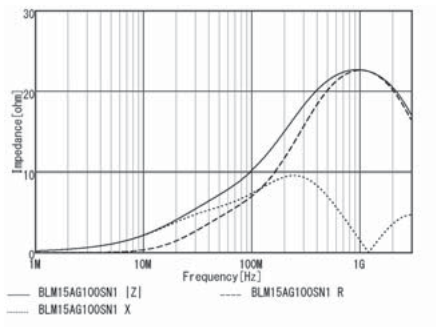
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM15AG100SN1□ | 10Ω(Typ.) | 1A | 1A | 0.025Ω |
| BLM15AG700SN1□ | 70Ω(Typ.) | 600mA | 600mA | 0.15Ω |
| BLM15AG121SN1□ | 120Ω±25% | 550mA | 550mA | 0.19Ω |
| BLM15AG221SN1□ | 220Ω±25% | 450mA | 450mA | 0.29Ω |
| BLM15AG601SN1□ | 600Ω±25% | 300mA | 300mA | 0.52Ω |
| BLM15AG102SN1□ | 1000Ω±25% | 300mA | 300mA | 0.65Ω |

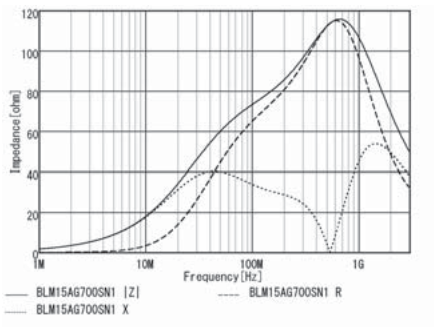
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

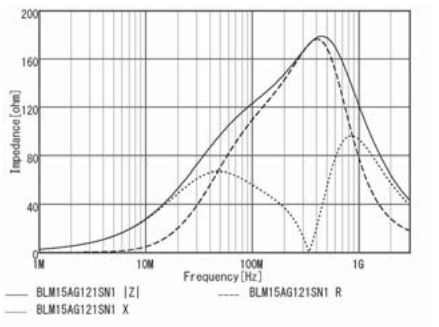
**BLM15AG100SN1**



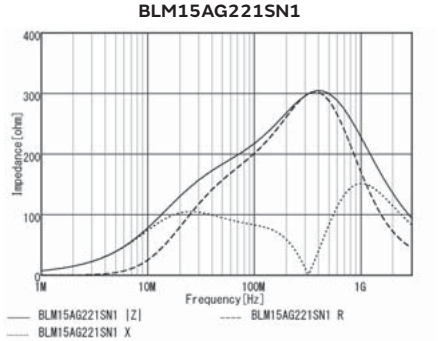

**BLM15AG700SN1**



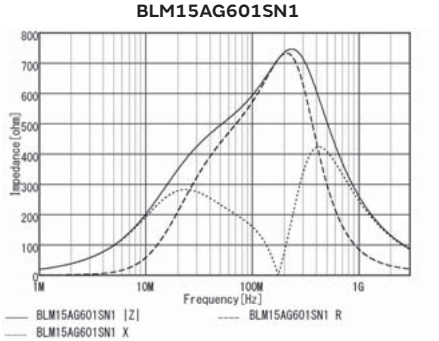

**BLM15AG121SN1**



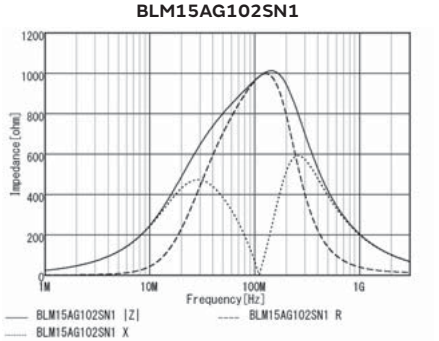

**BLM15AG221SN1**




**BLM15AG601SN1**



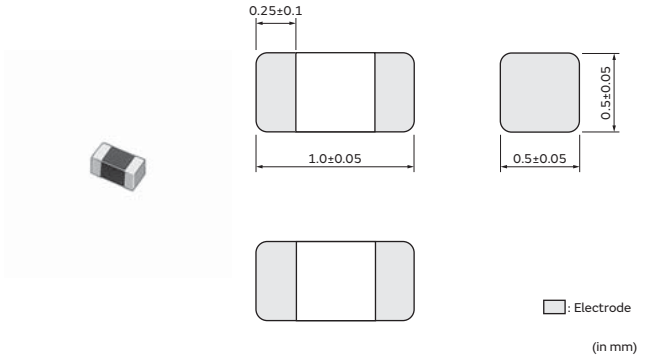

**BLM15AG102SN1**



## Chip ferrite bead

# BLM15AX Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

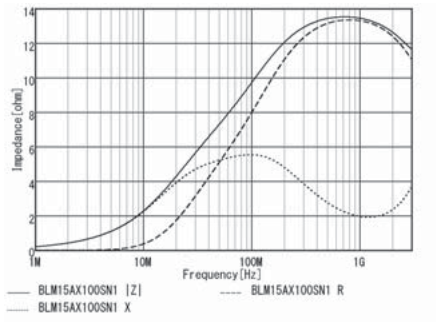
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM15AX100SN1□ | 10Ω±5Ω | 1.74A | 1.74A | 0.015Ω |
| BLM15AX300SN1□ | 30Ω±25% | 1.1A | 1.1A | 0.06Ω |
| BLM15AX700SN1□ | 70Ω±25% | 780mA | 780mA | 0.1Ω |
| BLM15AX121SN1□ | 120Ω±25% | 700mA | 700mA | 0.13Ω |
| BLM15AX221SN1□ | 220Ω±25% | 600mA | 600mA | 0.18Ω |
| BLM15AX601SN1□ | 600Ω±25% | 500mA | 500mA | 0.34Ω |
| BLM15AX102SN1□ | 1000Ω±25% | 350mA | 350mA | 0.49Ω |

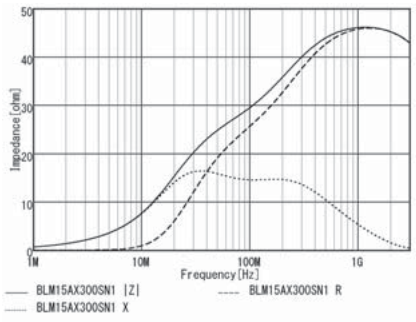
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

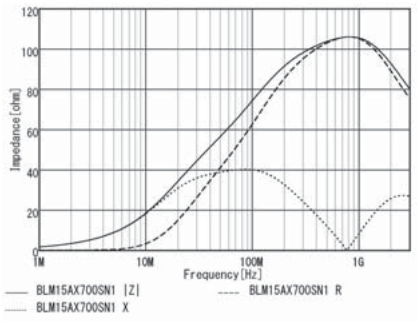
**BLM15AX100SN1**



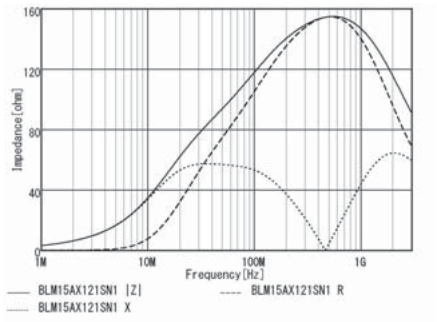

**BLM15AX300SN1**



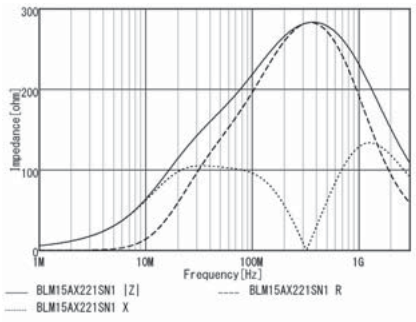

**BLM15AX700SN1**



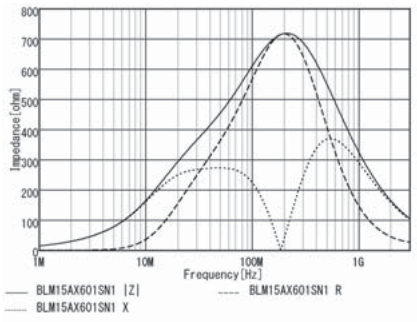

**BLM15AX121SN1**




**BLM15AX221SN1**




**BLM15AX601SN1**

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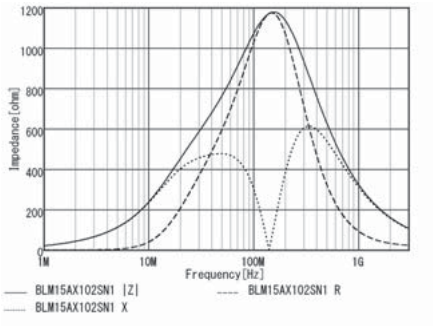
## Z-f characteristics

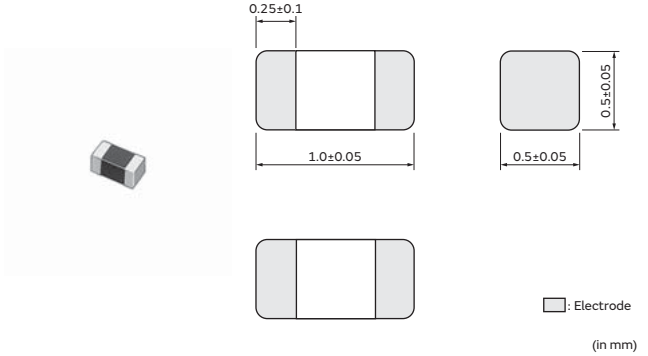
**BLM15AX102SN1**



## Chip ferrite bead

# BLM15BA/BB/BC/BD Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| **BLM15BA050SN1□** | 5Ω±25% | 300mA | 300mA | 0.1Ω |
| **BLM15BA100SN1□** | 10Ω±25% | 300mA | 300mA | 0.2Ω |
| **BLM15BA220SN1□** | 22Ω±25% | 300mA | 300mA | 0.3Ω |
| **BLM15BA330SN1□** | 33Ω±25% | 300mA | 300mA | 0.4Ω |
| **BLM15BA470SN1□** | 47Ω±25% | 200mA | 200mA | 0.6Ω |
| **BLM15BA750SN1□** | 75Ω±25% | 200mA | 200mA | 0.8Ω |
| **BLM15BB050SN1□** | 5Ω±25% | 500mA | 500mA | 0.08Ω |
| **BLM15BB100SN1□** | 10Ω±25% | 300mA | 300mA | 0.1Ω |
| **BLM15BB220SN1□** | 22Ω±25% | 300mA | 300mA | 0.2Ω |
| **BLM15BB470SN1□** | 47Ω±25% | 300mA | 300mA | 0.35Ω |
| **BLM15BB750SN1□** | 75Ω±25% | 300mA | 300mA | 0.4Ω |
| **BLM15BB121SN1□** | 120Ω±25% | 300mA | 300mA | 0.55Ω |
| **BLM15BB221SN1□** | 220Ω±25% | 200mA | 200mA | 0.8Ω |
| **BLM15BC121SN1□** | 120Ω±25% | 350mA | 350mA | 0.45Ω |
| **BLM15BC241SN1□** | 240Ω±25% | 250mA | 250mA | 0.7Ω |
| **BLM15BD750SN1□** | 75Ω±25% | 300mA | 300mA | 0.2Ω |
| **BLM15BD121SN1□** | 120Ω±25% | 300mA | 300mA | 0.3Ω |
| **BLM15BD221SN1□** | 220Ω±25% | 300mA | 300mA | 0.4Ω |
| **BLM15BD471SN1□** | 470Ω±25% | 200mA | 200mA | 0.6Ω |
| **BLM15BD601SN1□** | 600Ω±25% | 200mA | 200mA | 0.65Ω |
| **BLM15BD102SN1□** | 1000Ω±25% | 200mA | 200mA | 0.9Ω |
| **BLM15BD152SN1□** | 1500Ω±25% | 190mA | 190mA | 1Ω |
| **BLM15BD182SN1□** | 1800Ω±25% | 100mA | 100mA | 1.4Ω |

Operating Temp. Range: -55°C to 125°C

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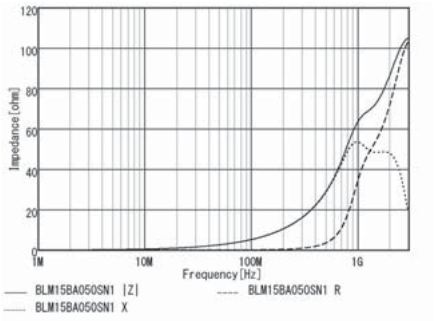
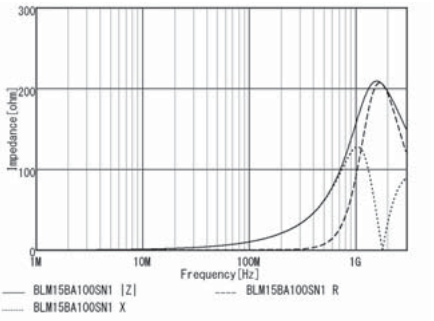
## Z-f characteristics

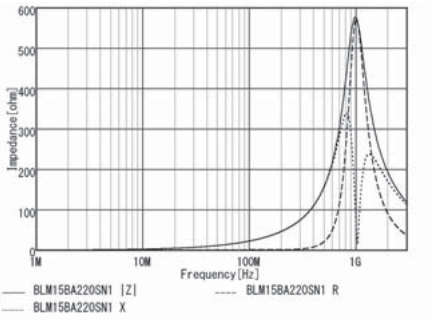
**BLM15BA050SN1**



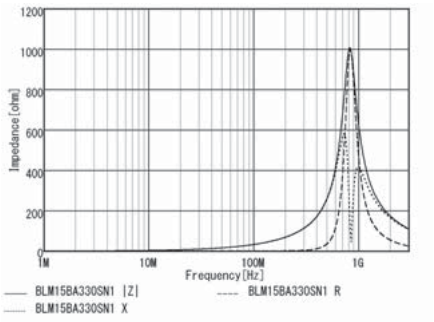

**BLM15BA100SN1**



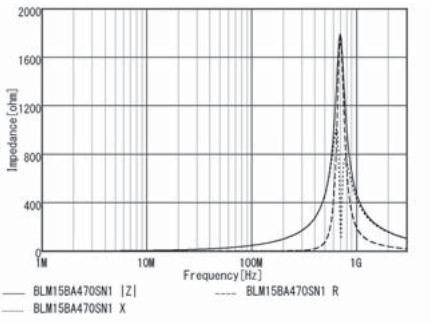

**BLM15BA220SN1**



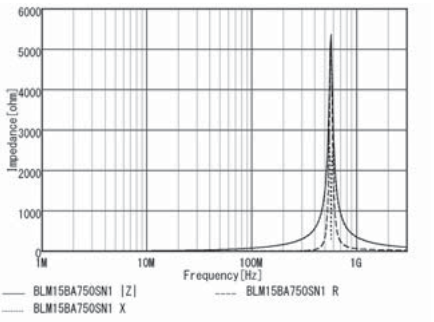

**BLM15BA330SN1**



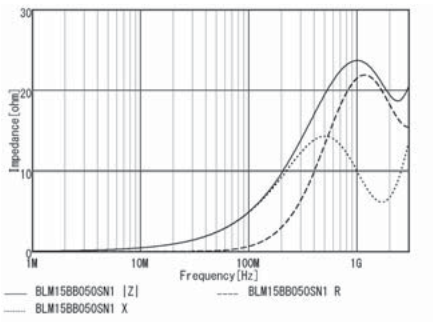

**BLM15BA470SN1**



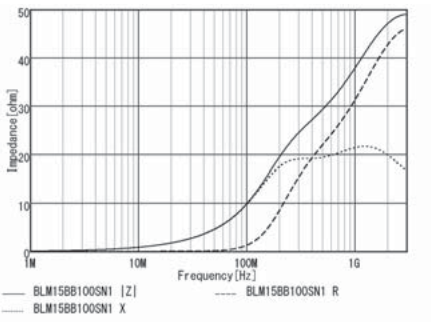

**BLM15BA750SN1**




**BLM15BB050SN1**




**BLM15BB100SN1**

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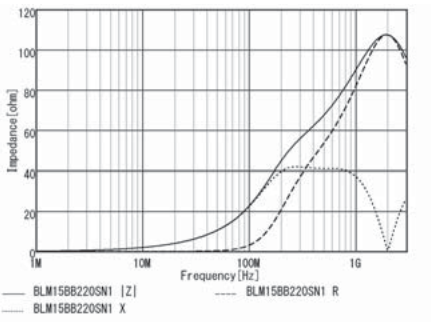


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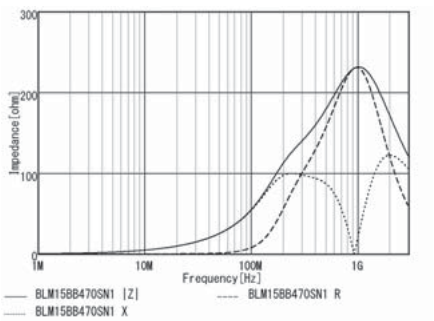
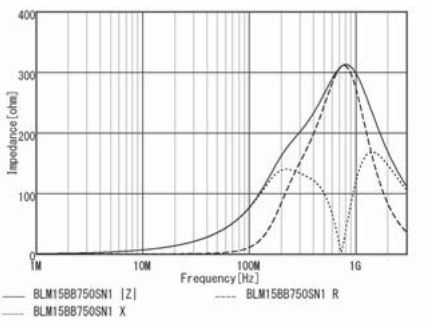
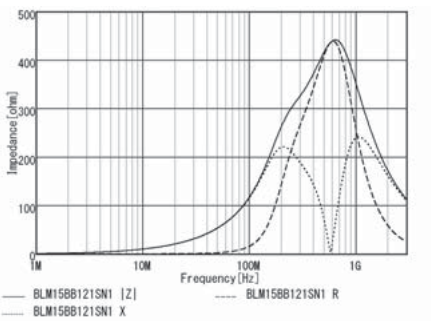


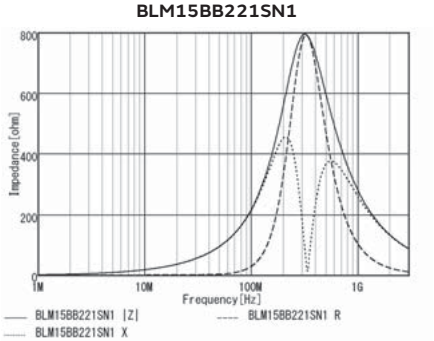

**BLM15BB750SN1**



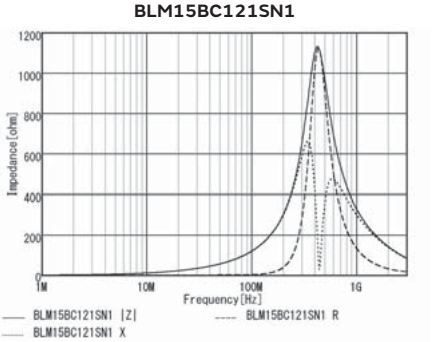

**BLM15BB121SN1**



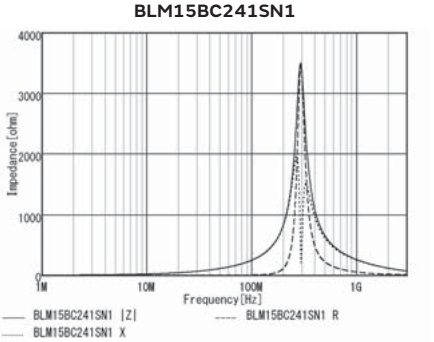

**BLM15BB221SN1**




**BLM15BC121SN1**




**BLM15BC241SN1**

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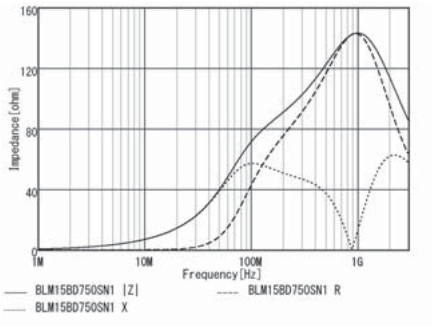
## Z-f characteristics

**BLM15BD750SN1**

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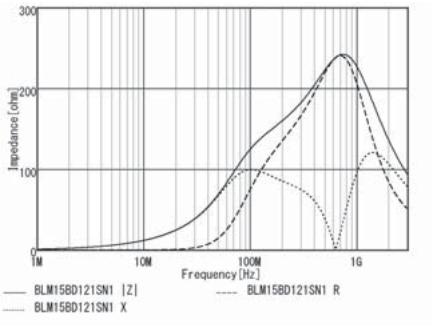
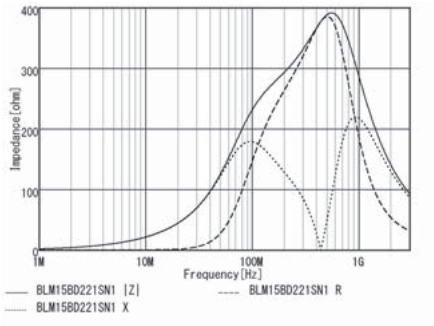
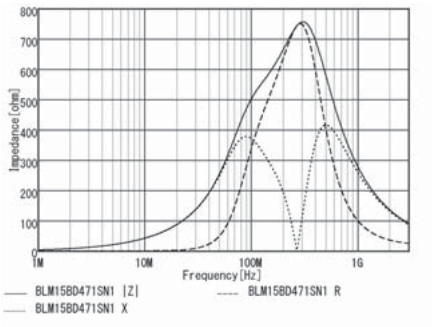


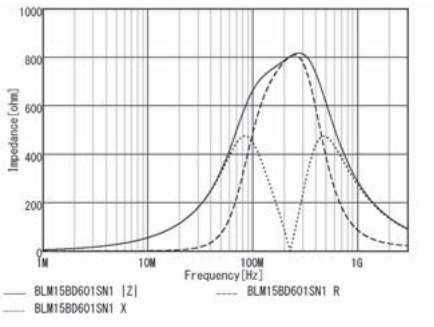

**BLM15BD221SN1**



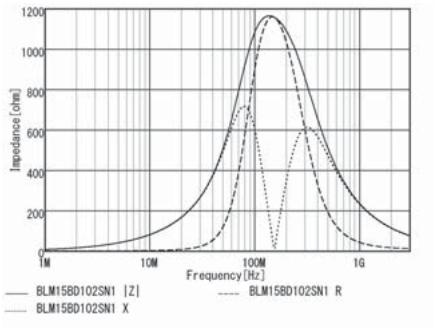

**BLM15BD471SN1**



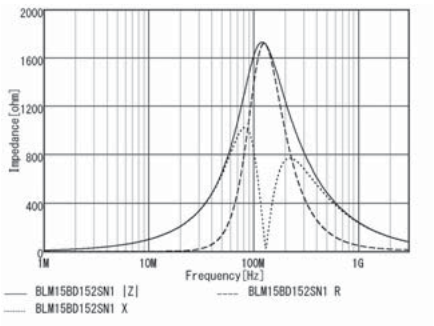

**BLM15BD601SN1**



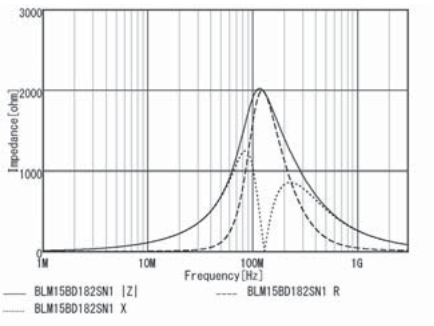

**BLM15BD102SN1**




**BLM15BD152SN1**



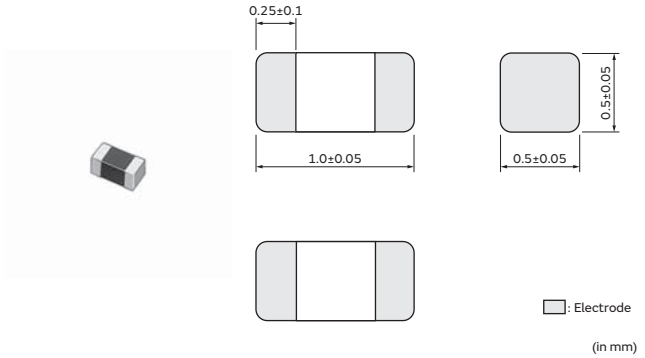

**BLM15BD182SN1**



## Chip ferrite bead

# BLM15BX Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

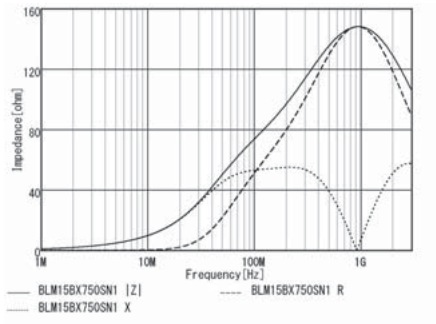
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM15BX750SN1□ | 75Ω±25% | 600mA | 600mA | 0.15Ω |
| BLM15BX121SN1□ | 120Ω±25% | 600mA | 600mA | 0.17Ω |
| BLM15BX221SN1□ | 220Ω±25% | 450mA | 450mA | 0.27Ω |
| BLM15BX471SN1□ | 470Ω±25% | 350mA | 350mA | 0.41Ω |
| BLM15BX601SN1□ | 600Ω±25% | 350mA | 350mA | 0.46Ω |
| BLM15BX102SN1□ | 1000Ω±25% | 300mA | 300mA | 0.65Ω |
| BLM15BX182SN1□ | 1800Ω±25% | 250mA | 250mA | 0.9Ω |

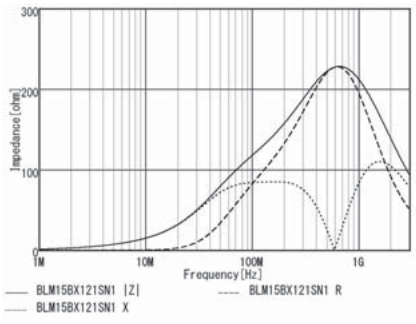
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

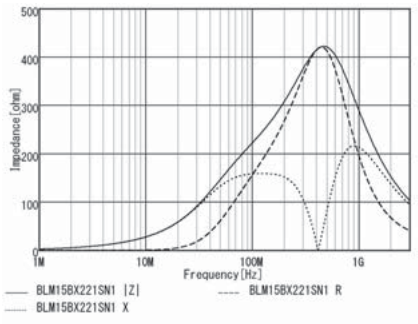
BLM15BX750SN1



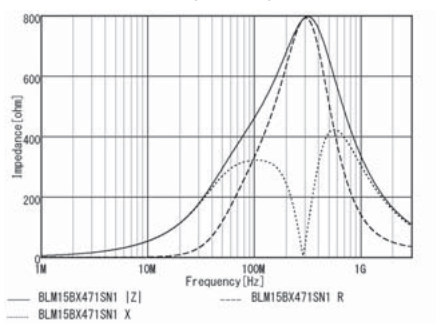

BLM15BX121SN1



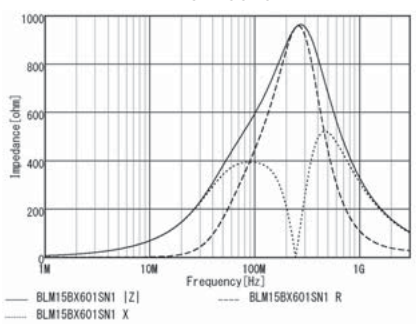

BLM15BX221SN1



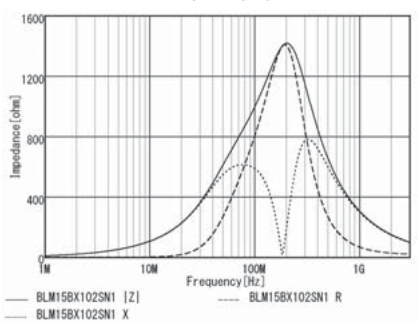

BLM15BX471SN1




BLM15BX601SN1




BLM15BX102SN1

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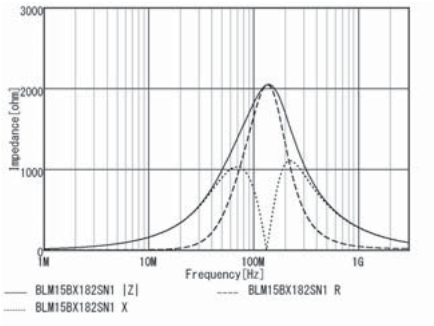
## Z-f characteristics

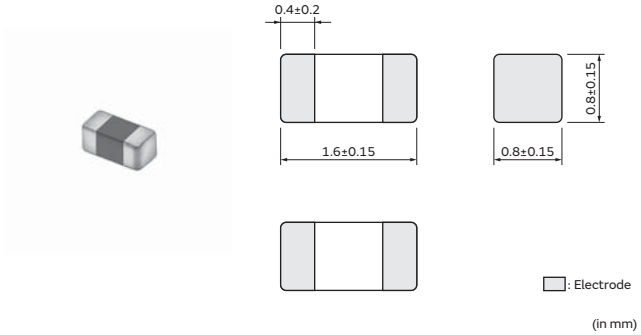
**BLM15BX182SN1**



## Chip ferrite bead

# BLM18PG Series 0603/1608(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

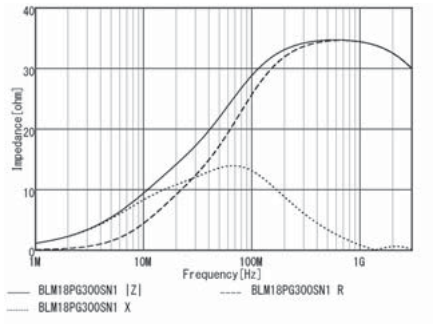
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM18PG300SN1□ | 30Ω(Typ.) | 1A | 1A | 0.05Ω |
| BLM18PG330SN1□ | 33Ω±25% | 3A | 1A | 0.025Ω |
| BLM18PG600SN1□ | 60Ω(Typ.) | 1A | 1A | 0.1Ω |
| BLM18PG121SN1□ | 120Ω±25% | 2A | 1A | 0.05Ω |
| BLM18PG181SN1□ | 180Ω±25% | 1.5A | 1A | 0.09Ω |
| BLM18PG221SN1□ | 220Ω±25% | 1.4A | 1A | 0.1Ω |
| BLM18PG331SN1□ | 330Ω±25% | 1.2A | 1A | 0.15Ω |
| BLM18PG471SN1□ | 470Ω±25% | 1A | 1A | 0.2Ω |

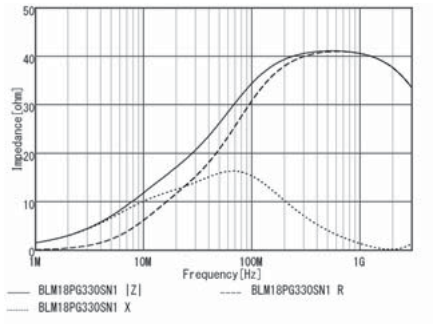
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

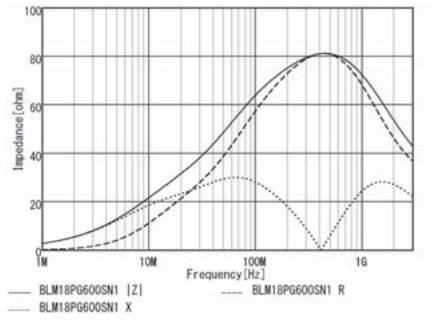
**BLM18PG300SN1**



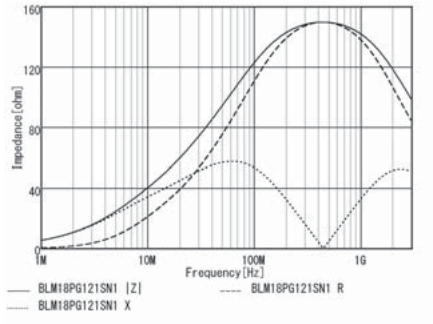

**BLM18PG330SN1**



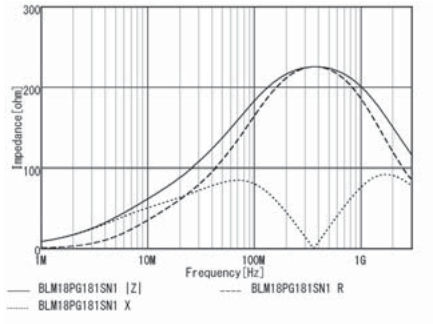

**BLM18PG600SN1**



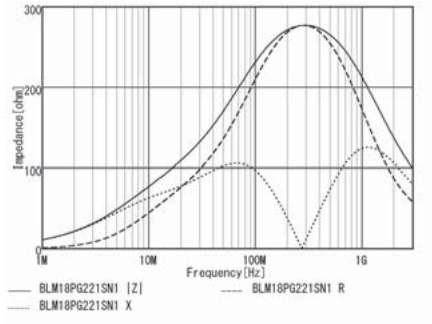

**BLM18PG121SN1**




**BLM18PG181SN1**




**BLM18PG221SN1**

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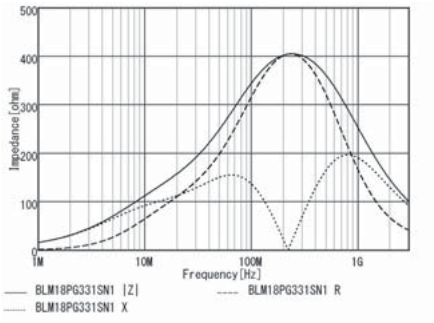
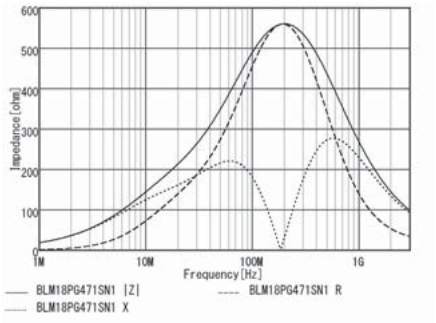
## Z-f characteristics

**BLM18PG331SN1**



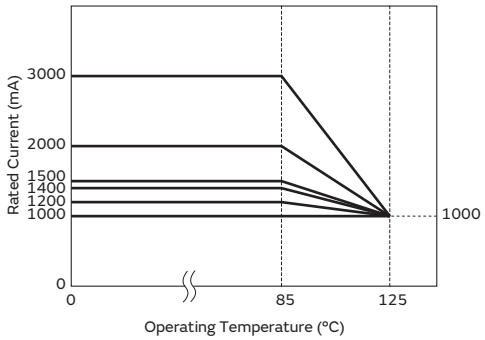

**BLM18PG471SN1**




## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM18PG series.
Please apply the derating curve shown in chart according to the operating temperature.

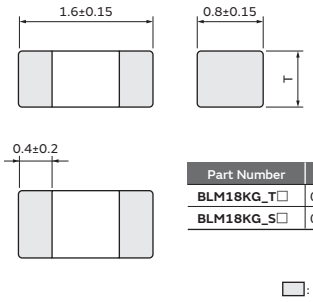
Derating of Rated Current



## Chip ferrite bead

# BLM18KG Series 0603/1608(inch/mm)

### Appearance/Dimensions




| Part Number | T |
|---|---|
| BLM18KG_T□ | 0.6±0.15 |
| BLM18KG_S□ | 0.8±0.15 |

: Electrode

(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

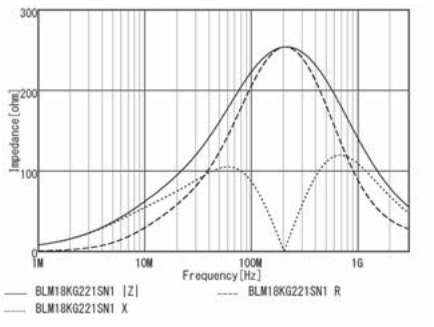
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM18KG221SN1□ | 220Ω±25% | 2.2A | 1.5A | 0.05Ω |
| BLM18KG331SN1□ | 330Ω±25% | 1.7A | 1.2A | 0.08Ω |
| BLM18KG471SN1□ | 470Ω±25% | 1.5A | 1A | 0.13Ω |
| BLM18KG601SN1□ | 600Ω±25% | 1.3A | 1A | 0.15Ω |
| BLM18KG102SN1□ | 1000Ω±25% | 1A | 800mA | 0.2Ω |
| BLM18KG260TN1□ | 26Ω±25% | 6A | 4A | 0.007Ω |
| BLM18KG300TN1□ | 30Ω±25% | 5A | 3.3A | 0.01Ω |
| BLM18KG700TN1□ | 70Ω±25% | 3.5A | 2.2A | 0.022Ω |
| BLM18KG101TN1□ | 100Ω±25% | 3A | 1.9A | 0.03Ω |
| BLM18KG121TN1□ | 120Ω±25% | 3A | 1.9A | 0.03Ω |

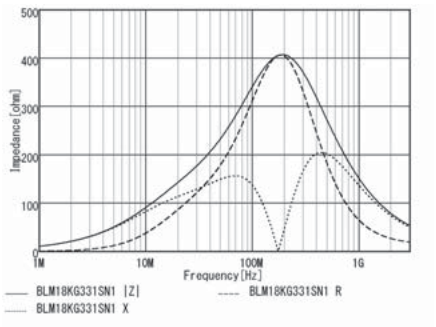
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

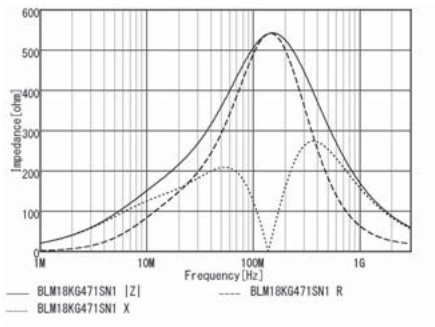
**BLM18KG221SN1**




**BLM18KG331SN1**




**BLM18KG471SN1**

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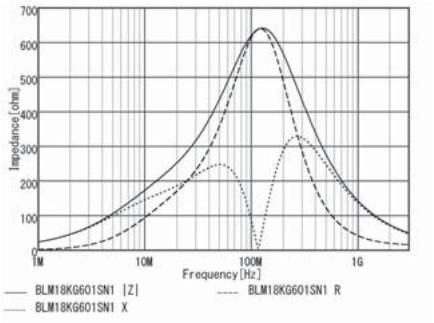
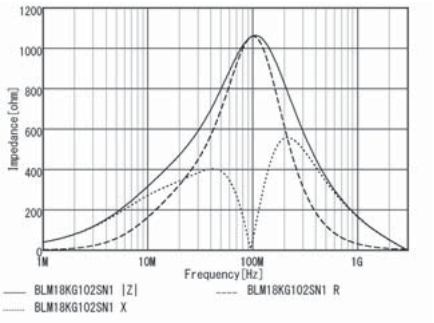
## Z-f characteristics

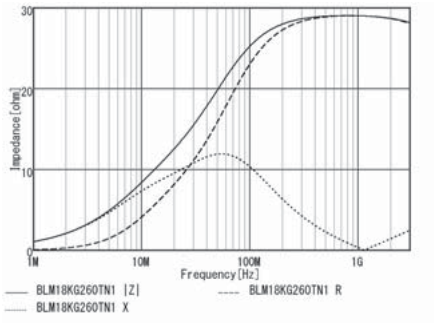
**BLM18KG601SN1**



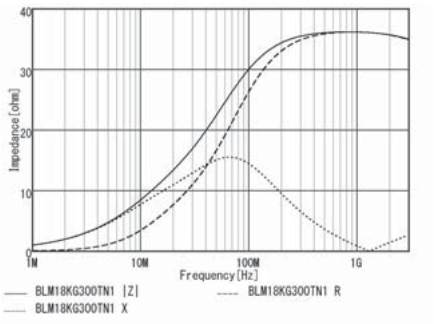

**BLM18KG102SN1**



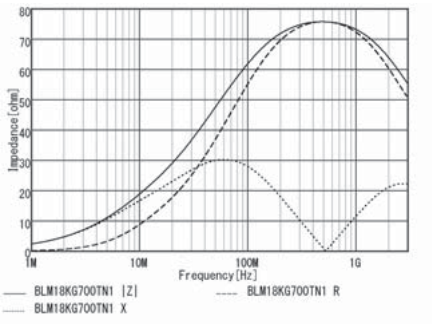

**BLM18KG260TN1**



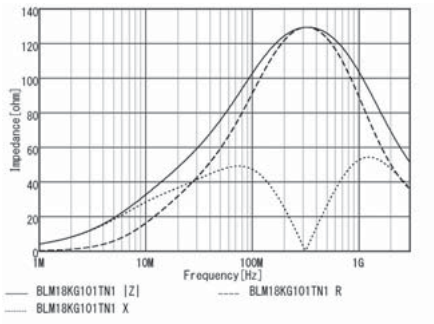

**BLM18KG300TN1**



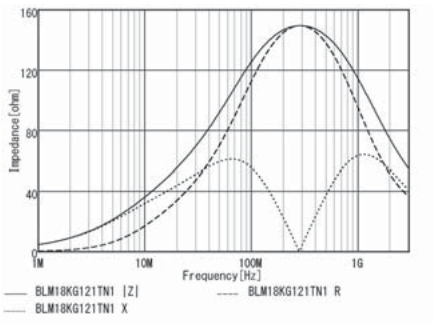

**BLM18KG700TN1**




**BLM18KG101TN1**



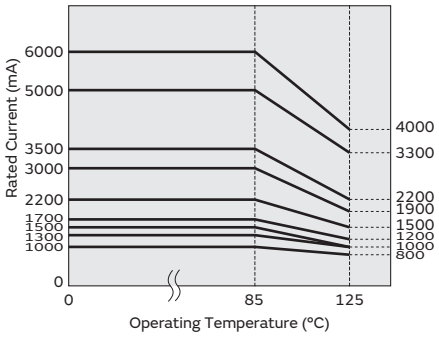

**BLM18KG121TN1**




## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM18KG series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



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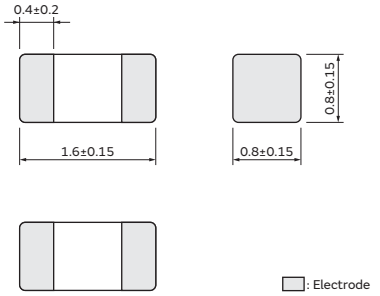
## Chip ferrite bead

# BLM18SD/SG/SN Series 0603/1608(inch/mm)

### Appearance/Dimensions

BLM18SD_SN1/18SG_SN1




(in mm)

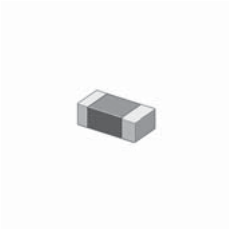
### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

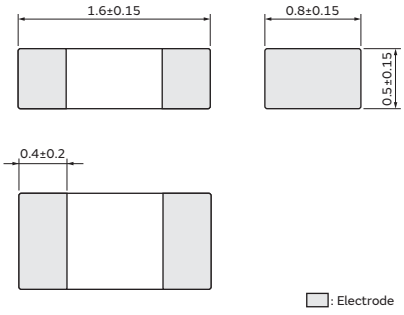
### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

### Appearance/Dimensions



BLM18SG_TN1




(in mm)

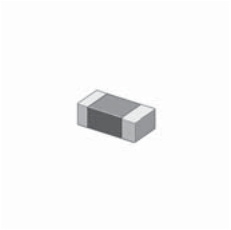
### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 30000 |
| B | Bulk(Bag) | 1000 |

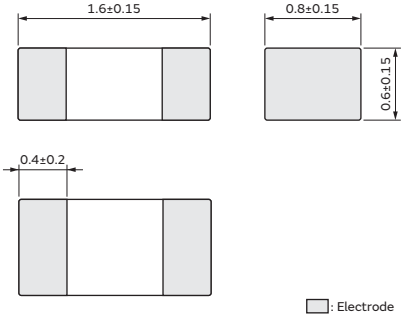
### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

### Appearance/Dimensions



BLM18SN_TN1




(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

### Rated Value (☐: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM18SD220SN1☐ | 22Ω±25% | 6A | 3.5A | 0.008Ω |
| BLM18SG330SN1☐ | 33Ω±25% | 6A | 3.5A | 0.008Ω |
| BLM18SG260TN1☐ | 26Ω±25% | 6A | 1A | 0.007Ω |
| BLM18SG700TN1☐ | 70Ω±25% | 4A | 1A | 0.02Ω |
| BLM18SG121TN1☐ | 120Ω±25% | 3A | 1A | 0.025Ω |

Operating Temp. Range: -55°C to 125°C

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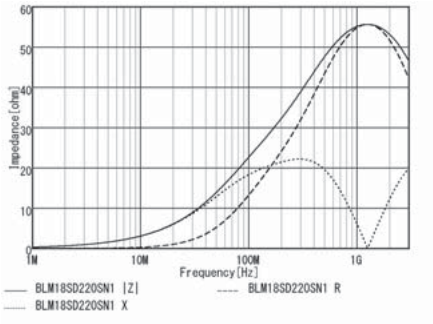
| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| **BLM18SG221TN1□** | 220Ω±25% | 2.5A | 1A | 0.04Ω |
| **BLM18SG331TN1□** | 330Ω±25% | 1.5A | 1A | 0.07Ω |
| **BLM18SN220TN1□** | 22Ω±7Ω | 8A | 5A | 0.004Ω |

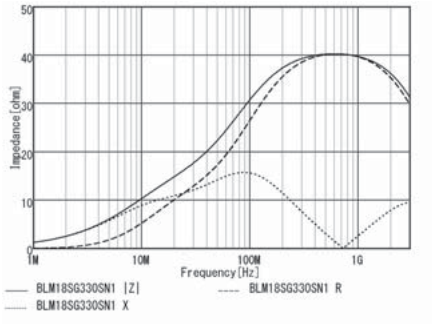
Operating Temp. Range: -55°C to 125°C

## Z-f characteristics

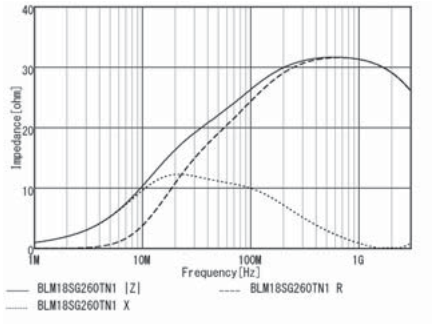
**BLM18SD220SN1**



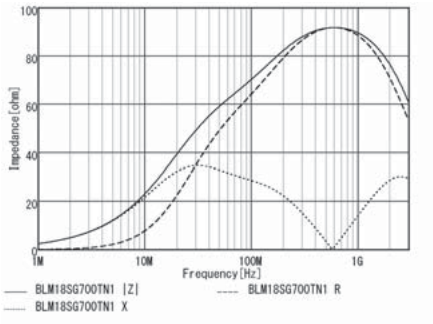

**BLM18SG330SN1**



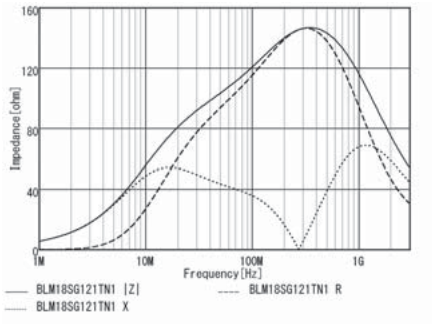

**BLM18SG260TN1**



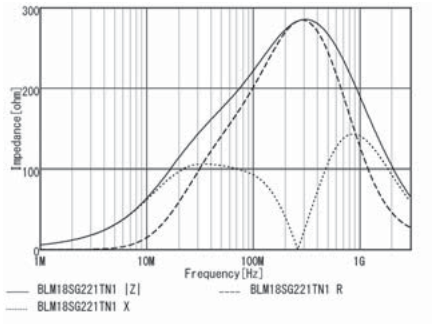

**BLM18SG700TN1**



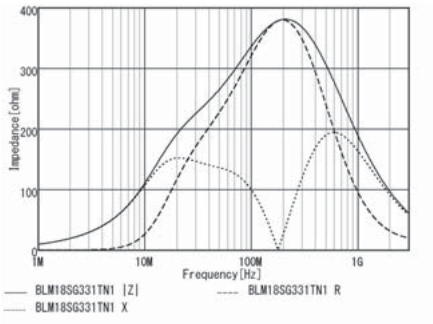

**BLM18SG121TN1**



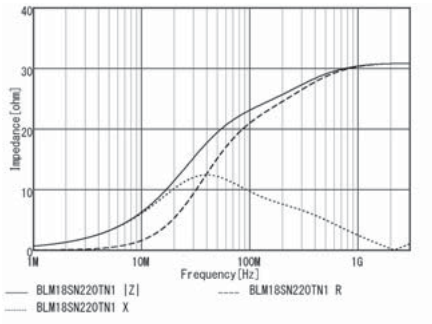

**BLM18SG221TN1**




**BLM18SG331TN1**




**BLM18SN220TN1**

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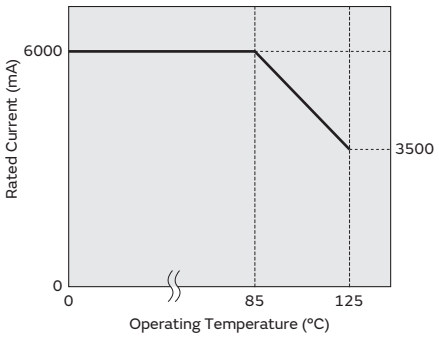
## Derating of Rated Current

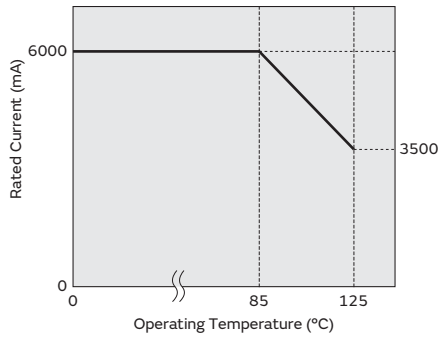
In operating temperature exceeding +85°C, derating of current is necessary for BLM18SD series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



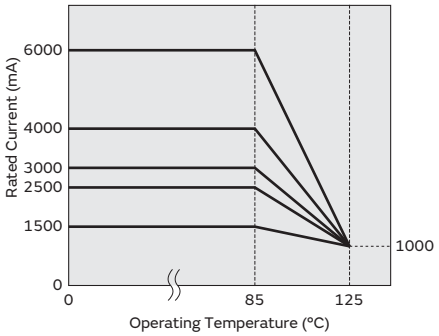

In operating temperature exceeding +85°C, derating of current is necessary for BLM18SG_S□1 series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



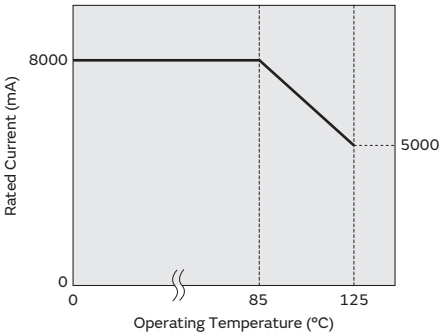

In operating temperature exceeding +85°C, derating of current is necessary for BLM18SG_T□1 series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current




In operating temperature exceeding +85°C, derating of current is necessary for BLM18SN series.
Please apply the derating curve shown in chart according to the operating temperature.

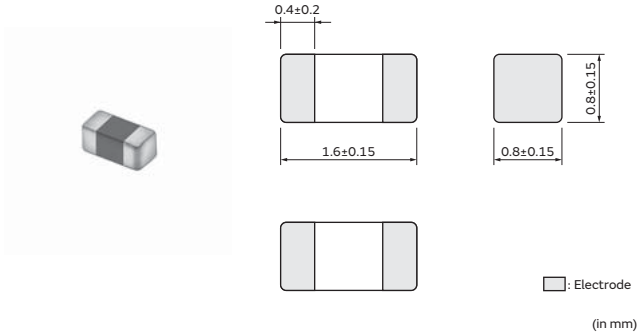
Derating of Rated Current



## Chip ferrite bead

# BLM18AG Series 0603/1608(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

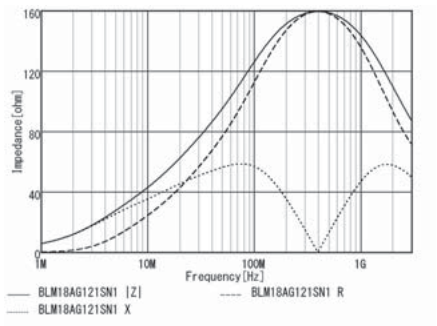
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM18AG121SN1□ | 120Ω±25% | 800mA | 800mA | 0.18Ω |
| BLM18AG151SN1□ | 150Ω±25% | 700mA | 700mA | 0.25Ω |
| BLM18AG221SN1□ | 220Ω±25% | 700mA | 700mA | 0.25Ω |
| BLM18AG331SN1□ | 330Ω±25% | 600mA | 600mA | 0.3Ω |
| BLM18AG471SN1□ | 470Ω±25% | 550mA | 550mA | 0.35Ω |
| BLM18AG601SN1□ | 600Ω±25% | 500mA | 500mA | 0.38Ω |
| BLM18AG102SN1□ | 1000Ω±25% | 450mA | 450mA | 0.5Ω |

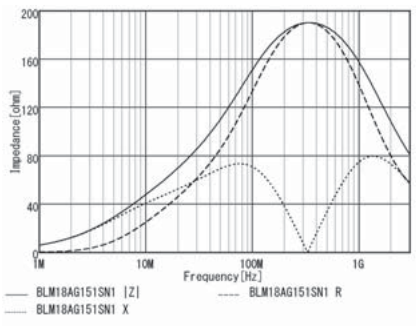
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

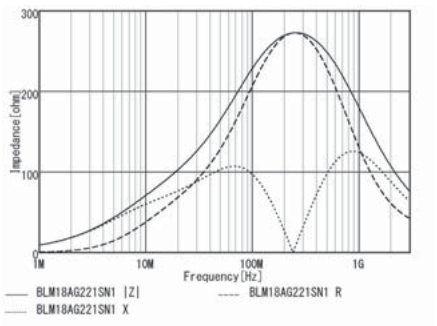
**BLM18AG121SN1**



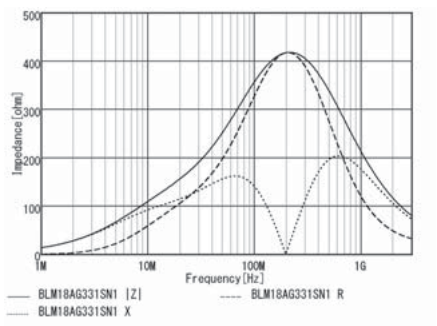

**BLM18AG151SN1**



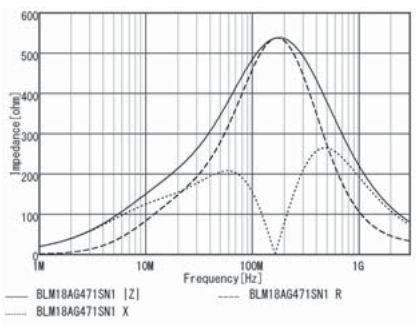

**BLM18AG221SN1**



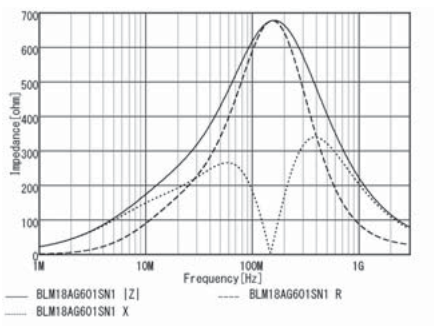

**BLM18AG331SN1**




**BLM18AG471SN1**




**BLM18AG601SN1**

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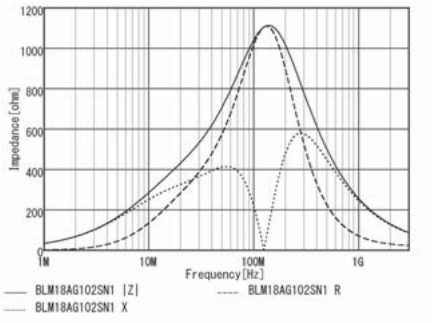
## Z-f characteristics

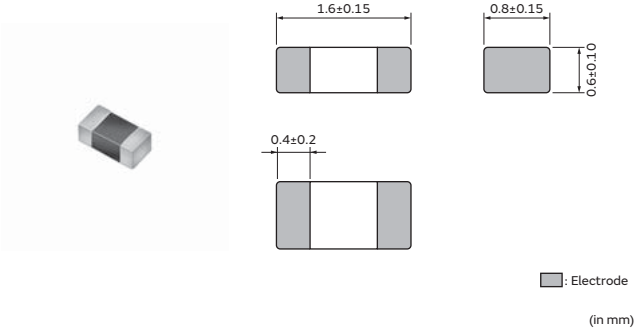
**BLM18AG102SN1**



## Chip ferrite bead

# BLM18TG Series 0603/1608(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

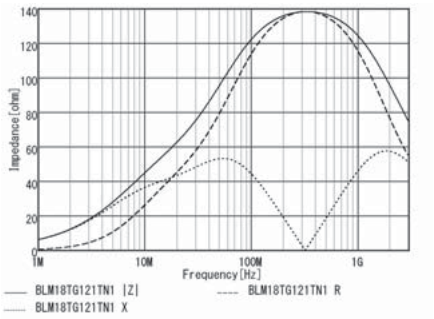
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| **BLM18TG121TN1□** | 120Ω±25% | 200mA | 200mA | 0.25Ω |
| **BLM18TG221TN1□** | 220Ω±25% | 200mA | 200mA | 0.3Ω |
| **BLM18TG601TN1□** | 600Ω±25% | 200mA | 200mA | 0.45Ω |
| **BLM18TG102TN1□** | 1000Ω±25% | 100mA | 100mA | 0.6Ω |

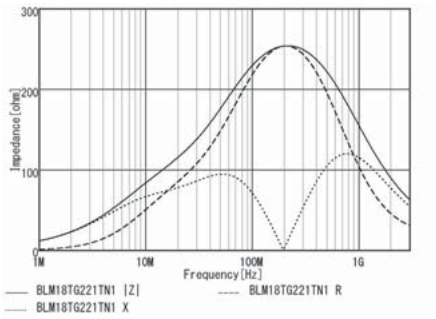
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

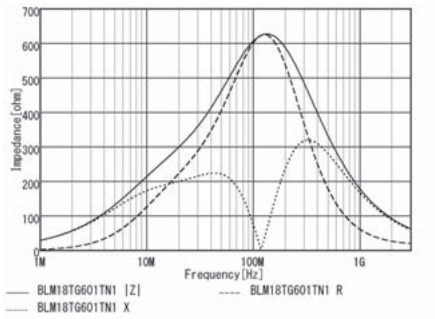
**BLM18TG121TN1**



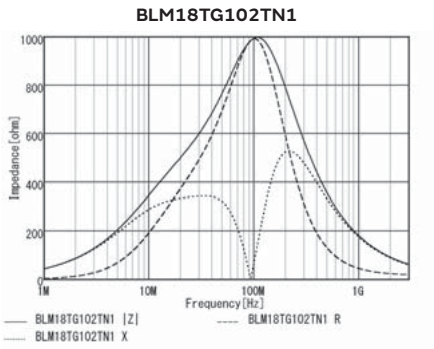

**BLM18TG221TN1**




**BLM18TG601TN1**



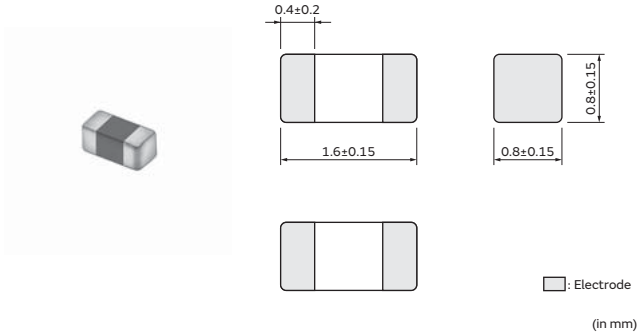

**BLM18TG102TN1**



## Chip ferrite bead

# BLM18BA/BB/BD Series 0603/1608(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM18BA050SN1□ | 5Ω±25% | 500mA | 500mA | 0.2Ω |
| BLM18BA100SN1□ | 10Ω±25% | 500mA | 500mA | 0.25Ω |
| BLM18BA220SN1□ | 22Ω±25% | 500mA | 500mA | 0.35Ω |
| BLM18BA470SN1□ | 47Ω±25% | 300mA | 300mA | 0.55Ω |
| BLM18BA750SN1□ | 75Ω±25% | 300mA | 300mA | 0.7Ω |
| BLM18BA121SN1□ | 120Ω±25% | 200mA | 200mA | 0.9Ω |
| BLM18BB050SN1□ | 5Ω±25% | 800mA | 800mA | 0.05Ω |
| BLM18BB100SN1□ | 10Ω±25% | 700mA | 700mA | 0.1Ω |
| BLM18BB220SN1□ | 22Ω±25% | 700mA | 700mA | 0.2Ω |
| BLM18BB470SN1□ | 47Ω±25% | 600mA | 600mA | 0.25Ω |
| BLM18BB600SN1□ | 60Ω±25% | 600mA | 600mA | 0.25Ω |
| BLM18BB750SN1□ | 75Ω±25% | 600mA | 600mA | 0.3Ω |
| BLM18BB121SN1□ | 120Ω±25% | 550mA | 550mA | 0.3Ω |
| BLM18BB141SN1□ | 140Ω±25% | 500mA | 500mA | 0.35Ω |
| BLM18BB151SN1□ | 150Ω±25% | 450mA | 450mA | 0.37Ω |
| BLM18BB221SN1□ | 220Ω±25% | 450mA | 450mA | 0.45Ω |
| BLM18BB331SN1□ | 330Ω±25% | 400mA | 400mA | 0.58Ω |
| BLM18BB471SN1□ | 470Ω±25% | 300mA | 300mA | 0.85Ω |
| BLM18BD470SN1□ | 47Ω±25% | 500mA | 500mA | 0.3Ω |
| BLM18BD121SN1□ | 120Ω±25% | 300mA | 300mA | 0.4Ω |
| BLM18BD151SN1□ | 150Ω±25% | 300mA | 300mA | 0.4Ω |
| BLM18BD221SN1□ | 220Ω±25% | 250mA | 250mA | 0.45Ω |
| BLM18BD331SN1□ | 330Ω±25% | 250mA | 250mA | 0.5Ω |
| BLM18BD421SN1□ | 420Ω±25% | 250mA | 250mA | 0.55Ω |
| BLM18BD471SN1□ | 470Ω±25% | 250mA | 250mA | 0.55Ω |
| BLM18BD601SN1□ | 600Ω±25% | 200mA | 200mA | 0.65Ω |
| BLM18BD102SN1□ | 1000Ω±25% | 200mA | 200mA | 0.85Ω |
| BLM18BD152SN1□ | 1500Ω±25% | 150mA | 150mA | 1.2Ω |
| BLM18BD182SN1□ | 1800Ω±25% | 150mA | 150mA | 1.5Ω |
| BLM18BD222SN1□ | 2200Ω±25% | 150mA | 150mA | 1.5Ω |
| BLM18BD252SN1□ | 2500Ω±25% | 150mA | 150mA | 1.5Ω |

Operating Temp. Range: -55°C to 125°C

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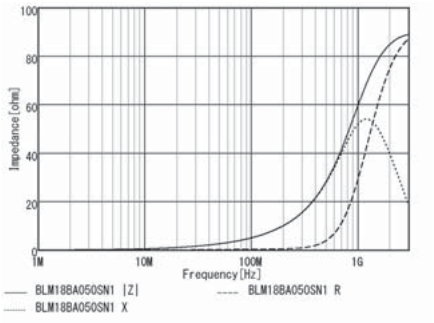
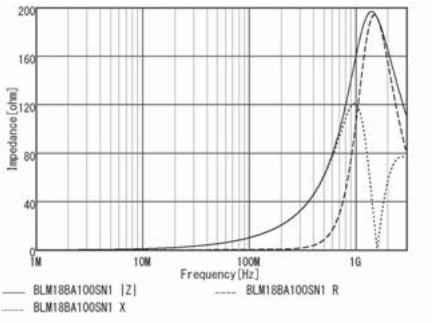
## Z-f characteristics

**BLM18BA050SN1**




**BLM18BA100SN1**

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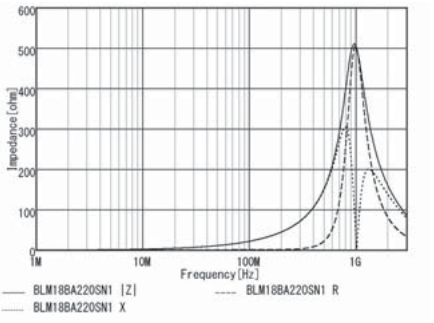
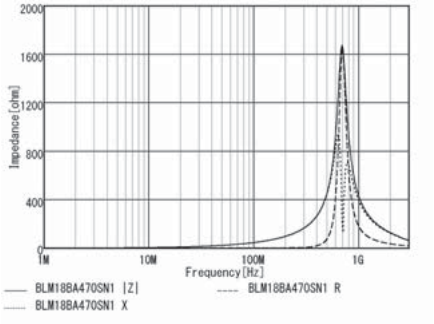
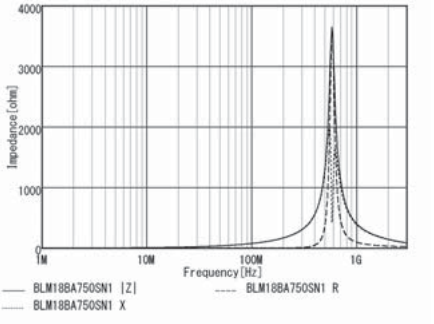


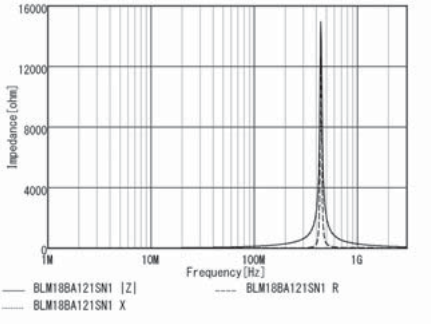

**BLM18BA470SN1**



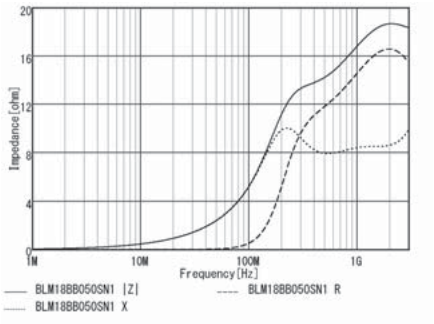

**BLM18BA750SN1**



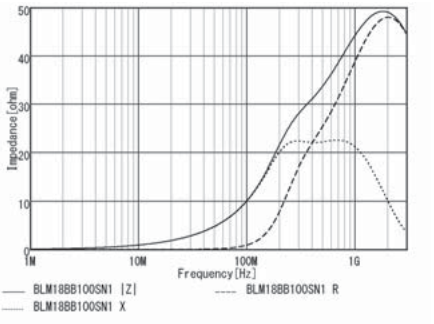

**BLM18BA121SN1**




**BLM18BB050SN1**




**BLM18BB100SN1**

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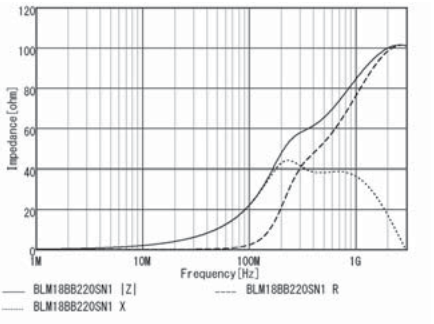
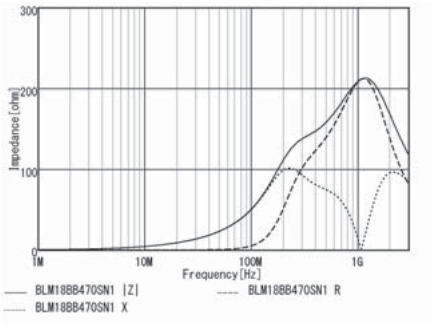
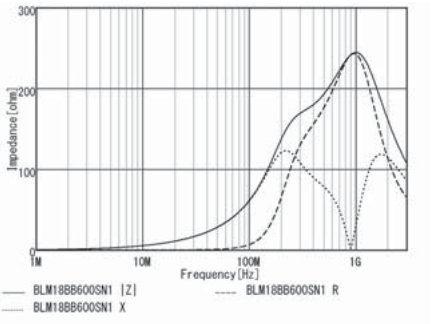



**BLM18BB470SN1**




**BLM18BB600SN1**

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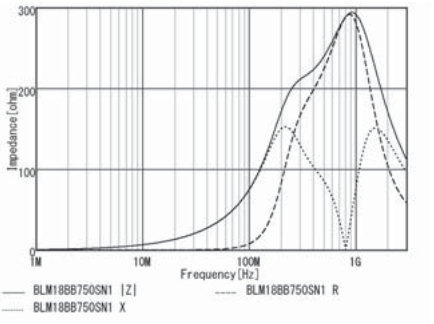


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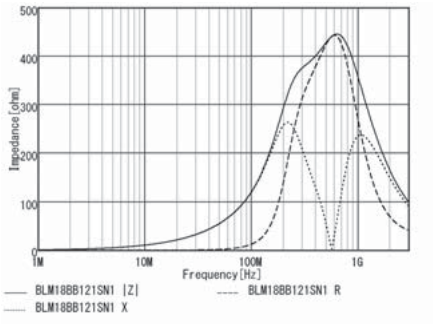


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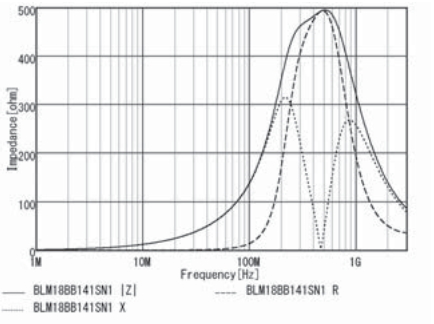


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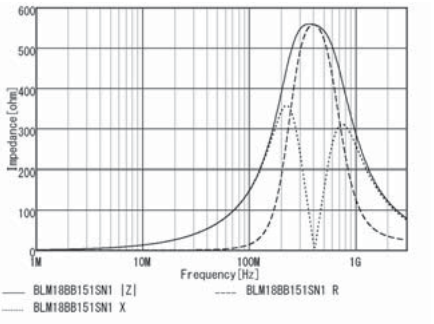


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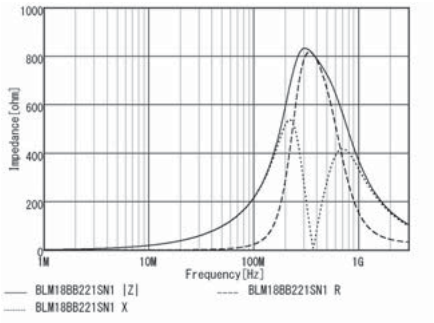
## Z-f characteristics

**BLM18BB221SN1**

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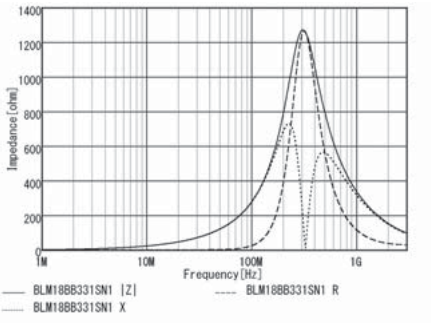


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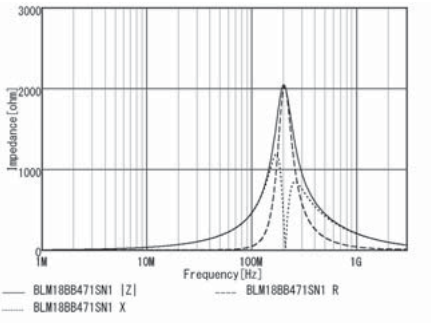


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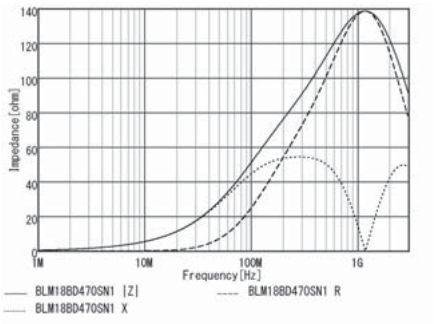


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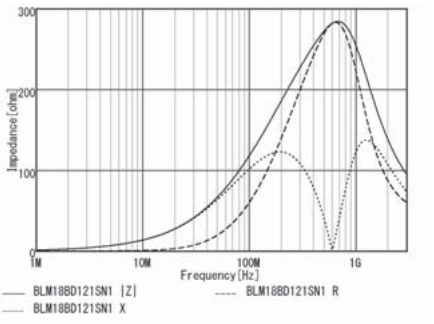


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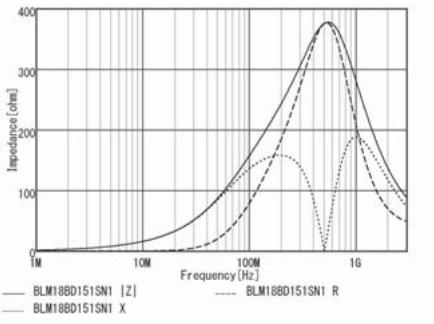


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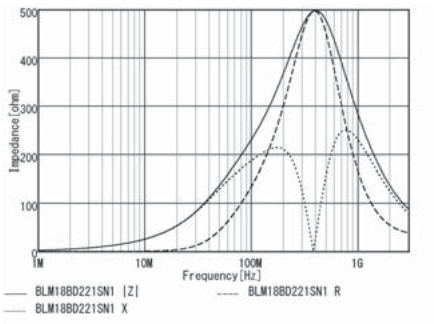


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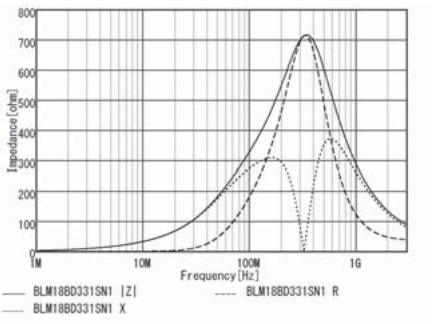


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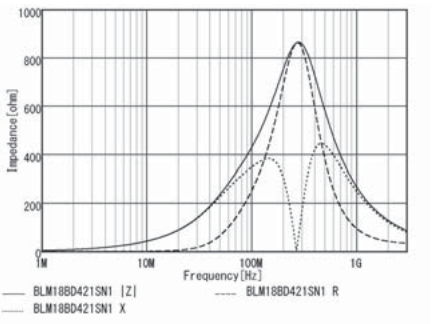
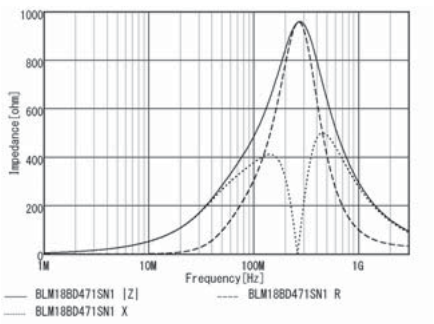
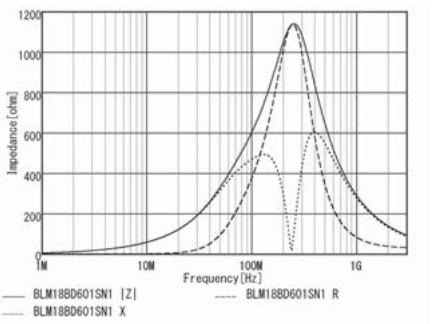


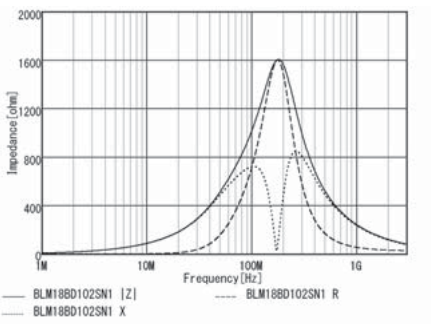

**BLM18BD471SN1**



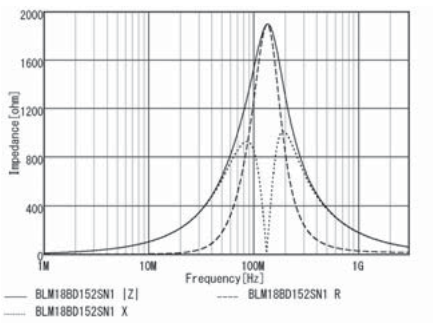

**BLM18BD601SN1**



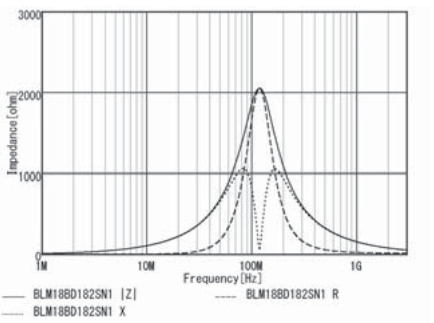

**BLM18BD102SN1**



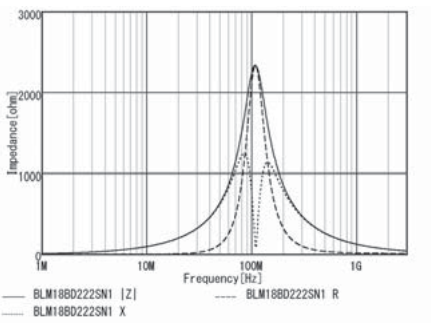

**BLM18BD152SN1**




**BLM18BD182SN1**




**BLM18BD222SN1**

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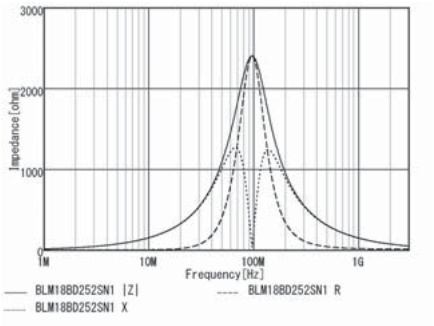
## Z-f characteristics

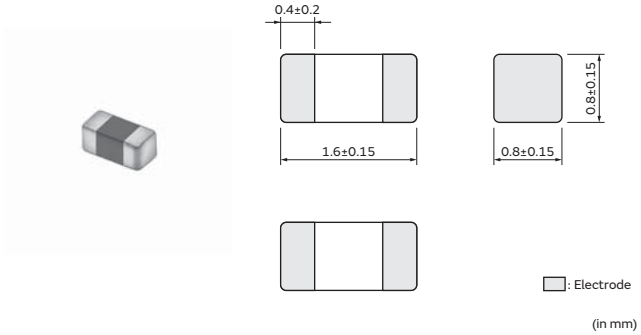
**BLM18BD252SN1**



## Chip ferrite bead

# BLM18RK Series 0603/1608(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

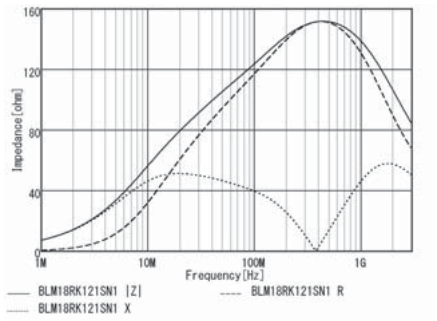
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM18RK121SN1□ | 120Ω±25% | 200mA | 200mA | 0.25Ω |
| BLM18RK221SN1□ | 220Ω±25% | 200mA | 200mA | 0.3Ω |
| BLM18RK471SN1□ | 470Ω±25% | 200mA | 200mA | 0.5Ω |
| BLM18RK601SN1□ | 600Ω±25% | 200mA | 200mA | 0.6Ω |
| BLM18RK102SN1□ | 1000Ω±25% | 200mA | 200mA | 0.8Ω |

Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

**BLM18RK121SN1**

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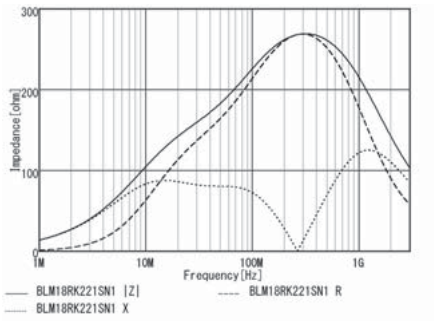
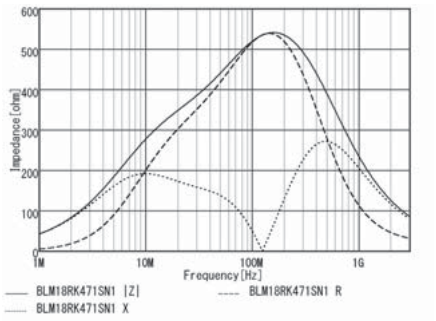
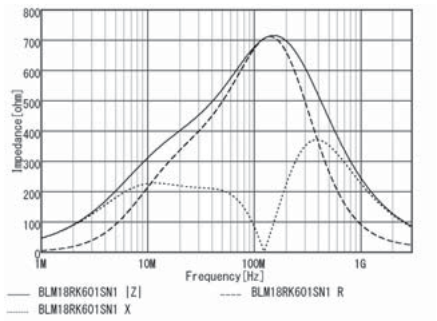


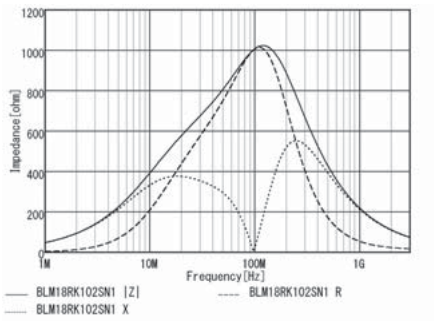

**BLM18RK471SN1**




**BLM18RK601SN1**



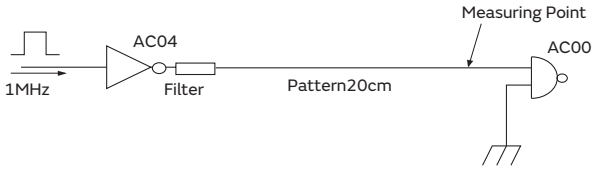

**BLM18RK102SN1**

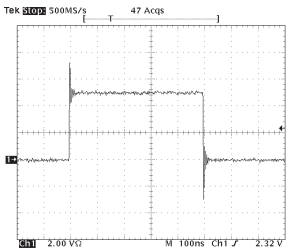
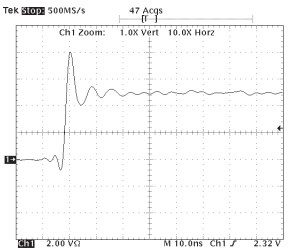
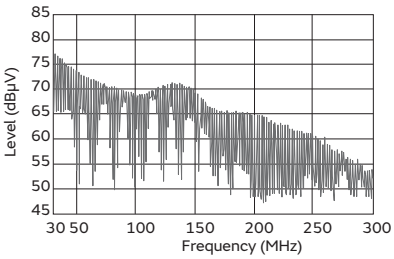
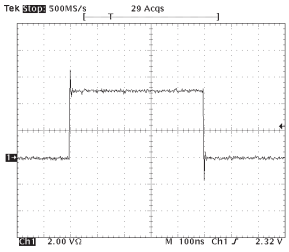
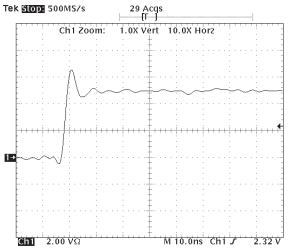
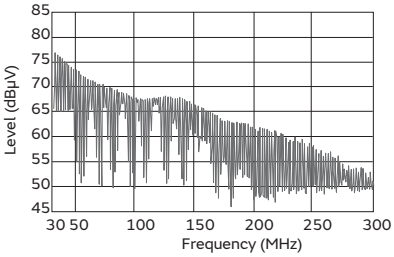
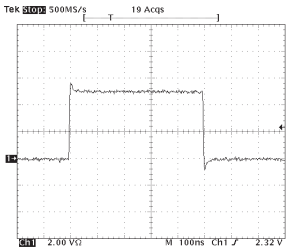
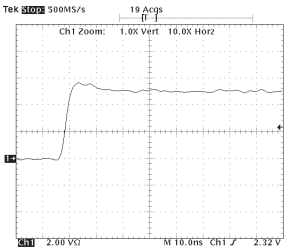
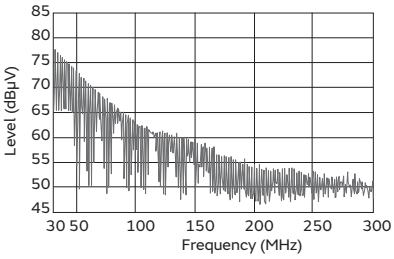


# Chip Ferrite Bead (BLM□□R Series) EMI Suppression Effect

## Waveform Distortion Suppressing Performance of BLM□□R Series

Measuring Circuits

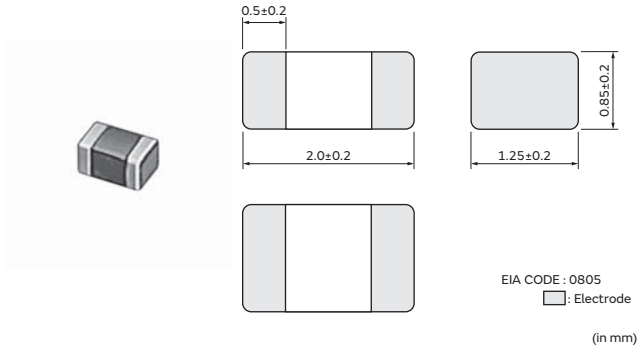



| Type of Filter | EMI Suppression Effect / Description |
|---|---|
| **Initial (No filter)** | **Signal waveform (100nsec/div, 2V/div)** **Expand (10nsec/div, 2V/div)** **Spectrum**<br>    <br>Ringing is caused on the signal waveform.<br>Such ringing contains several hundred MHz harmonic components and generates noise. |
| **Resister (47Ω) is used** | **Signal waveform (100nsec/div, 2V/div)** **Expand (10nsec/div, 2V/div)** **Spectrum**<br>    <br>Comparing initial waveform, ringing is suppressed a little.<br>However, high level waveform distortion still remains. |
| **BLM18RK221SN1 (220Ω at 100MHz) is used** | **Signal waveform (100nsec/div, 2V/div)** **Expand (10nsec/div, 2V/div)** **Spectrum**<br>    <br>BLM18R has excellent performance for noise suppression and waveform distortion suppression.<br>BLM18R suppresses drastically not only the spectrum level in more than 100MHz range but waveform distortion. |

## Chip ferrite bead

# BLM21PG Series 0805/2012(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

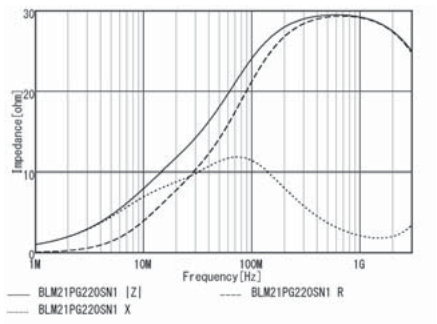
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM21PG220SN1□ | 22Ω±25% | 6A | 3.3A | 0.009Ω |
| BLM21PG300SN1□ | 30Ω(Typ.) | 4A | 2.3A | 0.014Ω |
| BLM21PG600SN1□ | 60Ω±25% | 3.5A | 1.9A | 0.02Ω |
| BLM21PG121SN1□ | 120Ω±25% | 3A | 1.55A | 0.03Ω |
| BLM21PG221SN1□ | 220Ω±25% | 2A | 1.25A | 0.045Ω |
| BLM21PG331SN1□ | 330Ω±25% | 1.5A | 1A | 0.07Ω |

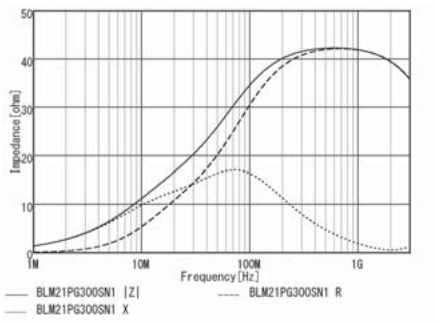
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

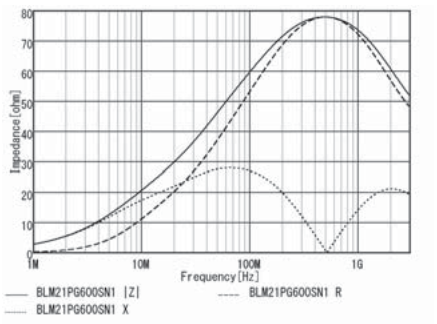
**BLM21PG220SN1**



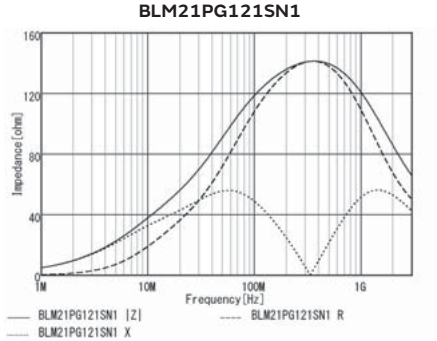

**BLM21PG300SN1**



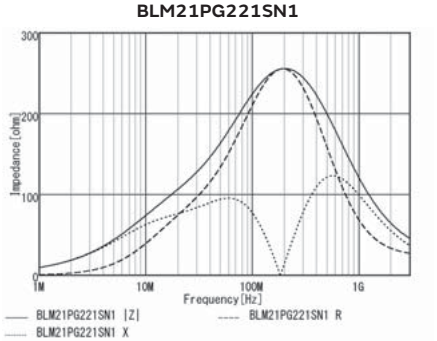

**BLM21PG600SN1**



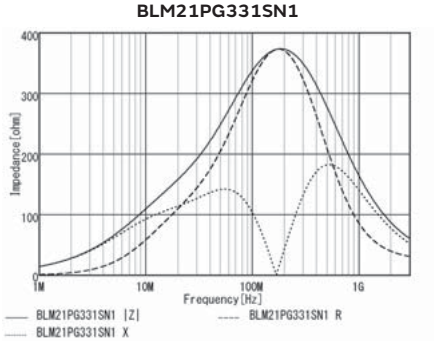

**BLM21PG121SN1**




**BLM21PG221SN1**




**BLM21PG331SN1**

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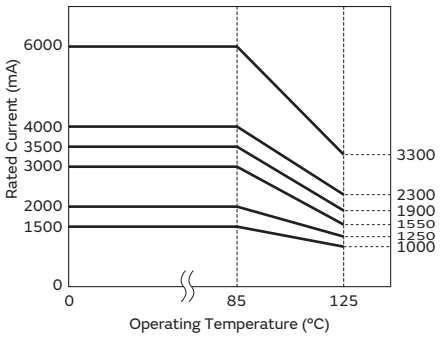
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM21PG series.
Please apply the derating curve shown in chart according to the operating temperature.

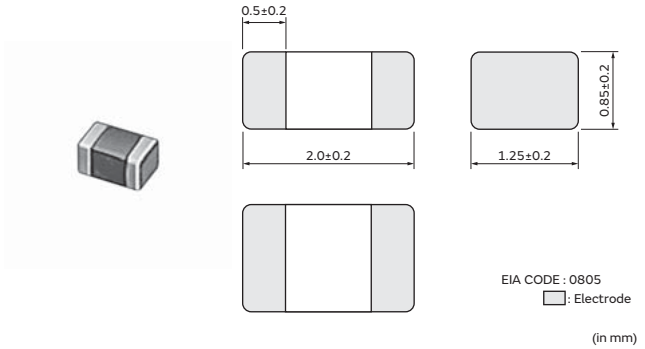
Derating of Rated Current



## Chip ferrite bead

# BLM21SN/SP Series 0805/2012(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

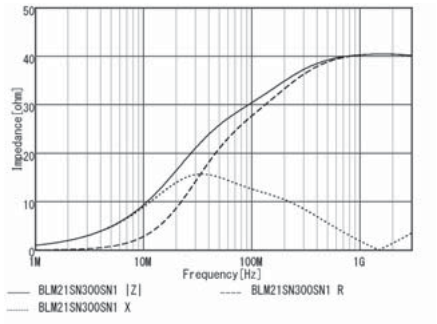
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM21SN300SN1□ | 30Ω±10Ω | 8.5A | 6A | 0.004Ω |
| BLM21SP700SN1□ | 70Ω±25% | 6A | 4A | 0.009Ω |
| BLM21SP111SN1□ | 110Ω±25% | 5A | 3.3A | 0.013Ω |
| BLM21SP181SN1□ | 180Ω±25% | 4A | 2.6A | 0.02Ω |
| BLM21SP331SN1□ | 330Ω±25% | 2.8A | 1.9A | 0.04Ω |
| BLM21SP471SN1□ | 470Ω±25% | 2.5A | 1.7A | 0.05Ω |
| BLM21SP601SN1□ | 600Ω±25% | 2.3A | 1.5A | 0.06Ω |
| BLM21SP102SN1□ | 1000Ω±25% | 1.6A | 1.1A | 0.12Ω |

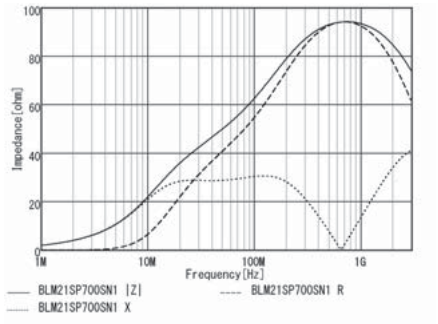
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

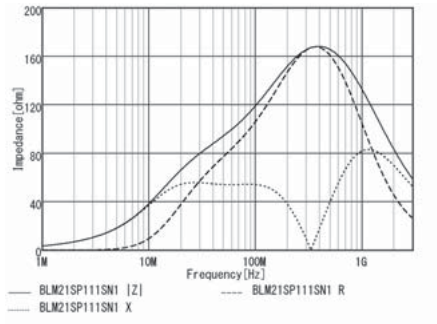
**BLM21SN300SN1**



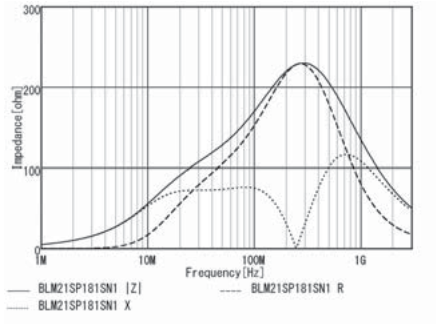

**BLM21SP700SN1**



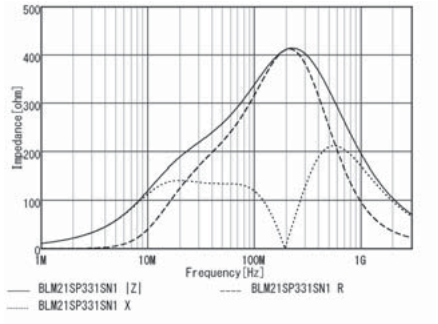

**BLM21SP111SN1**



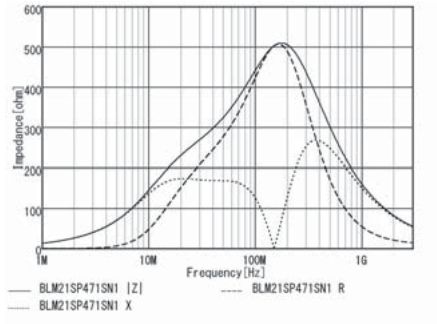

**BLM21SP181SN1**




**BLM21SP331SN1**




**BLM21SP471SN1**

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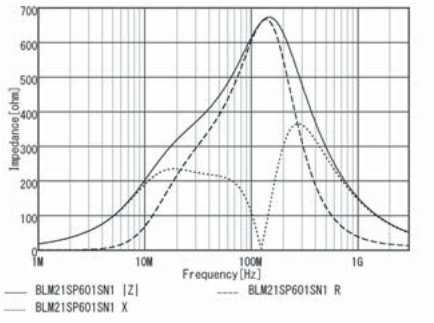
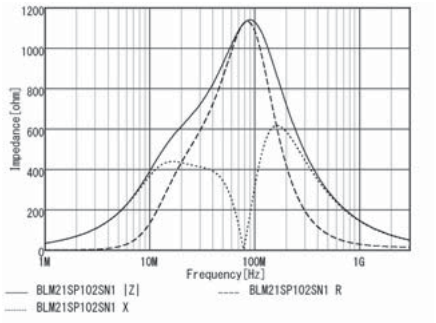
## Z-f characteristics

**BLM21SP601SN1**



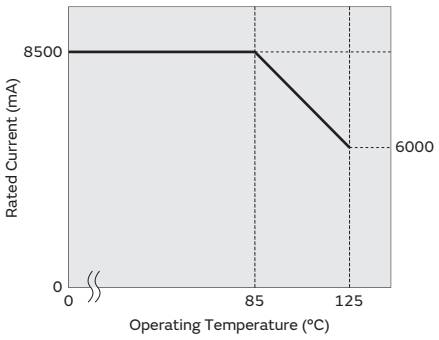

**BLM21SP102SN1**




## Derating of Rated Current

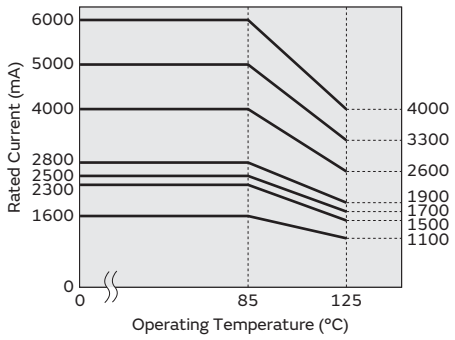
In operating temperature exceeding +85°C, derating of current is necessary for BLM21SN series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current




In operating temperature exceeding +85°C, derating of current is necessary for BLM21SP series.
Please apply the derating curve shown in chart according to the operating temperature.

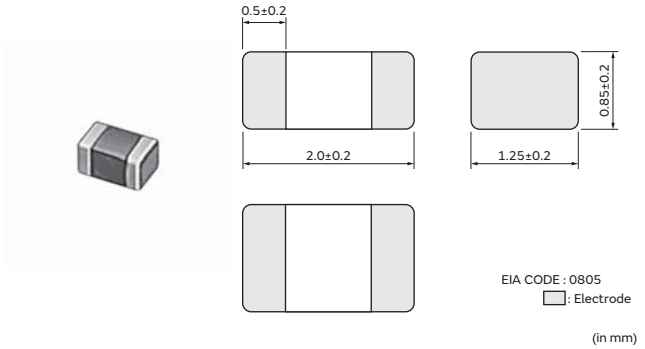
Derating of Rated Current



## Chip ferrite bead

# BLM21AG Series 0805/2012(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

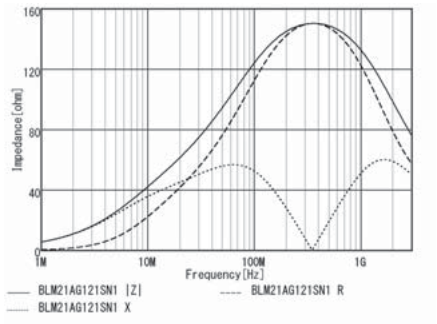
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM21AG121SN1□ | 120Ω±25% | 1A | 1A | 0.09Ω |
| BLM21AG151SN1□ | 150Ω±25% | 1A | 1A | 0.09Ω |
| BLM21AG221SN1□ | 220Ω±25% | 900mA | 900mA | 0.12Ω |
| BLM21AG331SN1□ | 330Ω±25% | 800mA | 800mA | 0.15Ω |
| BLM21AG471SN1□ | 470Ω±25% | 700mA | 700mA | 0.18Ω |
| BLM21AG601SN1□ | 600Ω±25% | 700mA | 700mA | 0.2Ω |
| BLM21AG102SN1□ | 1000Ω±25% | 600mA | 600mA | 0.27Ω |

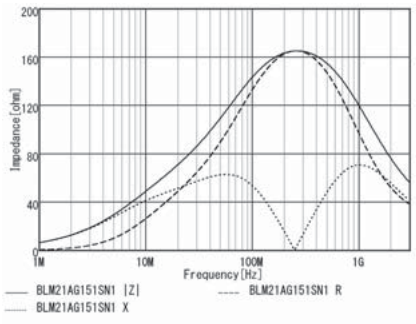
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

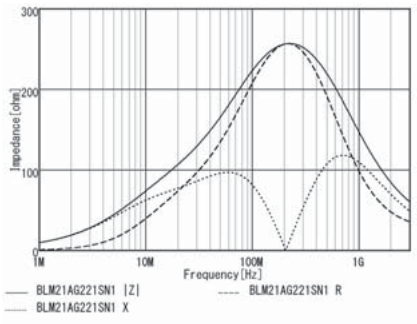
**BLM21AG121SN1**



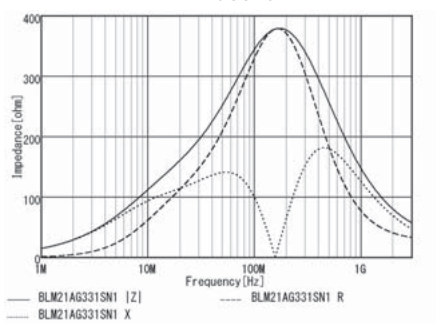

**BLM21AG151SN1**



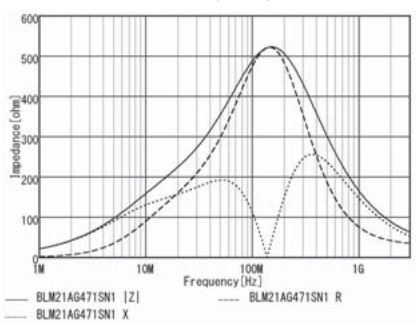

**BLM21AG221SN1**



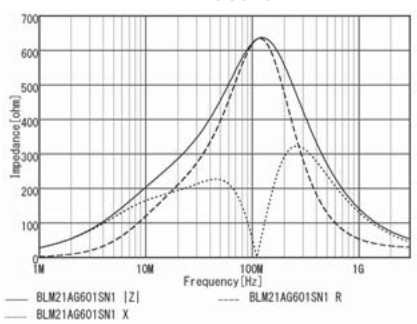

**BLM21AG331SN1**




**BLM21AG471SN1**




**BLM21AG601SN1**

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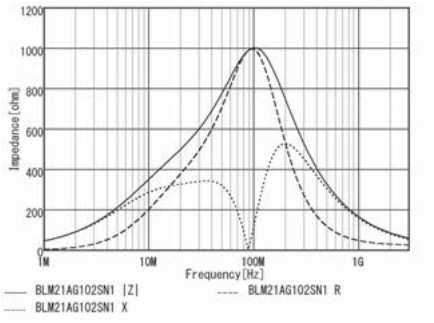
## Z-f characteristics

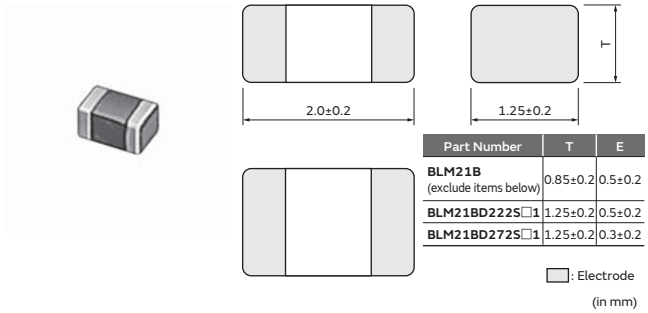
**BLM21AG102SN1**



## Chip ferrite bead

# BLM21BB/BD Series 0805/2012(inch/mm)

### Appearance/Dimensions




| Part Number | T | E |
|---|---|---|
| BLM21B (exclude items below) | 0.85±0.2 | 0.5±0.2 |
| BLM21BD222S□1 | 1.25±0.2 | 0.5±0.2 |
| BLM21BD272S□1 | 1.25±0.2 | 0.3±0.2 |

□: Electrode

(in mm)

### Packaging

All except for BLM21BD222SN1/BLM21BD272SN1

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

BLM21BD222SN1/BLM21BD272SN1 only

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 10000 |
| L | ø180mm Embossed Tape | 3000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM21BB050SN1□ | 5Ω±25% | 1A | 1A | 0.02Ω |
| BLM21BB600SN1□ | 60Ω±25% | 800mA | 800mA | 0.13Ω |
| BLM21BB750SN1□ | 75Ω±25% | 700mA | 700mA | 0.16Ω |
| BLM21BB121SN1□ | 120Ω±25% | 600mA | 600mA | 0.19Ω |
| BLM21BB151SN1□ | 150Ω±25% | 600mA | 600mA | 0.21Ω |
| BLM21BB201SN1□ | 200Ω±25% | 500mA | 500mA | 0.26Ω |
| BLM21BB221SN1□ | 220Ω±25% | 500mA | 500mA | 0.26Ω |
| BLM21BB331SN1□ | 330Ω±25% | 400mA | 400mA | 0.33Ω |
| BLM21BB471SN1□ | 470Ω±25% | 400mA | 400mA | 0.4Ω |
| BLM21BD121SN1□ | 120Ω±25% | 350mA | 350mA | 0.25Ω |
| BLM21BD151SN1□ | 150Ω±25% | 350mA | 350mA | 0.25Ω |
| BLM21BD221SN1□ | 220Ω±25% | 350mA | 350mA | 0.25Ω |
| BLM21BD331SN1□ | 330Ω±25% | 300mA | 300mA | 0.3Ω |
| BLM21BD421SN1□ | 420Ω±25% | 300mA | 300mA | 0.3Ω |
| BLM21BD471SN1□ | 470Ω±25% | 300mA | 300mA | 0.35Ω |
| BLM21BD601SN1□ | 600Ω±25% | 300mA | 300mA | 0.35Ω |
| BLM21BD751SN1□ | 750Ω±25% | 250mA | 250mA | 0.4Ω |
| BLM21BD102SN1□ | 1000Ω±25% | 250mA | 250mA | 0.4Ω |
| BLM21BD152SN1□ | 1500Ω±25% | 250mA | 250mA | 0.45Ω |
| BLM21BD182SN1□ | 1800Ω±25% | 250mA | 250mA | 0.5Ω |
| BLM21BD222SN1□ | 2250Ω(Typ.) | 250mA | 250mA | 0.6Ω |
| BLM21BD272SN1□ | 2700Ω±25% | 200mA | 200mA | 0.8Ω |
| BLM21BD222TN1□ | 2200Ω±25% | 200mA | 200mA | 0.6Ω |

Operating Temp. Range: -55°C to 125°C

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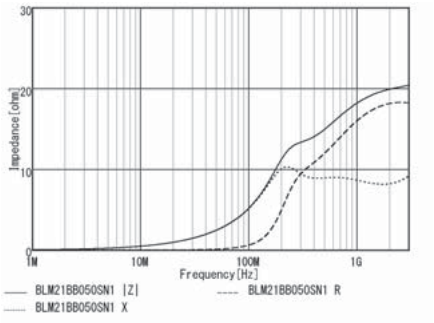
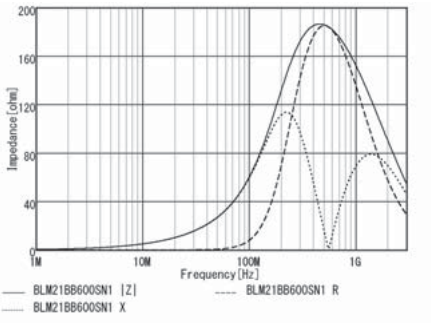
## Z-f characteristics

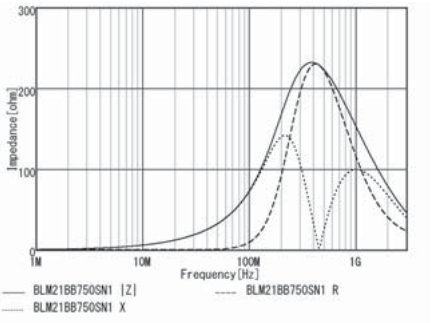
**BLM21BB050SN1**



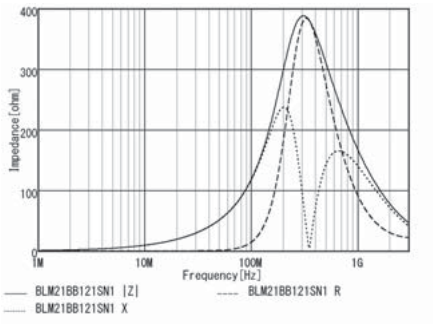

**BLM21BB600SN1**



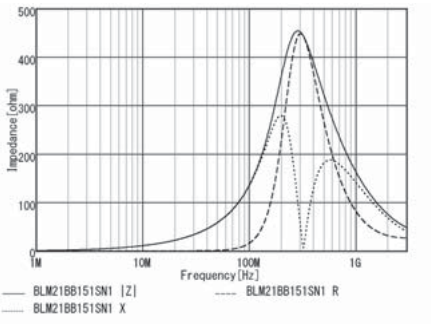

**BLM21BB750SN1**



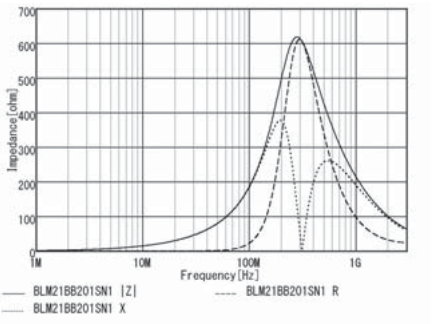

**BLM21BB121SN1**



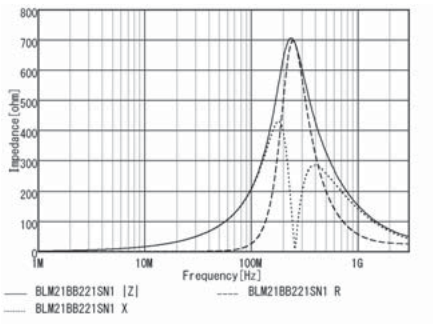

**BLM21BB151SN1**



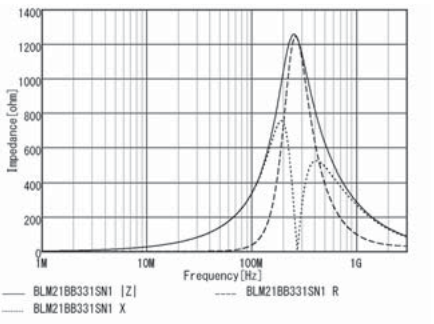

**BLM21BB201SN1**



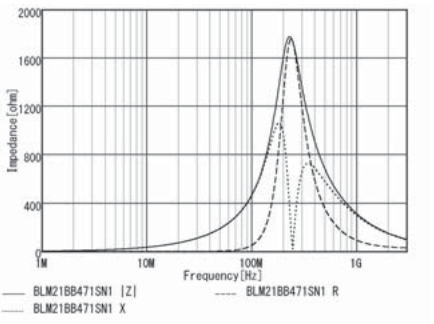

**BLM21BB221SN1**



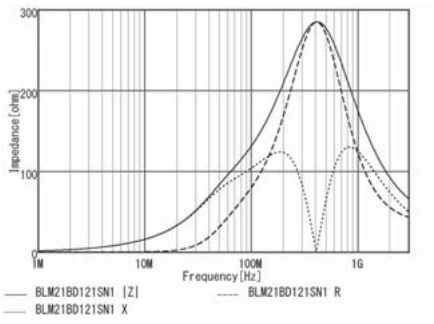

**BLM21BB331SN1**



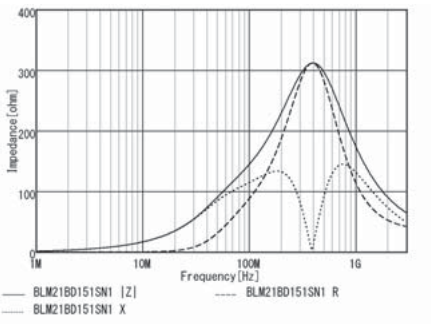

**BLM21BB471SN1**



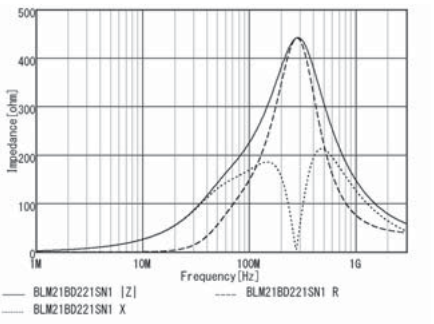

**BLM21BD121SN1**



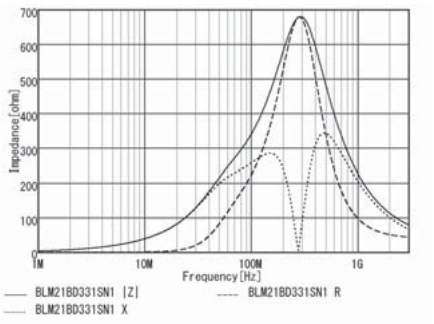

**BLM21BD151SN1**



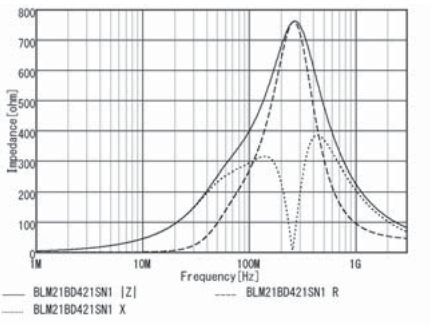

**BLM21BD221SN1**



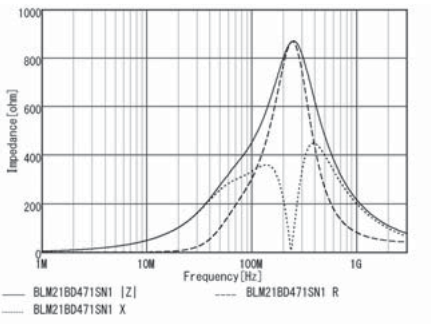

**BLM21BD331SN1**




**BLM21BD421SN1**




**BLM21BD471SN1**

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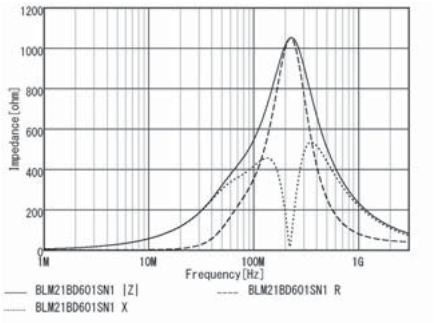
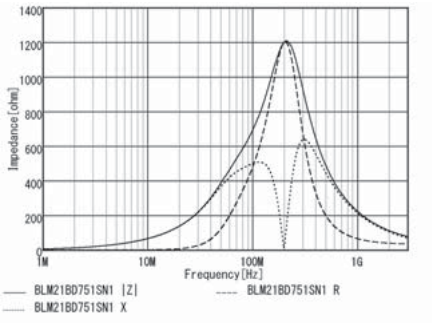
## Z-f characteristics

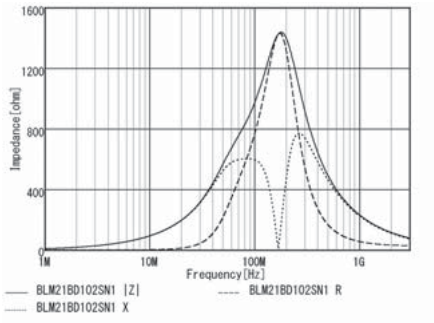
**BLM21BD601SN1**



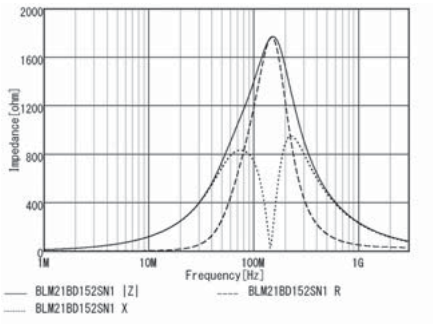

**BLM21BD751SN1**



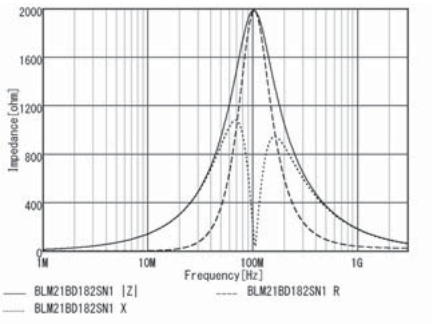

**BLM21BD102SN1**



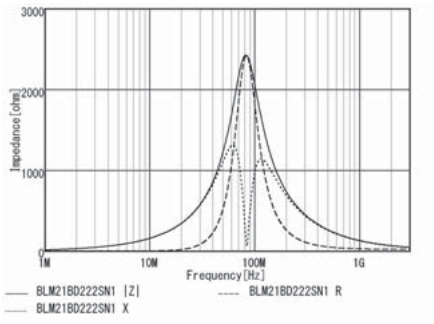

**BLM21BD152SN1**



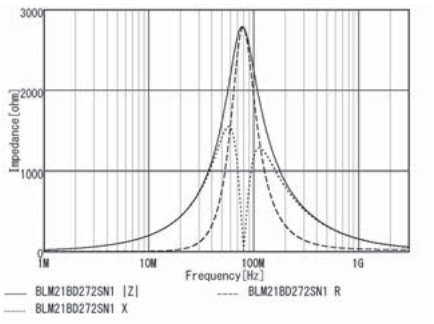

**BLM21BD182SN1**



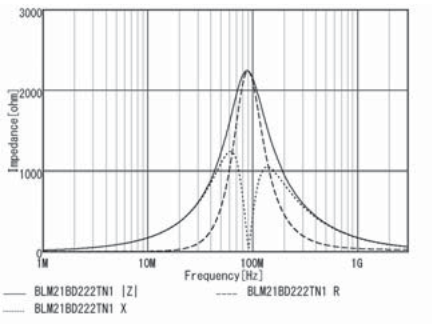

**BLM21BD222SN1**




**BLM21BD272SN1**



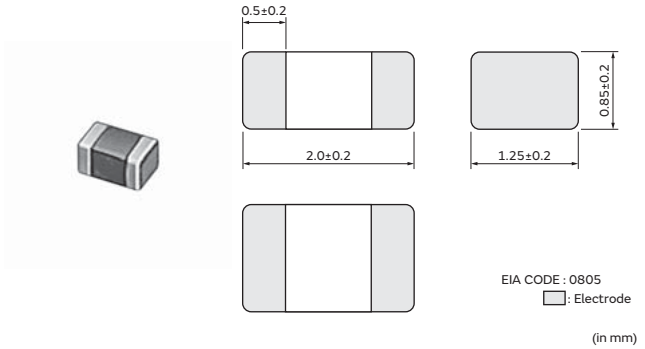

**BLM21BD222TN1**



## Chip ferrite bead

# BLM21RK Series 0805/2012(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

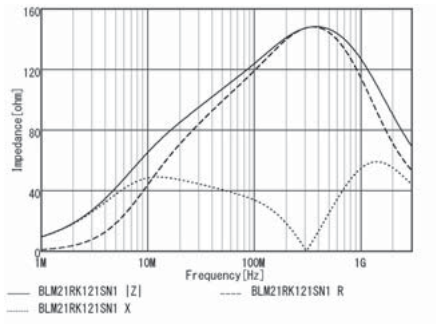
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM21RK121SN1□ | 120Ω±25% | 200mA | 200mA | 0.15Ω |
| BLM21RK221SN1□ | 220Ω±25% | 200mA | 200mA | 0.2Ω |
| BLM21RK471SN1□ | 470Ω±25% | 200mA | 200mA | 0.25Ω |
| BLM21RK601SN1□ | 600Ω±25% | 200mA | 200mA | 0.3Ω |
| BLM21RK102SN1□ | 1000Ω±25% | 200mA | 200mA | 0.5Ω |

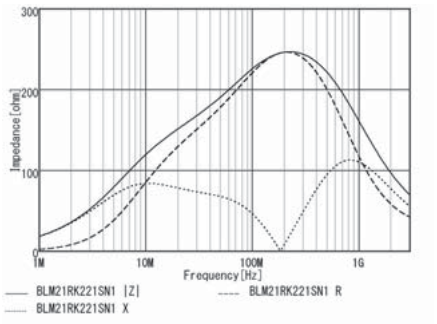
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

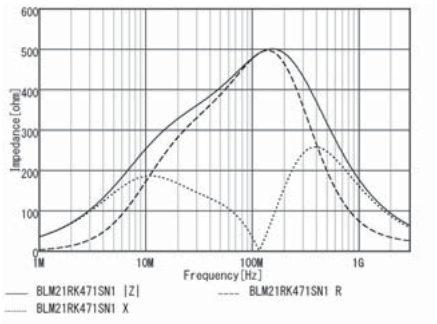
**BLM21RK121SN1**



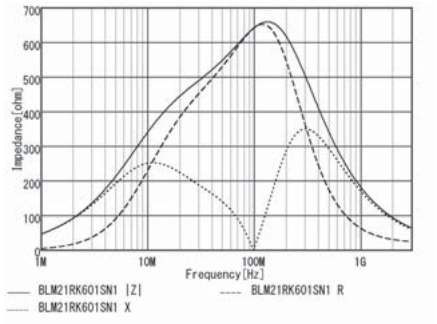

**BLM21RK221SN1**



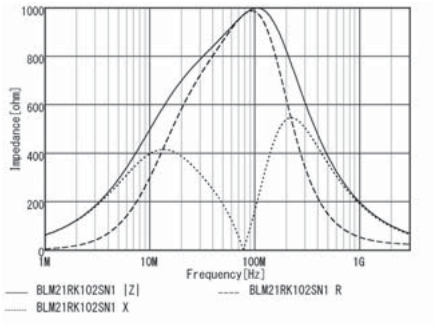

**BLM21RK471SN1**




**BLM21RK601SN1**



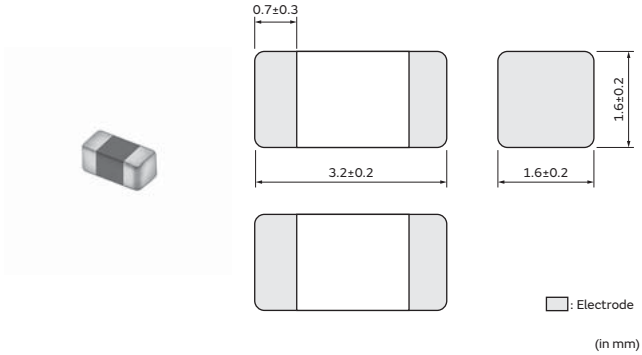

**BLM21RK102SN1**



## Chip ferrite bead

# BLM31KN Series 1206/3216(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 8000 |
| L | ø180mm Embossed Tape | 2500 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

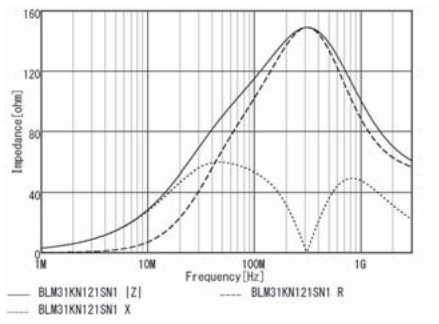
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM31KN121SN1□ | 120Ω±25% | 6A | 4A | 0.009Ω |
| BLM31KN271SN1□ | 270Ω±25% | 4.5A | 3A | 0.016Ω |
| BLM31KN471SN1□ | 470Ω±25% | 4A | 2.7A | 0.02Ω |
| BLM31KN601SN1□ | 600Ω±25% | 2.9A | 2A | 0.038Ω |
| BLM31KN801SN1□ | 800Ω±25% | 2.5A | 1.7A | 0.05Ω |
| BLM31KN102SN1□ | 1000Ω±25% | 2A | 1.4A | 0.075Ω |

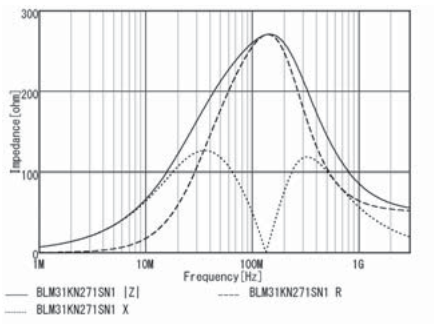
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

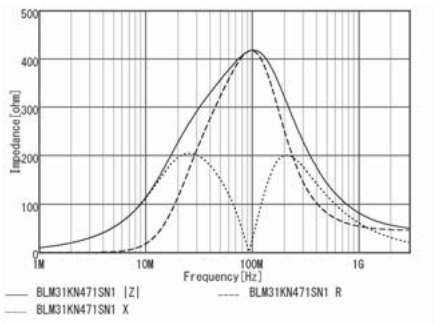
**BLM31KN121SN1**



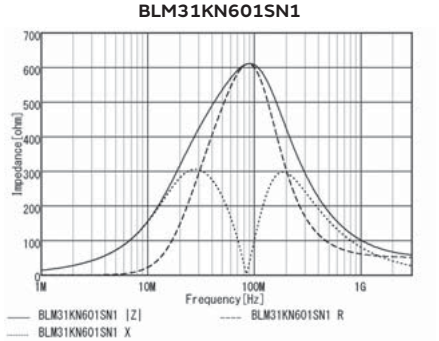

**BLM31KN271SN1**



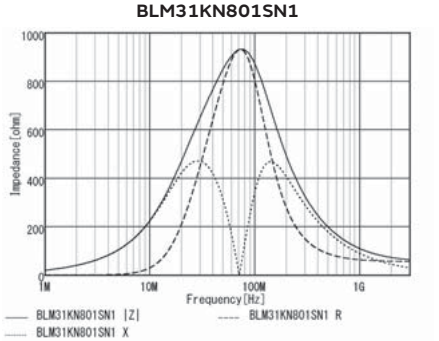

**BLM31KN471SN1**



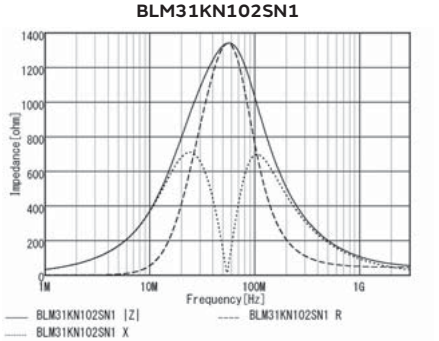

**BLM31KN601SN1**




**BLM31KN801SN1**




**BLM31KN102SN1**

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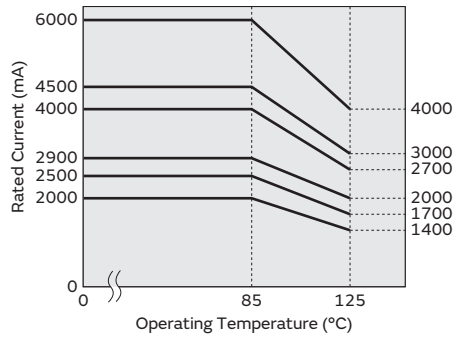
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM31KN series.
Please apply the derating curve shown in chart according to the operating temperature.

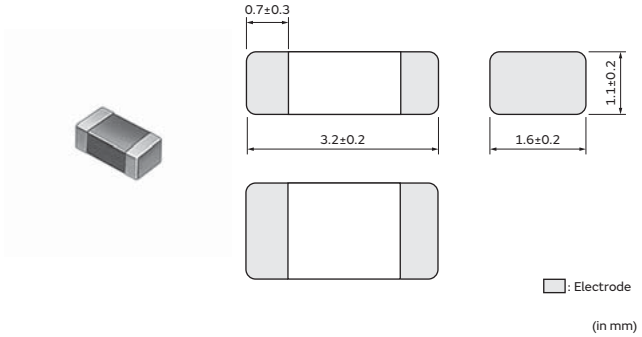
Derating of Rated Current



## Chip ferrite bead

# BLM31PG Series 1206/3216(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 10000 |
| L | ø180mm Embossed Tape | 3000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

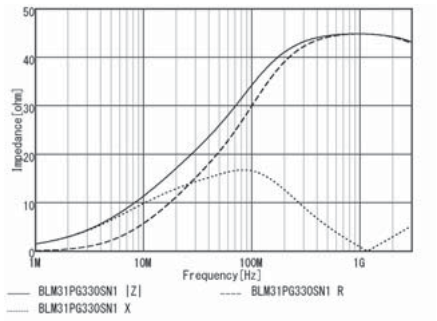
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM31PG330SN1□ | 33Ω±25% | 6A | 3.5A | 0.009Ω |
| BLM31PG500SN1□ | 50Ω(Typ.) | 3.5A | 2.3A | 0.015Ω |
| BLM31PG121SN1□ | 120Ω±25% | 3.5A | 2A | 0.02Ω |
| BLM31PG391SN1□ | 390Ω±25% | 2A | 1.25A | 0.05Ω |
| BLM31PG601SN1□ | 600Ω±25% | 1.5A | 1A | 0.08Ω |

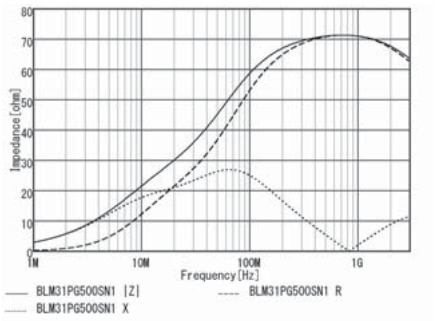
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

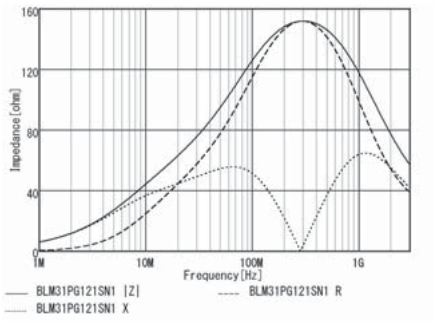
**BLM31PG330SN1**



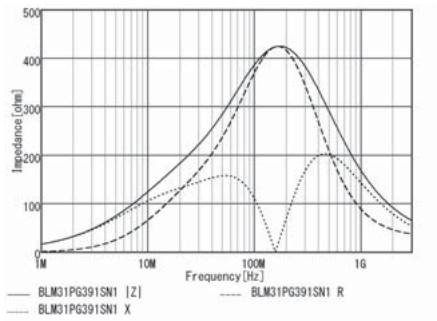

**BLM31PG500SN1**



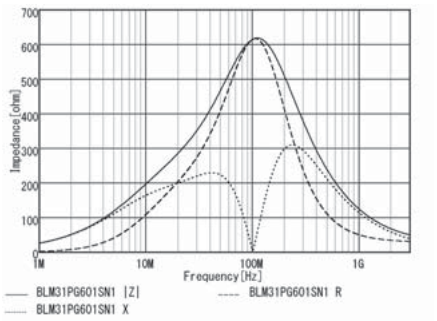

**BLM31PG121SN1**




**BLM31PG391SN1**




**BLM31PG601SN1**

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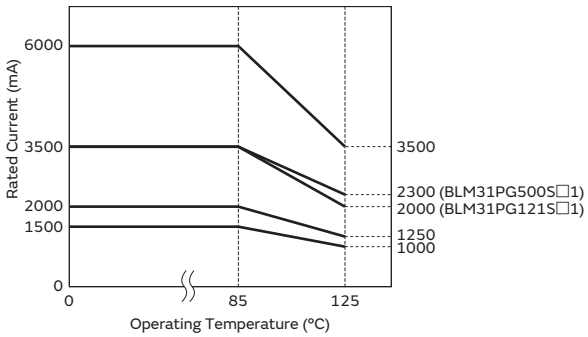
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM31PG series.
Please apply the derating curve shown in chart according to the operating temperature.

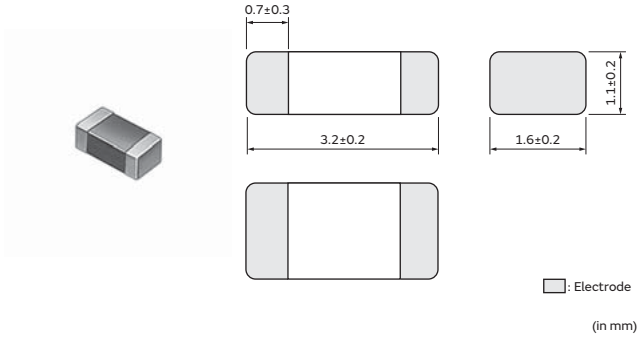
Derating of Rated Current



## Chip ferrite bead

# BLM31SN Series 1206/3216(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 3000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

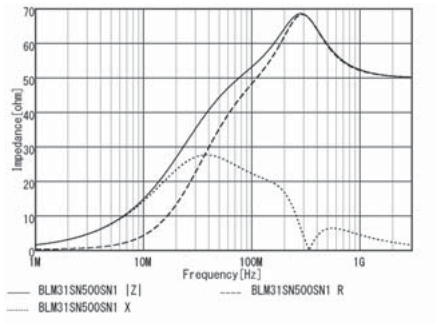
(Resistance element becomes dominant at high frequencies.)

### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance | Operating Temp. Range |
|---|---|---|---|---|---|
| BLM31SN500SN1□ | 50Ω±12.5Ω | 12A | 10A | 0.0016Ω | -55°C to 125°C |

### Z-f characteristics

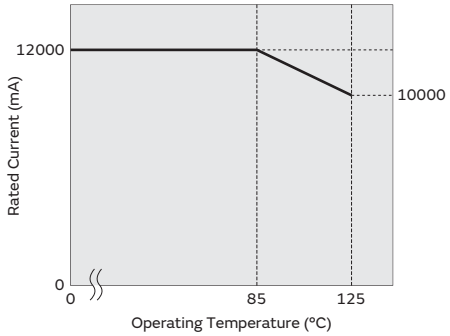
BLM31SN500SN1




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM31SN series.
Please apply the derating curve shown in chart according to the operating temperature.

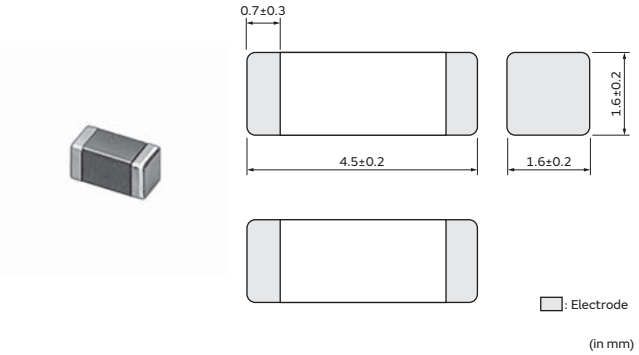
Derating of Rated Current



## Chip ferrite bead

# BLM41PG Series 1806/4516(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 8000 |
| L | ø180mm Embossed Tape | 2500 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

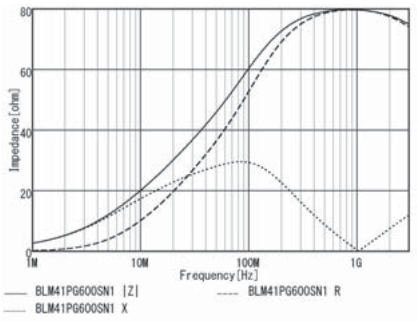
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLM41PG600SN1□ | 60Ω(Typ.) | 6A | 3.7A | 0.009Ω |
| BLM41PG750SN1□ | 75Ω(Typ.) | 3.5A | 2.45A | 0.015Ω |
| BLM41PG181SN1□ | 180Ω±25% | 3.5A | 2.1A | 0.02Ω |
| BLM41PG471SN1□ | 470Ω±25% | 2A | 1.35A | 0.05Ω |
| BLM41PG102SN1□ | 1000Ω±25% | 1.5A | 1A | 0.09Ω |

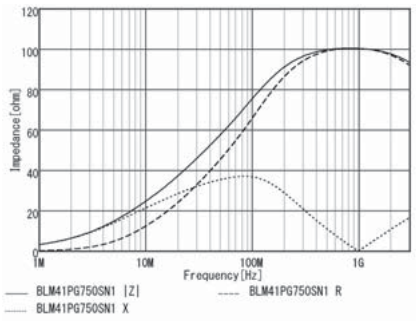
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

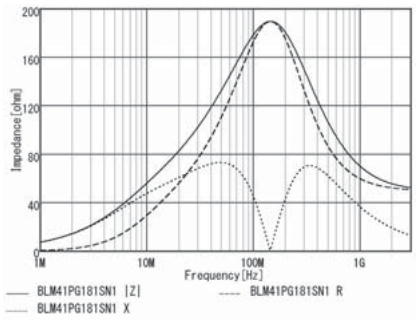
BLM41PG600SN1



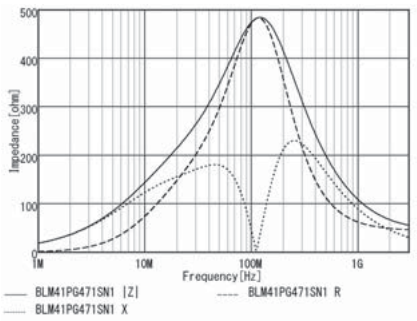

BLM41PG750SN1



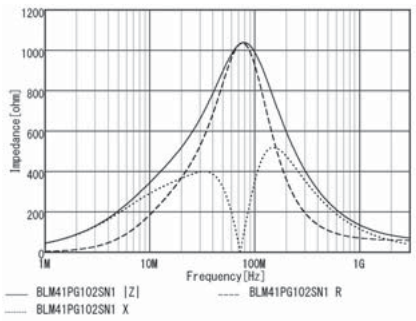

BLM41PG181SN1




BLM41PG471SN1




BLM41PG102SN1

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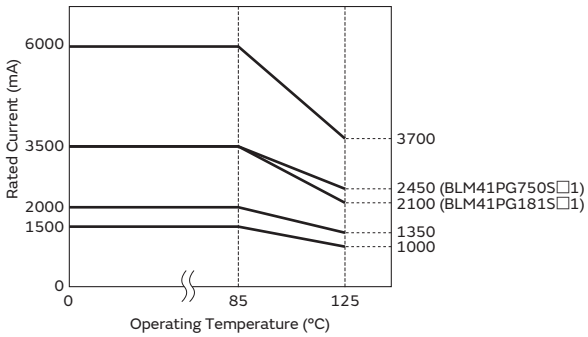
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM41PG series.
Please apply the derating curve shown in chart according to the operating temperature.

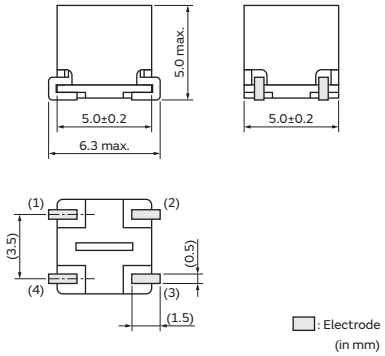
Derating of Rated Current



## Chip ferrite bead

# BLT5BPT_LN1 Series 2020/5050(inch/mm)

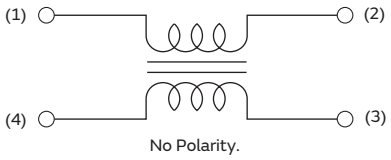
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 300 |
| B | Bulk(Bag) | 50 |

### Equivalent Circuit

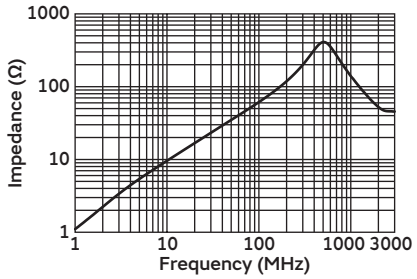



### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | Rated Current at 150°C | DC Resistance | Operating Temp. Range |
|---|---|---|---|---|---|---|
| BLT5BPT680LN1□ | 68Ω(Typ.) | 11A | 7A | 4.5A | 10mΩ | -55°C to 150°C |

### Z-f characteristics

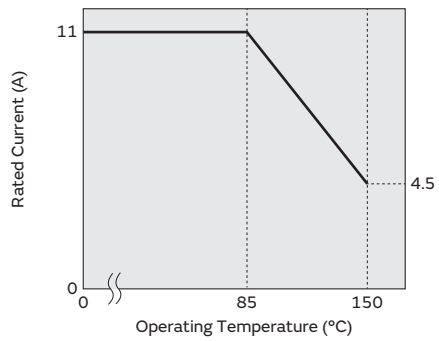
**BLT5BPT680LN1**




### Derating of Rated Current

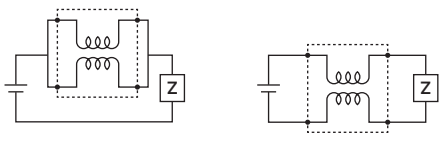
In operating temperature exceeding +85°C, derating of current is necessary for BLT5BPT_LN1 series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current




### Notification about terminal connection

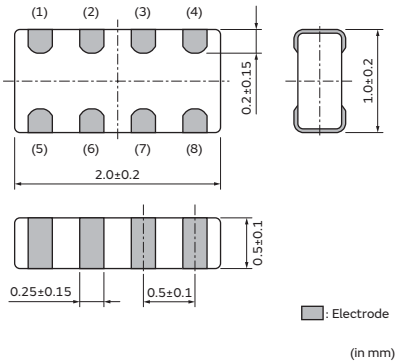
Connect terminal rightly.
This product consists of two coils. When it is connected to the same power source line and used as a coil, its inherent properties can be obtained. When it is connected to separate power source lines, serious trouble such as open or short circuit or flames due to extreme heat generation occurs.



## Chip ferrite bead

# BLA2AAG Series 0804/2010(inch/mm)

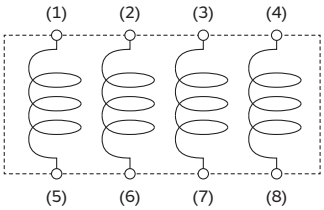
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit




No polarity.

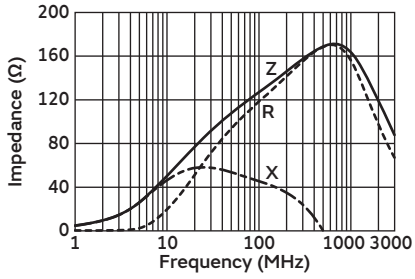
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLA2AAG121SN4□ | 120Ω±25% | 100mA | 100mA | 0.5Ω |
| BLA2AAG221SN4□ | 220Ω±25% | 50mA | 50mA | 0.7Ω |
| BLA2AAG601SN4□ | 600Ω±25% | 50mA | 50mA | 1.1Ω |
| BLA2AAG102SN4□ | 1000Ω±25% | 50mA | 50mA | 1.3Ω |

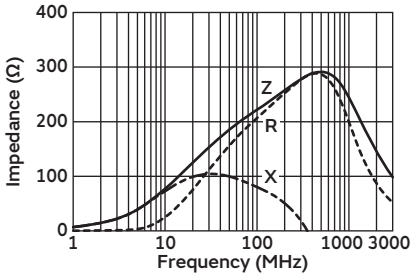
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

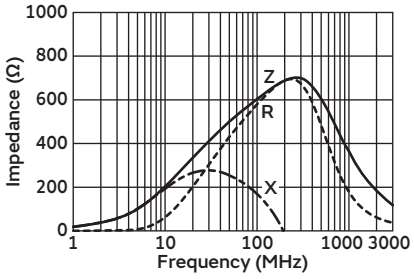
**BLA2AAG121SN4**



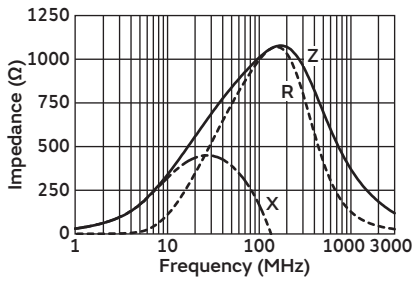

**BLA2AAG221SN4**




**BLA2AAG601SN4**



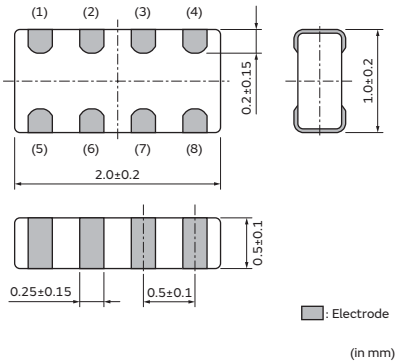

**BLA2AAG102SN4**



## Chip ferrite bead

# BLA2ABB/BD Series 0804/2010(inch/mm)

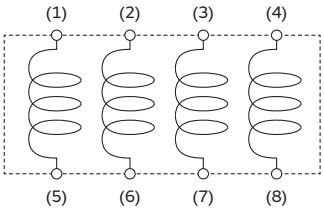
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit




No polarity.

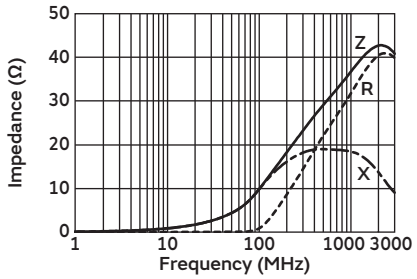
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLA2ABB100SN4□ | 10Ω±25% | 200mA | 200mA | 0.1Ω |
| BLA2ABB220SN4□ | 22Ω±25% | 200mA | 200mA | 0.2Ω |
| BLA2ABB470SN4□ | 47Ω±25% | 200mA | 200mA | 0.35Ω |
| BLA2ABB121SN4□ | 120Ω±25% | 50mA | 50mA | 0.6Ω |
| BLA2ABB221SN4□ | 220Ω±25% | 50mA | 50mA | 0.9Ω |
| BLA2ABD750SN4□ | 75Ω±25% | 200mA | 200mA | 0.2Ω |
| BLA2ABD121SN4□ | 120Ω±25% | 200mA | 200mA | 0.35Ω |
| BLA2ABD221SN4□ | 220Ω±25% | 100mA | 100mA | 0.4Ω |
| BLA2ABD471SN4□ | 470Ω±25% | 100mA | 100mA | 0.65Ω |
| BLA2ABD601SN4□ | 600Ω±25% | 100mA | 100mA | 0.8Ω |
| BLA2ABD102SN4□ | 1000Ω±25% | 50mA | 50mA | 1Ω |

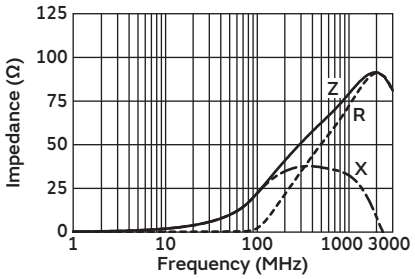
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

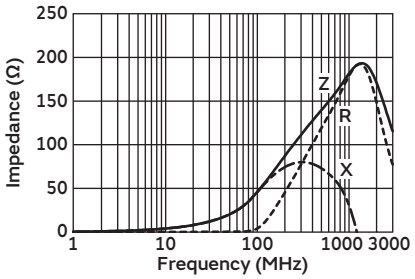
**BLA2ABB100SN4**




**BLA2ABB220SN4**




**BLA2ABB470SN4**

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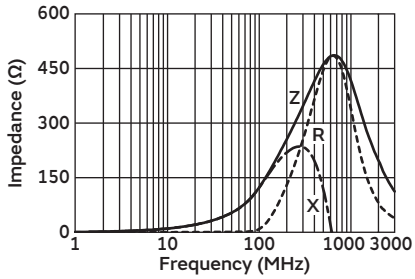
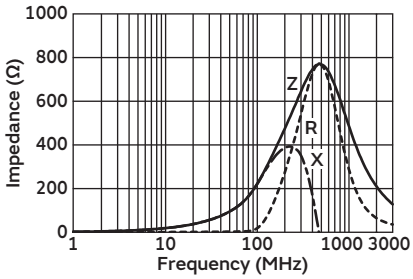
## Z-f characteristics

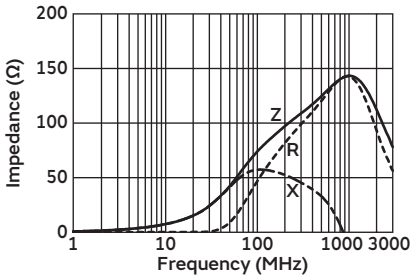
**BLA2ABB121SN4**



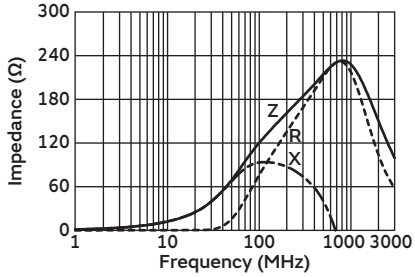

**BLA2ABB221SN4**



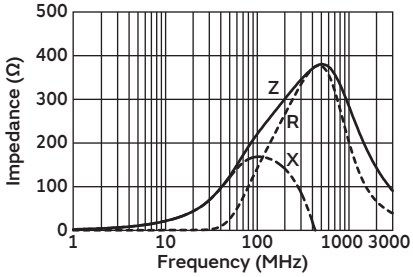

**BLA2ABD750SN4**



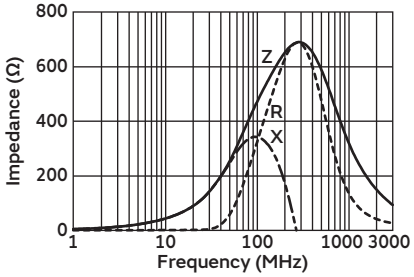

**BLA2ABD121SN4**



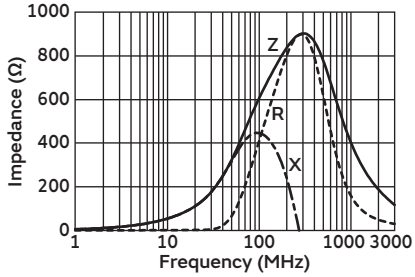

**BLA2ABD221SN4**



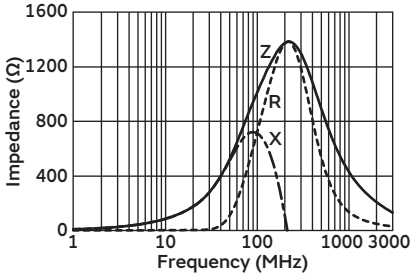

**BLA2ABD471SN4**




**BLA2ABD601SN4**



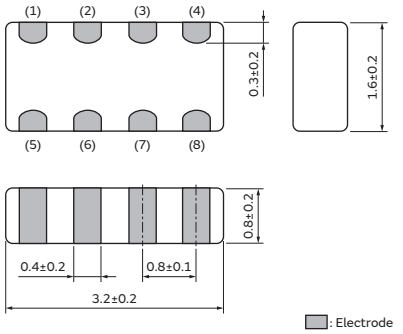

**BLA2ABD102SN4**



## Chip ferrite bead

# BLA31AG Series 1206/3216(inch/mm)

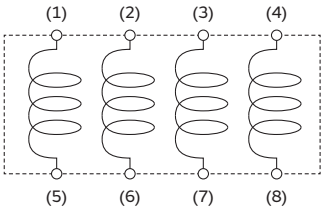
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit




No polarity.

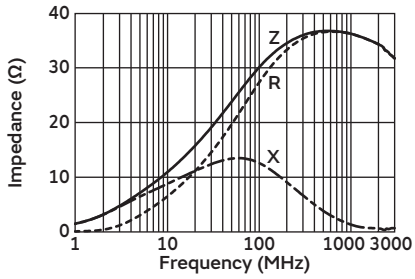
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLA31AG300SN4□ | 30Ω±25% | 200mA | 200mA | 0.1Ω |
| BLA31AG600SN4□ | 60Ω±25% | 200mA | 200mA | 0.15Ω |
| BLA31AG121SN4□ | 120Ω±25% | 150mA | 150mA | 0.2Ω |
| BLA31AG221SN4□ | 220Ω±25% | 150mA | 150mA | 0.25Ω |
| BLA31AG601SN4□ | 600Ω±25% | 100mA | 100mA | 0.35Ω |
| BLA31AG102SN4□ | 1000Ω±25% | 50mA | 50mA | 0.45Ω |

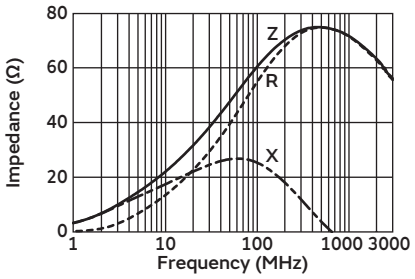
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

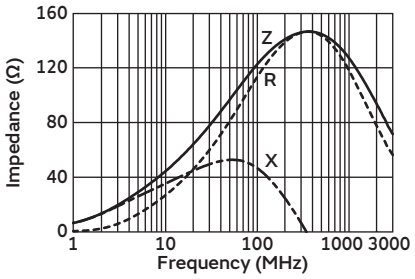
**BLA31AG300SN4**



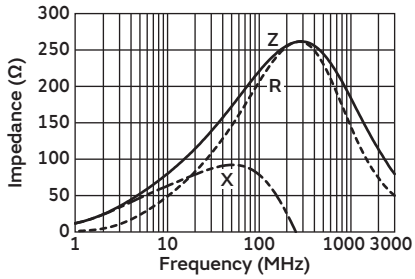

**BLA31AG600SN4**



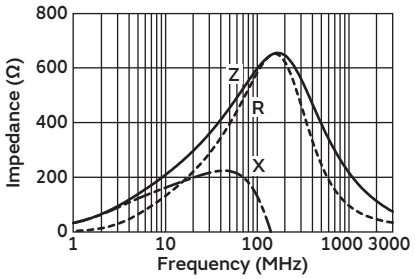

**BLA31AG121SN4**



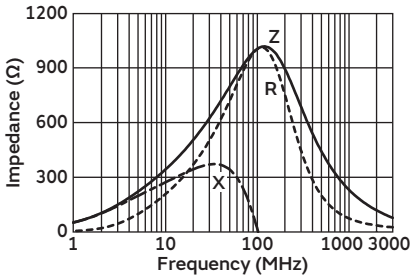

**BLA31AG221SN4**




**BLA31AG601SN4**



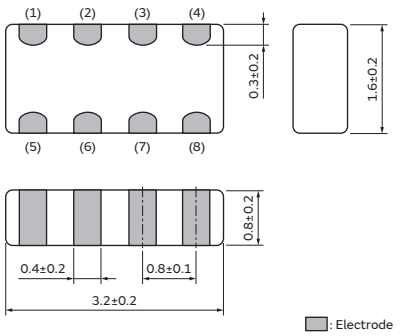

**BLA31AG102SN4**



## Chip ferrite bead

# BLA31BD Series 1206/3216(inch/mm)

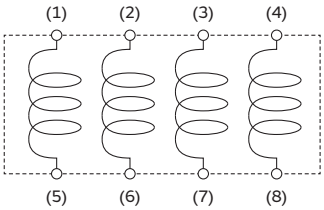
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit




No polarity.

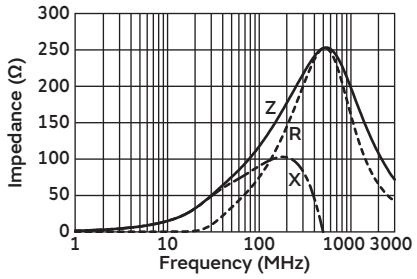
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLA31BD121SN4□ | 120Ω±25% | 150mA | 150mA | 0.3Ω |
| BLA31BD221SN4□ | 220Ω±25% | 150mA | 150mA | 0.35Ω |
| BLA31BD471SN4□ | 470Ω±25% | 100mA | 100mA | 0.4Ω |
| BLA31BD601SN4□ | 600Ω±25% | 100mA | 100mA | 0.45Ω |
| BLA31BD102SN4□ | 1000Ω±25% | 50mA | 50mA | 0.55Ω |

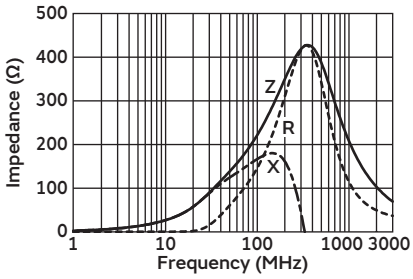
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

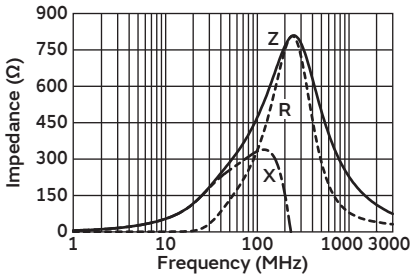
**BLA31BD121SN4**



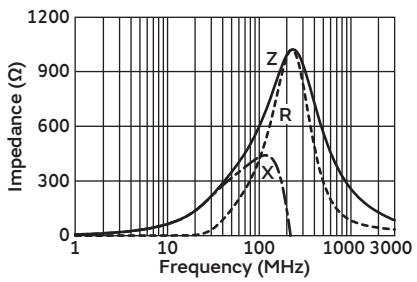

**BLA31BD221SN4**



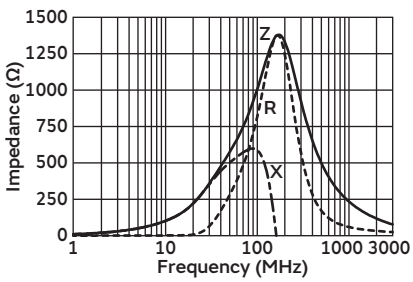

**BLA31BD471SN4**




**BLA31BD601SN4**



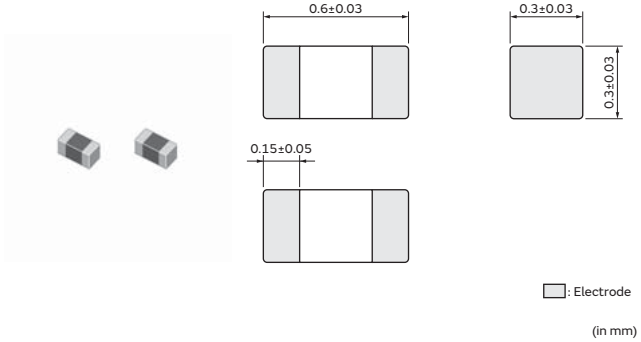

**BLA31BD102SN4**



## Chip ferrite bead

# BLM03HB/HD/HG Series 0201/0603(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

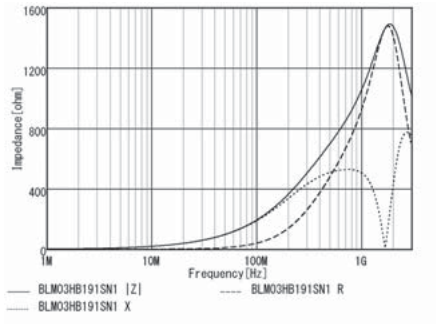
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Impedance at 1GHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|---|
| BLM03HB191SN1□ | 190Ω±25% | 1150Ω±40% | 150mA | 150mA | 2Ω |
| BLM03HB401SN1□ | 400Ω±25% | 1850Ω±40% | 125mA | 125mA | 2.8Ω |
| BLM03HD102FN1□ | 1000Ω±25% | 2300Ω±40% | 135mA | 135mA | 2.4Ω |
| BLM03HD152FN1□ | 1500Ω±25% | 2700Ω±40% | 120mA | 120mA | 3.1Ω |
| BLM03HD182FN1□ | 1800Ω±25% | 3000Ω±40% | 100mA | 100mA | 3.8Ω |
| BLM03HD331SN1□ | 330Ω±25% | 750Ω±40% | 200mA | 200mA | 1Ω |
| BLM03HD471SN1□ | 470Ω±25% | 1000Ω±40% | 175mA | 175mA | 1.3Ω |
| BLM03HD601SN1□ | 600Ω±25% | 1500Ω±40% | 150mA | 150mA | 1.7Ω |
| BLM03HD102SN1□ | 1000Ω±25% | 2300Ω±40% | 120mA | 120mA | 2.9Ω |
| BLM03HG601SN1□ | 600Ω±25% | 1000Ω±40% | 150mA | 150mA | 1.6Ω |
| BLM03HG102SN1□ | 1000Ω±25% | 1800Ω±40% | 125mA | 125mA | 2.6Ω |
| BLM03HG122SN1□ | 1200Ω±25% | 2000Ω±40% | 100mA | 100mA | 3.5Ω |

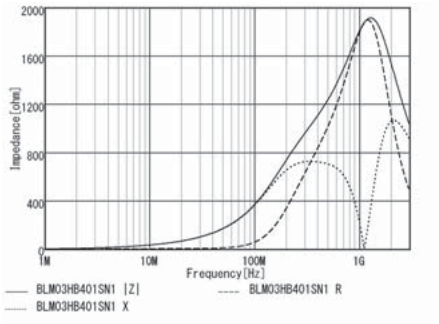
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

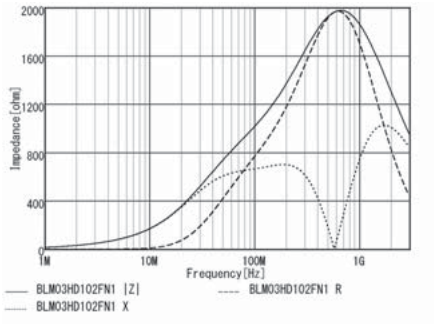
**BLM03HB191SN1**




**BLM03HB401SN1**




**BLM03HD102FN1**




Continued on the following page. ↗

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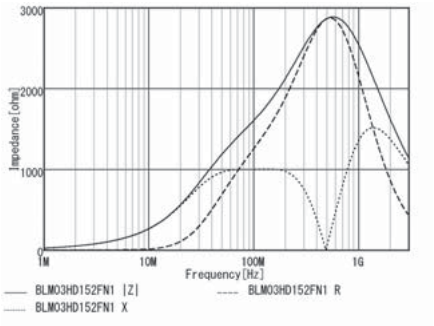
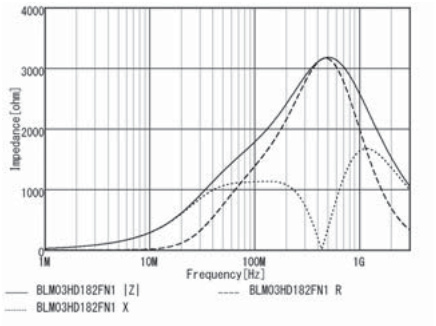
## Z-f characteristics

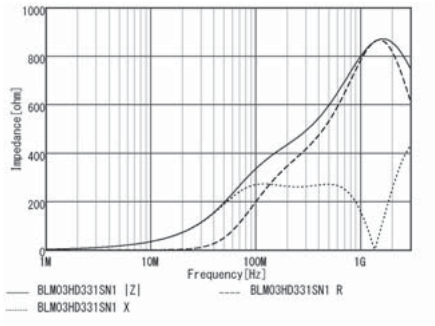
**BLM03HD152FN1**



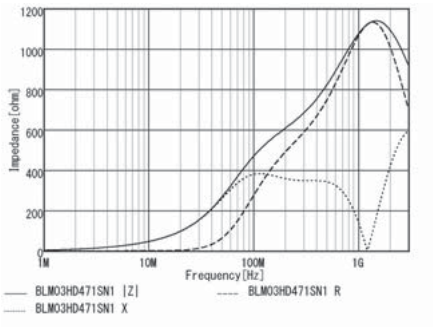

**BLM03HD182FN1**



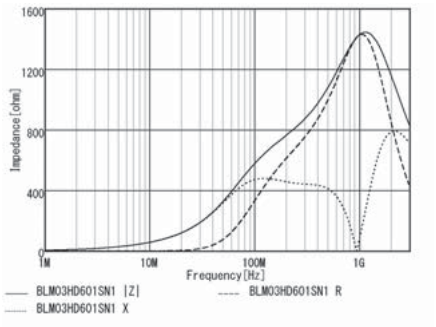

**BLM03HD331SN1**



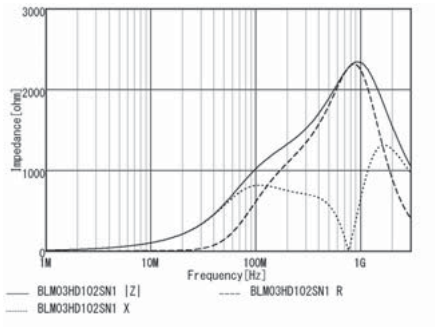

**BLM03HD471SN1**



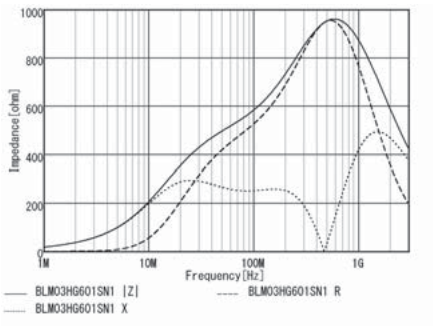

**BLM03HD601SN1**



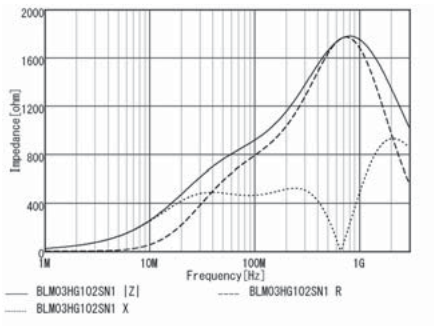

**BLM03HD102SN1**



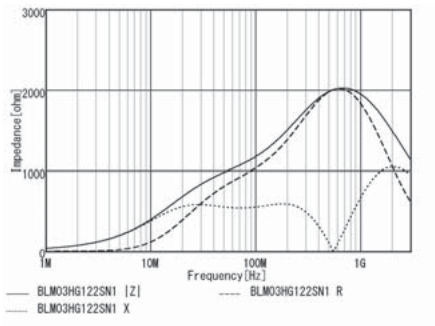

**BLM03HG601SN1**




**BLM03HG102SN1**



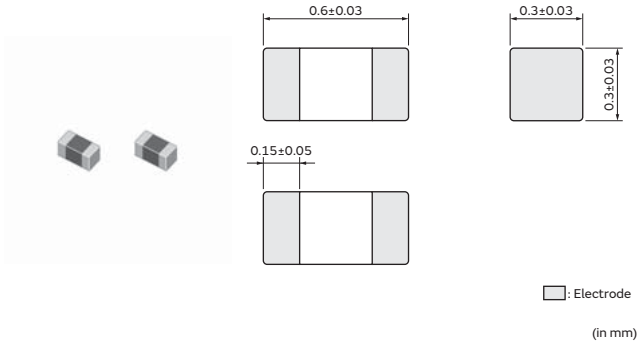

**BLM03HG122SN1**



## Chip ferrite bead

# BLM03EB Series 0201/0603(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

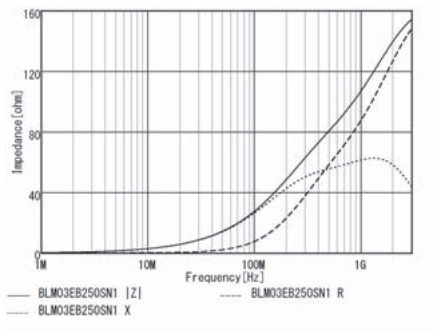
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Impedance at 1GHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|---|
| BLM03EB250SN1□ | 25Ω±25% | 105Ω±40% | 600mA | 450mA | 0.26Ω |
| BLM03EB500SN1□ | 50Ω±25% | 255Ω±40% | 400mA | 300mA | 0.58Ω |

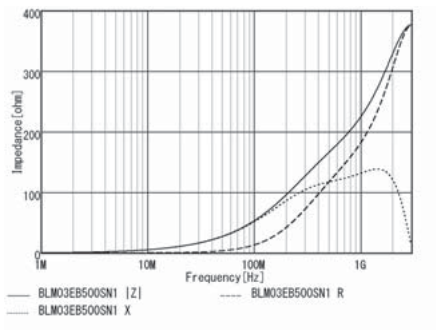
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

**BLM03EB250SN1**



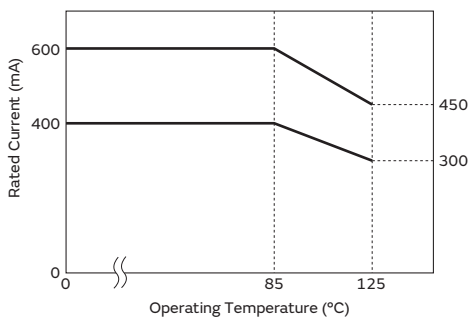

**BLM03EB500SN1**




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM03E series.
Please apply the derating curve shown in chart according to the operating temperature.

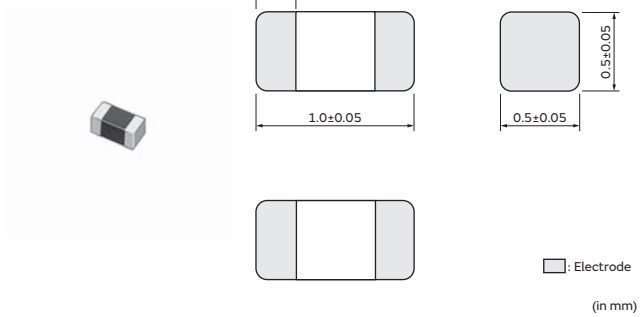
Derating of Rated Current



## Chip ferrite bead

# BLM15HB/HD/HG Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

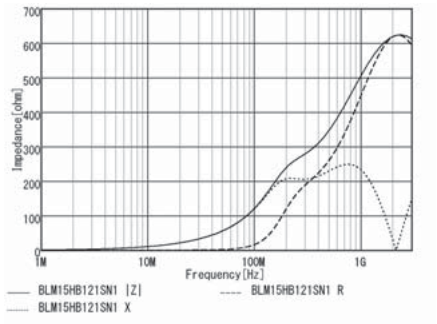
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Impedance at 1GHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|---|
| BLM15HB121SN1□ | 120Ω±25% | 500Ω±40% | 300mA | 300mA | 0.7Ω |
| BLM15HB221SN1□ | 220Ω±25% | 900Ω±40% | 250mA | 250mA | 1Ω |
| BLM15HD601SN1□ | 600Ω±25% | 1400Ω±40% | 300mA | 300mA | 0.85Ω |
| BLM15HD102SN1□ | 1000Ω±25% | 2000Ω±40% | 250mA | 250mA | 1.25Ω |
| BLM15HD182SN1□ | 1800Ω±25% | 2700Ω±40% | 200mA | 200mA | 2.2Ω |
| BLM15HG601SN1□ | 600Ω±25% | 1000Ω±40% | 300mA | 300mA | 0.7Ω |
| BLM15HG102SN1□ | 1000Ω±25% | 1400Ω±40% | 250mA | 250mA | 1.1Ω |

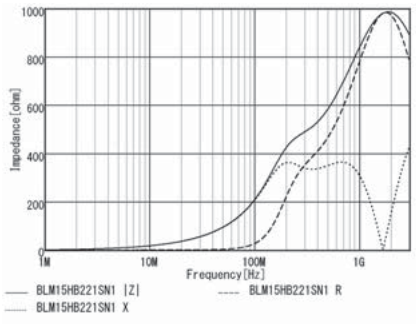
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

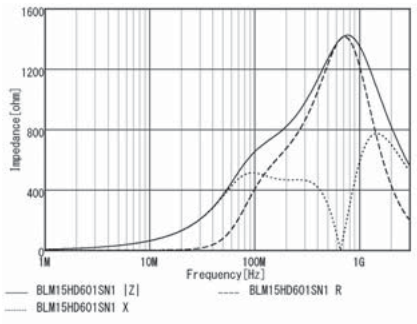
**BLM15HB121SN1**



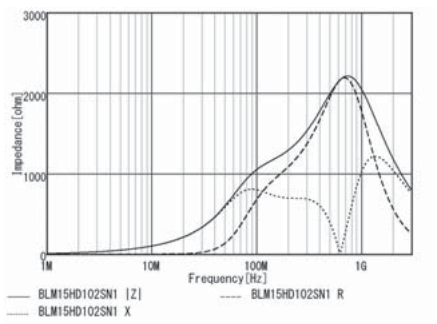

**BLM15HB221SN1**



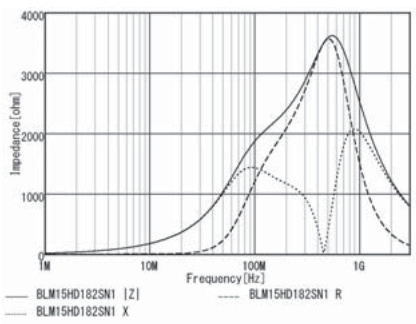

**BLM15HD601SN1**



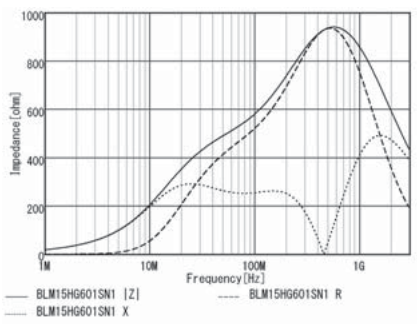

**BLM15HD102SN1**




**BLM15HD182SN1**




**BLM15HG601SN1**

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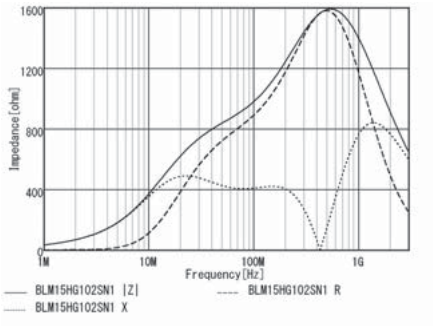
## Z-f characteristics

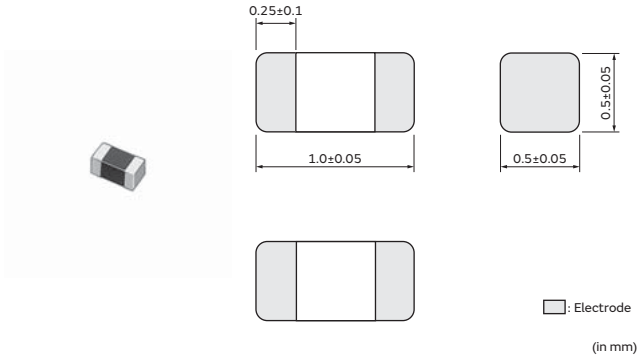
**BLM15HG102SN1**



## Chip ferrite bead

# BLM15EG Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

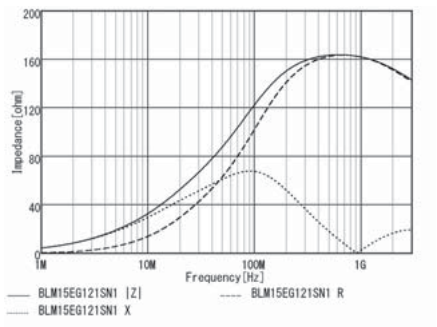
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Impedance at 1GHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|---|
| BLM15EG121SN1□ | 120Ω±25% | 145Ω(Typ.) | 1.5A | 900mA | 0.095Ω |
| BLM15EG221SN1□ | 220Ω±25% | 270Ω(Typ.) | 700mA | 500mA | 0.28Ω |

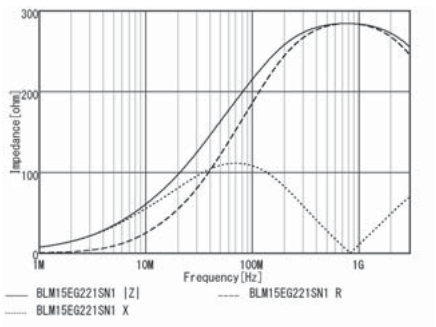
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

BLM15EG121SN1



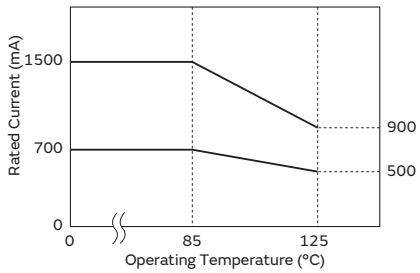

BLM15EG221SN1




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM15E series.
Please apply the derating curve shown in chart according to the operating temperature.

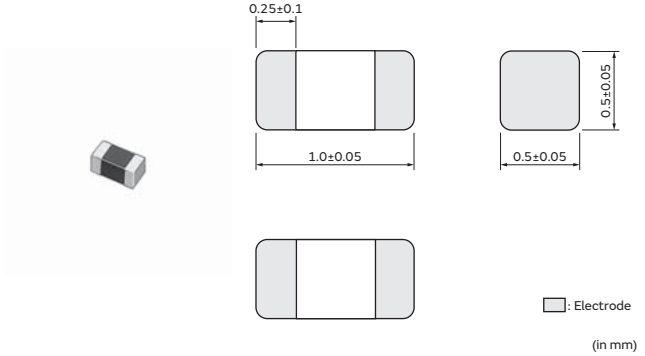
Derating of Rated Current



## Chip ferrite bead

# BLM15EX Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

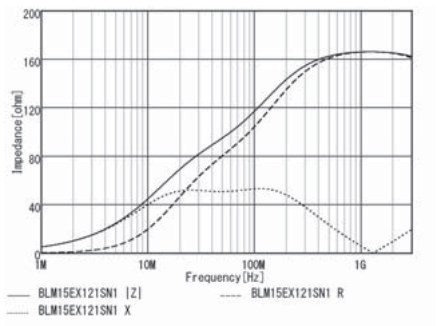
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Impedance at 1GHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|---|
| BLM15EX121SN1□ | 120Ω±25% | 170Ω±40% | 1.8A | 1.2A | 0.075Ω |
| BLM15EX221SN1□ | 220Ω±25% | 300Ω±40% | 1.3A | 850mA | 0.14Ω |
| BLM15EX331SN1□ | 330Ω±25% | 450Ω±40% | 1.1A | 700mA | 0.205Ω |
| BLM15EX471SN1□ | 470Ω±25% | 630Ω±40% | 950mA | 600mA | 0.28Ω |

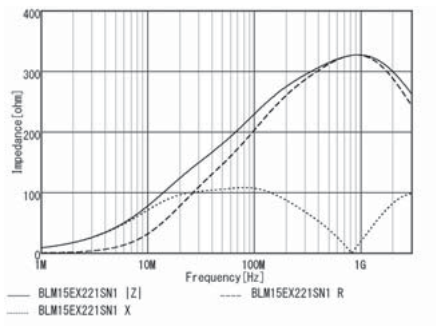
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

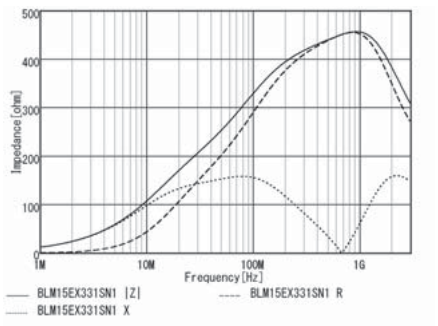
**BLM15EX121SN1**



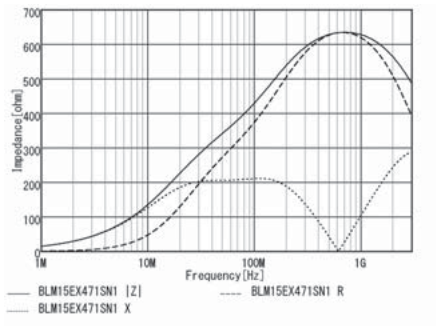

**BLM15EX221SN1**




**BLM15EX331SN1**




**BLM15EX471SN1**

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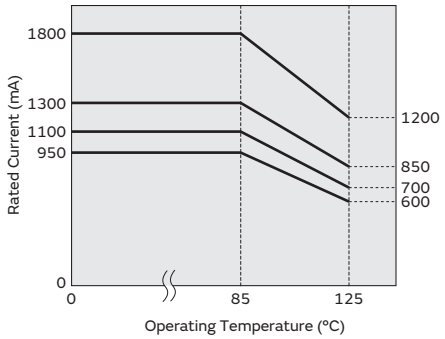
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM15EX series.
Please apply the derating curve shown in chart according to the operating temperature.

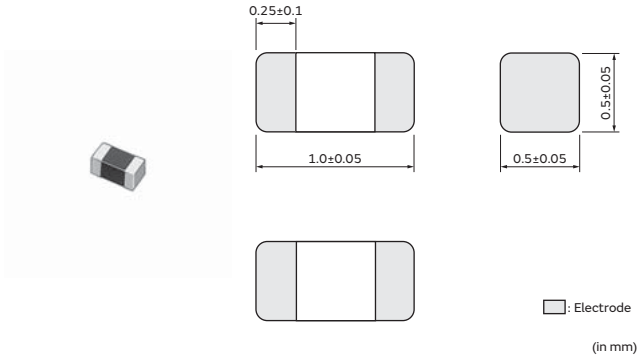
Derating of Rated Current



## Chip ferrite bead

# BLM15GA/GG Series 0402/1005(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| J | ø330mm Paper Tape | 50000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

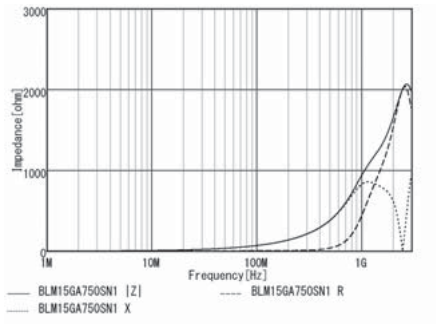
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Impedance at 1GHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|---|
| BLM15GA750SN1□ | 75Ω±25% | 1000Ω±40% | 200mA | 200mA | 1.3Ω |
| BLM15GG221SN1□ | 220Ω±25% | 600Ω±40% | 300mA | 300mA | 0.7Ω |
| BLM15GG471SN1□ | 470Ω±25% | 1200Ω±40% | 200mA | 200mA | 1.3Ω |

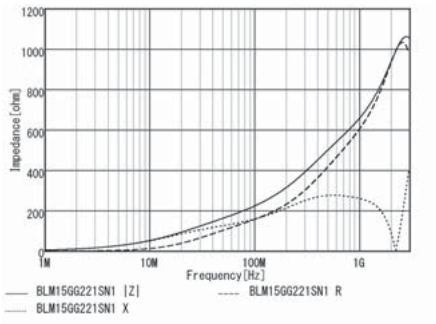
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

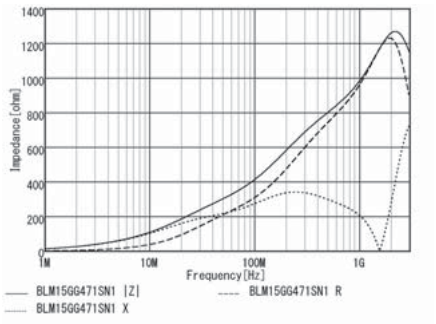
BLM15GA750SN1




BLM15GG221SN1




BLM15GG471SN1



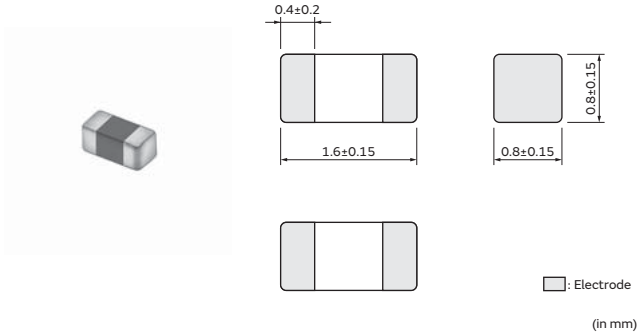



muRata

## Chip ferrite bead

# BLM18HB/HD/HE/HG/HK Series 0603/1608(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

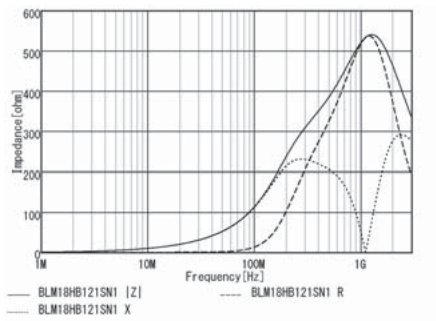
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Impedance at 1GHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|---|
| BLM18HB121SN1□ | 120Ω±25% | 500Ω±40% | 200mA | 200mA | 0.5Ω |
| BLM18HB221SN1□ | 220Ω±25% | 1100Ω±40% | 100mA | 100mA | 0.8Ω |
| BLM18HB331SN1□ | 330Ω±25% | 1600Ω±40% | 50mA | 50mA | 1.2Ω |
| BLM18HD471SN1□ | 470Ω±25% | 1000Ω(Typ.) | 100mA | 100mA | 1.2Ω |
| BLM18HD601SN1□ | 600Ω±25% | 1200Ω(Typ.) | 100mA | 100mA | 1.5Ω |
| BLM18HD102SN1□ | 1000Ω±25% | 1700Ω(Typ.) | 50mA | 50mA | 1.8Ω |
| BLM18HE601SN1□ | 600Ω±25% | 600Ω(Typ.) | 800mA | 600mA | 0.25Ω |
| BLM18HE102SN1□ | 1000Ω±25% | 1000Ω(Typ.) | 600mA | 500mA | 0.35Ω |
| BLM18HE152SN1□ | 1500Ω±25% | 1500Ω(Typ.) | 500mA | 400mA | 0.5Ω |
| BLM18HG471SN1□ | 470Ω±25% | 600Ω(Typ.) | 200mA | 200mA | 0.85Ω |
| BLM18HG601SN1□ | 600Ω±25% | 700Ω(Typ.) | 200mA | 200mA | 1Ω |
| BLM18HG102SN1□ | 1000Ω±25% | 1000Ω(Typ.) | 100mA | 100mA | 1.6Ω |
| BLM18HK331SN1□ | 330Ω±25% | 400Ω±40% | 200mA | 200mA | 0.5Ω |
| BLM18HK471SN1□ | 470Ω±25% | 600Ω±40% | 200mA | 200mA | 0.7Ω |
| BLM18HK601SN1□ | 600Ω±25% | 700Ω±40% | 100mA | 100mA | 0.9Ω |
| BLM18HK102SN1□ | 1000Ω±25% | 1200Ω±40% | 50mA | 50mA | 1.5Ω |

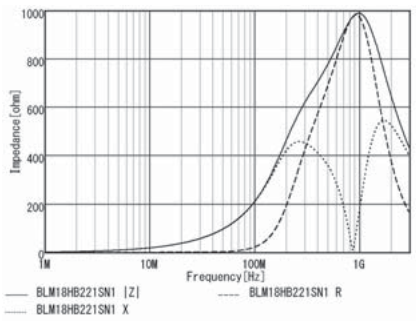
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

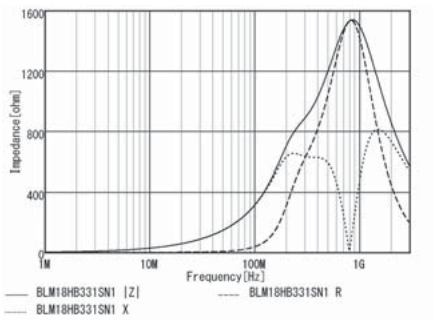
**BLM18HB121SN1**




**BLM18HB221SN1**




**BLM18HB331SN1**

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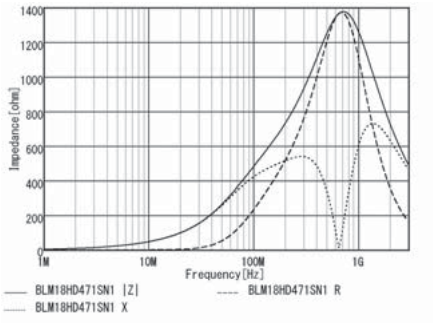
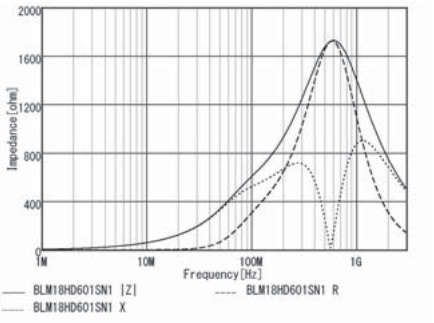
## Z-f characteristics

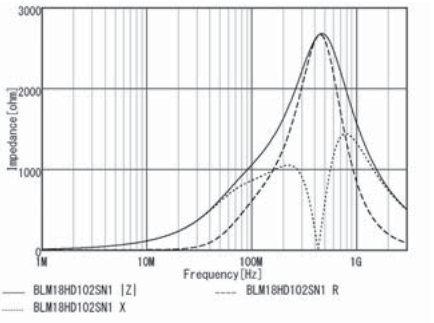
**BLM18HD471SN1**



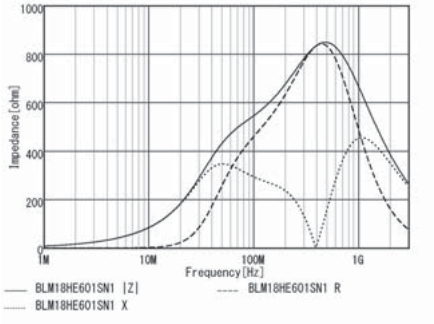

**BLM18HD601SN1**



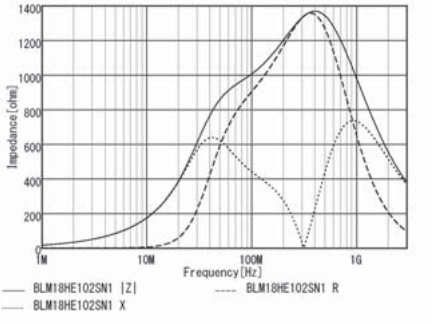

**BLM18HD102SN1**



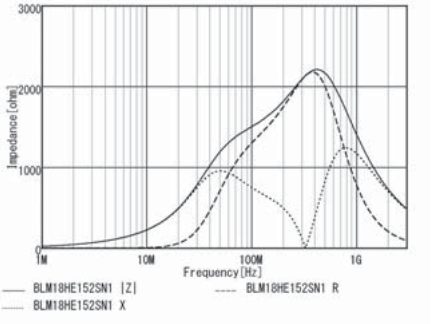

**BLM18HE601SN1**



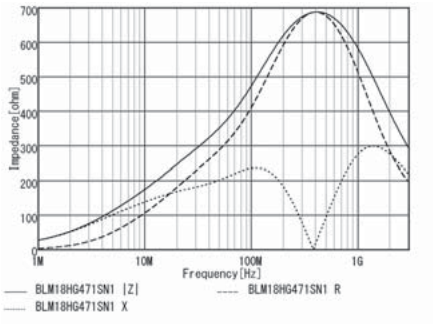

**BLM18HE102SN1**



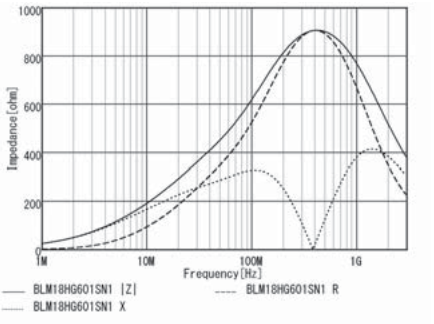

**BLM18HE152SN1**



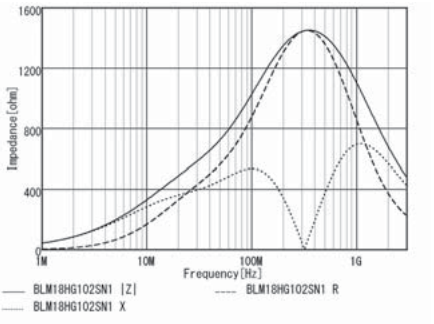

**BLM18HG471SN1**



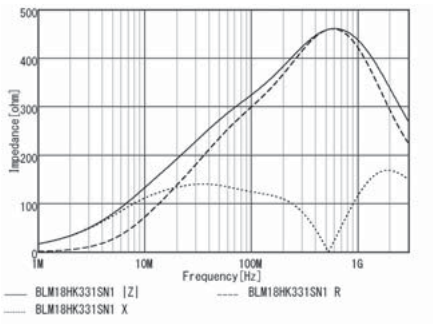

**BLM18HG601SN1**



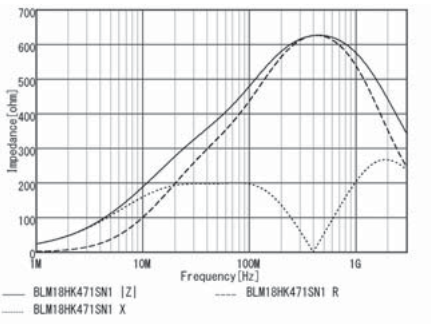

**BLM18HG102SN1**



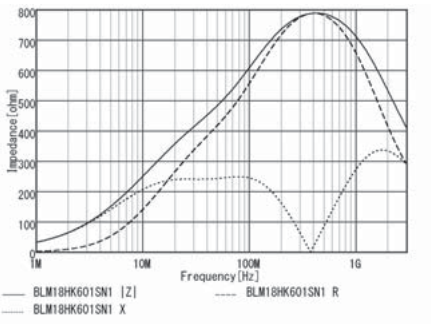

**BLM18HK331SN1**



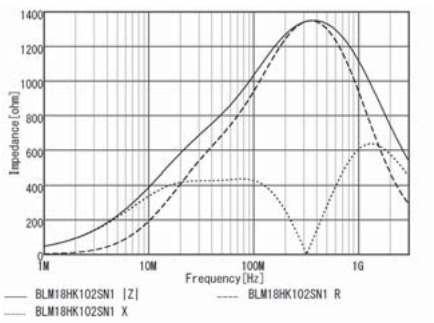

**BLM18HK471SN1**




**BLM18HK601SN1**




**BLM18HK102SN1**

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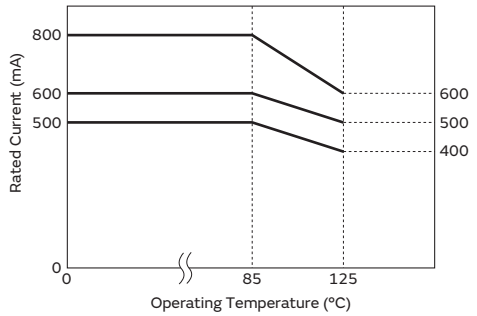
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM18HE series.
Please apply the derating curve shown in chart according to the operating temperature.

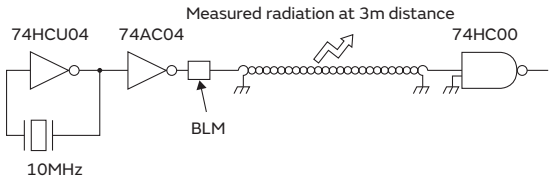
Derating of Rated Current

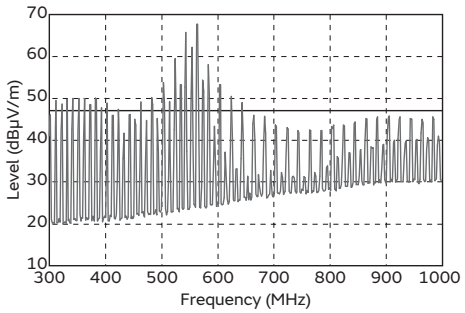
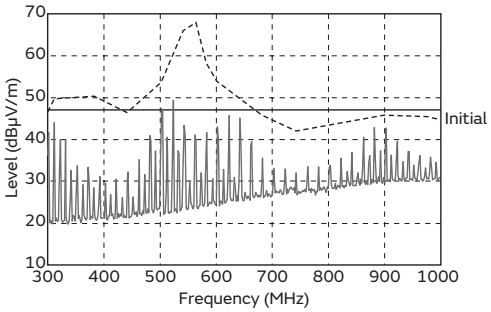
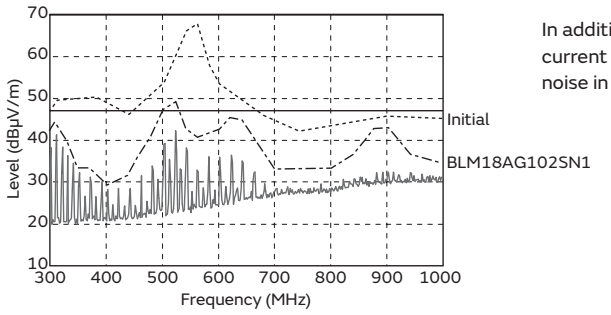


# Chip Ferrite Bead (BLM18H Series) EMI Suppression Effect

## Noise Suppression of BLM18H in UHF Range

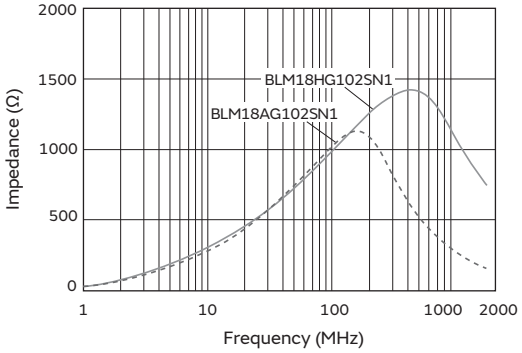
Testing Circuit




| Type of Filter | EMI Suppression Effect / Description |
|---|---|
| **Initial (No filter)** |  |
| **Conventional Type BLM18AG102SN1 (1000Ω at 100MHz)** |  Current BLM18AG are effective in suppressing noise in the range between 300MHz and 700MHz. |
| **for GHz Noise Suppression BLM18HG102SN1 (1000Ω at 100MHz)** |  In addition to the effectiveness of current BLM, BLM18HG suppresses noise in the range beyond 700MHz. |



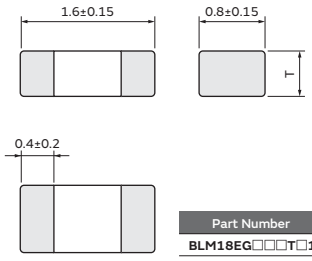
### Comparison between BLM18HG102SN1 and BLM18AG102SN1 (Current Item)



## Chip ferrite bead

# BLM18EG Series 0603/1608(inch/mm)

### Appearance/Dimensions




| Part Number | T |
|---|---|
| BLM18EG□□□T□1 | 0.5±0.15 |
| BLM18EG□□□S□1 | 0.8±0.15 |

: Electrode

(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

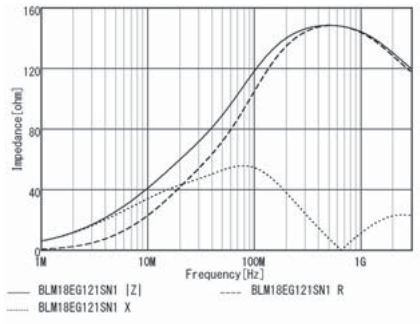
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Impedance at 1GHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|---|
| BLM18EG121SN1□ | 120Ω±25% | 145Ω(Typ.) | 2A | 1A | 0.04Ω |
| BLM18EG221SN1□ | 220Ω±25% | 260Ω(Typ.) | 2A | 1A | 0.05Ω |
| BLM18EG471SN1□ | 470Ω±25% | 550Ω(Typ.) | 500mA | 500mA | 0.21Ω |
| BLM18EG601SN1□ | 600Ω±25% | 700Ω(Typ.) | 500mA | 500mA | 0.35Ω |
| BLM18EG101TN1□ | 100Ω±25% | 140Ω(Typ.) | 2A | 1A | 0.045Ω |
| BLM18EG221TN1□ | 220Ω±25% | 300Ω(Typ.) | 1A | 1A | 0.15Ω |
| BLM18EG331TN1□ | 330Ω±25% | 450Ω(Typ.) | 500mA | 500mA | 0.21Ω |
| BLM18EG391TN1□ | 390Ω±25% | 520Ω(Typ.) | 500mA | 500mA | 0.3Ω |

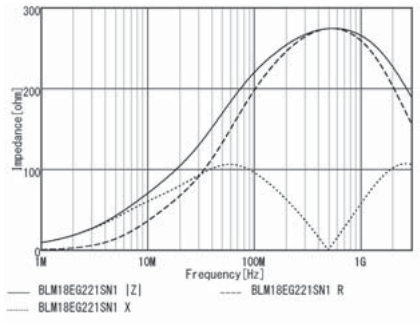
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

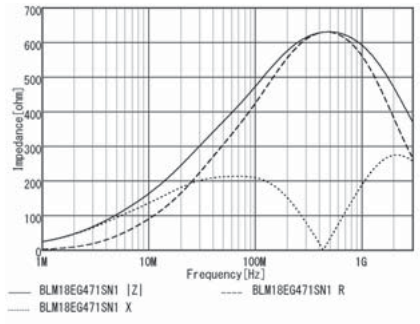
**BLM18EG121SN1**



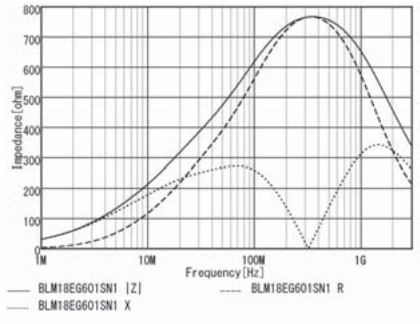

**BLM18EG221SN1**



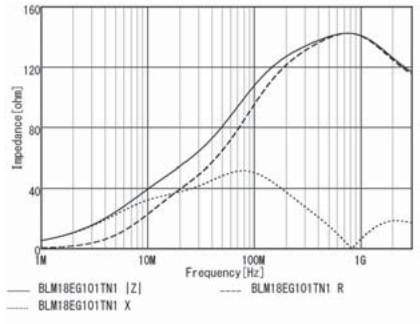

**BLM18EG471SN1**



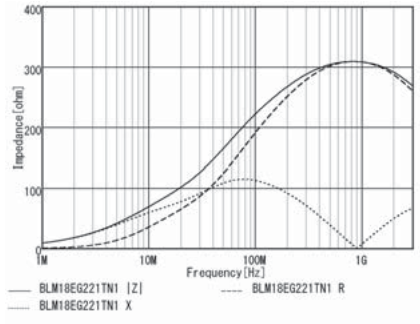

**BLM18EG601SN1**




**BLM18EG101TN1**




**BLM18EG221TN1**

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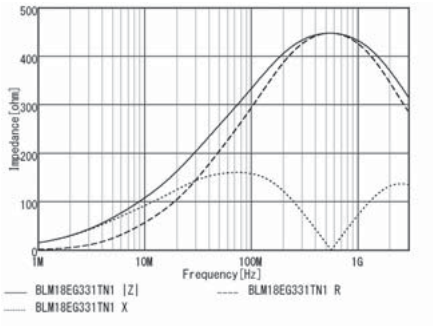
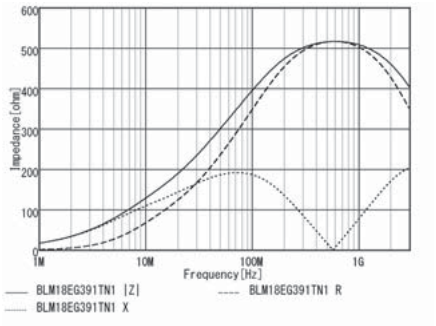
## Z-f characteristics

**BLM18EG331TN1**



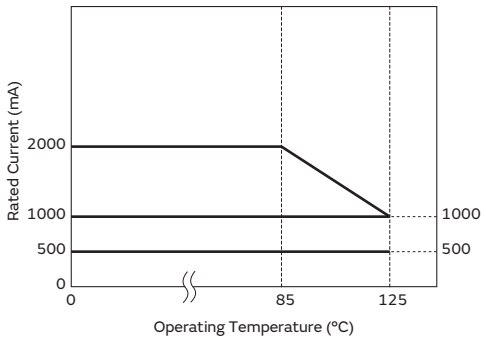

**BLM18EG391TN1**




## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLM18EG series.
Please apply the derating curve shown in chart according to the operating temperature.

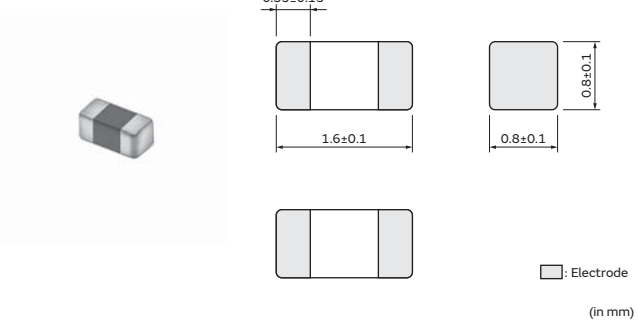
Derating of Rated Current



## Chip ferrite bead

# BLM18GG Series 0603/1608(inch/mm)

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

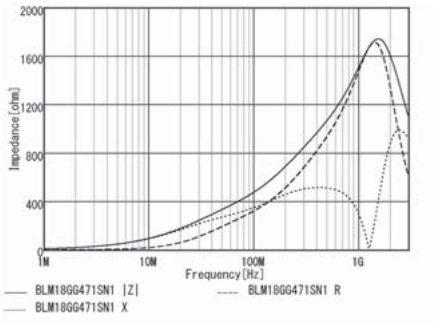
(Resistance element becomes dominant at high frequencies.)

### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Impedance at 1GHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance | Operating Temp. Range |
|---|---|---|---|---|---|---|
| BLM18GG471SN1□ | 470Ω±25% | 1800Ω±30% | 200mA | 200mA | 1.3Ω | -55°C to 125°C |

### Z-f characteristics

BLM18GG471SN1



# Chip Ferrite Bead (BLM/BLA/BLT) ⚠Caution/Notice

## ⚠Caution

### Rating

1. About the Rated Current
   Do not use products beyond the rated current as this may create excessive heat and deteriorate the insulation resistance.
2. About Excessive Surge Current
   Surge current (pulse current or rush current) higher than the specified rated current applied to the product may cause a critical failure, such as an open circuit or burnout caused by excessive temperature rise. Please contact us in advance in case of applying surge current.

### Soldering and Mounting

- Self-heating
  Please pay special attention when mounting chip ferrite beads BLM_AX/P/K/S series BLT series in close proximity to other products that radiate heat.
  The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.

## Notice

### Storage and Operating Conditions

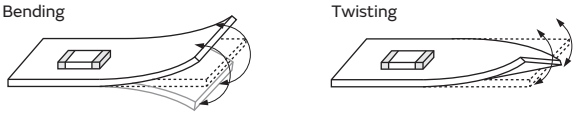
<Operating Environment>
Do not use products in a corrodible atmosphere such as acidic gases, alkaline gases, chlorine, sulfur gases, organic gases (a sea breeze, $Cl_2$, $H_2S$, $NH_3$, $SO_2$, $NO_2$, etc.).
Do not use products in an environment close to an organic solvent.
<Storage and Handling Requirements>
1. Storage Period
   BLM15E/15H/15G · BLT series should be used within 12 months; the other series should be used within 6 months. Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40˚C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

### Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product can be caused by the cleaning method. When you clean in conditions that are not in the mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in the mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

### Handling

1. Resin Coating
   Using resin for coating/molding products may affect the product's performance.
   So please pay careful attention in selecting resin.
   Prior to use, please make a reliability evaluation with the product mounted in your application set.
2. Handling of Substrates
   After mounting products on a substrate, do not apply any stress to the product by bending or twisting the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening a screw to the substrate.
   Excessive mechanical stress may cause cracking in the product.

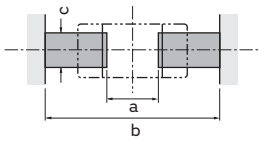


# Chip Ferrite Bead (BLM/BLA/BLT) Soldering and Mounting

## 1. Standard Land Pattern Dimensions

Land Pattern + Solder Resist | Land Pattern | Solder Resist (in mm)

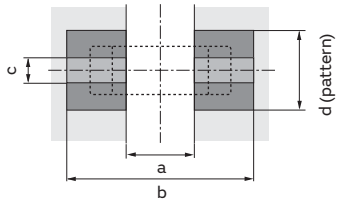
| Series | Standard Land Dimensions |
|---|---|
| **BLM02**<br>**BLM03**<br>**BLM15**<br>**BLM18**<br>**BLM21**<br>**BLM31**<br>**BLM41** | ●Reflow and Flow<br>BLM Series |




| Type | Soldering | a | b | c |
|---|---|---|---|---|
| BLM02 | Reflow | 0.18 | 0.48 | 0.215 |
| BLM03 | Reflow | 0.25 | 0.8 | 0.3 |
| BLM15 | Reflow | 0.4 | 1.2 | 0.5 |
| BLM18 | Flow (except 18G) | 0.8 | 2.5 | 0.7 |
| | Reflow | 0.7 | 2.0 | |
| BLM21 | Flow | 1.1 | 3.5 | 0.95 |
| | Reflow | 1.2 | 2.4 | 1.25 |

▪ Except for BLM02PX/BLM03AX · P□ · EB/ 15AX · KD · PD · PG · PX · EX/ 18PG · KG · SG · SN/21PG · S□.
And BLM02/03/15/18G is specially adapted for reflow soldering.

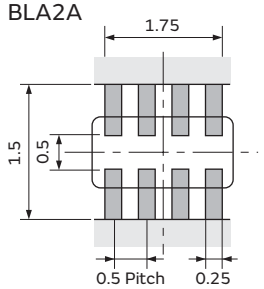
BLM□□AX/P/K/S/E



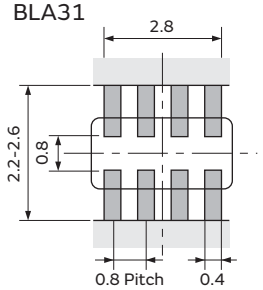

| Type | Rated Current (A) | Soldering | a | b | c | Land Pad Thickness and Dimension d | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 18μm | 35μm | 70μm |
| BLM02PX | 1.1max. | Reflow | 0.18 | 0.48 | 0.215 | 0.23 | 0.23 | 0.23 |
| BLM03AX<br>BLM03P□<br>BLM03EB | 0.9max. | Reflow | 0.25 | 0.8 | 0.3 | 0.3 | 0.3 | 0.3 |
| | 1.8max. | | | | | 1.2 | 0.7 | 0.3 |
| BLM15AX<br>BLM15KD<br>BLM15PD<br>BLM15PG<br>BLM15PX | 1.5max. | Reflow | 0.4 | 1.2 | 0.5 | 0.5 | 0.5 | 0.5 |
| | 2.2max. | | | | | 1.2 | 0.7 | 0.5 |
| | 3.0max. | | | | | 2.4 | 1.2 | 0.5 |
| BLM15EX | 1.3max. | Reflow | 0.4 | 1.2 | 0.5 | 0.5 | 0.5 | 0.5 |
| | 1.8max. | | | | | 1.2 | 0.7 | 0.5 |
| BLM18PG<br>BLM18KG<br>BLM18SG | 0.5-1.5 | Flow/ Reflow | Flow 0.8<br>Reflow 0.7 | Flow 2.5<br>Reflow 2.0 | Flow 0.7<br>Reflow 0.7 | 0.7 | 0.7 | 0.7 |
| | 1.7-2.5 | | | | | 1.2 | 0.7 | 0.7 |
| | 3-4 | | | | | 2.4 | 1.2 | 0.7 |
| | 5-6 | | | | | 6.4 | 3.3 | 1.65 |
| BLM18SN | 8 | | | | | - | 6.4 | 3.3 |
| BLM21PG | 1.5 | Flow/ Reflow | Flow 1.1<br>Reflow 1.2 | Flow 3.5<br>Reflow 2.4 | Flow 0.95<br>Reflow 1.25 | 1.0 | 1.0 | 1.0 |
| | 2 | | | | | 1.2 | 1.0 | 1.0 |
| | 3-4 | | | | | 2.4 | 1.2 | 1.0 |
| | 6 | | | | | 6.4 | 3.3 | 1.65 |
| BLM21S□ | 6-8.5 | Flow | 1.1 | 3.5 | 0.95 | - | 6.8 | 3.4 |
| | | Reflow | 1.2 | 2.4 | 1.25 | | | |
| BLM31PG | 1.5-2 | Flow/ Reflow | Flow 2.4<br>Reflow 2 | Flow 4.7<br>Reflow 4.3 | Flow 1.2<br>Reflow 1.8 | 1.8 | 1.8 | 1.8 |
| | 3.5 | | | | | 2.4 | 1.8 | 1.8 |
| | 6 | | | | | 6.4 | 3.3 | 1.8 |
| BLM31KN | 2 | Reflow | | | | 1.8 | 1.8 | 1.8 |
| | 2.5-2.9 | | | | | 2.4 | 1.8 | 1.8 |
| | 4-6 | | | | | 6.4 | 3.3 | 1.8 |
| BLM31SN | 10-12 | Flow/ Reflow | | | | - | 9.8 | 4.9 |
| BLM41PG | 1.5-2 | Flow/ Reflow | 3 | 6.0 | 1.2 | 1.2 | 1.2 | 1.2 |
| | 3.5 | | | | | 2.4 | 1.2 | 1.2 |
| | 6 | | | | | 6.4 | 3.3 | 1.65 |

▪ Do not apply narrower pattern than listed above to BLM□□AX/P/K/S. Narrow pattern can cause excessive heat or open circuit.

| Series | Standard Land Dimensions |
|---|---|
| **BLA2A**<br>**BLA31** | ●Reflow Soldering<br>BLA2A |




●Reflow and Flow
BLA31



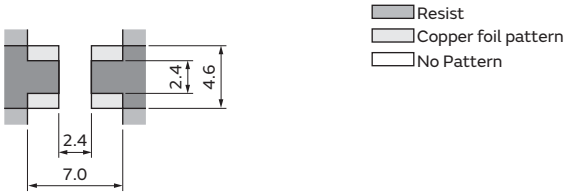

▪ If there are high amounts of self-heating on pattern, the contact points of PCB and part may become damaged.

Continued on the following page. ↗

# Chip Ferrite Bead (BLM/BLA/BLT) Soldering and Mounting

Continued from the preceding page.↘

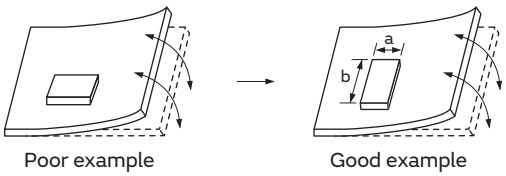
(in mm)

| Series | Standard Land Dimensions |
|---|---|
| **BLT** | ●Reflow Soldering   |

● PCB Warping

PCB should be designed so that products are not subjected to mechanical stress caused by warping the board.

Products should be located in a sideways direction (Length: a<b) to the mechanical stress.

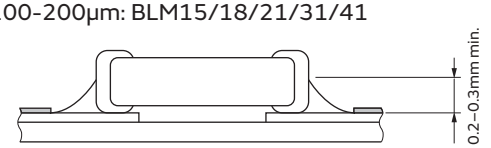
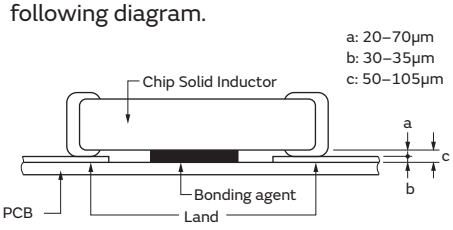
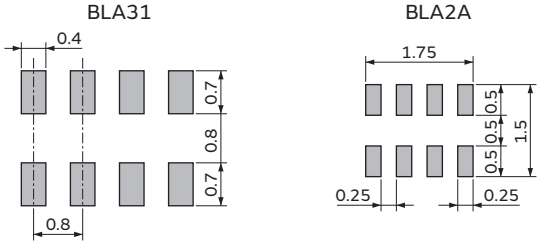
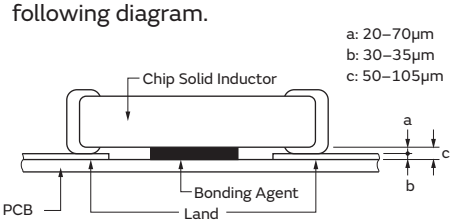



## 2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip ferrite beads and bead inductors, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the chip ferrite beads and bead inductors, apply the adhesive in accordance with the following conditions.
If too much adhesive is applied, it may overflow into the land or termination areas and yield poor solderability.
In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during the flow soldering process.

(in mm)

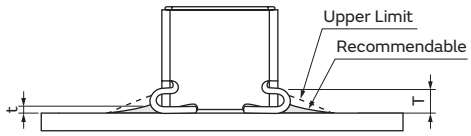
| Series | Solder Paste Printing | Adhesive Application |
|---|---|---|
| **BLM** | ●Ensure that solder is applied smoothly to a minimum height of 0.2mm to 0.3mm at the end surface of the part.<br>●Guideline of solder paste thickness:<br>50-80μm: BLM02<br>100-150μm: BLM03<br>100-200μm: BLM15/18/21/31/41   | **BLM18/21/31/41 Series (except for BLM18G Series)**<br>Coating amount is illustrated in the following diagram.   |
| **BLA** | ●Guideline of solder paste thickness:<br>100-150μm: BLA2A<br>150-200μm: BLA31   | **BLA31 Series**<br>Coating amount is illustrated in the following diagram.   |

Continued on the following page.↗

# Chip Ferrite Bead (BLM/BLA/BLT) Soldering and Mounting

Continued from the preceding page. ↘

(in mm)

| Series | Solder Paste Printing | Adhesive Application |
|---|---|---|
| **BLT** | ●Solder shall be used not to exceed the upper limits as shown below.<br>●Guideline of solder paste thickness:<br>150μm: BLT5B<br>  <br><br>1/3T ≦ t ≦ T (T: Thickness of Electrode) | |

### 3. Standard Soldering Conditions

(1) Soldering Methods

Use flow and reflow soldering methods only.
Use standard soldering conditions when soldering chip ferrite beads and bead inductors.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products. If using BLA series with Sn-Zn based solder, please contact Murata in advance.

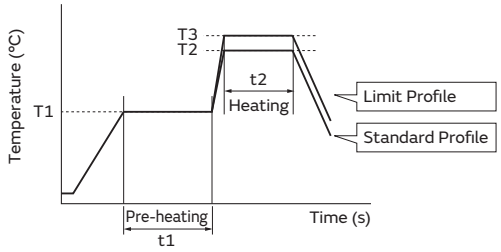
Flux:

- Use rosin based flux.
  In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

(2) Soldering Profile

●Flow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



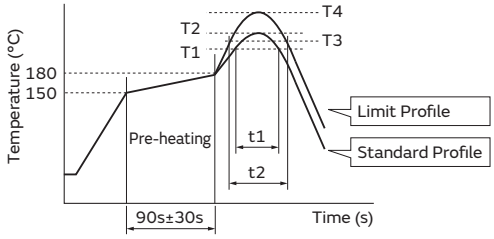

| Series | Pre-heating | | Standard Profile | | | Limit Profile | | |
|---|---|---|---|---|---|---|---|---|
| | | | Heating | | Cycle of Flow | Heating | | Cycle of Flow |
| | Temp. (T1) | Time (t1) | Temp. (T2) | Time (t2) | | Temp. (T3) | Time (t2) | |
| **BLM** (except for **BLM02/03/15/18G**) **BLA31** | 150°C | 60s min. | 250°C | 4 to 6s | 2 times max. | 265±3°C | 5s max. | 2 times max. |

Continued on the following page. ↗

# Chip Ferrite Bead (BLM/BLA/BLT) Soldering and Mounting

Continued from the preceding page.↘

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)




| Series | Standard Profile | | | | Limit Profile | | | |
|---|---|---|---|---|---|---|---|---|
| | Heating | | Peak Temperature (T2) | Cycle of Reflow | Heating | | Peak Temperature (T4) | Cycle of Reflow |
| | Temp. (T1) | Time (t1) | | | Temp. (T3) | Time (t2) | | |
| **BLM BLA** | 220°C min. | 30 to 60s | 245±3°C | 2 times max. | 230°C min. | 60s max. | 260°C/10s | 2 times max. |
| **BLT** | | | | | 240°C min. | 30s max. | | |

(3) Reworking with a soldering Iron

The following conditions must be strictly followed when using a soldering iron (except for BLM02 Series).
Pre-heating: 150°C 60s min.
Soldering iron power output / Tip diameter:
80W max. / ø3mm max.
Temperature of soldering iron tip / Soldering time / Times:
350°C max. / 3-4s / 2 times
Do not allow the tip of the soldering iron to directly contact the chip.
For additional methods of reworking with a soldering iron, please contact Murata engineering.

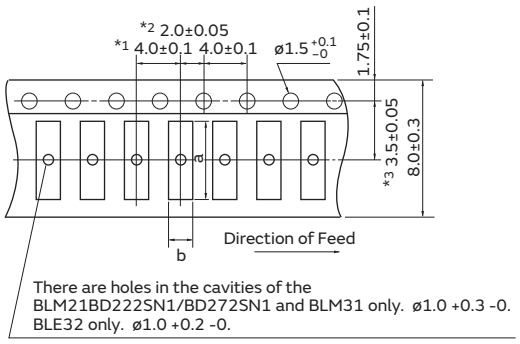
## 4. Cleaning

The following conditions should be observed when cleaning chip ferrite beads.

(1) Cleaning temperature: 60°C max. (40°C max. for alcohol type cleaner)
(2) Ultrasonic
Output: 20W/liter max.
Duration: 5 minutes max.
Frequency: 28 to 40kHz
(3) Cleaning Agent
The following cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.
Do not clean BLT series.
In case of cleaning, please contact Murata engineering.
(a) Alcohol cleaning agent
Isopropyl alcohol (IPA)
(b) Aqueous cleaning agent
Pine Alpha ST-100S
(4) Ensure that flux residue is completely removed.
The component should be thoroughly dried after the aqueous agent has been removed with deionized water.
(5) BLM_G type is processed with resin. On rinsing the product, using water for ultrasonic cleaning may affect the resin quality used for the product by water element.
In case of set cleaning conditions, please make a reliability evaluation according to the cleaning conditions.

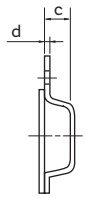
# Chip Ferrite Bead (BLM/BLA/BLT) Packaging

## Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape



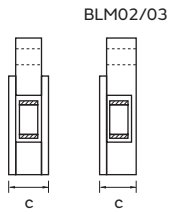

There are holes in the cavities of the BLM21BD222SN1/BD272SN1 and BLM31 only. ø1.0 +0.3 -0.
BLE32 only. ø1.0 +0.2 -0.

<Embossed>




c: Depth of Cavity (Embossed Tape)

<Paper>




c: Total Thickness of Tape (Paper Tape)

*1 BLM02/03/15: 2.0±0.05
BLA2A: 2.0±0.1
BLM18SG/TG: 2.0±0.05
*2 BLA2A/31: 2.0±0.1
*3 BLA2A/31: 3.5±0.1

Dimension of the cavity of embossed tape is measured at the bottom side.

| Part Number | Dimensions | | | | Minimum Qty. (pcs.) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | ø180mm Reel | | ø330mm Reel | | Bulk |
| | a | b | c | d | Paper Tape | Embossed Tape | Paper Tape | Embossed Tape | |
| **BLM02** (except for **BLM02KX**) | 0.45 | 0.25 | 0.40 max. | - | 20000 | - | - | - | 1000 |
| **BLM02KX** | 0.45 | 0.25 | 0.52 max. | - | 15000 | - | - | - | 1000 |
| **BLM03** | 0.66 | 0.36 | 0.55 max. | - | 15000 | - | 50000 | - | 1000 |
| **BLM15** | 1.15 | 0.65 | 0.8 max. | - | 10000 | - | 50000 | - | 1000 |
| **BLM18A/B/P/R/H/G** | 1.85 | 1.05 | 1.1 max. | - | 4000 | - | 10000 | - | 1000 |
| **BLM18EG/KG_TN** | 1.85 | 1.05 | 0.85 max. | - | 4000 | - | 10000 | - | 1000 |
| **BLM18EG/KG_SN** | | | 1.1 max. | | | | | | |
| **BLM18SD** | 1.85 | 1.05 | 1.1 max. | - | 10000 | - | 30000 | - | 1000 |
| **BLM18SG_SN1** | | | | | | | | | |
| **BLM18SN** | | | 0.85 max. | | | | | | |
| **BLM18SG_TN1** | | | 0.9 max. | | | | | | |
| **BLM18T** | 1.85 | 1.05 | 0.90 max. | - | 10000 | - | - | - | 1000 |
| **BLM21** | 2.25 | 1.45 | 1.1 max. | - | 4000 | - | 10000 | - | 1000 |
| **BLM31** (except for **BLM31KN**) | 3.5 | 1.9 | 1.3 | 0.2 | - | 3000 | - | 10000 | 1000 |
| **BLM31KN** | 3.5 | 1.9 | 1.75 | 0.2 | - | 2500 | - | 8000 | 1000 |
| **BLM21BD222SN1/272SN1** | 2.25 | 1.45 | 1.3 | 0.2 | - | 3000 | - | 10000 | 1000 |
| **BLA2A** | 2.2 | 1.2 | 0.8 max. | - | 10000 | - | 50000 | - | 1000 |
| **BLA31** | 3.4 | 1.8 | 1.1 max. | - | 4000 | - | 10000 | - | 1000 |

(in mm)

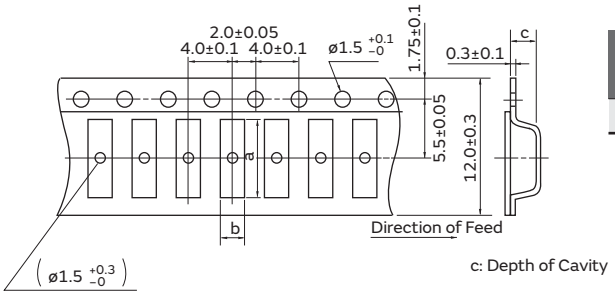
Continued on the following page.↗

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity."

# Chip Ferrite Bead (BLM/BLA/BLT) Packaging

Continued from the preceding page.↘

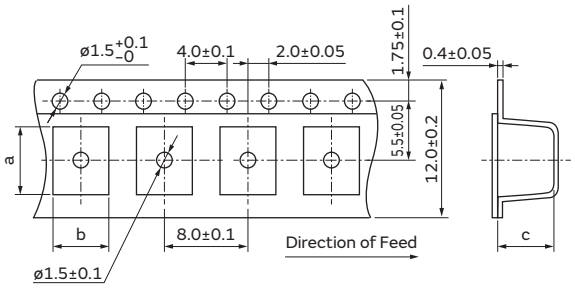
## Minimum Quantity and Dimensions of 12mm Width Embossed Tape




c: Depth of Cavity

Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **BLM41** | 4.8 | 1.9 | 1.75 | 2500 | 8000 | 1000 |




Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **BLT5B** | 6.5 | 5.35 | 0.4 | 300 | - | 50 |

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity."

## Application Specified Noise Filter NFZ_S/NFZ_B/BLF/BLE/LQW_CA Series

Part Numbering ····· p118
Series Lineup ····· p122
Product Detail
Noise filter for audio lines ····· p126
Noise filter for LED lighting equipment ····· p133
Frequency specified noise filter ····· p142
Noise filter for power charger lines ····· p145
Inductor for audio line noise suppression ··· p147
⚠Caution/Notice ····· p151
Soldering and Mounting ····· p154
Packaging ····· p160

## Part Numbering

### Chip EMIFIL®

(Part Number)

| NF | Z | 32 | BW | 3R6 | H | N | 1 | 0 | L |
|---|---|---|---|---|---|---|---|---|---|
| ❶ | ❷ | ❸ | ❹ | ❺ | ❻ | ❼ | ❽ | ❾ | ❿ |

❶Product ID

| Product ID | |
|---|---|
| NF | Chip EMIFIL® |

❷Structure

| Code | Structure |
|---|---|
| Z | Inductor Type |

❸Dimensions (LxW)

| Code | Dimensions (LxW) | Size Code (inch) |
|---|---|---|
| 03 | 0.6x0.3mm | 0201 |
| 15 | 1.0x0.5mm | 0402 |
| 18 | 1.6x0.8mm | 0603 |
| 2M | 2.0x1.6mm | 0806 |
| 2H | 2.5x2.0mm | 1008 |
| 32 | 3.2x2.5mm | 1210 |
| 5B | 5.0x5.0mm | 2020 |

❹Features

| Code | Features |
|---|---|
| SM | For Audio Lines Multilayer Type |
| SW | For Audio Lines Wire Wound Type |
| BW | For LED Lines Wire Wound Type |
| BM | For LED Lines Multilayer Type |
| SG | For Audio Lines Multilayer Type (For GHz Band Use) |

❺Impedance

Expressed by three figures. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

❻Inductance Tolerance

| Code | Features |
|---|---|
| S | For General Use (Sn Plating) |
| H | For General Use (LF Solder) *1 |
| L | For General Use (LF Solder) |

*1 NFZ32SW/32BW_H□1 only.

❼Category

| Code | Category |
|---|---|
| N | For General-Purpose |

❽Number of Circuits

| Code | Number of Circuits |
|---|---|
| 1 | 1 Circuit |

❾Specification

| Code | Specification |
|---|---|
| 0 | Standard Type |
| 1 | Low Rdc Type |

❿Packaging

| Code | Packaging |
|---|---|
| K | Embossed Taping (ø330mm Reel) |
| L | Embossed Taping (ø180mm Reel) |
| B | Bulk |
| D | Paper Taping (ø180mm Reel) |

## Frequency Specified Filters

(Part Number) BLF 03 J D 421 G N E D
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶Product ID

| Code | |
|---|---|
| **BLF** | Frequency Specified Filters |

❷Dimensions (LxW)

| Code | Dimensions (LxW) | Size Code (inch) |
|---|---|---|
| **02** | 0.4×0.2mm | 01005 |
| **03** | 0.6×0.3mm | 0201 |

❸Target Frequency

| Code | Target Frequency |
|---|---|
| **J** | 700MHz |
| **R** | 2.4GHz |
| **V** | 5GHz |

❹Characteristics Classification

❺Impedance at Target Frequency

Expressed by three figures. The unit is in ohm (Ω).
The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

❻Chip Shape/Electrode

Expressed by a letter.

| Code | Chip Shape/Electrode |
|---|---|
| **G** | High Profile (Sn Plating/5 Surface Electrode) |
| **S** | Standard (Sn Plating/5 Surface Electrode) |

❼Category

| Code | Category |
|---|---|
| **N** | For General-Purpose |

❽Rated Current

| Code | Rated Current |
|---|---|
| **E** | 500mA max. |
| **G** | 1A max. |
| **L** | 2A max. |

❾Packaging

| Code | Packaging |
|---|---|
| **E** | Embossed Taping (ø180mm Reel*1) |
| **B** | Bulk |
| **D** | Paper Taping (ø180mm Reel) |

*1 Width 8mm

## Chip Power Bead

(Part Number) BLE 18 PS 080 S N 1 D
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

### ❶Product ID

| Product ID | |
|---|---|
| **BLE** | Chip Ferrite Beads |

### ❷Dimensions (LxW)

| Code | Dimensions (LxW) | Size Code (inch) |
|---|---|---|
| **18** | 1.6x0.8mm | 0603 |
| **32** | 3.2x2.5mm | 1210 |

### ❸Characteristics/Applications

| Code *1 | Characteristics/Applications |
|---|---|
| **PN** | For Power Lines |
| **PS** | |

*1 Frequency characteristics vary with each code.

### ❹Impedance

Expressed by three figures. The unit is in ohm (Ω) at 100MHz. The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

### ❺Electrode

Expressed by a letter.

Ex.)

| Code | Electrode |
|---|---|
| **S** | Sn Plating |

### ❻Category

| Code | Category |
|---|---|
| **N** | For General-Purpose |

### ❼Number of Circuits

| Code | Number of Circuits |
|---|---|
| **1** | 1 Circuit |

### ❽Packaging

| Code | Packaging |
|---|---|
| **K** | Embossed Taping (ø330mm Reel) |
| **L** | Embossed Taping (ø180mm Reel) |
| **B** | Bulk |
| **J** | Paper Taping (ø330mm Reel) |
| **D** | Paper Taping (ø180mm Reel) |

## Inductors for General Circuits

(Part Number) LQ W 04 C A R45 K 0 0 D
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

### ❶Product ID

| Product ID | |
|---|---|
| **LQ** | Chip Inductors (Chip Coils) |

### ❷Structure

| Code | Structure |
|---|---|
| **W** | Wire Wound Type (Ferrite Core) |

### ❷Dimensions (LxW)

| Code | Nominal Dimensions (LxW) | Size Code (in inch) |
|---|---|---|
| **04** | 0.8x0.4mm | 03019 |
| **15** | 1.0x0.5mm | 0402 |
| **18** | 1.6x0.8mm | 0603 |

### ❹Applications and Characteristics

| Code | Series | Applications and Characteristics |
|---|---|---|
| **C** | **LQW** | for Choke |

### ❺Category

| Code | Category | |
|---|---|---|
| **A** | General | Impedance Device (Near GHz Band) |

### ❻Inductance

Expressed by three-digit alphanumerics. The unit is micro-henry (μH). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures. If there is a decimal point, it is expressed by the capital letter "**R**." In this case, all figures are significant digits. If inductance is less than 0.1μH, the inductance code is expressed by a combination of two figures and the capital letter "**N**," and the unit of inductance is nano-henry (nH).
The capital letter "**N**" indicates the unit of "nH," and also expresses a decimal point. In this case, all figures are significant digits.

### ❼Inductance Tolerance

| Code | Inductance Tolerance |
|---|---|
| **J** | ±5% |
| **K** | ±10% |

### ❽Features

| Code | Features | Series |
|---|---|---|
| **0** | Standard Type | **LQW** |

### ❾Electrode

▪Lead (Pb) Free

| Code | Electrode | Series |
|---|---|---|
| **0** | Sn | **LQW** |

### ❿Packaging

| Code | Packaging |
|---|---|
| **B** | Bulk |
| **J** | Paper Taping (ø330mm Reel) |
| **D** | Paper Taping (ø180mm Reel) |

# Series Lineup

## NFZ_S

Noise filter for audio lines

| Size Code in inches (mm) | Thickness (mm) | Part Number | Impedance | | | | Rated Current |
|---|---|---|---|---|---|---|---|
| | | | at 1MHz | at 100MHz | at 900MHz | at 1.7GHz | |
| 0201 (0603) | 0.3 | NFZ03SG331SN10 p126 | - | - | 330Ω (Typ.) | 400Ω (Typ.) | 305mA |
| | 0.3 | NFZ03SG501SN10 p126 | - | - | 500Ω (Typ.) | 600Ω (Typ.) | 275mA |
| | 0.3 | NFZ03SG671SN10 p126 | - | - | 670Ω (Typ.) | 800Ω (Typ.) | 250mA |
| | 0.3 | NFZ03SG102SN10 p126 | - | - | 1000Ω (Typ.) | 900Ω (Typ.) | 210mA |
| | 0.3 | NFZ03SG162SN10 p126 | - | - | 1600Ω (Typ.) | 1200Ω (Typ.) | 180mA |
| 0402 (1005) | 0.5 | NFZ15SG771SN10 p127 | - | - | 770Ω (Typ.) | 900Ω (Typ.) | 500mA |
| | 0.5 | NFZ15SG152SN10 p127 | - | - | 1500Ω (Typ.) | 1200Ω (Typ.) | 400mA |
| | 0.5 | NFZ15SG262SN10 p127 | - | - | 2600Ω (Typ.) | 1450Ω (Typ.) | 350mA |
| | 0.5 | NFZ15SG462SN10 p127 | - | - | 4600Ω (Typ.) | 1800Ω (Typ.) | 270mA |
| | 0.5 | NFZ15SG101SN11 p127 | - | - | 100Ω (Typ.) | 160Ω (Typ.) | 1.1A |
| | 0.5 | NFZ15SG151SN11 p127 | - | - | 150Ω (Typ.) | 250Ω (Typ.) | 1A |
| | 0.5 | NFZ15SG331SN11 p127 | - | - | 330Ω (Typ.) | 540Ω (Typ.) | 650mA |
| 0603 (1608) | 0.8 | NFZ18SM121SN10 p129 | - | 120Ω±25% | - | - | 1.25A |
| | 0.8 | NFZ18SM251SN10 p129 | - | 250Ω±25% | - | - | 1.1A |
| | 0.8 | NFZ18SM501SN10 p129 | - | 500Ω±25% | - | - | 950mA |
| | 0.8 | NFZ18SM701SN10 p129 | - | 700Ω±25% | - | - | 800mA |
| 0806 (2016) | 0.9 | NFZ2MSM101SN10 p131 | - | 100Ω±25% | - | - | 4A |
| | 0.9 | NFZ2MSM181SN10 p131 | - | 180Ω±25% | - | - | 3.4A |
| | 0.9 | NFZ2MSM301SN10 p131 | - | 300Ω±25% | - | - | 3.1A |
| | 0.9 | NFZ2MSM601SN10 p131 | - | 600Ω±25% | - | - | 2.5A |
| 1210 (3225) | 1.55 | NFZ32SW301HN10 p132 | 3.2Ω±30% | 300Ω (Typ.) | - | - | 2.55A |
| | 1.55 | NFZ32SW901HN10 p132 | 6.8Ω±30% | 900Ω (Typ.) | - | - | 2.05A |

## NFZ_B

Noise filter for LED lighting equipment

| Size Code in inches (mm) | Thickness (mm) | Part Number | Impedance (at 1MHz) | Rated Current |
|---|---|---|---|---|
| 1008 (2520) | 0.9 | NFZ2HBM1R5SN10 p133 | 1.5Ω±30% | 1.2A |
| | 0.9 | NFZ2HBM2R9SN10 p133 | 2.9Ω±30% | 1.1A |
| | 0.9 | NFZ2HBM4R4SN10 p133 | 4.4Ω±30% | 1.05A |
| | 0.9 | NFZ2HBM6R1SN10 p133 | 6.1Ω±30% | 1A |
| | 0.9 | NFZ2HBM8R4SN10 p133 | 8.4Ω±30% | 900mA |
| | 0.9 | NFZ2HBM110SN10 p133 | 11Ω±30% | 800mA |
| | 0.9 | NFZ2HBM170SN10 p133 | 17Ω±30% | 700mA |
| | 0.9 | NFZ2HBM240SN10 p133 | 24Ω±30% | 650mA |
| | 0.9 | NFZ2HBM330SN10 p133 | 33Ω±30% | 500mA |
| | 0.9 | NFZ2HBM600SN10 p133 | 60Ω±30% | 400mA |
| 1210 (3225) | 1.55 | NFZ32BW3R6HN10 p135 | 3.6Ω±30% | 2.55A |
| | 1.55 | NFZ32BW7R4HN10 p135 | 7.4Ω±30% | 2.05A |
| | 1.55 | NFZ32BW9R0HN10 p135 | 9Ω±30% | 1.75A |
| | 1.55 | NFZ32BW150HN10 p135 | 15Ω±30% | 1.6A |
| | 1.55 | NFZ32BW210HN10 p135 | 21Ω±30% | 1.2A |
| | 1.55 | NFZ32BW320HN10 p135 | 32Ω±30% | 1A |
| | 1.55 | NFZ32BW420HN10 p135 | 42Ω±30% | 850mA |
| | 1.55 | NFZ32BW700HN10 p135 | 70Ω±30% | 700mA |
| | 1.55 | NFZ32BW111HN10 p135 | 110Ω±30% | 520mA |
| | 1.55 | NFZ32BW151HN10 p135 | 150Ω±30% | 450mA |
| | 1.55 | NFZ32BW221HN10 p135 | 220Ω±30% | 390mA |
| | 1.55 | NFZ32BW291HN10 p135 | 290Ω±30% | 310mA |

Continued on the following page. ↗

| Size Code in inches (mm) | Thickness (mm) | Part Number | Impedance (at 1MHz) | Rated Current |
|---|---|---|---|---|
| 1210 (3225) | 1.55 | **NFZ32BW451HN10** p135 | 450Ω±30% | 275mA |
| | 1.55 | **NFZ32BW621HN10** p135 | 620Ω±30% | 250mA |
| | 1.55 | **NFZ32BW881HN10** p135 | 880Ω±30% | 200mA |
| | 1.55 | **NFZ32BW3R3HN11** p135 | 3.3Ω±30% | 2.9A |
| | 1.55 | **NFZ32BW6R8HN11** p135 | 6.8Ω±30% | 2.5A |
| | 1.55 | **NFZ32BW8R4HN11** p135 | 8.4Ω±30% | 2.4A |
| | 1.55 | **NFZ32BW9R8HN11** p135 | 9.8Ω±30% | 2.1A |
| | 1.55 | **NFZ32BW120HN11** p136 | 12Ω±30% | 1.85A |
| | 1.55 | **NFZ32BW190HN11** p136 | 19Ω±30% | 1.8A |
| | 1.55 | **NFZ32BW210HN11** p136 | 21Ω±30% | 1.55A |
| | 1.55 | **NFZ32BW310HN11** p136 | 31Ω±30% | 1.2A |
| | 1.55 | **NFZ32BW520HN11** p136 | 52Ω±30% | 1.1A |
| | 1.55 | **NFZ32BW650HN11** p136 | 65Ω±30% | 900mA |
| | 1.55 | **NFZ32BW101HN11** p136 | 100Ω±30% | 900mA |
| | 1.55 | **NFZ32BW151HN11** p136 | 150Ω±30% | 700mA |
| 2020 (5050) | 2.0 | **NFZ5BBW2R9LN10** p139 | 2.9Ω±30% | 4A |
| | 2.0 | **NFZ5BBW4R5LN10** p139 | 4.5Ω±30% | 3.4A |
| | 2.0 | **NFZ5BBW6R7LN10** p139 | 6.7Ω±30% | 3.1A |
| | 2.0 | **NFZ5BBW7R6LN10** p139 | 7.6Ω±30% | 3.1A |
| | 2.0 | **NFZ5BBW100LN10** p139 | 10Ω±30% | 3A |
| | 2.0 | **NFZ5BBW140LN10** p139 | 14Ω±30% | 2.6A |
| | 2.0 | **NFZ5BBW170LN10** p139 | 17Ω±30% | 2.5A |
| | 2.0 | **NFZ5BBW220LN10** p139 | 22Ω±30% | 2.3A |
| | 2.0 | **NFZ5BBW310LN10** p139 | 31Ω±30% | 2A |
| | 2.0 | **NFZ5BBW450LN10** p139 | 45Ω±30% | 1.65A |
| | 2.0 | **NFZ5BBW520LN10** p139 | 52Ω±30% | 1.61A |
| | 2.0 | **NFZ5BBW610LN10** p139 | 61Ω±30% | 1.6A |
| | 2.0 | **NFZ5BBW970LN10** p139 | 97Ω±30% | 1.2A |
| | 2.0 | **NFZ5BBW141LN10** p139 | 140Ω±30% | 1.05A |

# BLF

Frequency specified noise filter

| Size Code in inches (mm) | Thickness (mm) | Part Number | Target Frequency | Impedance | Rated Current |
|---|---|---|---|---|---|
| 01005 (0402) | 0.3 | **BLF02JD361GNE** p142 | 700MHz | 360Ω±40% | 380mA |
| | 0.3 | **BLF02JD471GNE** p142 | 700MHz | 470Ω±40% | 330mA |
| | 0.3 | **BLF02RD331GNE** p143 | 2.4GHz | 330Ω±40% | 330mA |
| | 0.3 | **BLF02RD471GNE** p143 | 2.4GHz | 470Ω±40% | 200mA |
| 0201 (0603) | 0.4 | **BLF03JD421GNE** p144 | 700MHz | 420Ω±40% | 480mA |

# BLE

Noise filter for power charger lines

| Size Code in inches (mm) | Thickness (mm) | Part Number | Impedance (at 100MHz) | Rated Current |
|---|---|---|---|---|
| 0603 (1608) | 0.6 | **BLE18PS080SN1** p145 | 8.5Ω±25% | 8A |
| 1210 (3225) | 1.5 | **BLE32PN260SN1** p146 | 26Ω±10Ω | 10A |
| | 2.0 | **BLE32PN300SN1** p146 | 30Ω±10Ω | 10A |

# LQW_CA

Inductor for audio line noise suppression

| Size Code in inches (mm) | Thickness (mm) | Part Number | Inductance | Rated Current | Max. of DC Resistance | S.R.F.* (min.) |
|---|---|---|---|---|---|---|
| 03019 (0805) | 0.5 | **LQW04CA60NK00** p147 | 60nH±10% | 620mA | 0.18Ω | 3000MHz |
| | 0.5 | **LQW04CA90NK00** p147 | 90nH±10% | 520mA | 0.24Ω | 2500MHz |
| | 0.5 | **LQW04CAR12K00** p147 | 120nH±10% | 510mA | 0.28Ω | 2100MHz |
| | 0.5 | **LQW04CAR29K00** p147 | 290nH±10% | 270mA | 0.94Ω | 1400MHz |
| | 0.5 | **LQW04CAR45K00** p147 | 450nH±10% | 200mA | 1.23Ω | 850MHz |
| | 0.5 | **LQW04CAR51K00** p147 | 510nH±10% | 200mA | 1.31Ω | 700MHz |
| 0402 (1005) | 0.56 | **LQW15CA22NJ00** p148 | 22nH±5% | 1300mA | 0.06Ω | 3000MHz |
| | 0.56 | **LQW15CA22NK00** p148 | 22nH±10% | 1300mA | 0.06Ω | 3000MHz |
| | 0.56 | **LQW15CA39NJ00** p148 | 39nH±5% | 1100mA | 0.075Ω | 2700MHz |
| | 0.56 | **LQW15CA39NK00** p148 | 39nH±10% | 1100mA | 0.075Ω | 2700MHz |
| | 0.56 | **LQW15CA59NJ00** p148 | 59nH±5% | 1000mA | 0.095Ω | 2300MHz |
| | 0.56 | **LQW15CA59NK00** p148 | 59nH±10% | 1000mA | 0.095Ω | 2300MHz |
| | 0.56 | **LQW15CA83NJ00** p148 | 83nH±5% | 970mA | 0.12Ω | 1700MHz |
| | 0.56 | **LQW15CA83NK00** p148 | 83nH±10% | 970mA | 0.12Ω | 1700MHz |
| | 0.56 | **LQW15CAR11J00** p148 | 110nH±5% | 900mA | 0.13Ω | 1600MHz |
| | 0.56 | **LQW15CAR11K00** p148 | 110nH±10% | 900mA | 0.13Ω | 1600MHz |
| | 0.56 | **LQW15CAR14J00** p148 | 140nH±5% | 680mA | 0.18Ω | 1400MHz |
| | 0.56 | **LQW15CAR14K00** p148 | 140nH±10% | 680mA | 0.18Ω | 1400MHz |
| | 0.56 | **LQW15CAR18J00** p148 | 180nH±5% | 640mA | 0.21Ω | 1300MHz |
| | 0.56 | **LQW15CAR18K00** p148 | 180nH±10% | 640mA | 0.21Ω | 1300MHz |
| | 0.56 | **LQW15CAR22J00** p148 | 220nH±5% | 540mA | 0.29Ω | 1300MHz |
| | 0.56 | **LQW15CAR22K00** p148 | 220nH±10% | 540mA | 0.29Ω | 1300MHz |
| | 0.56 | **LQW15CAR27J00** p148 | 270nH±5% | 480mA | 0.38Ω | 1200MHz |
| | 0.56 | **LQW15CAR27K00** p149 | 270nH±10% | 480mA | 0.38Ω | 1200MHz |
| | 0.56 | **LQW15CAR32J00** p149 | 320nH±5% | 420mA | 0.41Ω | 1100MHz |
| | 0.56 | **LQW15CAR32K00** p149 | 320nH±10% | 420mA | 0.41Ω | 1100MHz |
| | 0.56 | **LQW15CAR37J00** p149 | 370nH±5% | 360mA | 0.575Ω | 1000MHz |
| | 0.56 | **LQW15CAR37K00** p149 | 370nH±10% | 360mA | 0.575Ω | 1000MHz |
| | 0.56 | **LQW15CAR39J00** p149 | 390nH±5% | 320mA | 0.72Ω | 950MHz |
| | 0.56 | **LQW15CAR39K00** p149 | 390nH±10% | 320mA | 0.72Ω | 950MHz |
| | 0.56 | **LQW15CAR43J00** p149 | 430nH±5% | 360mA | 0.68Ω | 920MHz |
| | 0.56 | **LQW15CAR43K00** p149 | 430nH±10% | 360mA | 0.68Ω | 920MHz |
| | 0.56 | **LQW15CAR50J00** p149 | 500nH±5% | 270mA | 0.97Ω | 900MHz |
| | 0.56 | **LQW15CAR50K00** p149 | 500nH±10% | 270mA | 0.97Ω | 900MHz |
| | 0.56 | **LQW15CAR56J00** p149 | 560nH±5% | 270mA | 1.00Ω | 900MHz |
| | 0.56 | **LQW15CAR56K00** p149 | 560nH±10% | 270mA | 1.00Ω | 900MHz |
| | 0.56 | **LQW15CAR64J00** p149 | 640nH±5% | 240mA | 1.40Ω | 870MHz |
| | 0.56 | **LQW15CAR64K00** p149 | 640nH±10% | 240mA | 1.40Ω | 870MHz |
| | 0.56 | **LQW15CAR73J00** p149 | 730nH±5% | 200mA | 1.95Ω | 810MHz |
| | 0.56 | **LQW15CAR73K00** p149 | 730nH±10% | 200mA | 1.95Ω | 810MHz |
| | 0.56 | **LQW15CAR80J00** p149 | 800nH±5% | 190mA | 2.10Ω | 770MHz |
| | 0.56 | **LQW15CAR80K00** p149 | 800nH±10% | 190mA | 2.10Ω | 770MHz |
| | 0.56 | **LQW15CA1R0K00** p149 | 1000nH±10% | 180mA | 2.20Ω | 400MHz |
| | 0.56 | **LQW15CA2R0K00** p149 | 2000nH±10% | 130mA | 3.20Ω | 120MHz |
| 0603 (1608) | 0.8 | **LQW18CA32NJ00** p150 | 32nH±5% | 2200mA | 0.030Ω | 3000MHz |
| | 0.8 | **LQW18CA56NJ00** p150 | 56nH±5% | 1850mA | 0.040Ω | 2200MHz |
| | 0.8 | **LQW18CA85NJ00** p150 | 85nH±5% | 1650mA | 0.048Ω | 1800MHz |
| | 0.8 | **LQW18CAR12J00** p150 | 120nH±5% | 1500mA | 0.058Ω | 1500MHz |
| | 0.8 | **LQW18CAR16J00** p150 | 160nH±5% | 1300mA | 0.075Ω | 1350MHz |
| | 0.8 | **LQW18CAR21J00** p150 | 210nH±5% | 1050mA | 0.115Ω | 1150MHz |
| | 0.8 | **LQW18CAR27J00** p150 | 270nH±5% | 900mA | 0.150Ω | 1050MHz |

*S.R.F.: Self-Resonant Frequency

Continued on the following page. ↗

| Size Code in inches (mm) | Thickness (mm) | Part Number | Inductance | Rated Current | Max. of DC Resistance | S.R.F.* (min.) |
|---|---|---|---|---|---|---|
| 0603 (1608) | 0.8 | **LQW18CAR33J00** p150 | 330nH±5% | 780mA | 0.200Ω | 970MHz |
| | 0.8 | **LQW18CAR40J00** p150 | 400nH±5% | 680mA | 0.260Ω | 900MHz |
| | 0.8 | **LQW18CAR48J00** p150 | 480nH±5% | 580mA | 0.350Ω | 800MHz |
| | 0.8 | **LQW18CAR58J00** p150 | 580nH±5% | 450mA | 0.460Ω | 760MHz |

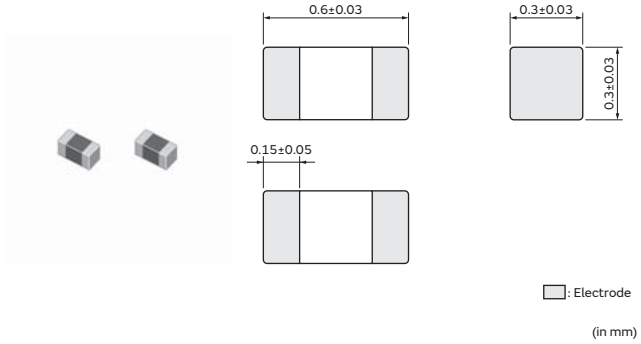
*S.R.F.: Self-Resonant Frequency

## Application specified noise filter

# NFZ03SG Series 0201/0603(inch/mm)

Noise filter for audio lines

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

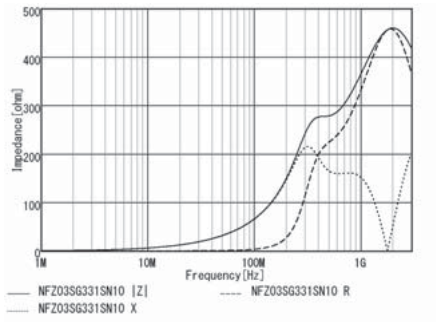
### Rated Value (□: packaging code)

| Part Number | Impedance at 900MHz | Impedance at 1.7GHz | Rated Current | DC Resistance | DC Resistance (Max.) |
|---|---|---|---|---|---|
| NFZ03SG331SN10□ | 330Ω(Typ.) | 400Ω(Typ.) | 305mA | 0.46Ω (Typ.) | 0.6Ω |
| NFZ03SG501SN10□ | 500Ω(Typ.) | 600Ω(Typ.) | 275mA | 0.56Ω (Typ.) | 0.73Ω |
| NFZ03SG671SN10□ | 670Ω(Typ.) | 800Ω(Typ.) | 250mA | 0.69Ω (Typ.) | 0.88Ω |
| NFZ03SG102SN10□ | 1000Ω(Typ.) | 900Ω(Typ.) | 210mA | 1Ω (Typ.) | 1.3Ω |
| NFZ03SG162SN10□ | 1600Ω(Typ.) | 1200Ω(Typ.) | 180mA | 1.3Ω (Typ.) | 1.7Ω |

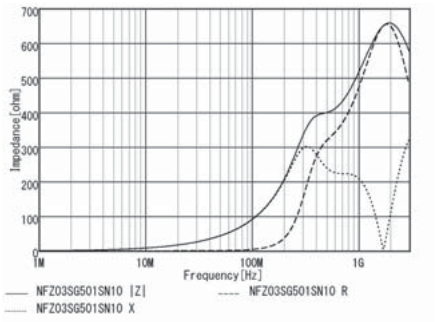
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

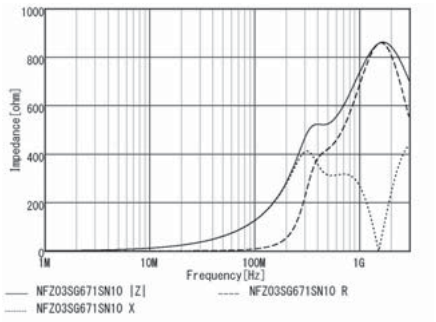
NFZ03SG331SN10



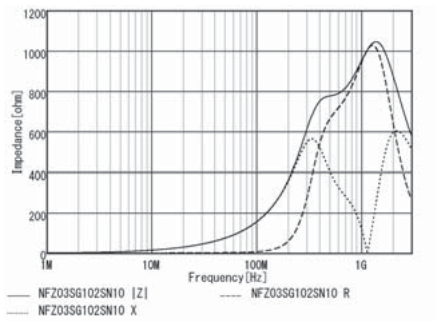

NFZ03SG501SN10



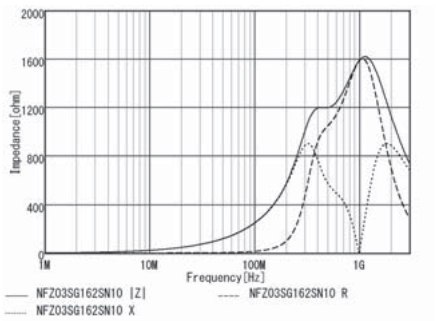

NFZ03SG671SN10




NFZ03SG102SN10




NFZ03SG162SN10

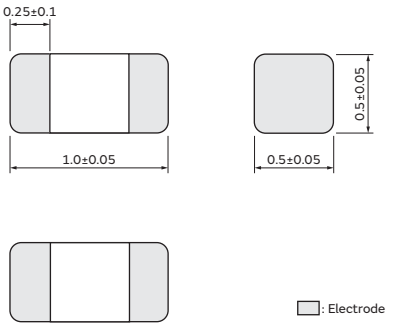


## Application specified noise filter

# NFZ15SG Series 0402/1005(inch/mm)

Noise filter for audio lines

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

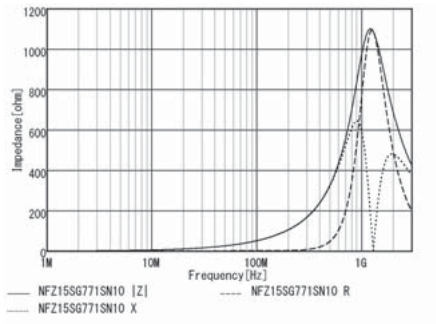
### Rated Value (□: packaging code)

| Part Number | Impedance at 900MHz | Impedance at 1.7GHz | Rated Current | DC Resistance | DC Resistance (Max.) |
|---|---|---|---|---|---|
| NFZ15SG771SN10□ | 770Ω(Typ.) | 900Ω(Typ.) | 500mA | 0.35Ω (Typ.) | 0.5Ω |
| NFZ15SG152SN10□ | 1500Ω(Typ.) | 1200Ω(Typ.) | 400mA | 0.55Ω (Typ.) | 0.8Ω |
| NFZ15SG262SN10□ | 2600Ω(Typ.) | 1450Ω(Typ.) | 350mA | 0.80Ω (Typ.) | 1Ω |
| NFZ15SG462SN10□ | 4600Ω(Typ.) | 1800Ω(Typ.) | 270mA | 1.25Ω (Typ.) | 1.65Ω |
| NFZ15SG101SN11□ | 100Ω(Typ.) | 160Ω(Typ.) | 1.1A | 0.07Ω (Typ.) | 0.1Ω |
| NFZ15SG151SN11□ | 150Ω(Typ.) | 250Ω(Typ.) | 1A | 0.09Ω (Typ.) | 0.12Ω |
| NFZ15SG331SN11□ | 330Ω(Typ.) | 540Ω(Typ.) | 650mA | 0.20Ω (Typ.) | 0.3Ω |

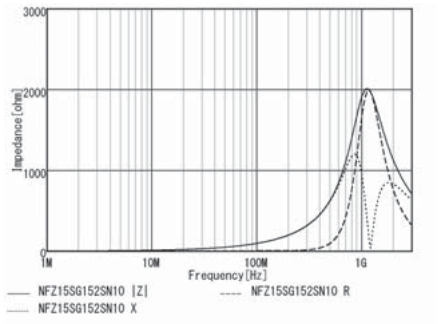
Operating Temp. Range: -40°C to 85°C

### Z-f characteristics

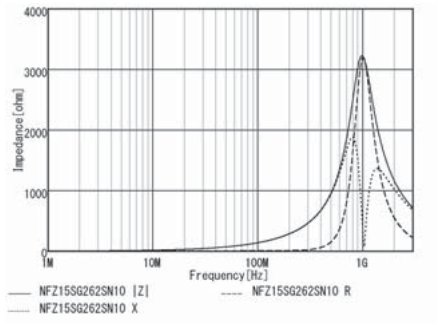
**NFZ15SG771SN10**



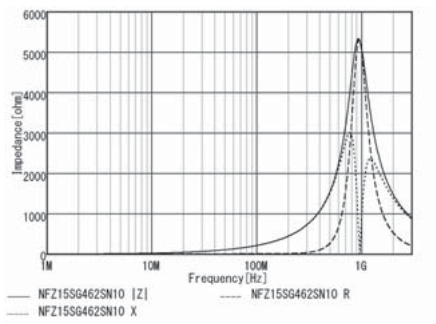

**NFZ15SG152SN10**



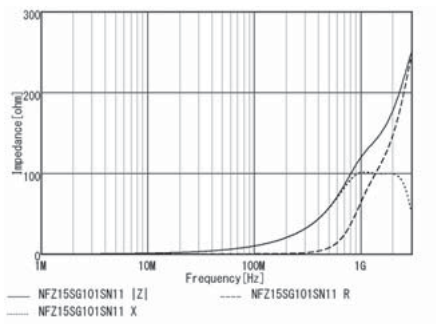

**NFZ15SG262SN10**



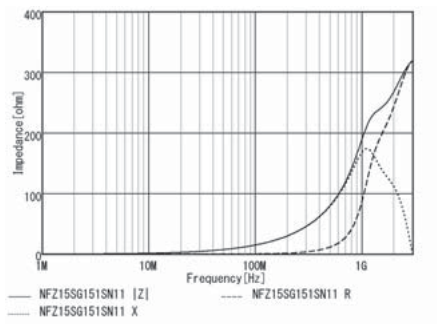

**NFZ15SG462SN10**




**NFZ15SG101SN11**




**NFZ15SG151SN11**

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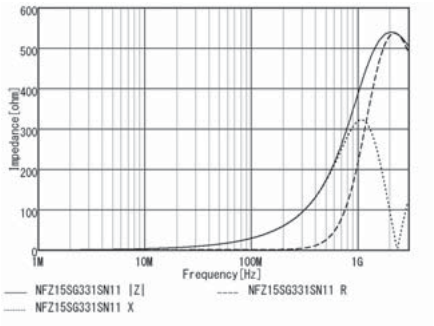
## Z-f characteristics

**NFZ15SG331SN11**

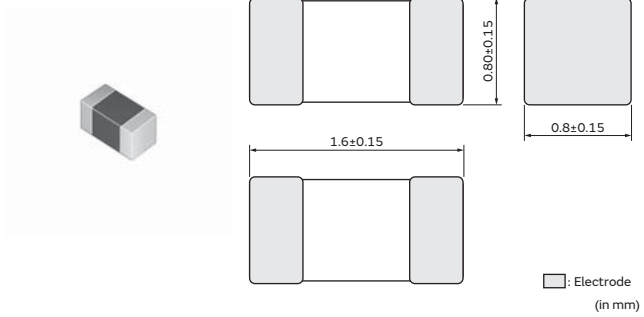


## Application specified noise filter

# NFZ18SM Series 0603/1608(inch/mm)

Noise filter for audio lines

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

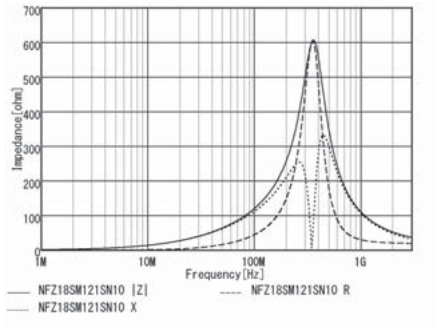
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current | DC Resistance | DC Resistance (Max.) |
|---|---|---|---|---|
| NFZ18SM121SN10□ | 120Ω±25% | 1.25A | 0.11Ω (Typ.) | 0.14Ω |
| NFZ18SM251SN10□ | 250Ω±25% | 1.1A | 0.15Ω (Typ.) | 0.19Ω |
| NFZ18SM501SN10□ | 500Ω±25% | 950mA | 0.20Ω (Typ.) | 0.25Ω |
| NFZ18SM701SN10□ | 700Ω±25% | 800mA | 0.23Ω (Typ.) | 0.29Ω |

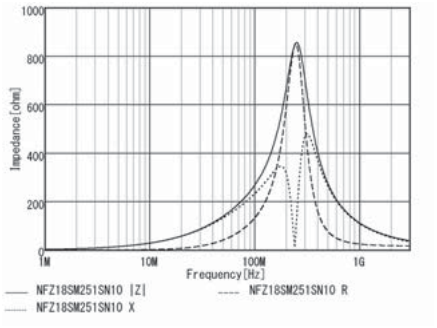
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

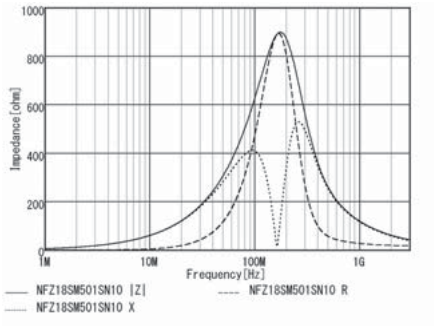
**NFZ18SM121SN10**



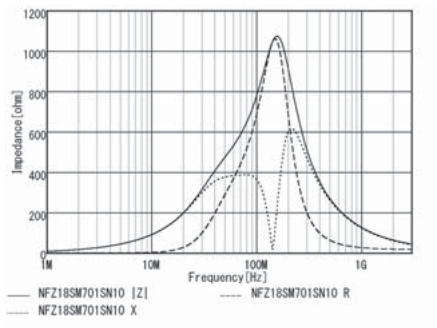

**NFZ18SM251SN10**




**NFZ18SM501SN10**




**NFZ18SM701SN10**

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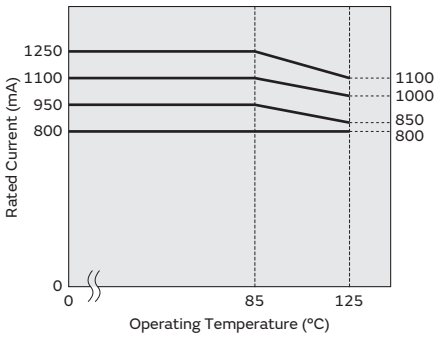
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for NFZ18SM series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

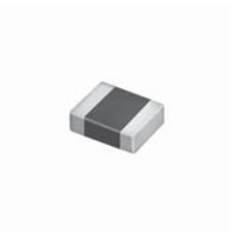


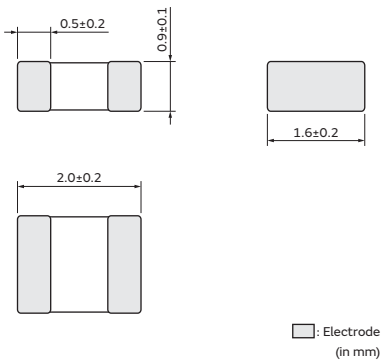
## Application specified noise filter

# NFZ2MSM Series 0806/2016(inch/mm)

Noise filter for audio lines

### Appearance/Dimensions






### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 3000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

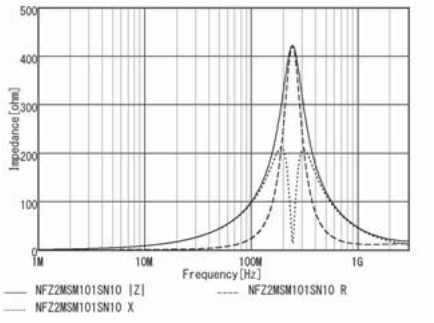
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current | DC Resistance | DC Resistance (Max.) |
|---|---|---|---|---|
| NFZ2MSM101SN10□ | 100Ω±25% | 4A | 0.014Ω (Typ.) | 0.018Ω |
| NFZ2MSM181SN10□ | 180Ω±25% | 3.4A | 0.020Ω (Typ.) | 0.025Ω |
| NFZ2MSM301SN10□ | 300Ω±25% | 3.1A | 0.024Ω (Typ.) | 0.03Ω |
| NFZ2MSM601SN10□ | 600Ω±25% | 2.5A | 0.037Ω (Typ.) | 0.046Ω |

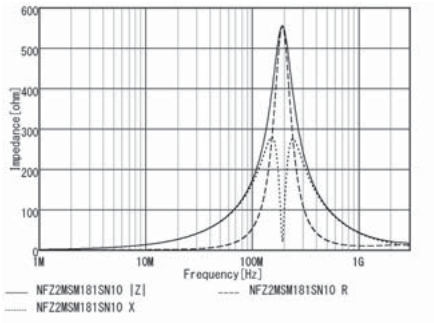
Operating Temp. Range: -40°C to 85°C

### Z-f characteristics

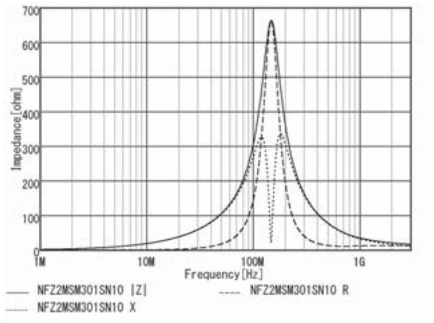
NFZ2MSM101SN10



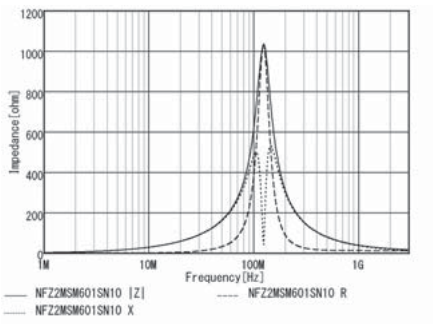

NFZ2MSM181SN10




NFZ2MSM301SN10




NFZ2MSM601SN10

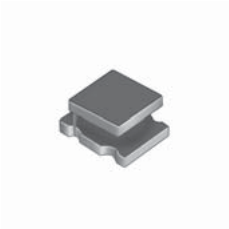


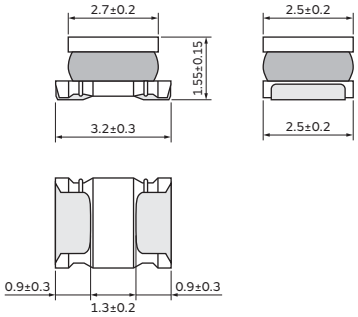
## Application specified noise filter

# NFZ32SW Series 1210/3225(inch/mm)

Noise filter for audio lines

### Appearance/Dimensions






(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 7500 |
| L | ø180mm Embossed Tape | 2000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

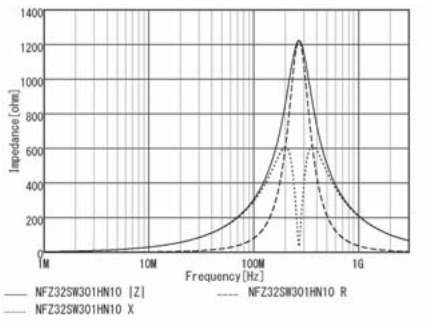
### Rated Value (□: packaging code)

| Part Number | Impedance at 1MHz | Impedance at 100MHz | Rated Current | DC Resistance |
|---|---|---|---|---|
| NFZ32SW301HN10□ | 3.2Ω±30% | 300Ω(Typ.) | 2.55A | 0.030Ω±20% |
| NFZ32SW901HN10□ | 6.8Ω±30% | 900Ω(Typ.) | 2.05A | 0.045Ω±20% |

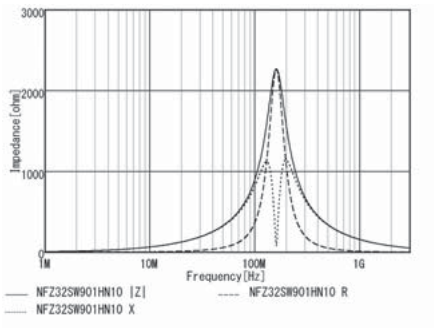
Operating Temp. Range: -40°C to 85°C
Operating Temp. Range self-temp. rise included: -40°C to 125°C

### Z-f characteristics

NFZ32SW301HN10




NFZ32SW901HN10

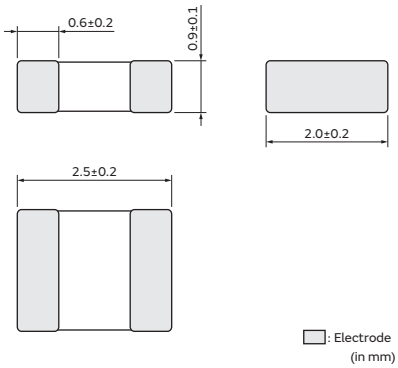


## Application specified noise filter

# NFZ2HBM Series 1008/2520(inch/mm)

Noise filter for LED lighting equipments

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 3000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

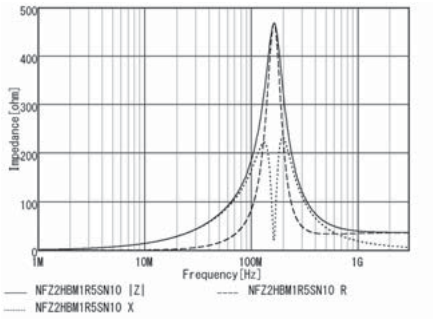
### Rated Value (□: packaging code)

| Part Number | Impedance at 1MHz | Rated Current | DC Resistance |
|---|---|---|---|
| NFZ2HBM1R5SN10□ | 1.5Ω±30% | 1.2A | 0.060Ω±25% |
| NFZ2HBM2R9SN10□ | 2.9Ω±30% | 1.1A | 0.085Ω±25% |
| NFZ2HBM4R4SN10□ | 4.4Ω±30% | 1.05A | 0.105Ω±25% |
| NFZ2HBM6R1SN10□ | 6.1Ω±30% | 1A | 0.125Ω±25% |
| NFZ2HBM8R4SN10□ | 8.4Ω±30% | 900mA | 0.145Ω±25% |
| NFZ2HBM110SN10□ | 11Ω±30% | 800mA | 0.160Ω±25% |
| NFZ2HBM170SN10□ | 17Ω±30% | 700mA | 0.210Ω±25% |
| NFZ2HBM240SN10□ | 24Ω±30% | 650mA | 0.250Ω±25% |
| NFZ2HBM330SN10□ | 33Ω±30% | 500mA | 0.300Ω±25% |
| NFZ2HBM600SN10□ | 60Ω±30% | 400mA | 0.300Ω±25% |

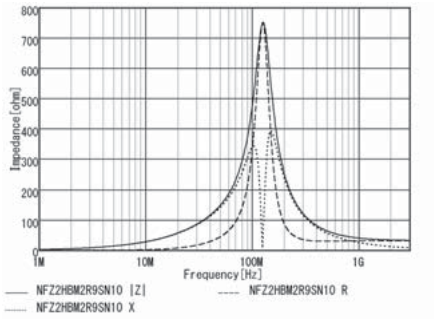
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

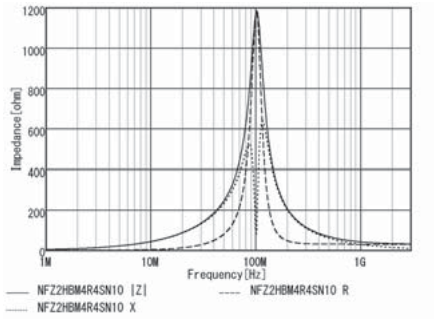
**NFZ2HBM1R5SN10**




**NFZ2HBM2R9SN10**




**NFZ2HBM4R4SN10**

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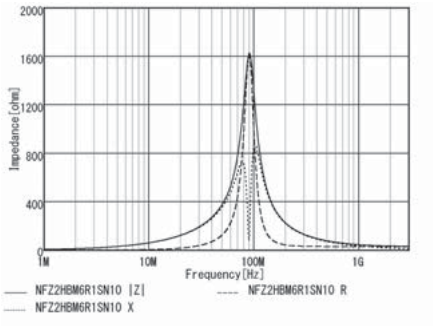
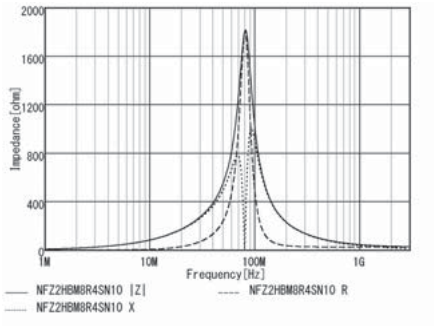
## Z-f characteristics

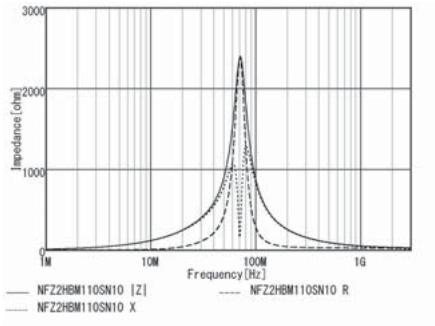
**NFZ2HBM6R1SN10**



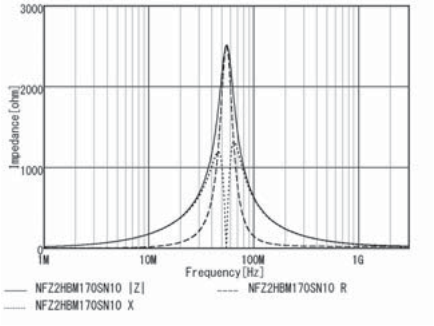

**NFZ2HBM8R4SN10**



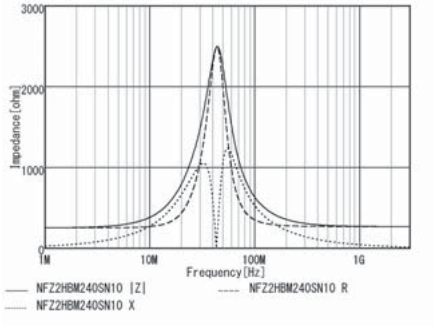

**NFZ2HBM110SN10**



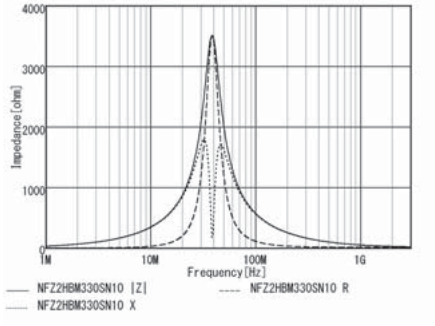

**NFZ2HBM170SN10**



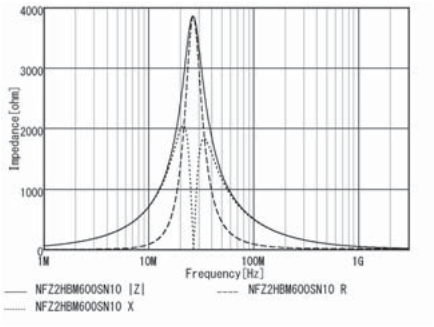

**NFZ2HBM240SN10**




**NFZ2HBM330SN10**




**NFZ2HBM600SN10**

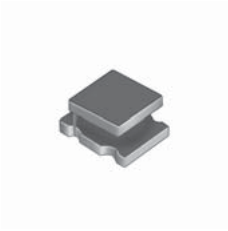


## Application specified noise filter

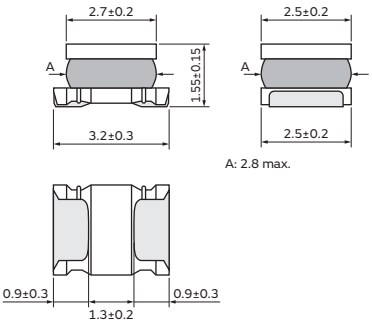
# NFZ32BW Series 1210/3225(inch/mm)

Noise filter for LED lighting equipments

### Appearance/Dimensions



NFZ32BW_HN10




(in mm)

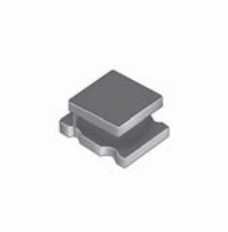
### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 7500 |
| L | ø180mm Embossed Tape | 2000 |

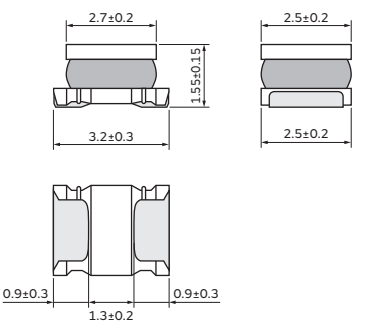
### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

### Appearance/Dimensions



NFZ32BW_HN11




(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 7500 |
| L | ø180mm Embossed Tape | 2000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

### Rated Value (□: packaging code)

| Part Number | Impedance at 1MHz | Rated Current | DC Resistance |
|---|---|---|---|
| NFZ32BW3R6HN10□ | 3.6Ω±30% | 2.55A | 0.03Ω±20% |
| NFZ32BW7R4HN10□ | 7.4Ω±30% | 2.05A | 0.045Ω±20% |
| NFZ32BW9R0HN10□ | 9Ω±30% | 1.75A | 0.057Ω±20% |
| NFZ32BW150HN10□ | 15Ω±30% | 1.6A | 0.076Ω±20% |
| NFZ32BW210HN10□ | 21Ω±30% | 1.2A | 0.12Ω±20% |
| NFZ32BW320HN10□ | 32Ω±30% | 1A | 0.18Ω±20% |
| NFZ32BW420HN10□ | 42Ω±30% | 850mA | 0.24Ω±20% |
| NFZ32BW700HN10□ | 70Ω±30% | 700mA | 0.38Ω±20% |
| NFZ32BW111HN10□ | 110Ω±30% | 520mA | 0.57Ω±20% |
| NFZ32BW151HN10□ | 150Ω±30% | 450mA | 0.81Ω±20% |
| NFZ32BW221HN10□ | 220Ω±30% | 390mA | 1.15Ω±20% |
| NFZ32BW291HN10□ | 290Ω±30% | 310mA | 1.78Ω±20% |
| NFZ32BW451HN10□ | 450Ω±30% | 275mA | 2.28Ω±20% |
| NFZ32BW621HN10□ | 620Ω±30% | 250mA | 2.7Ω±20% |
| NFZ32BW881HN10□ | 880Ω±30% | 200mA | 4.38Ω±20% |
| NFZ32BW3R3HN11□ | 3.3Ω±30% | 2.9A | 0.024Ω±20% |
| NFZ32BW6R8HN11□ | 6.8Ω±30% | 2.5A | 0.036Ω±20% |
| NFZ32BW8R4HN11□ | 8.4Ω±30% | 2.4A | 0.048Ω±20% |
| NFZ32BW9R8HN11□ | 9.8Ω±30% | 2.1A | 0.053Ω±20% |

Operating Temp. Range: -40°C to 105°C

Operating Temp. Range self-temp. rise included: -40°C to 125°C

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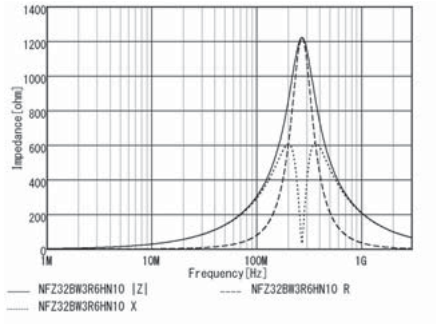
| Part Number | Impedance at 1MHz | Rated Current | DC Resistance |
|---|---|---|---|
| **NFZ32BW120HN11□** | 12Ω±30% | 1.85A | 0.064Ω±20% |
| **NFZ32BW190HN11□** | 19Ω±30% | 1.8A | 0.089Ω±20% |
| **NFZ32BW210HN11□** | 21Ω±30% | 1.55A | 0.100Ω±20% |
| **NFZ32BW310HN11□** | 31Ω±30% | 1.2A | 0.155Ω±20% |
| **NFZ32BW520HN11□** | 52Ω±30% | 1.1A | 0.220Ω±20% |
| **NFZ32BW650HN11□** | 65Ω±30% | 900mA | 0.295Ω±20% |
| **NFZ32BW101HN11□** | 100Ω±30% | 900mA | 0.475Ω±20% |
| **NFZ32BW151HN11□** | 150Ω±30% | 700mA | 0.685Ω±20% |

Operating Temp. Range: -40°C to 105°C

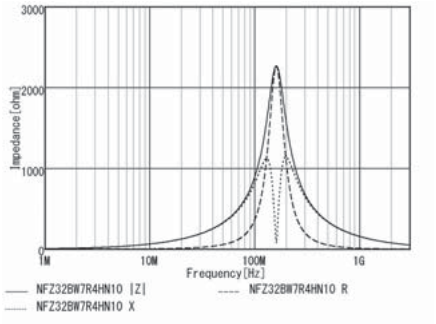
Operating Temp. Range self-temp. rise included: -40°C to 125°C

## Z-f characteristics

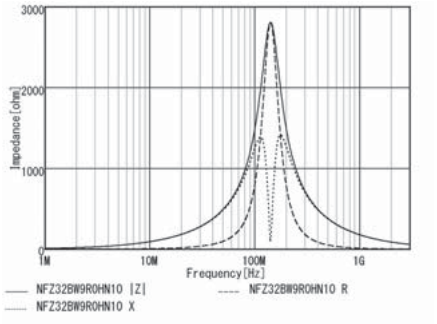
**NFZ32BW3R6HN10**



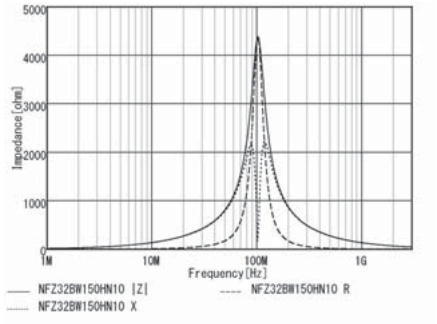

**NFZ32BW7R4HN10**



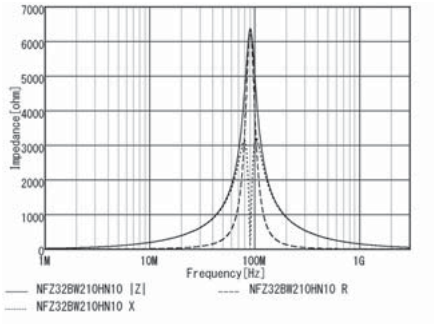

**NFZ32BW9R0HN10**



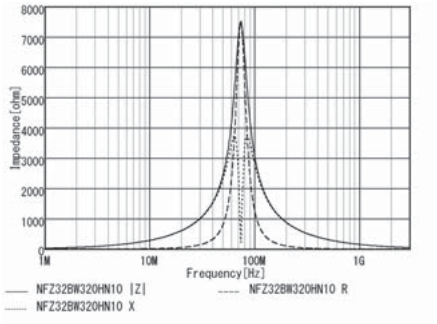

**NFZ32BW150HN10**



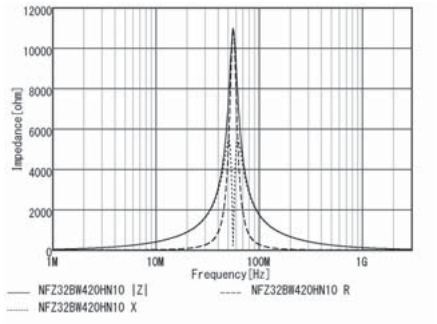

**NFZ32BW210HN10**



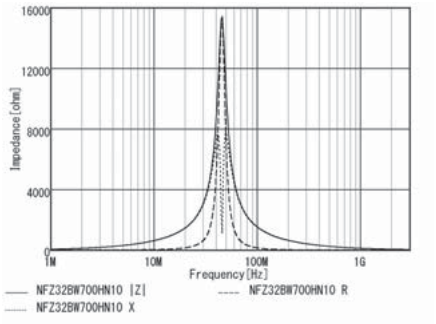

**NFZ32BW320HN10**



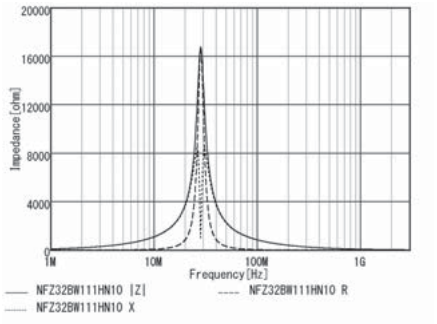

**NFZ32BW420HN10**




**NFZ32BW700HN10**




**NFZ32BW111HN10**

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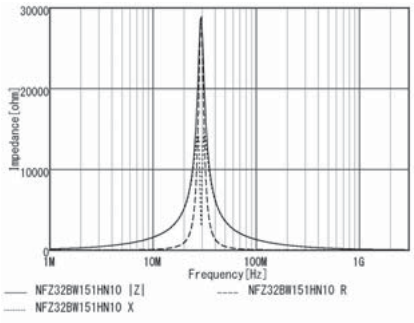
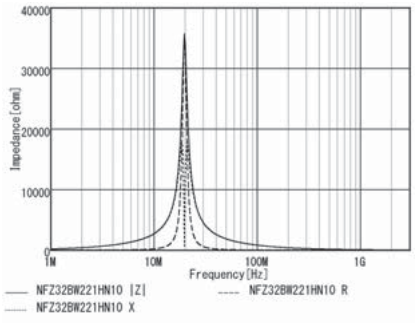
## Z-f characteristics

**NFZ32BW151HN10**




**NFZ32BW221HN10**

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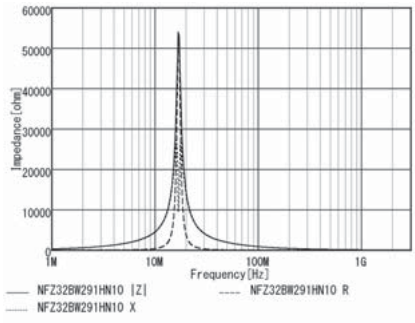
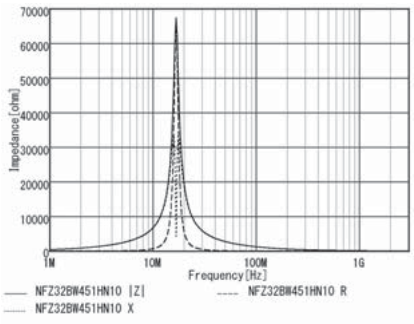
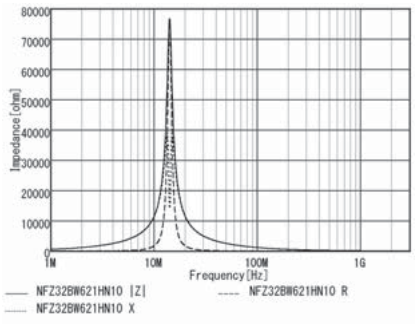


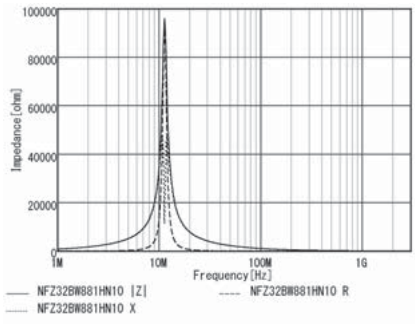

**NFZ32BW451HN10**



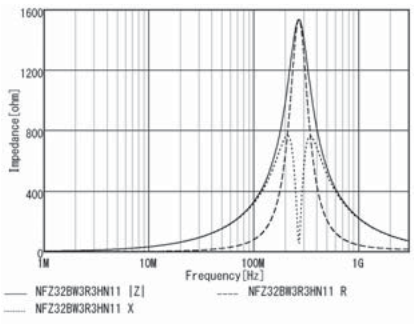

**NFZ32BW621HN10**



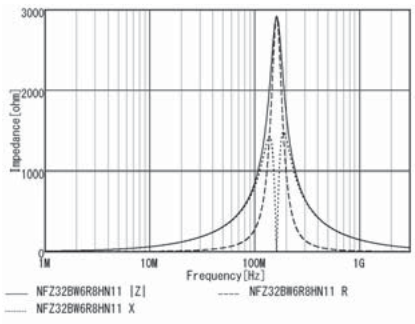

**NFZ32BW881HN10**



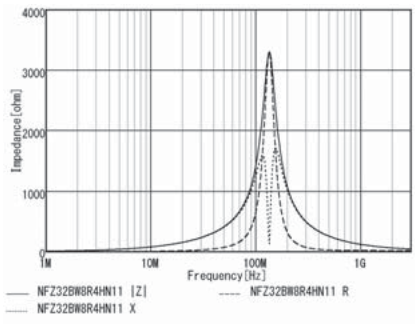

**NFZ32BW3R3HN11**



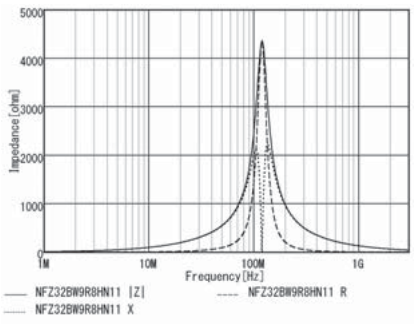

**NFZ32BW6R8HN11**



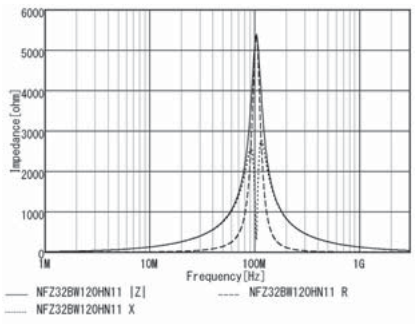

**NFZ32BW8R4HN11**




**NFZ32BW9R8HN11**




**NFZ32BW120HN11**

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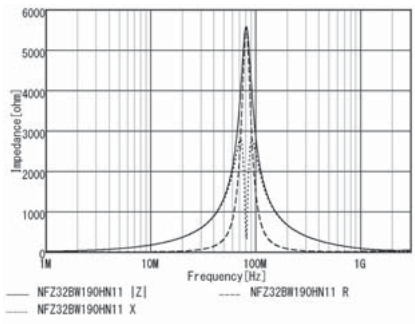
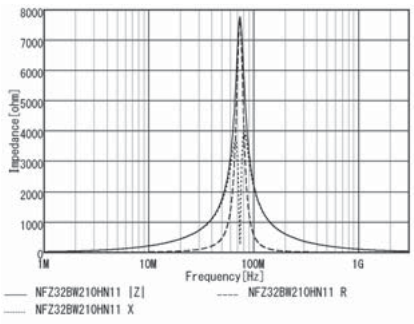
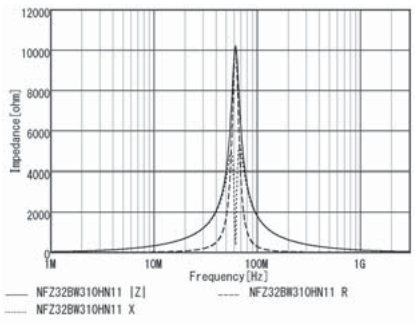


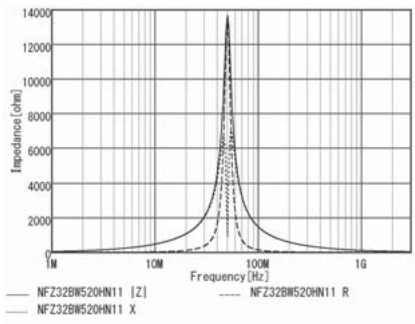

**NFZ32BW210HN11**




**NFZ32BW310HN11**




**NFZ32BW520HN11**

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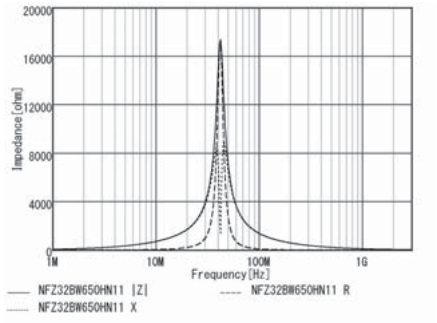
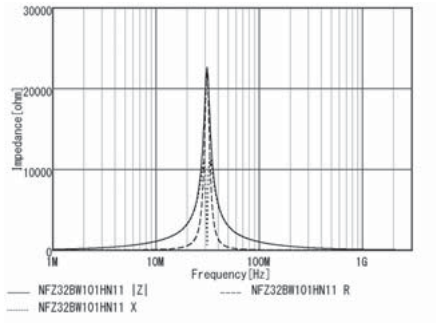
## Z-f characteristics

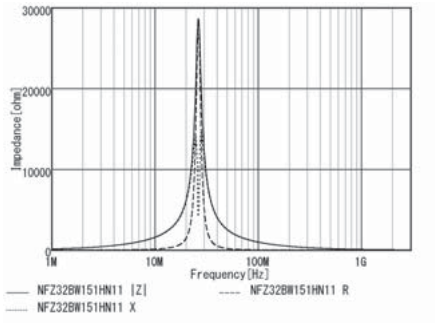
**NFZ32BW650HN11**




**NFZ32BW101HN11**



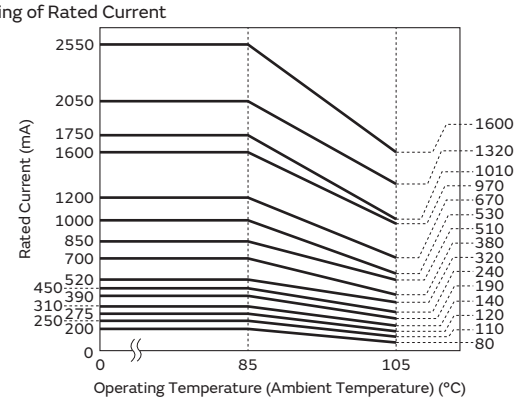

**NFZ32BW151HN11**




## Derating of Rated Current

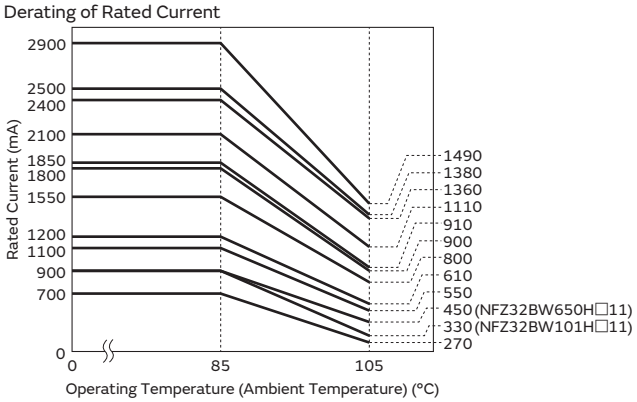
In operating temperature exceeding +85°C, derating of current is necessary for NFZ32BW_H□10 series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current




In operating temperature exceeding +85°C, derating of current is necessary for NFZ32BW_H□11 series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

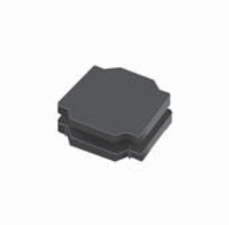


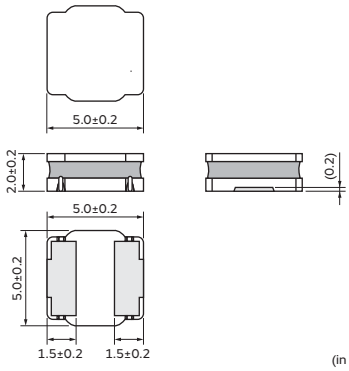
## Application specified noise filter

# NFZ5BBW Series 2020/5050(inch/mm)

Noise filter for LED lighting equipments

### Appearance/Dimensions






(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 3000 |
| L | ø180mm Embossed Tape | 500 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

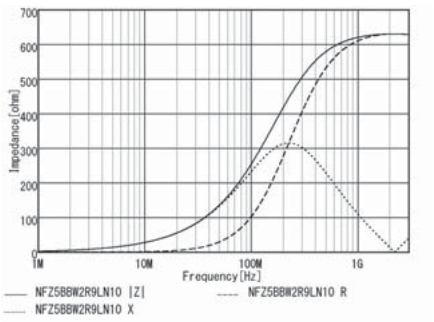
### Rated Value (□: packaging code)

| Part Number | Impedance at 1MHz | Rated Current | DC Resistance |
|---|---|---|---|
| NFZ5BBW2R9LN10□ | 2.9Ω±30% | 4A | 0.012Ω±20% |
| NFZ5BBW4R5LN10□ | 4.5Ω±30% | 3.4A | 0.015Ω±20% |
| NFZ5BBW6R7LN10□ | 6.7Ω±30% | 3.1A | 0.019Ω±20% |
| NFZ5BBW7R6LN10□ | 7.6Ω±30% | 3.1A | 0.019Ω±20% |
| NFZ5BBW100LN10□ | 10Ω±30% | 3A | 0.024Ω±20% |
| NFZ5BBW140LN10□ | 14Ω±30% | 2.6A | 0.030Ω±20% |
| NFZ5BBW170LN10□ | 17Ω±30% | 2.5A | 0.035Ω±20% |
| NFZ5BBW220LN10□ | 22Ω±30% | 2.3A | 0.044Ω±20% |
| NFZ5BBW310LN10□ | 31Ω±30% | 2A | 0.058Ω±20% |
| NFZ5BBW450LN10□ | 45Ω±30% | 1.65A | 0.083Ω±20% |
| NFZ5BBW520LN10□ | 52Ω±30% | 1.61A | 0.100Ω±20% |
| NFZ5BBW610LN10□ | 61Ω±30% | 1.6A | 0.106Ω±20% |
| NFZ5BBW970LN10□ | 97Ω±30% | 1.2A | 0.187Ω±20% |
| NFZ5BBW141LN10□ | 140Ω±30% | 1.05A | 0.259Ω±20% |

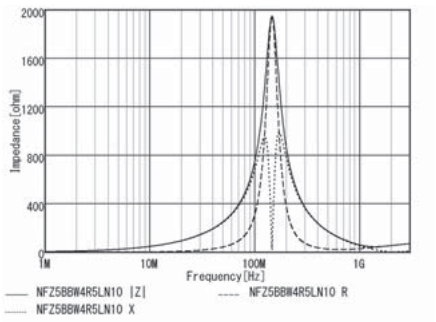
Operating Temp. Range: -40°C to 105°C
Operating Temp. Range self-temp. rise included: -40°C to 125°C

### Z-f characteristics

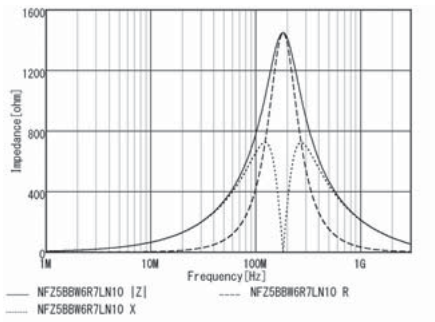
**NFZ5BBW2R9LN10**




**NFZ5BBW4R5LN10**




**NFZ5BBW6R7LN10**

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Chip Ferrite Bead
Application Specified Noise Filter
Chip EMIFIL®
Common Mode Choke Coil
· Common Mode Noise Filter
Block Type EMIFIL®
EMC Absorber

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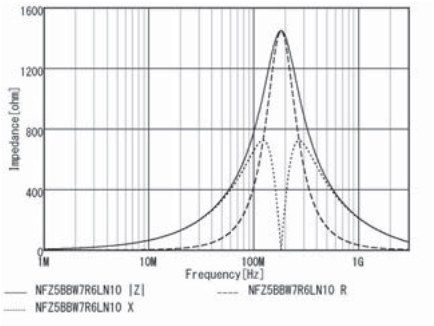
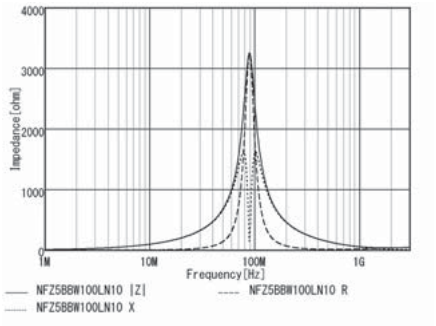
## Z-f characteristics

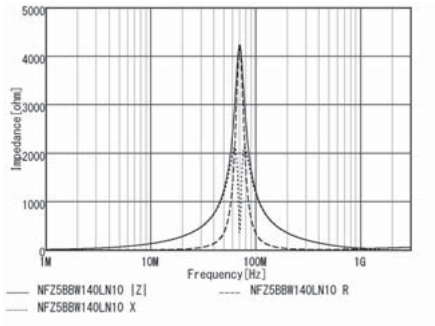
**NFZ5BBW7R6LN10**



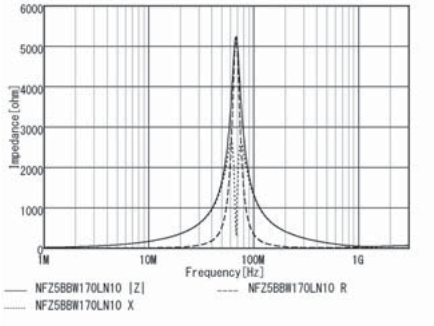

**NFZ5BBW100LN10**



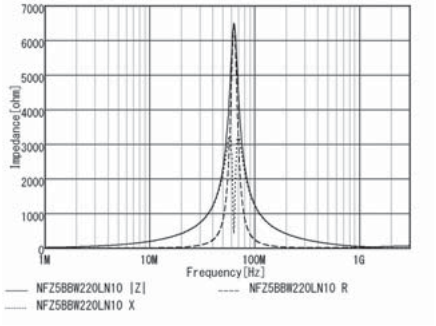

**NFZ5BBW140LN10**



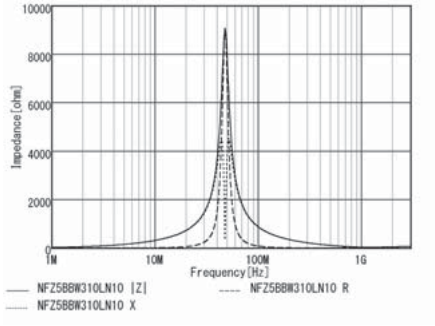

**NFZ5BBW170LN10**



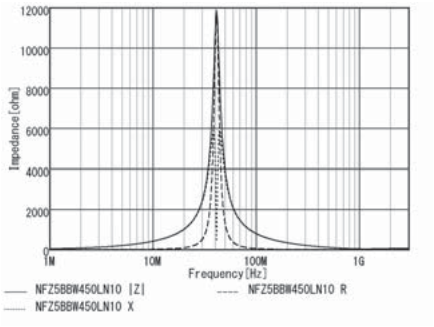

**NFZ5BBW220LN10**



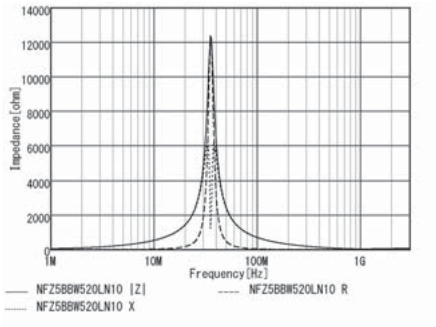

**NFZ5BBW310LN10**



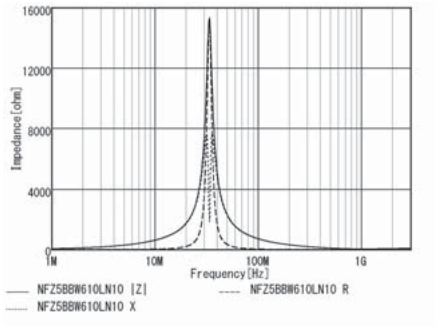

**NFZ5BBW450LN10**



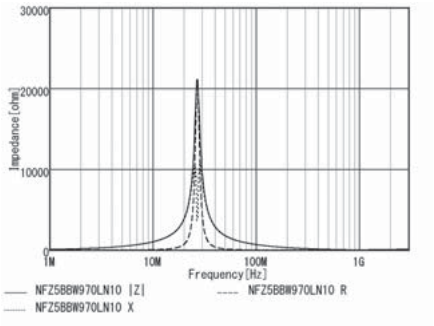

**NFZ5BBW520LN10**



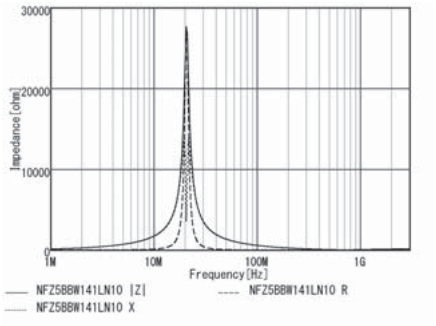

**NFZ5BBW610LN10**




**NFZ5BBW970LN10**




**NFZ5BBW141LN10**

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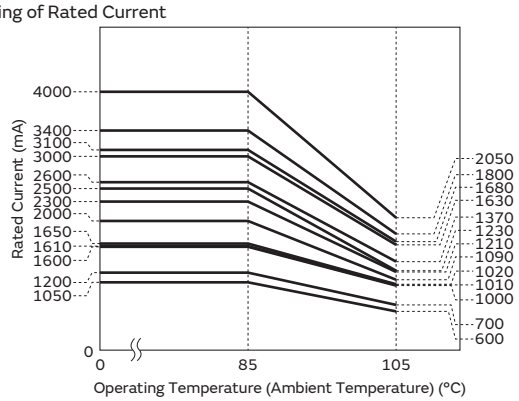
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for NFZ5BBW_L□10 series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

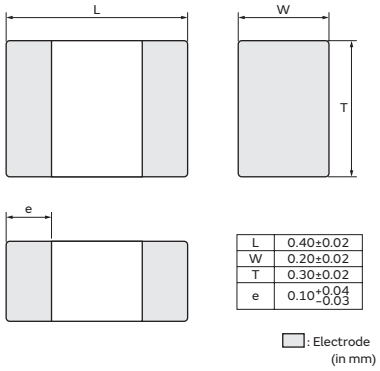


## Application specified noise filter

# BLF02JD Series 01005/0402(inch/mm)

Frequency specified noise filter

### Appearance/Dimensions




| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.30±0.02 |
| e | $0.10^{+0.04}_{-0.03}$ |

: Electrode
(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| **D** | ø180mm Paper Tape | 15000 |
| **B** | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

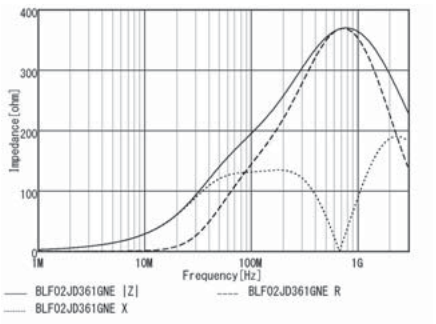
### Rated Value (□: packaging code)

| Part Number | Impedance at Target Frequency | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| **BLF02JD361GNE□** | 360Ω±40% (at 700MHz) | 380mA | 250mA | 0.45Ω |
| **BLF02JD471GNE□** | 470Ω±40% (at 700MHz) | 330mA | 220mA | 0.6Ω |

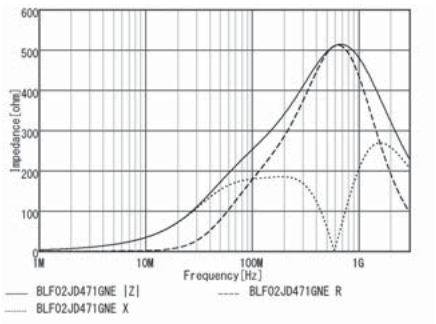
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

**BLF02JD361GNE**



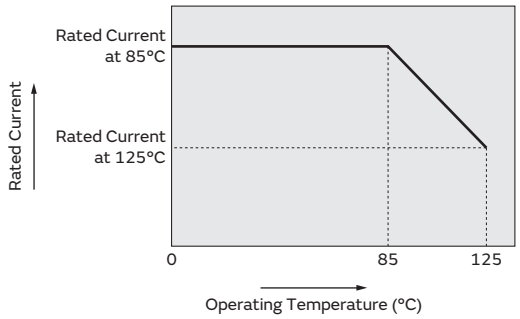

**BLF02JD471GNE**




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for this series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

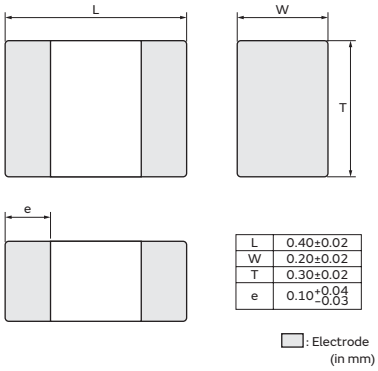


## Application specified noise filter

# BLF02RD Series 01005/0402(inch/mm)

Frequency specified noise filter

### Appearance/Dimensions




| | |
|---|---|
| L | 0.40±0.02 |
| W | 0.20±0.02 |
| T | 0.30±0.02 |
| e | $0.10^{+0.04}_{-0.03}$ |

: Electrode
(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

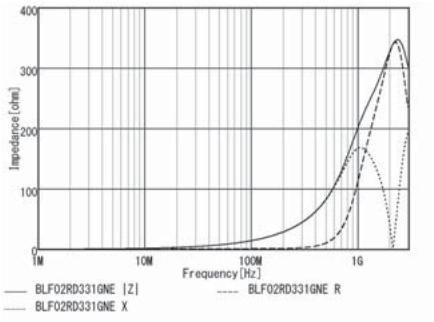
### Rated Value (□: packaging code)

| Part Number | Impedance at Target Frequency | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLF02RD331GNE□ | 330Ω±40% (at 2.4GHz) | 330mA | 220mA | 0.6Ω |
| BLF02RD471GNE□ | 470Ω±40% (at 2.4GHz) | 200mA | 130mA | 0.9Ω |

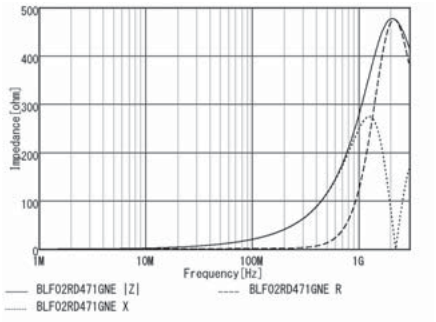
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

BLF02RD331GNE



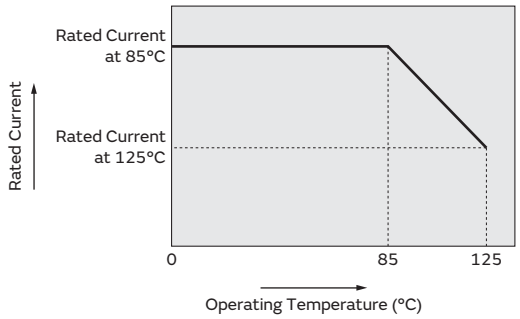

BLF02RD471GNE




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for this series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current





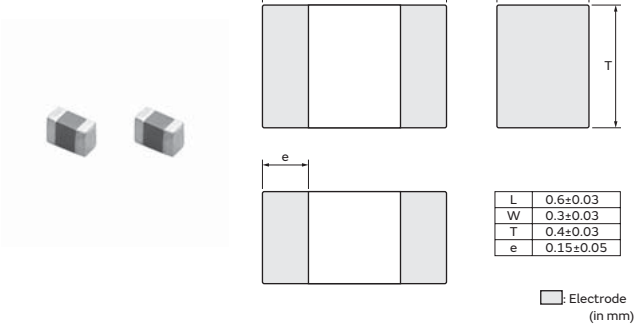

muRata

## Application specified noise filter

# BLF03JD Series 0201/0603(inch/mm)

Frequency specified noise filter

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

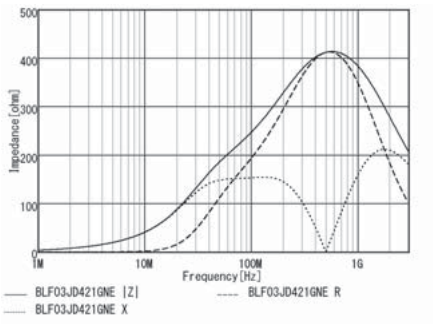
(Resistance element becomes dominant at high frequencies.)

### Rated Value (□: packaging code)

| Part Number | Impedance at Target Frequency | Rated Current at 85°C | Rated Current at 125°C | DC Resistance | Operating Temp. Range |
|---|---|---|---|---|---|
| BLF03JD421GNE□ | 420Ω±40% (at 700MHz) | 480mA | 370mA | 0.28Ω | -55°C to 125°C |

### Z-f characteristics

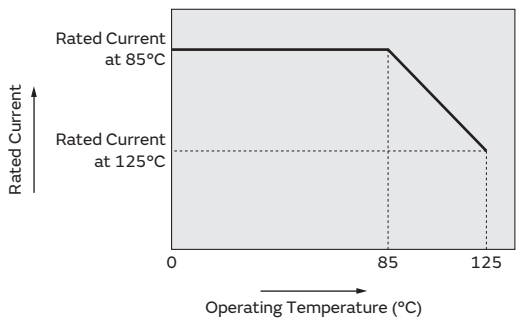
BLF03JD421GNE




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for this series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

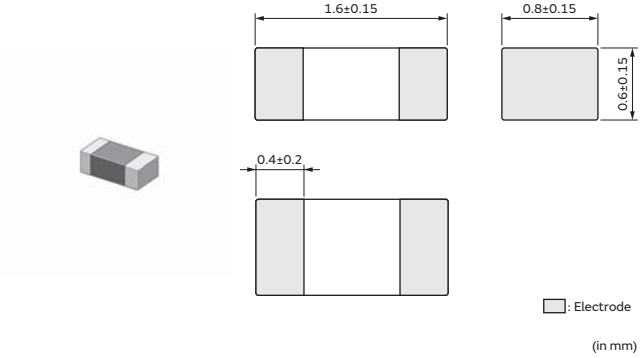


## Application specified noise filter

# BLE18PS Series 0603/1608(inch/mm)

Noise filter for power charger lines

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| J | ø330mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

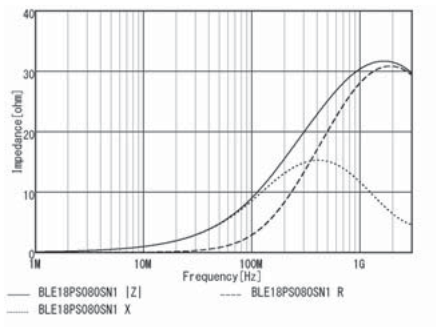
(Resistance element becomes dominant at high frequencies.)

### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance | Operating Temp. Range |
|---|---|---|---|---|---|
| BLE18PS080SN1□ | 8.5Ω±25% | 8A | 5A | 0.004Ω | -55°C to 125°C |

### Z-f characteristics

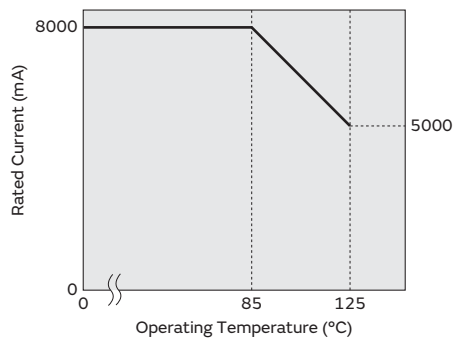
BLE18PS080SN1




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BLE18PS series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current





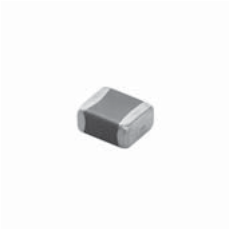

muRata

## Application specified noise filter

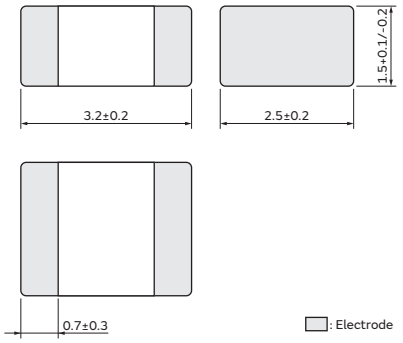
# BLE32PN Series 1210/3225(inch/mm)

Noise filter for power charger lines

### Appearance/Dimensions



BLE32PN260SN1




### Packaging

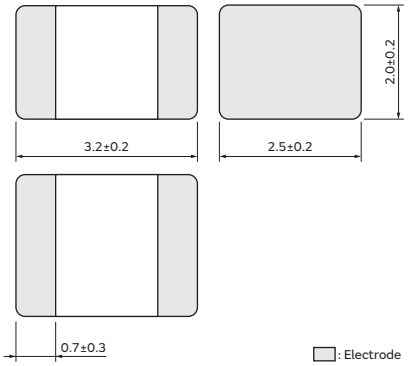
| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 7000 |
| L | ø180mm Embossed Tape | 1500 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

### Appearance/Dimensions

BLE32PN300SN1




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 7000 |
| L | ø180mm Embossed Tape | 1500 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

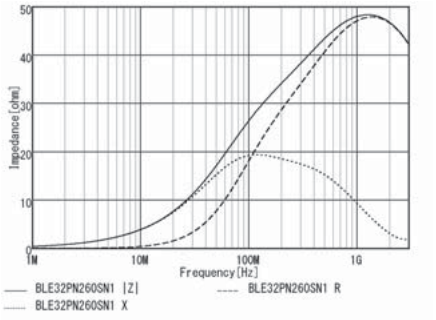
### Rated Value (□: packaging code)

| Part Number | Impedance at 100MHz | Rated Current at 85°C | Rated Current at 125°C | DC Resistance |
|---|---|---|---|---|
| BLE32PN260SN1□ | 26Ω±10Ω | 10A | 10A | 1.6mΩ |
| BLE32PN300SN1□ | 30Ω±10Ω | 10A | 10A | 1.6mΩ |

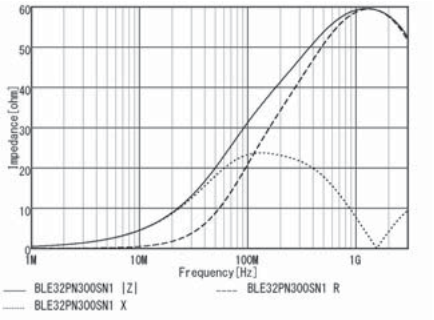
Operating Temp. Range: -55°C to 125°C

### Z-f characteristics

BLE32PN260SN1




BLE32PN300SN1

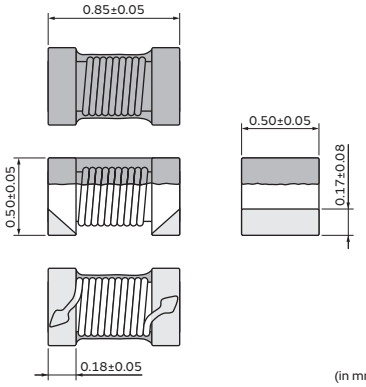


## Application Specified Noise Filter

# LQW04CA_00 Series 03019/0805(inch/mm)

Inductor for audio line noise suppression

### Appearance/Dimensions




(in mm)

### Packaging

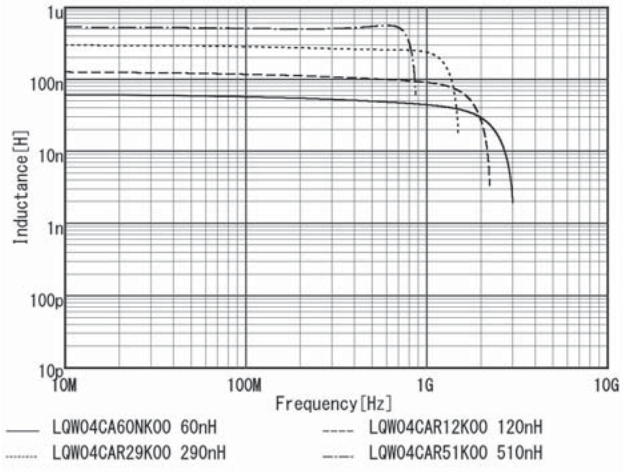
| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Taping | 10000 |
| B | Packing in Bulk | 500 |

### Rated Value (□: packaging code)

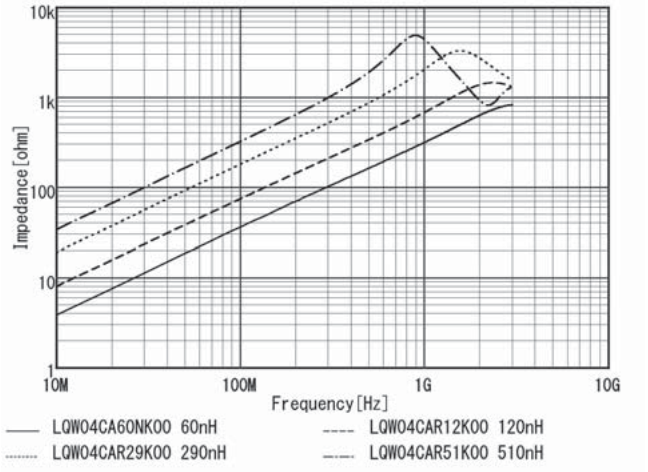
| Part Number | Inductance | Inductance Test Frequency | Rated Current | Max. of DC Resistance | S.R.F.* (min.) |
|---|---|---|---|---|---|
| LQW04CA60NK00□ | 60nH ±10% | 100MHz | 620mA | 0.18Ω | 3000MHz |
| LQW04CA90NK00□ | 90nH ±10% | 100MHz | 520mA | 0.24Ω | 2500MHz |
| LQW04CAR12K00□ | 120nH ±10% | 100MHz | 510mA | 0.28Ω | 2100MHz |
| LQW04CAR29K00□ | 290nH ±10% | 100MHz | 270mA | 0.94Ω | 1400MHz |
| LQW04CAR45K00□ | 450nH ±10% | 100MHz | 200mA | 1.23Ω | 850MHz |
| LQW04CAR51K00□ | 510nH ±10% | 100MHz | 200mA | 1.31Ω | 700MHz |

Operating temp. range (Self-temp. rise not included): -40 to 85°C
Class of Magnetic Shield: No Shield
For reflow soldering only
*S.R.F.: Self-Resonant Frequency

### Inductance-Frequency Characteristics (Typ.)




### Impedance-Frequency Characteristics (Typ.)

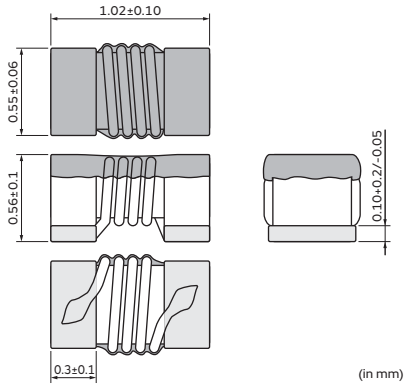


## Application Specified Noise Filter

# LQW15CA_00 Series 0402/1005(inch/mm)

Inductor for audio line noise suppression

### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Taping | 10000 |
| B | Packing in Bulk | 500 |

### Rated Value (□: packaging code)

| Part Number | Inductance | Inductance Test Frequency | Rated Current | Max. of DC Resistance | S.R.F.* (min.) | Remark |
|---|---|---|---|---|---|---|
| LQW15CA22NJ00□ | 22nH ±5% | 10MHz | 1300mA | 0.06Ω | 3000MHz | *1 |
| LQW15CA22NK00□ | 22nH ±10% | 10MHz | 1300mA | 0.06Ω | 3000MHz | *1 |
| LQW15CA39NJ00□ | 39nH ±5% | 10MHz | 1100mA | 0.075Ω | 2700MHz | *2 |
| LQW15CA39NK00□ | 39nH ±10% | 10MHz | 1100mA | 0.075Ω | 2700MHz | *2 |
| LQW15CA59NJ00□ | 59nH ±5% | 10MHz | 1000mA | 0.095Ω | 2300MHz | *3 |
| LQW15CA59NK00□ | 59nH ±10% | 10MHz | 1000mA | 0.095Ω | 2300MHz | *3 |
| LQW15CA83NJ00□ | 83nH ±5% | 10MHz | 970mA | 0.12Ω | 1700MHz | *4 |
| LQW15CA83NK00□ | 83nH ±10% | 10MHz | 970mA | 0.12Ω | 1700MHz | *4 |
| LQW15CAR11J00□ | 110nH ±5% | 10MHz | 900mA | 0.13Ω | 1600MHz | *5 |
| LQW15CAR11K00□ | 110nH ±10% | 10MHz | 900mA | 0.13Ω | 1600MHz | *5 |
| LQW15CAR14J00□ | 140nH ±5% | 10MHz | 680mA | 0.18Ω | 1400MHz | *6 |
| LQW15CAR14K00□ | 140nH ±10% | 10MHz | 680mA | 0.18Ω | 1400MHz | *6 |
| LQW15CAR18J00□ | 180nH ±5% | 10MHz | 640mA | 0.21Ω | 1300MHz | *7 |
| LQW15CAR18K00□ | 180nH ±10% | 10MHz | 640mA | 0.21Ω | 1300MHz | *7 |
| LQW15CAR22J00□ | 220nH ±5% | 10MHz | 540mA | 0.29Ω | 1300MHz | *8 |
| LQW15CAR22K00□ | 220nH ±10% | 10MHz | 540mA | 0.29Ω | 1300MHz | *8 |
| LQW15CAR27J00□ | 270nH ±5% | 10MHz | 480mA | 0.38Ω | 1200MHz | *9 |

Operating temp. range (Self-temp. rise included): -40 to 125°C
Class of Magnetic Shield: No Shield
For reflow soldering only
*S.R.F.: Self-Resonant Frequency
*1: Typical impedance: 100Ω (typ) @900MHz/150Ω (typ) @1.7GHz
*2: Typical impedance: 180Ω (typ) @900MHz/280Ω (typ) @1.7GHz
*3: Typical impedance: 290Ω (typ) @900MHz/360Ω (typ) @1.7GHz
*4: Typical impedance: 430Ω (typ) @900MHz/750Ω (typ) @1.7GHz
*5: Typical impedance: 580Ω (typ) @900MHz/1000Ω (typ) @1.7GHz
*6: Typical impedance: 780Ω (typ) @900MHz/1300Ω (typ) @1.7GHz
*7: Typical impedance: 1000Ω (typ) @900MHz/1700Ω (typ) @1.7GHz
*8: Typical impedance: 1400Ω (typ) @900MHz/2000Ω (typ) @1.7GHz
*9: Typical impedance: 1800Ω (typ) @900MHz/2100Ω (typ) @1.7GHz
*10: Typical impedance: 2200Ω (typ) @900MHz/2300Ω (typ) @1.7GHz
*11: Typical impedance: 2800Ω (typ) @900MHz/2350Ω (typ) @1.7GHz
*12: Typical impedance: 3000Ω (typ) @900MHz/2400Ω (typ) @1.7GHz
*13: Typical impedance: 3400Ω (typ) @900MHz/2400Ω (typ) @1.7GHz
*14: Typical impedance: 4250Ω (typ) @900MHz/2400Ω (typ) @1.7GHz
*15: Typical impedance: 4950Ω (typ) @900MHz/2350Ω (typ) @1.7GHz
*16: Typical impedance: 5800Ω (typ) @900MHz/2400Ω (typ) @1.7GHz
*17: Typical impedance: 6500Ω (typ) @900MHz/2450Ω (typ) @1.7GHz
*18: Typical impedance: 7000Ω (typ) @900MHz/2500Ω (typ) @1.7GHz
*19: Typical impedance: 5200Ω (typ) @900MHz/1600Ω (typ) @1.7GHz
*20: Typical impedance: 510Ω (typ) @900MHz/610Ω (typ) @1.7GHz



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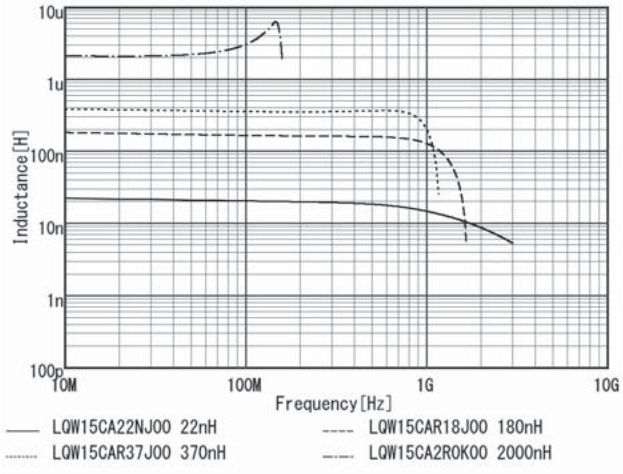
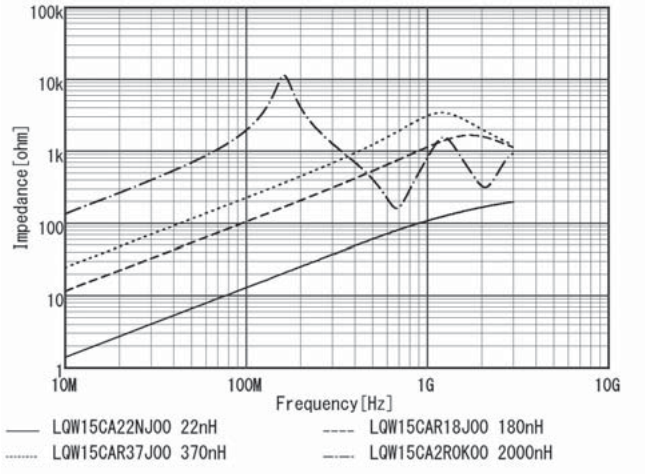
| Part Number | Inductance | Inductance Test Frequency | Rated Current | Max. of DC Resistance | S.R.F.* (min.) | Remark |
|---|---|---|---|---|---|---|
| LQW15CAR27K00□ | 270nH ±10% | 10MHz | 480mA | 0.38Ω | 1200MHz | *9 |
| LQW15CAR32J00□ | 320nH ±5% | 10MHz | 420mA | 0.41Ω | 1100MHz | *10 |
| LQW15CAR32K00□ | 320nH ±10% | 10MHz | 420mA | 0.41Ω | 1100MHz | *10 |
| LQW15CAR37J00□ | 370nH ±5% | 10MHz | 360mA | 0.575Ω | 1000MHz | *11 |
| LQW15CAR37K00□ | 370nH ±10% | 10MHz | 360mA | 0.575Ω | 1000MHz | *11 |
| LQW15CAR39J00□ | 390nH±5% | 10MHz | 320mA | 0.72Ω | 950MHz | *12 |
| LQW15CAR39K00□ | 390nH±10% | 10MHz | 320mA | 0.72Ω | 950MHz | *12 |
| LQW15CAR43J00□ | 430nH ±5% | 10MHz | 360mA | 0.68Ω | 920MHz | *13 |
| LQW15CAR43K00□ | 430nH ±10% | 10MHz | 360mA | 0.68Ω | 920MHz | *13 |
| LQW15CAR50J00□ | 500nH ±5% | 10MHz | 270mA | 0.97Ω | 900MHz | *14 |
| LQW15CAR50K00□ | 500nH ±10% | 10MHz | 270mA | 0.97Ω | 900MHz | *14 |
| LQW15CAR56J00□ | 560nH ±5% | 10MHz | 270mA | 1.00Ω | 900MHz | *15 |
| LQW15CAR56K00□ | 560nH ±10% | 10MHz | 270mA | 1.00Ω | 900MHz | *15 |
| LQW15CAR64J00□ | 640nH ±5% | 10MHz | 240mA | 1.40Ω | 870MHz | *16 |
| LQW15CAR64K00□ | 640nH ±10% | 10MHz | 240mA | 1.40Ω | 870MHz | *16 |
| LQW15CAR73J00□ | 730nH ±5% | 10MHz | 200mA | 1.95Ω | 810MHz | *17 |
| LQW15CAR73K00□ | 730nH ±10% | 10MHz | 200mA | 1.95Ω | 810MHz | *17 |
| LQW15CAR80J00□ | 800nH ±5% | 10MHz | 190mA | 2.10Ω | 770MHz | *18 |
| LQW15CAR80K00□ | 800nH ±10% | 10MHz | 190mA | 2.10Ω | 770MHz | *18 |
| LQW15CA1R0K00□ | 1000nH ±10% | 10MHz | 180mA | 2.20Ω | 400MHz | *19 |
| LQW15CA2R0K00□ | 2000nH ±10% | 10MHz | 130mA | 3.20Ω | 120MHz | *20 |

Operating temp. range (Self-temp. rise included): -40 to 125°C
Class of Magnetic Shield: No Shield
For reflow soldering only
*S.R.F.: Self-Resonant Frequency
*1: Typical impedance: 100Ω (typ) @900MHz/150Ω (typ) @1.7GHz
*2: Typical impedance: 180Ω (typ) @900MHz/280Ω (typ) @1.7GHz
*3: Typical impedance: 290Ω (typ) @900MHz/360Ω (typ) @1.7GHz
*4: Typical impedance: 430Ω (typ) @900MHz/750Ω (typ) @1.7GHz
*5: Typical impedance: 580Ω (typ) @900MHz/1000Ω (typ) @1.7GHz
*6: Typical impedance: 780Ω (typ) @900MHz/1300Ω (typ) @1.7GHz
*7: Typical impedance: 1000Ω (typ) @900MHz/1700Ω (typ) @1.7GHz
*8: Typical impedance: 1400Ω (typ) @900MHz/2000Ω (typ) @1.7GHz
*9: Typical impedance: 1800Ω (typ) @900MHz/2100Ω (typ) @1.7GHz
*10: Typical impedance: 2200Ω (typ) @900MHz/2300Ω (typ) @1.7GHz
*11: Typical impedance: 2800Ω (typ) @900MHz/2350Ω (typ) @1.7GHz
*12: Typical impedance: 3000Ω (typ) @900MHz/2400Ω (typ) @1.7GHz
*13: Typical impedance: 3400Ω (typ) @900MHz/2400Ω (typ) @1.7GHz
*14: Typical impedance: 4250Ω (typ) @900MHz/2400Ω (typ) @1.7GHz
*15: Typical impedance: 4950Ω (typ) @900MHz/2350Ω (typ) @1.7GHz
*16: Typical impedance: 5800Ω (typ) @900MHz/2400Ω (typ) @1.7GHz
*17: Typical impedance: 6500Ω (typ) @900MHz/2450Ω (typ) @1.7GHz
*18: Typical impedance: 7000Ω (typ) @900MHz/2500Ω (typ) @1.7GHz
*19: Typical impedance: 5200Ω (typ) @900MHz/1600Ω (typ) @1.7GHz
*20: Typical impedance: 510Ω (typ) @900MHz/610Ω (typ) @1.7GHz

## Inductance-Frequency Characteristics (Typ.)




## Impedance-Frequency Characteristics (Typ.)

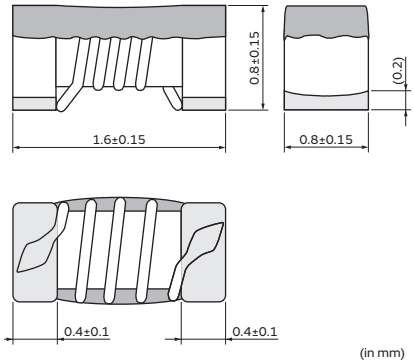


## Application Specified Noise Filter

# LQW18CA_00 Series 0603/1608(inch/mm)

Inductor for audio line noise suppression

### Appearance/Dimensions




(in mm)

### Packaging

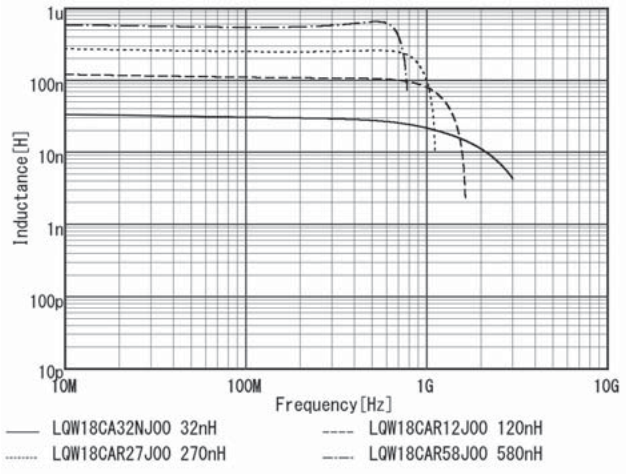
| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Taping | 4000 |
| J | ø330mm Paper Taping | 10000 |
| B | Packing in Bulk | 500 |

### Rated Value (□: packaging code)

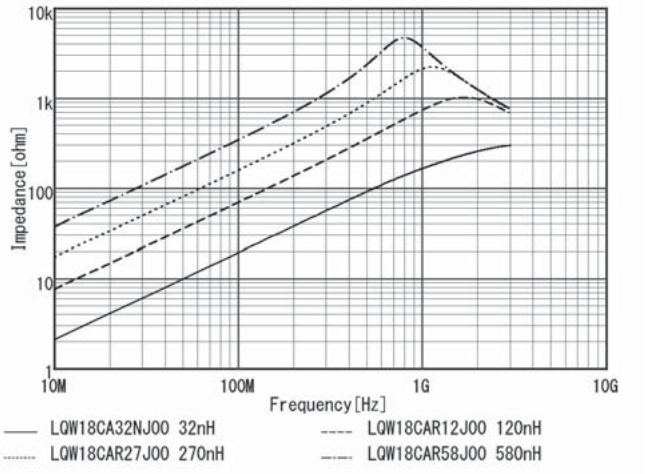
| Part Number | Inductance | Inductance Test Frequency | Rated Current | Max. of DC Resistance | S.R.F.* (min.) |
|---|---|---|---|---|---|
| LQW18CA32NJ00□ | 32nH±5% | 10MHz | 2200mA | 0.030Ω | 3000MHz |
| LQW18CA56NJ00□ | 56nH±5% | 10MHz | 1850mA | 0.040Ω | 2200MHz |
| LQW18CA85NJ00□ | 85nH±5% | 10MHz | 1650mA | 0.048Ω | 1800MHz |
| LQW18CAR12J00□ | 120nH±5% | 10MHz | 1500mA | 0.058Ω | 1500MHz |
| LQW18CAR16J00□ | 160nH±5% | 10MHz | 1300mA | 0.075Ω | 1350MHz |
| LQW18CAR21J00□ | 210nH±5% | 10MHz | 1050mA | 0.115Ω | 1150MHz |
| LQW18CAR27J00□ | 270nH±5% | 10MHz | 900mA | 0.150Ω | 1050MHz |
| LQW18CAR33J00□ | 330nH±5% | 10MHz | 780mA | 0.200Ω | 970MHz |
| LQW18CAR40J00□ | 400nH±5% | 10MHz | 680mA | 0.260Ω | 900MHz |
| LQW18CAR48J00□ | 480nH±5% | 10MHz | 580mA | 0.350Ω | 800MHz |
| LQW18CAR58J00□ | 580nH±5% | 10MHz | 450mA | 0.460Ω | 760MHz |

Operating temp. range (Self-temp. rise not included): -40 to 85°C
Class of Magnetic Shield: No Shield
For reflow soldering only
*S.R.F.: Self-Resonant Frequency

### Inductance-Frequency Characteristics (Typ.)




### Impedance-Frequency Characteristics (Typ.)



# Application Specified Noise Filter (NFZ_S/NFZ_B/BLF/BLE) ⚠Caution/Notice

## ⚠Caution

### Rating

1. About the Rated Current
   Do not use products beyond the rated current as this may create excessive heat and deteriorate the insulation resistance.
2. About Excessive Surge Current
   Surge current (pulse current or rush current) higher than the specified rated current applied to the product may cause a critical failure, such as an open circuit or burnout caused by excessive temperature rise. Please contact us in advance in case of applying surge current.

### Soldering and Mounting

- Self-heating
  Please pay special attention when mounting NFZ03 series in close proximity to other products that radiate heat. The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.

## Notice

### Storage and Operating Conditions

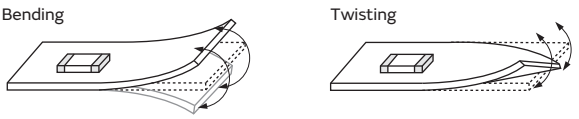
<Operating Environment>
Do not use products in a corrodible atmosphere such as acidic gases, alkaline gases, chlorine, sulfur gases, organic gases (a sea breeze, $Cl_2$, $H_2S$, $NH_3$, $SO_2$, $NO_2$, etc.).
Do not use products in an environment close to an organic solvent.
<Storage and Handling Requirements>
1. Storage Period
   NFZ32B/S · NFZ5B series should be used within 12 months; the other series should be used within 6 months. Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40˚C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

### Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product can be caused by the cleaning method. When you clean in conditions that are not in the mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in the mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters EMIFILr may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

### Handling

1. Resin Coating
   Using resin for coating/molding products may affect the product's performance.
   So please pay careful attention in selecting resin.
   Prior to use, please make a reliability evaluation with the product mounted in your application set.
2. Handling of Substrates
   After mounting products on a substrate, do not apply any stress to the product by bending or twisting the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening a screw to the substrate.
   Excessive mechanical stress may cause cracking in the product.



# Inductor for Audio Line Noise Suppression (LQW_CA) ⚠Caution/Notice

## ⚠Caution

### Rating

1. About the Rated Current
   Do not use products beyond the rated current as this may create excessive heat and deteriorate the insulation resistance.

## Notice

### Storage and Operating Conditions

<Operating Environment>
Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
<Storage Requirements>
1. Storage Period
   The LQW_CA series should be used within 12 months. Check solderability if this period is exceeded.
2. Storage Conditions
   (1) Store products in a warehouse in compliance with the following conditions:
   Temperature: -10 to +40°C.
   Humidity: 15 to 85% (relative humidity)
   Do not subject products to rapid changes in temperature and humidity.
   Do not store them in a chemical atmosphere such as one containing sulfurous acid gas or alkaline gas.
   This will prevent electrode oxidation, which causes poor solderability and possible corrosion of inductors.
   (2) Do not store products in bulk packaging to prevent collision among inductors, which causes core chipping and wire breakage.
   (3) Store products on pallets to protect from humidity, dust, etc.
   (4) Avoid heat shock, vibration, direct sunlight, etc.

### Handling

This item is designed to have sufficient strength, but handle with care to avoid chipping or breaking its ceramic structure.
LQW_C series

- To prevent breaking the wire, avoid touching the wire wound portion with sharp materials, such as tweezers or the bristles of a cleaning brush.
- To prevent breaking the core, avoid applying excessive mechanical shock to products mounted on the board.
- In some mounting machines, when picking up components, a support pin pushes the components up from the bottom of the base tape. In this case, please remove the support pin. The support pin may damage the components and break the wire.
- In rare cases, the laser recognition cannot recognize this component. Please contact us when you use laser recognizion. (There is no problem with the permeation and reflection type.)
- The product temperature rises about 40°C maximum when the permissible current is applied to LQW15C/LQW18C. Please use caution regarding the temperature of the substrate and air around the part.

<Transportation>
Do not apply excessive vibration or mechanical shock to products.
<Resin Coating>
When coating products with resin, the relatively high resin curing stress may change inductance values.
For exterior coating, select resin carefully so that electrical and mechanical performance of the product is not affected. Prior to use, please evaluate reliability with the product mounted in your application set.
(LQW series)
An open circuit issue may occur by mechanical stress caused by the resin, amount/cured shape of resin, or operating conditions, etc. Some resins containing impurities or chloride may possibly generate chlorine by hydrolysis under some operating conditions, causing corrosion of the inductor wire and leading to an open circuit.
<Rated Current>

- Rated Current Based on Temperature Rise
  Please refer to individual specifications.

Continued on the following page. ↗

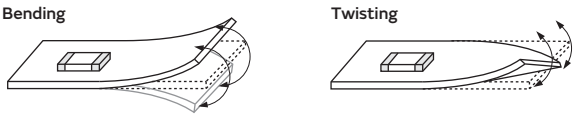
# Inductor for Audio Line Noise Suppression (LQW_CA) ⚠Caution/Notice

Continued from the preceding page.↘

<Handling of Substrates>

After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting the substrate when cropping the substrate, inserting and removing a connector from the substrate, or tightening a screw to the substrate.

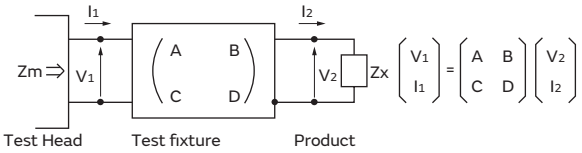
Excessive mechanical stress may cause cracking in the product.




## Measuring Method

Measuring Method of Inductance/Q

1. Residual elements and stray elements of test fixtures can be described by F-parameter as shown in the following:




2. The impedance of chip inductors (chip coils) Zx and measured value Zm can be described by input/output current/voltage.

$$Zm = \frac{V_1}{I_1}, \quad Zx = \frac{V_2}{I_2}$$

3. Thus, the relation between Zx and Zm is shown in the following:

$$Zx = \alpha \frac{Zm - \beta}{1 - Zm\Gamma}$$

where, $\alpha = D / A = 1$

$\beta = B / D = Zsm - (1 - Yom\ Zsm)\ Zss$

$\Gamma = C / A = Yom$

Zsm: measured impedance of short chip
Zss: residual impedance of short chip*
Yom: measured admittance when opening the fixture

*Residual inductance of short chip

| Residual Inductance | Series |
|---|---|
| 0.556nH | **LQW04CA/15CA** |
| 0.771nH | **LQW18CA** |

4. Lx should be calculated with the following equation.

$$Lx = \frac{Im\ (Zx)}{2\pi f}$$

Lx: Inductance of chip Inductors (chip coils)
f: Measuring frequency

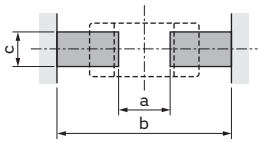
# Application Specified Noise Filter (NFZ_S/NFZ_B/BLF/BLE) Soldering and Mounting

## 1. Standard Land Pattern Dimensions

Land Pattern + Solder Resist | Land Pattern | Solder Resist

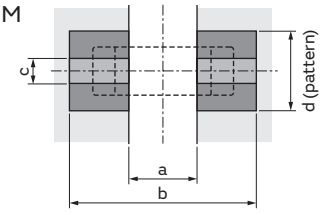
(in mm)

| Series | Standard Land Dimensions |
|---|---|
| **NFZ03**<br>**NFZ15**<br>**NFZ18**<br>**NFZ2M** | ●Reflow Soldering<br>NFZ03/15 |




| Type | Soldering | a | b | c |
|---|---|---|---|---|
| NFZ03 | Reflow | 0.25 | 0.8 | 0.3 |
| NFZ15 | Reflow | 0.4 | 1.2-1.4 | 0.5 |

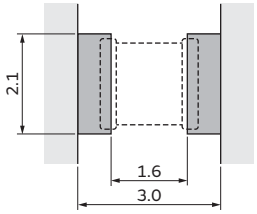
NFZ18 · NFZ2M




| Type | Rated Current (A) | Soldering | a | b | c | Land Pad Thickness and Dimension d | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 18μm | 35μm | 70μm |
| NFZ18 | 0-1.25 | Reflow | 0.7 | 1.8-2.0 | 0.7 | 0.7 | 0.7 | 0.7 |
| NFZ2M | 0-1.5 | Reflow | 0.8 | 2.4 | 1.8 | 1.8 | 1.8 | 1.8 |
| | 1.5-2.5 | | | | | 2.4 | 1.8 | 1.8 |
| | 2.5-5.0 | | | | | 5.0 | 2.4 | 1.8 |

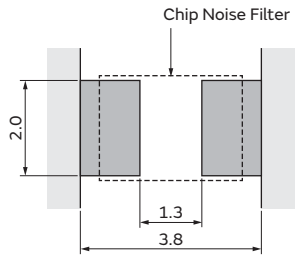
**NFZ2H**

●Reflow and Flow

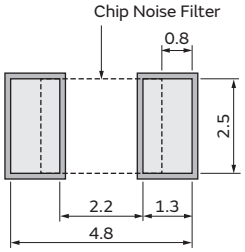



**NFZ32**

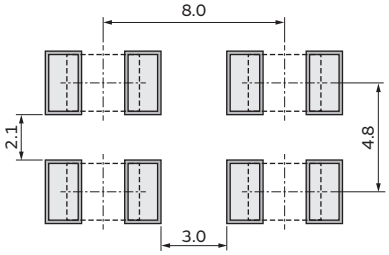
●Reflow Soldering
NFZ32BW/32SW




●Flow Soldering
NFZ32BW

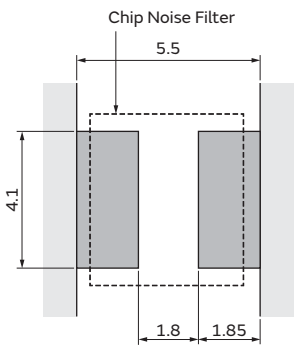



Distance between the products for Flow

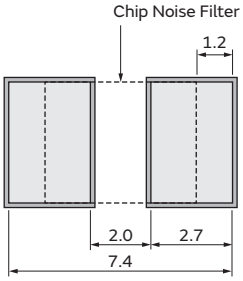



**NFZ5B**

●Reflow Soldering




●Flow Soldering




Continued on the following page.↗

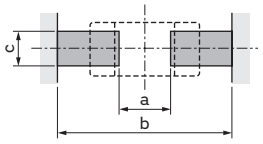
# Application Specified Noise Filter (NFZ_S/NFZ_B/BLF/BLE) Soldering and Mounting

Continued from the preceding page.↘

Land Pattern + Solder Resist　Land Pattern　Solder Resist

(in mm)

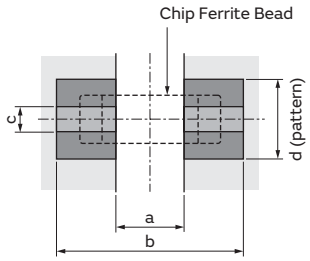
| Series | Standard Land Dimensions |
|---|---|
| **BLF02**<br>**BLF03** | ●Reflow Soldering |




| Type | Soldering | a | b | c |
|---|---|---|---|---|
| BLF02 | Reflow | 0.18 | 0.48 | 0.215 |
| BLF03 | Reflow | 0.25 | 0.8 | 0.3 |

**BLE18**
**BLE32**

●Reflow and Flow

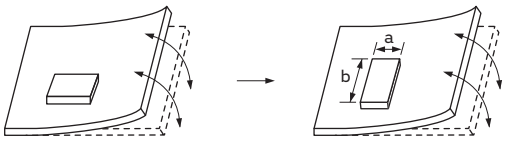



| Type | Rated Current (A) | Soldering | a | b | c | Land Pad Thickness and Dimension d | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 18μm | 35μm | 70μm |
| BLE18 | 8 | Flow/ Reflow | Flow/ 0.8 Reflow 0.7 | Flow/ 2.5 Reflow 2.0 | 0.7 | - | 6.4 | 3.3 |
| BLE32 | 10 | Flow/ Reflow | 2.2 | 4.4 | 2.05 | - | 4.0 (85°C max.) 8.0 (125°C max.) | - |

● PCB Warping

PCB should be designed so that products are not subjected to mechanical stress caused by warping the board.

Products should be located in a sideways direction (Length: a<b) to the mechanical stress.



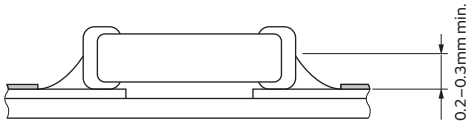

### 2. Solder Paste Printing and Adhesive Application

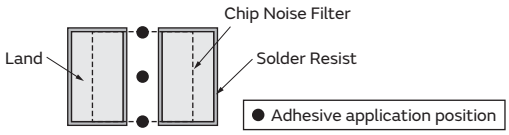
When reflow soldering the application specified noise filter, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the application specified noise filter, apply the adhesive in accordance with the following conditions.
If too much adhesive is applied, it may overflow into the land or termination areas and yield poor solderability.
In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during the flow soldering process.

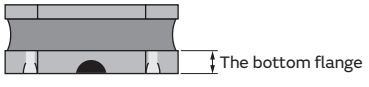
(in mm)

| Series | Solder Paste Printing | Adhesive Application |
|---|---|---|
| **BLE** | ●Guideline of solder paste thickness:<br>50-80μm: BLF02/03<br>100-150μm: NFZ03/2H/2M/32/5B<br>100-200μm: NFZ15/18 · BLE18/32 | **NFZ5B**<br>To prevent detachment of the product, 3-point adhesive application is recommended. |




Amount of adhesive applied is a standard 1/2 to 2/3 of the bottom flange thickness.




Continued on the following page.↗

# Application Specified Noise Filter (NFZ_S/NFZ_B/BLF/BLE) Soldering and Mounting

Continued from the preceding page.↘

### 3. Standard Soldering Conditions

(1) Soldering Methods

Use flow and reflow soldering methods only.
Use standard soldering conditions when soldering chip ferrite beads and bead inductors.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products. If using BLA series with Sn-Zn based solder, please contact Murata in advance.

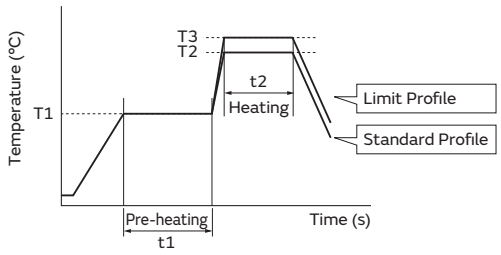
Flux:

- Use rosin-based flux.
  In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

(2) Soldering Profile

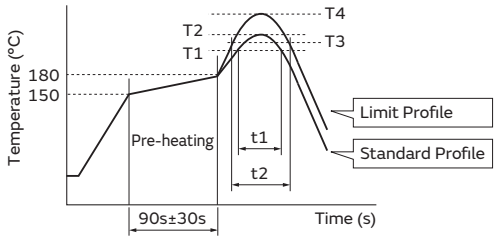
●Flow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)




| Series | Pre-heating | | Standard Profile | | | Limit Profile | | |
|---|---|---|---|---|---|---|---|---|
| | | | Heating | | Cycle of Flow | Heating | | Cycle of Flow |
| | Temp. (T1) | Time (t1) | Temp. (T2) | Time (t2) | | Temp. (T3) | Time (t2) | |
| **NFZ** (except for **NFZ03/15/18/2M/32SW**) | 150°C | 60s min. | 250°C | 4 to 6s | 2 times max. | 265±3°C | 5s max. | 2 times max. |
| **BLE** | | | | | | | | 1 time *1 |

*1 NFZ5B/32BW

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)




| Series | Standard Profile | | | | Limit Profile | | | |
|---|---|---|---|---|---|---|---|---|
| | Heating | | Peak Temperature (T2) | Cycle of Reflow | Heating | | Peak Temperature (T4) | Cycle of Reflow |
| | Temp. (T1) | Time (t1) | | | Temp. (T3) | Time (t2) | | |
| **NFZ**<br>**BLF02/03**<br>**BLE** | 220°C min. | 30 to 60s | 245±3°C | 2 times max. | 230°C min. | 60s max. | 260°C/10s | 2 times max. |

Continued on the following page.↗

# Application Specified Noise Filter (NFZ_S/NFZ_B/BLF/BLE) Soldering and Mounting

Continued from the preceding page.↘

(3) Reworking with a soldering Iron

The following conditions must be strictly followed when using a soldering iron (except for NFZ03 · BLF02).
Pre-heating: 150°C 60s min.
Soldering iron power output / Tip diameter:
80W max. / ø3mm max.
Temperature of soldering iron tip / Soldering time / Times:
350°C max. / 3-4s / 2 times
Do not allow the tip of the soldering iron to directly contact the chip.
For additional methods of reworking with a soldering iron, please contact Murata engineering.

**4. Cleaning**

The following conditions should be observed when cleaning chip ferrite beads.

(1) Cleaning temperature: 60°C max. (40°C max. for alcohol type cleaner)

(2) Ultrasonic
Output: 20W/liter max.
Duration: 5 minutes max.
Frequency: 28 to 40kHz

(3) Cleaning Agent
The following cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.
(a) Alcohol cleaning agent
Isopropyl alcohol (IPA)
(b) Aqueous cleaning agent
Pine Alpha ST-100S (except for NFZ5B)

(4) Ensure that flux residue is completely removed.
The component should be thoroughly dried after the aqueous agent has been removed with deionized water.

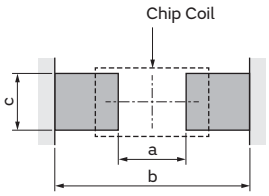
# Inductor for Audio Line Noise Suppression (LQW_CA) Soldering and Mounting

## 1. Standard Land Pattern Dimensions

A high Q value is achieved when the PCB electrode land pattern is designed so that it does not project beyond the chip Inductor's (chip coil's) electrode.

Land Pattern + Solder Resist  Land Pattern  Solder Resist

(in mm)

| Series | Standard Land Dimensions |
|---|---|
| **LQW04CA**<br>**LQW15CA**<br>**LQW18CA** |  |



| Part Number | a | b | c |
|---|---|---|---|
| **LQW04CA** | 0.45 | 1.05 | 0.48 |
| **LQW15CA** | 0.45 | 1.45 | 0.64 |
| **LQW18CA** | 0.7 | 2.2 | 1.0 |

Attention should be paid to potential magnetic coupling effects when using the Inductor (coil) as a resonator.

## 2. Standard Soldering Conditions

(1) Soldering method

Please use reflow soldering.

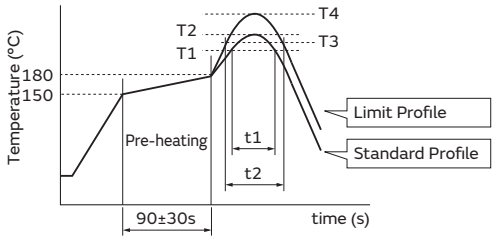
Solder: Use Sn-3.0Ag-0.5Cu solder.

Flux: Use rosin-based flux, but not strongly acidic flux (with chlorine content exceeding 0.2wt%).
Do not use water-soluble flux.
The flux used for the LQW04CA/15CA/18CA series should be a rosin-based flux that includes a middle activator equivalent to 0.06wt% to 0.1wt% chlorine.

For additional mounting methods, please contact Murata.

(2) Soldering profile

●Reflow Soldering profile
(Sn-3.0Ag-0.5Cu solder)





| Series | Standard Profile | | | | Limit Profile | | | |
|---|---|---|---|---|---|---|---|---|
| | Heating | | Peak temperature (T2) | Cycle of reflow | Heating | | Peak temperature (T4) | Cycle of reflow |
| | Temp. (T1) | Time (t1) | | | Temp. (T3) | Time (t2) | | |
| **LQW04CA/15CA/18CA** | 220°C | 30 to 60s | 245±3°C | 2 times max. | 230°C | 60s max. | 260°C/10s | 2 times max. |

(3) Reworking with a Soldering Iron (except for LQW04C)

Preheating at 150°C for 1 minute is required. Do not directly touch the ceramic element with the tip of the soldering iron. The reworking soldering conditions are as follows:

Soldering iron power output: 80W max.
Temperature of soldering iron tip: 350°C
Diameter of soldering iron end: 3.0mm max.
Soldering time: within 3s

Please keep the fix time with the soldering iron within 2 times.

Continued on the following page.↗

# Inductor for Audio Line Noise Suppression (LQW_CA) Soldering and Mounting

Continued from the preceding page.↘

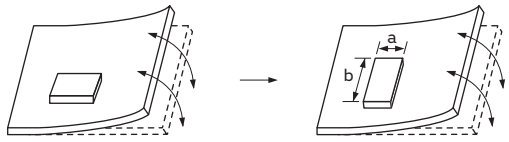
## 3. Mounting Instructions

(1) Land Pattern Designing (LQW_C series)
Please follow the recommended patterns. Otherwise, their performance, which includes electrical performance or solderability, may be affected, or result in “position shift” in the soldering process.

(2) Magnetic Coupling
Since some chip inductors (chip coils) are constructed like an open magnetic circuit, narrow spacing between inductors (coils) may cause magnetic coupling.

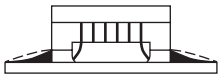
(3) PCB Warping
The PCB should be designed so that products are not subjected to mechanical stress caused by warping the board.

Products should be located in a sideways direction (Length: a<b) to mechanical stress.




Poor example　　Good example

(4) Amount of Solder Paste
Excessive solder causes electrode corrosion, while insufficient solder causes low electrode bonding strength. Adjust the amount of solder paste as shown on the right so that the correct amount is applied.
Guideline of solder paste thickness
- LQW15C: 50 to 100μm
- LQW04C: 80 to 100μm
- LQW18C: 100 to 150μm



LQW_C

Continued on the following page.↗

## 4. Cleaning

The following conditions should be observed when cleaning chip inductors (chip coils):

(1) Cleaning temperature: 60°C max. (40°C max. for alcohol cleaning agents)

(2) Ultrasonic
Output: 20W/l max.
Duration: 5 minutes max.
Frequency: 28 to 40kHz
Care should be taken not to cause resonance of the PCB and mounted products.

(3) Cleaning agent
The following cleaning agents have been tested on individual components. Evaluation in complete assembly should be done prior to production.
(a) Alcohol cleaning agents
Isopropyl alcohol (IPA)
(b) Aqueous cleaning agents
Pine Alpha ST-100S

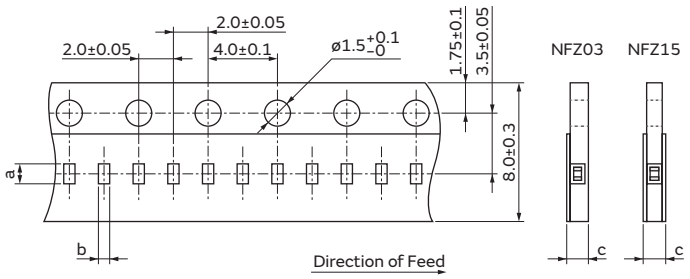
(4) Ensure that flux residue is completely removed.
The component should be thoroughly dried after the aqueous agents have been removed with deionized water.

For additional cleaning methods, please contact Murata.

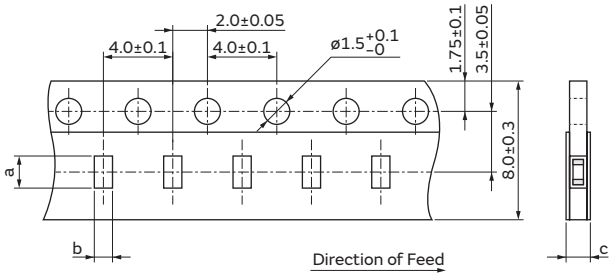
# Application Specified Noise Filter (NFZ_S/NFZ_B/BLF/BLE) Packaging

## Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape

(Paper Tape)

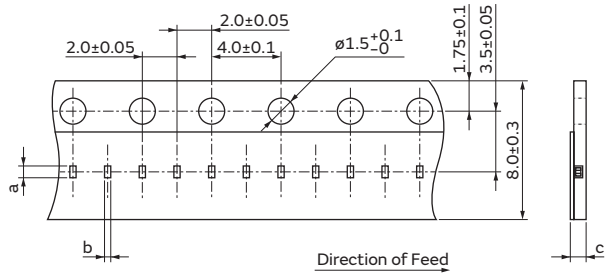



| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **NFZ03** | 0.66 | 0.36 | 0.55 max. | 15000 | - | 1000 |
| **NFZ15** | 1.15 | 0.65 | 0.8 max. | 10000 | - | 1000 |




Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **NFZ18** | 1.85 | 1.05 | 1.1 max. | 4000 | - | 1000 |
| **BLE18** | 1.85 | 1.05 | 0.85 max. | 4000 | 10000 | 1000 |




| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **BLF02** | 0.45 | 0.25 | 0.52 max. | 15000 | - | 1000 |
| **BLF03** | 0.68 | 0.36 | 0.65 max. | 15000 | - | 1000 |

(in mm)

Continued on the following page.↗

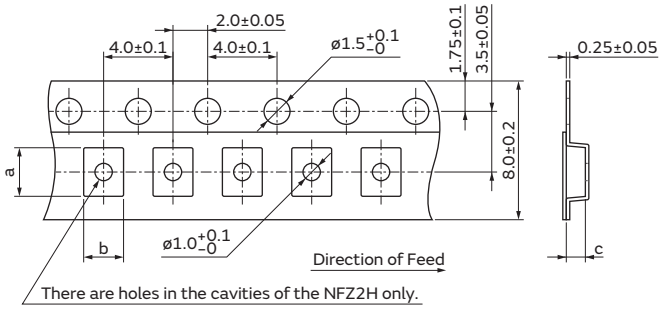
"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity."

# Application Specified Noise Filter (NFZ_S/NFZ_B/BLF/BLE) Packaging

Continued from the preceding page.↘

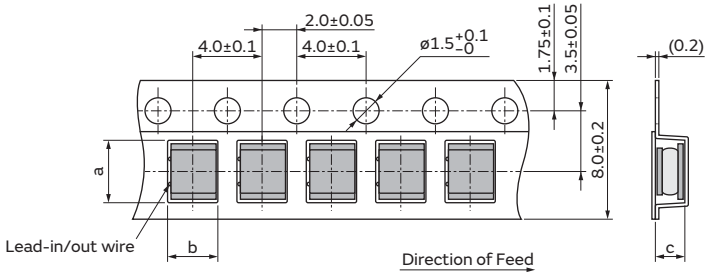
## Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape

(Embossed Tape)



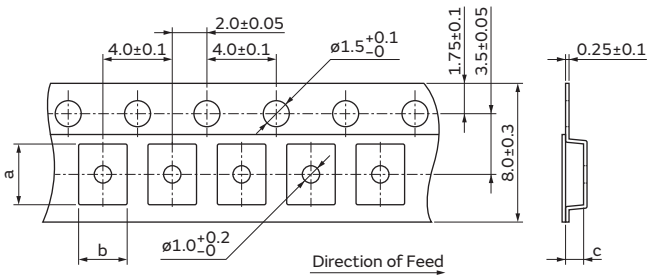

Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **NFZ2H** | 2.8 | 2.3 | 1.1 | 3000 | - | 1000 |
| **NFZ2M** | 2.4 | 1.9 | 1.1 | 3000 | - | 1000 |




Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **NFZ32** | 3.6 | 2.9 | 1.7 | 2000 | 7500 | - |




Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **BLE32PN260SN1** | 3.5 | 2.8 | 1.75 | 1500 | 7000 | 1000 |
| **BLE32PN300SN1** | | | 2.3 | | | |

(in mm)

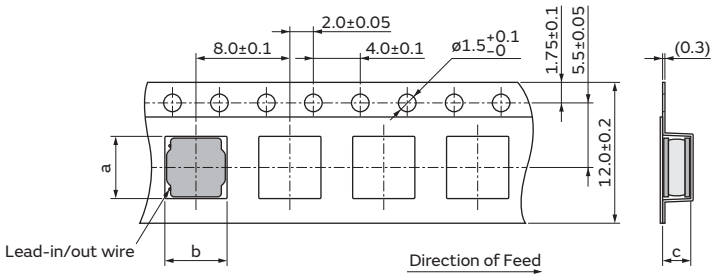
Continued on the following page.↗

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity."

# Application Specified Noise Filter (NFZ_S/NFZ_B/BLF/BLE) Packaging

Continued from the preceding page.↘

## Minimum Quantity and Dimensions of 12mm Width Embossed Tape




Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **NFZ5B** | 5.3 | 5.3 | 2.4 | 500 | 3000 | - |

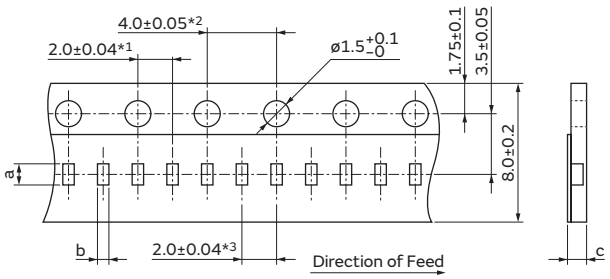
(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity."

# Inductor for Audio Line Noise Suppression (LQW_CA) Packaging

## Minimum Quantity and 8mm Width Taping Dimensions

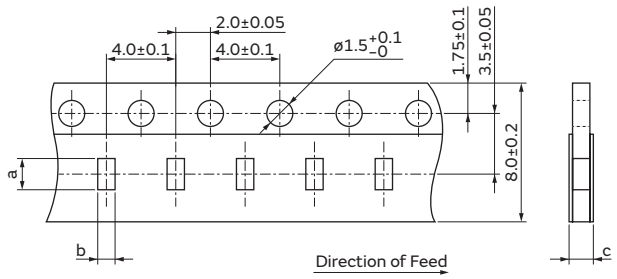
(Paper Tape)




*1 LQW15C: 2.0±0.05
*2 LQW15C: 4.0±0.1
*3 LQW15C: 2.0±0.05

| Part Number | Dimensions | | Total Thickness of Tape | Packaging Code (Minimum Qty. (pcs.)) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **LQW04C** | 1.01 | 0.59 | 0.71 max. | 10000 | - | 500 |
| **LQW15C** | 1.22 | 0.66 | 0.9 max. | 10000 | - | 500 |

(in mm)




| Part Number | Dimensions | | Total Thickness of Tape | Packaging Code (Minimum Qty. (pcs.)) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **LQW18C** | 1.8 | 1.0 | 1.1 max. | 4000 | 10000 | 500 |

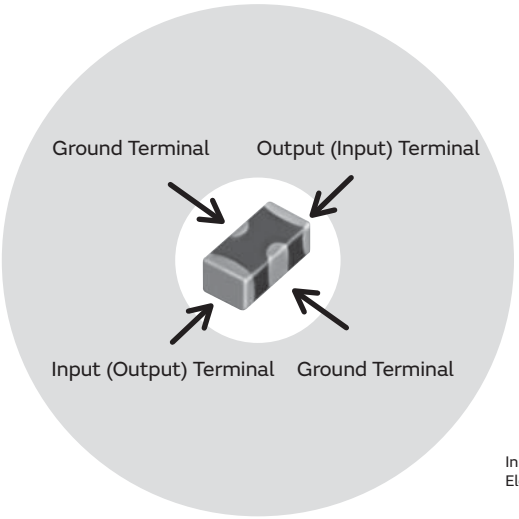
(in mm)

# MEMO

## Chip EMIFIL®
## NFL/NFA/NFW/NFE Series

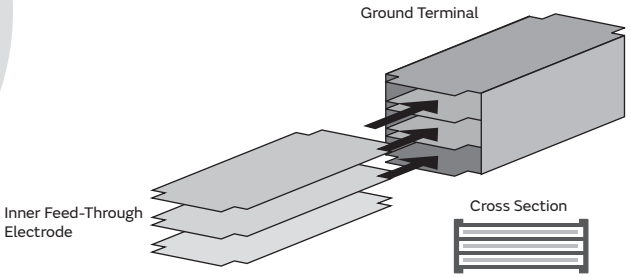
Series Introduction ····· p166
Part Numbering ····· p168
Series Lineup ····· p170
Product Detail ····· p172
⚠Caution/Notice ····· p185
Soldering and Mounting ····· p186
Packaging ····· p190

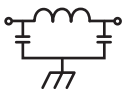
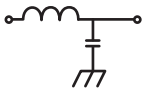
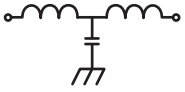
# Chip EMIFIL® (NF□) Series Introduction



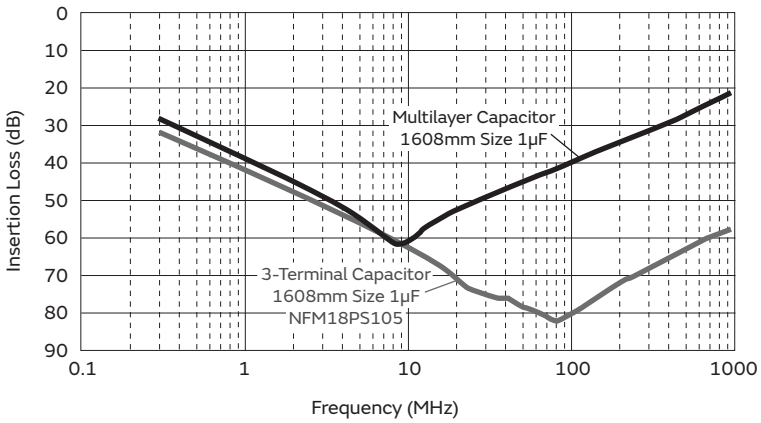

## Example of 3-Terminal Capacitor Structure

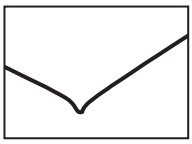
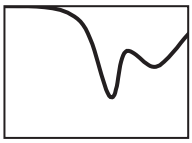
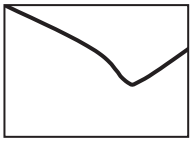
Chip 3-terminal capacitor is a chip-shaped 3-terminal capacitor designed for noise suppression. Its inner structure, like a feed-through capacitor, makes its ground impedance quite low. Owing to this structure, the 3-terminal capacitor has a good noise suppression effect at a high frequency range up to several hundred MHz.




| Series | Equivalent Circuit | Part Number |
|---|---|---|
| **NFM** Series (3-terminal capacitor) | | **NFM18CC**<br>**NFM21CC**<br>**NFM18PC**<br>**NFM18PS**<br>**NFM21PC** |
| **NFL / NFW / NFA** Series (LC filter) | | **NFL18ST** |
| |  | **NFL18SP**<br>**NFL21SP**<br>**NFW31SP** |
| |  | **NFA21SL**<br>**NFA18SL**<br>**NFA18SD** |
| **NFE** Series (Feed-through capacitor with ferrite cores) |  | **NFE31PT**<br>**NFE61PT** |

# Chip EMIFIL® (NF□) Series Introduction




| Insertion Loss Sample | Features | Classification | | Applications | Example |
|---|---|---|---|---|---|
|  | Standard of 3-terminal capacitor | **NFM_CC** | Standard type with varied capacitance | Noise suppression in low speed signal lines | · Low speed interface lines<br>· Sensor |
| | | **NFM_PC** | Meet large current, high capacitance available, for power lines | Noise suppression in power lines | · Individual IC power lines |
|  | Sharp insertion loss curve enables low damage to signal waveform | **NFL_ST** | T-type filter, effective in low impedance circuits | Noise suppression in high-speed signal lines | · High-speed interface lines<br>· Bus lines<br>LCD lines<br>Camera I/Fs<br>· High-speed analog lines<br>RGB / D terminal |
| | | **NFL_SP** | π-type filter, effective in high impedance circuits | | |
| | | **NFW_SP** | π-type filter, designed for low impedance circuits | | |
| | | **NFA_SL** | 4-line array, suitable for bus lines or flat cables | | |
|  | Meets large current, good high frequency performance because of its feed-through structure | | | Noise suppression in power lines / low impedance lines | · Various power lines<br>· Sensor |

## Part Numbering

### Chip EMIFIL® LC Combined (1)

(Part Number)

| NF | L | 18 | ST | 107 | X | 1C | 3 | L |
|---|---|---|---|---|---|---|---|---|
| ❶ | ❷ | ❸ | ❹ | ❺ | ❻ | ❼ | ❽ | ❾ |

❶Product ID

| Product ID | |
|---|---|
| **NF** | Chip EMIFIL® |

❷Structure

| Code | Structure |
|---|---|
| **W** | Wire Wound, LC Combined Type |
| **L** | Multilayer, LC Combined Type |
| **E** | Block, LC Combined Type |

❸Dimensions (LxW)

| Code | Dimensions (LxW) | Size Code (inch) |
|---|---|---|
| **15** | 1.0x0.5mm | 0402 |
| **18** | 1.6x0.8mm | 0603 |
| **21** | 2.0x1.25mm | 0805 |
| **31** | 3.2x1.6mm | 1206 |
| **61** | 6.8x1.6mm | 2706 |

❹Features

| Code | Features | |
|---|---|---|
| **SP** | For General-Purpose | For Signal Lines, π Circuit |
| **ST** | | For Signal Lines, T Circuit |
| **PT** | | For Large Current, T Circuit |

❺Cut-off Frequency (**NFL/NFW** Series)
Expressed by three figures. The unit is in hertz (Hz). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

❺Capacitance (**NFE** Series)
Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

❻Characteristics (**NFL/NFW** Series)

| Code | Characteristics |
|---|---|
| **H/X** | Cut-off Frequency |

❻Characteristics (**NFE** Series)

| Code | Capacitance Temperature Characteristics |
|---|---|
| **B** | ±10% |
| **C** | ±20%, ±22% |
| **D** | +20/-30%, +22/-33% |
| **E** | +20/-55%, +22/-56% |
| **F** | +30/-80%, +22/-82% |
| **R** | ±15% |
| **U** | -750 ±120ppm/ ˚C |
| **Z** | Other |

❼Rated Voltage

| Code | Rated Voltage |
|---|---|
| **1A** | 10V |
| **1C** | 16V |
| **1E** | 25V |
| **1H** | 50V |
| **2A** | 100V |

❽Electrode

| Code | Electrode | Series |
|---|---|---|
| **3/7** | Sn Plating | **NFL** |
| **4** | Lead-Free Solder Coating | **NFW** |
| **9** | Others | **NFE** |

❾Packaging

| Code | Packaging |
|---|---|
| **K** | Embossed Taping (ø330mm Reel) |
| **L** | Embossed Taping (ø180mm Reel) |
| **B** | Bulk |
| **D** | Paper Taping (ø180mm Reel) |

## Chip EMIFIL® LC Combined (2)

(Part Number)

| NF | A | 21 | SL | 207 | X | 1A | 4 | 5 | L |
|---|---|---|---|---|---|---|---|---|---|
| ❶ | ❷ | ❸ | ❹ | ❺ | ❻ | ❼ | ❽ | ❾ | ❿ |

❶Product ID

| Product ID | |
|---|---|
| **NF** | Chip EMIFIL® |

❷Structure

| Code | Structure |
|---|---|
| **A** | Array Type |

❸Dimensions (L x W)

| Code | Dimensions (LxW) | Size Code (inch) |
|---|---|---|
| **18** | 1.6x0.8mm | 0603 |
| **21** | 2.0x1.25mm | 0805 |

❹Features (1)

| Code | Features |
|---|---|
| **SL** | L Circuit for Signal Lines |
| **SD** | L Circuit for Differential Signal |

❺Cut-off Frequency

Expressed by three figures. The unit is in hertz (Hz). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

❻Features (2)

| Code | Features |
|---|---|
| **X** | Expressed by a letter |
| **V** | |

❼Rated Voltage

| Code | Rated Voltage |
|---|---|
| **1A** | 10V |

❽Number of Circuits

| Code | Number of Circuits |
|---|---|
| **4** | 4 Circuits |

❾Dimensions (T)

| Code | Dimensions (T) |
|---|---|
| **5** | Low Profile |
| **8** | Standard |

❿Packaging

| Code | Packaging |
|---|---|
| **B** | Bulk |
| **L** | Embossed Taping (ø180mm Reel) |

# Series Lineup

## NFL/NFA/NFW/NFE

Chip EMIFIL®

| Type | Size Code in inches (mm) | Thickness (mm) | Part Number | Rated Voltage | Capacitance | Nominal Cut-off Frequency | Rated Current |
|---|---|---|---|---|---|---|---|
| LC Combined Type for Power Lines and Signal Lines | 1206 (3216) | 1.6 | NFE31PT220R1E9 p172 | 25Vdc | 22pF±30% | - | 6A |
| | | 1.6 | NFE31PT470C1E9 p172 | 25Vdc | 47pF 50/-20% | - | 6A |
| | | 1.6 | NFE31PT101C1E9 p172 | 25Vdc | 100pF 80/-20% | - | 6A |
| | | 1.6 | NFE31PT221D1E9 p172 | 25Vdc | 220pF 50/-20% | - | 6A |
| | | 1.6 | NFE31PT471F1E9 p172 | 25Vdc | 470pF 50/-20% | - | 6A |
| | | 1.6 | NFE31PT152Z1E9 p172 | 25Vdc | 1500pF 50/-20% | - | 6A |
| | | 1.6 | NFE31PT222Z1E9 p172 | 25Vdc | 2200pF±50% | - | 6A |
| | 2706 (6816) | 1.6 | NFE61PT330B1H9 p173 | 50Vdc | 33pF±30% | - | 2A |
| | | 1.6 | NFE61PT680B1H9 p173 | 50Vdc | 68pF±30% | - | 2A |
| | | 1.6 | NFE61PT101Z1H9 p173 | 50Vdc | 100pF±30% | - | 2A |
| | | 1.6 | NFE61PT181B1H9 p173 | 50Vdc | 180pF±30% | - | 2A |
| | | 1.6 | NFE61PT361B1H9 p173 | 50Vdc | 360pF±20% | - | 2A |
| | | 1.6 | NFE61PT681B1H9 p173 | 50Vdc | 680pF±30% | - | 2A |
| | | 1.6 | NFE61PT102E1H9 p173 | 50Vdc | 1000pF 80/-20% | - | 2A |
| | | 1.6 | NFE61PT472C1H9 p173 | 50Vdc | 4700pF 80/-20% | - | 2A |
| LC Combined Multilayer Type for Signal Lines | 0603 (1608) | 0.6 | NFL18ST506H1A3 p174 | 10Vdc | 110pF (Typ.) | 50MHz | 75mA |
| | | 0.6 | NFL18ST706H1A3 p174 | 10Vdc | 70pF (Typ.) | 70MHz | 75mA |
| | | 0.6 | NFL18ST107H1A3 p174 | 10Vdc | 50pF (Typ.) | 100MHz | 75mA |
| | | 0.6 | NFL18ST207H1A3 p174 | 10Vdc | 22pF (Typ.) | 200MHz | 100mA |
| | | 0.6 | NFL18ST307H1A3 p174 | 10Vdc | 16pF (Typ.) | 300MHz | 100mA |
| | | 0.6 | NFL18ST507H1A3 p174 | 10Vdc | 10pF (Typ.) | 500MHz | 100mA |
| | | 0.8 | NFL18ST207X1C3 p175 | 16Vdc | 25pF±20% | 200MHz | 150mA |
| | | 0.8 | NFL18ST307X1C3 p175 | 16Vdc | 18pF±20% | 300MHz | 200mA |
| | | 0.8 | NFL18ST507X1C3 p175 | 16Vdc | 10pF±20% | 500MHz | 200mA |
| | | 0.6 | NFL18SP157X1A3 p176 | 10Vdc | 34pF±20% | 150MHz | 100mA |
| | | 0.6 | NFL18SP207X1A3 p176 | 10Vdc | 24pF±20% | 200MHz | 100mA |
| | | 0.6 | NFL18SP307X1A3 p176 | 10Vdc | 19pF±20% | 300MHz | 100mA |
| | | 0.6 | NFL18SP507X1A3 p176 | 10Vdc | 11pF±20% | 500MHz | 100mA |
| | 0805 (2012) | 0.85 | NFL21SP106X1C3 p177 | 16Vdc | 670pF±20% | 10MHz | 100mA |
| | | 0.85 | NFL21SP206X1C7 p177 | 16Vdc | 240pF±20% | 20MHz | 100mA |
| | | 0.85 | NFL21SP506X1C3 p177 | 16Vdc | 84pF±20% | 50MHz | 150mA |
| | | 0.85 | NFL21SP706X1C3 p177 | 16Vdc | 76pF±20% | 70MHz | 150mA |
| | | 0.85 | NFL21SP107X1C3 p177 | 16Vdc | 44pF±20% | 100MHz | 200mA |
| | | 0.85 | NFL21SP157X1C3 p177 | 16Vdc | 28pF±20% | 150MHz | 200mA |
| | | 0.85 | NFL21SP207X1C3 p177 | 16Vdc | 22pF±20% | 200MHz | 250mA |
| | | 0.85 | NFL21SP307X1C3 p177 | 16Vdc | 19pF±10% | 300MHz | 300mA |
| | | 0.85 | NFL21SP407X1C3 p177 | 16Vdc | 16pF±10% | 400MHz | 300mA |
| | | 0.85 | NFL21SP507X1C3 p177 | 16Vdc | 12pF±10% | 500MHz | 300mA |
| LC Combined Array Type for Signal Lines | 0603 (1608) | 0.6 | NFA18SL137V1A45 p179 | 10Vdc | - | 130MHz | 50mA |
| | | 0.6 | NFA18SL187V1A45 p179 | 10Vdc | - | 180MHz | 50mA |
| | | 0.6 | NFA18SL207V1A45 p179 | 10Vdc | - | 200MHz | 50mA |
| | | 0.6 | NFA18SL227V1A45 p179 | 10Vdc | - | 220MHz | 25mA |
| | | 0.5 | NFA18SL307V1A45 p179 | 10Vdc | - | 300MHz | 100mA |
| | | 0.5 | NFA18SL357V1A45 p179 | 10Vdc | - | 350MHz | 35mA |
| | | 0.5 | NFA18SL407V1A45 p179 | 10Vdc | - | 400MHz | 100mA |
| | | 0.5 | NFA18SL487V1A45 p179 | 10Vdc | - | 480MHz | 100mA |
| | | 0.6 | NFA18SL506X1A45 p180 | 10Vdc | - | 50MHz | 25mA |
| | | 0.6 | NFA18SD187X1A45 p181 | 10Vdc | - | 180MHz | 25mA |
| | | 0.6 | NFA18SD207X1A45 p181 | 10Vdc | - | 200MHz | 25mA |
| | 0805 (2012) | 0.5 | NFA21SL287V1A45 p182 | 10Vdc | - | 280MHz | 100mA |
| | | 0.5 | NFA21SL317V1A45 p182 | 10Vdc | - | 310MHz | 100mA |

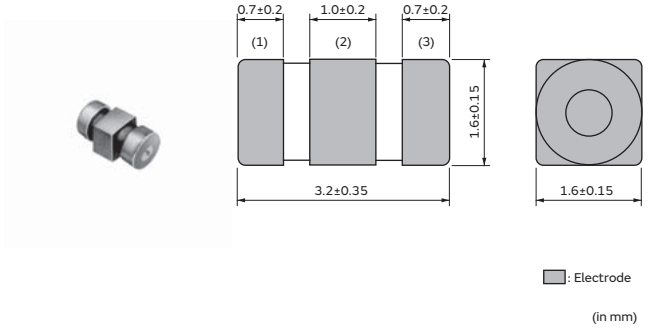
Continued on the following page. ↗

| Type | Size Code in inches (mm) | Thickness (mm) | Part Number | Rated Voltage | Capacitance | Nominal Cut-off Frequency | Rated Current |
|---|---|---|---|---|---|---|---|
| LC Combined Array Type for Signal Lines | 0805 (2012) | 0.5 | **NFA21SL337V1A45** p182 | 10Vdc | - | 330MHz | 100mA |
| | | 0.85 | **NFA21SL287V1A48** p182 | 10Vdc | - | 280MHz | 100mA |
| | | 0.85 | **NFA21SL317V1A48** p182 | 10Vdc | - | 310MHz | 100mA |
| | | 0.85 | **NFA21SL337V1A48** p182 | 10Vdc | - | 330MHz | 100mA |
| | | 0.5 | **NFA21SL207X1A45** p183 | 10Vdc | - | 200MHz | 100mA |
| | | 0.5 | **NFA21SL307X1A45** p183 | 10Vdc | - | 300MHz | 100mA |
| | | 0.85 | **NFA21SL506X1A48** p183 | 10Vdc | - | 50MHz | 20mA |
| | | 0.85 | **NFA21SL806X1A48** p183 | 10Vdc | - | 80MHz | 20mA |
| | | 0.85 | **NFA21SL207X1A48** p183 | 10Vdc | - | 200MHz | 100mA |
| | | 0.85 | **NFA21SL307X1A48** p183 | 10Vdc | - | 300MHz | 100mA |
| LC Combined Wire Wound Type for Signal Lines | 1206 (3216) | 1.8 | **NFW31SP106X1E4** p184 | 25Vdc | - | 10MHz | 200mA |
| | | 1.8 | **NFW31SP206X1E4** p184 | 25Vdc | - | 20MHz | 200mA |
| | | 1.8 | **NFW31SP506X1E4** p184 | 25Vdc | - | 50MHz | 200mA |
| | | 1.8 | **NFW31SP107X1E4** p184 | 25Vdc | - | 100MHz | 200mA |
| | | 1.8 | **NFW31SP157X1E4** p184 | 25Vdc | - | 150MHz | 200mA |
| | | 1.8 | **NFW31SP207X1E4** p184 | 25Vdc | - | 200MHz | 200mA |
| | | 1.8 | **NFW31SP307X1E4** p184 | 25Vdc | - | 300MHz | 200mA |
| | | 1.8 | **NFW31SP407X1E4** p184 | 25Vdc | - | 400MHz | 200mA |
| | | 1.8 | **NFW31SP507X1E4** p184 | 25Vdc | - | 500MHz | 200mA |

Chip EMIFIL®

# NFE31PT Series 1206/3216(inch/mm)

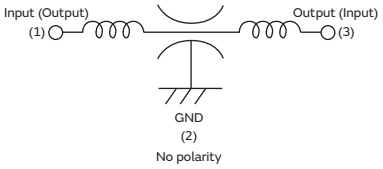
## Appearance/Dimensions




## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 2000 |
| K | ø330mm Embossed Tape | 8000 |
| B | Bulk(Bag) | 500 |

## Equivalent Circuit

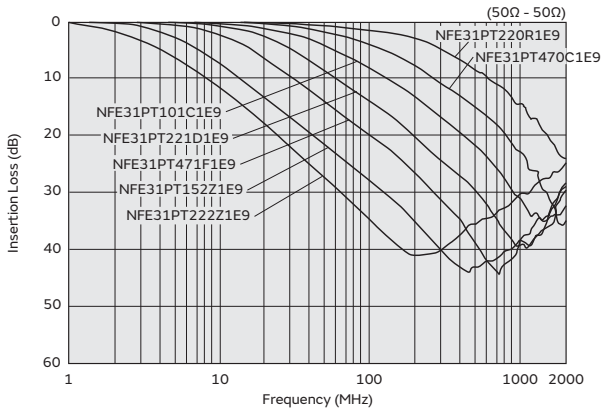



## Rated Value (□: packaging code)

| Part Number | Capacitance | Rated Current | Rated Voltage | Insulation Resistance (min.) | Operating Temperature Range |
|---|---|---|---|---|---|
| NFE31PT220R1E9□ | 22pF ±30% | 6A | 25Vdc | 1000M ohm | -40°C to 85°C |
| NFE31PT470C1E9□ | 47pF 50/-20% | 6A | 25Vdc | 1000M ohm | -40°C to 85°C |
| NFE31PT101C1E9□ | 100pF 80/-20% | 6A | 25Vdc | 1000M ohm | -40°C to 85°C |
| NFE31PT221D1E9□ | 220pF 50/-20% | 6A | 25Vdc | 1000M ohm | -40°C to 85°C |
| NFE31PT471F1E9□ | 470pF 50/-20% | 6A | 25Vdc | 1000M ohm | -40°C to 85°C |
| NFE31PT152Z1E9□ | 1500pF 50/-20% | 6A | 25Vdc | 1000M ohm | -40°C to 85°C |
| NFE31PT222Z1E9□ | 2200pF ±50% | 6A | 25Vdc | 1000M ohm | -40°C to 85°C |

Number of Circuit: 1

## Insertion Loss Characteristics



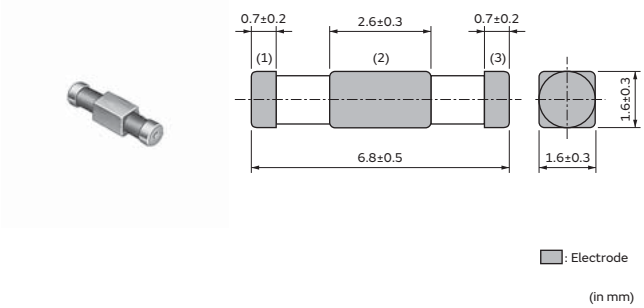



muRata

Chip EMIFIL®

# NFE61PT Series 2706/6816(inch/mm)

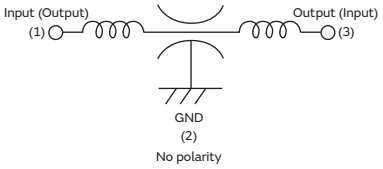
## Appearance/Dimensions




## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 2500 |
| K | ø330mm Embossed Tape | 8000 |
| B | Bulk(Bag) | 500 |

## Equivalent Circuit

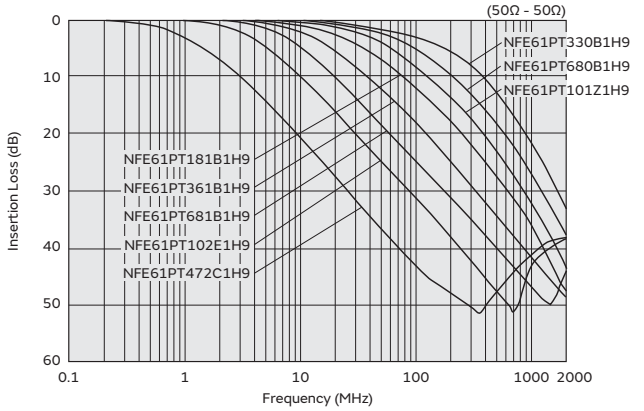



## Rated Value (□: packaging code)

| Part Number | Capacitance | Rated Current | Rated Voltage | Insulation Resistance (min.) | Operating Temperature Range |
|---|---|---|---|---|---|
| NFE61PT330B1H9□ | 33pF ±30% | 2A | 50Vdc | 1000M ohm | -40°C to 85°C |
| NFE61PT680B1H9□ | 68pF ±30% | 2A | 50Vdc | 1000M ohm | -40°C to 85°C |
| NFE61PT101Z1H9□ | 100pF ±30% | 2A | 50Vdc | 1000M ohm | -40°C to 85°C |
| NFE61PT181B1H9□ | 180pF ±30% | 2A | 50Vdc | 1000M ohm | -40°C to 85°C |
| NFE61PT361B1H9□ | 360pF ±20% | 2A | 50Vdc | 1000M ohm | -40°C to 85°C |
| NFE61PT681B1H9□ | 680pF ±30% | 2A | 50Vdc | 1000M ohm | -40°C to 85°C |
| NFE61PT102E1H9□ | 1000pF 80/-20% | 2A | 50Vdc | 1000M ohm | -40°C to 85°C |
| NFE61PT472C1H9□ | 4700pF 80/-20% | 2A | 50Vdc | 1000M ohm | -40°C to 85°C |

Number of Circuit: 1

## Insertion Loss Characteristics

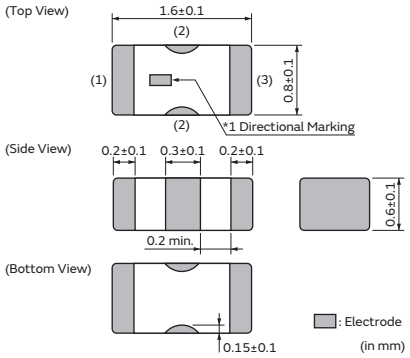


Chip EMIFIL®

# NFL18ST Series 0603/1608(inch/mm)

## Appearance/Dimensions

NFL18ST_H

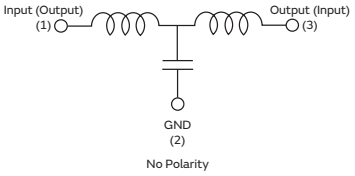



*1 There is no electrical polarity, but there is a directional marking on the top of the product to identify inner physical direction.

## Packaging

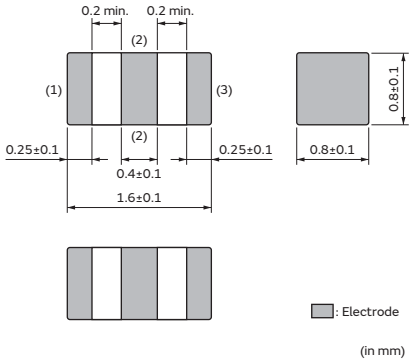
| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| B | Bulk(Bag) | 1000 |

## Equivalent Circuit




## Appearance/Dimensions

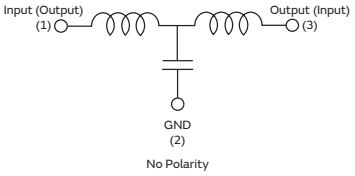
NFL18ST_X




## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| B | Bulk(Bag) | 1000 |

## Equivalent Circuit




## Rated Value (□: packaging code)

| Part Number | Nominal Cut-off Frequency | Capacitance | Inductance | Insertion Loss 1 | Insertion Loss 2 | Rated Current | Rated Voltage |
|---|---|---|---|---|---|---|---|
| NFL18ST506H1A3□ | 50MHz | 110pF (Typ.) | 350nH (Typ.) | 6dB max.(0 to 50MHz) | 30dB min.(200 to 1000MHz) | 75mA | 10Vdc |
| NFL18ST706H1A3□ | 70MHz | 70pF (Typ.) | 230nH (Typ.) | 6dB max.(0 to 70MHz) | 30dB min.(300 to 1000MHz) | 75mA | 10Vdc |
| NFL18ST107H1A3□ | 100MHz | 50pF (Typ.) | 150nH (Typ.) | 6dB max.(0 to 100MHz) | 30dB min.(400 to 1000MHz) | 75mA | 10Vdc |
| NFL18ST207H1A3□ | 200MHz | 22pF (Typ.) | 110nH (Typ.) | 6dB max.(0 to 200MHz) | 30dB min.(800 to 2000MHz) | 100mA | 10Vdc |
| NFL18ST307H1A3□ | 300MHz | 16pF (Typ.) | 74nH (Typ.) | 6dB max.(0 to 300MHz) | 30dB min.(1200 to 2000MHz) | 100mA | 10Vdc |
| NFL18ST507H1A3□ | 500MHz | 10pF (Typ.) | 42nH (Typ.) | 6dB max.(0 to 500MHz) | 30dB min.(1700 to 2000MHz) | 100mA | 10Vdc |

Insulation Resistance (min.): 1000M ohm  Withstand Voltage: 30Vdc  Operating Temperature Range: -55°C to 125°C  Number of Circuits: 1

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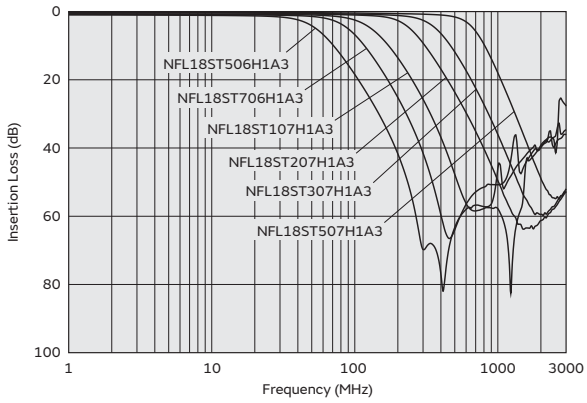
## Insertion Loss Characteristics

**NFL18ST_H Series**



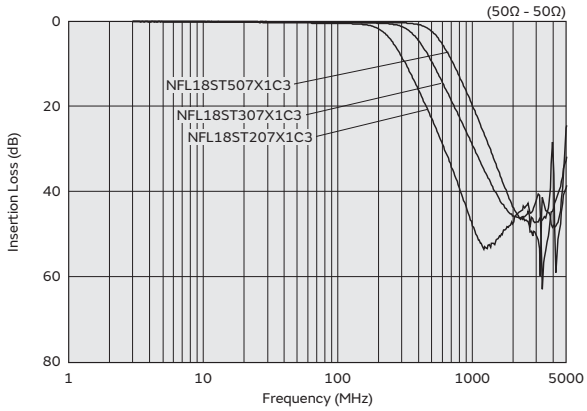

## Rated Value (□: packaging code)

| Part Number | Nominal Cut-off Frequency | Capacitance | Inductance | Rated Current | Rated Voltage | Insulation Resistance (min.) | Withstand Voltage | Operating Temperature Range |
|---|---|---|---|---|---|---|---|---|
| **NFL18ST207X1C3□** | 200MHz | 25pF±20% | 110nH±20% | 150mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| **NFL18ST307X1C3□** | 300MHz | 18pF±20% | 62nH±20% | 200mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| **NFL18ST507X1C3□** | 500MHz | 10pF±20% | 43nH±20% | 200mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |

Number of Circuits: 1

## Insertion Loss Characteristics

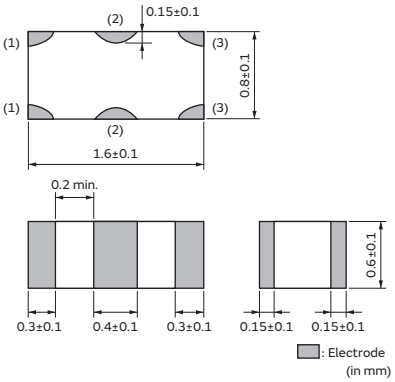
**NFL18ST_X Series**



Chip EMIFIL®

# NFL18SP Series 0603/1608(inch/mm)

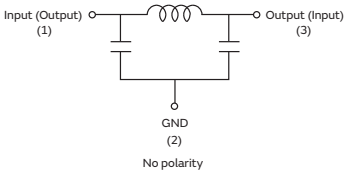
## Appearance/Dimensions




## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| B | Bulk(Bag) | 1000 |

## Equivalent Circuit

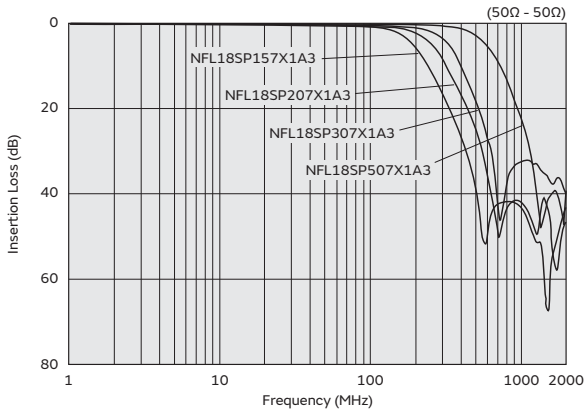



## Rated Value (□: packaging code)

| Part Number | Nominal Cut-off Frequency | Capacitance | Inductance | Rated Current | Rated Voltage | Insulation Resistance (min.) | Withstand Voltage | Operating Temperature Range |
|---|---|---|---|---|---|---|---|---|
| **NFL18SP157X1A3□** | 150MHz | 34pF±20% | 100nH±20% | 100mA | 10Vdc | 1000M ohm | 30Vdc | -55°C to 125°C |
| **NFL18SP207X1A3□** | 200MHz | 24pF±20% | 80nH±20% | 100mA | 10Vdc | 1000M ohm | 30Vdc | -55°C to 125°C |
| **NFL18SP307X1A3□** | 300MHz | 19pF±20% | 60nH±20% | 100mA | 10Vdc | 1000M ohm | 30Vdc | -55°C to 125°C |
| **NFL18SP507X1A3□** | 500MHz | 11pF±20% | 38nH±20% | 100mA | 10Vdc | 1000M ohm | 30Vdc | -55°C to 125°C |

Number of Circuits: 1

## Insertion Loss Characteristics



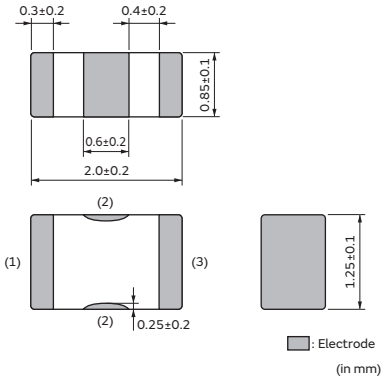



muRata

Chip EMIFIL®

# NFL21SP Series 0805/2012(inch/mm)

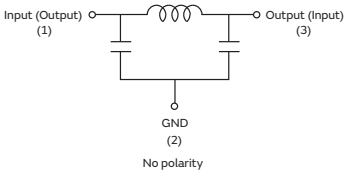
## Appearance/Dimensions




## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 4000 |
| B | Bulk(Bag) | 1000 |

## Equivalent Circuit

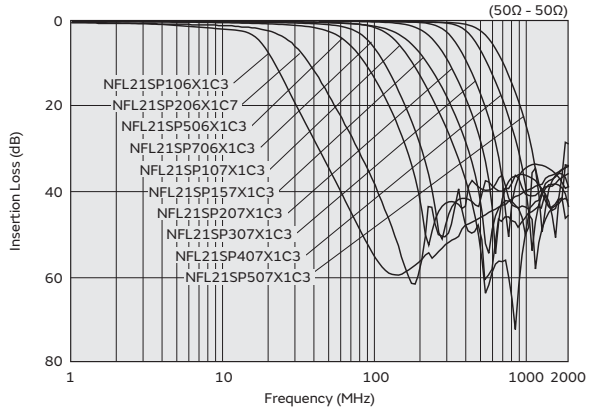



## Rated Value (□: packaging code)

| Part Number | Nominal Cut-off Frequency | Capacitance | Inductance | Rated Current | Rated Voltage | Insulation Resistance (min.) | Withstand Voltage | Operating Temperature Range |
|---|---|---|---|---|---|---|---|---|
| NFL21SP106X1C3□ | 10MHz | 670pF±20% | 680nH±20% | 100mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| NFL21SP206X1C7□ | 20MHz | 240pF±20% | 700nH±20% | 100mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| NFL21SP506X1C3□ | 50MHz | 84pF±20% | 305nH±20% | 150mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| NFL21SP706X1C3□ | 70MHz | 76pF±20% | 185nH±20% | 150mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| NFL21SP107X1C3□ | 100MHz | 44pF±20% | 135nH±20% | 200mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| NFL21SP157X1C3□ | 150MHz | 28pF±20% | 128nH±20% | 200mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| NFL21SP207X1C3□ | 200MHz | 22pF±20% | 72nH±20% | 250mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| NFL21SP307X1C3□ | 300MHz | 19pF±10% | 45nH±10% | 300mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| NFL21SP407X1C3□ | 400MHz | 16pF±10% | 34nH±10% | 300mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |
| NFL21SP507X1C3□ | 500MHz | 12pF±10% | 31nH±10% | 300mA | 16Vdc | 1000M ohm | 50Vdc | -55°C to 125°C |

Number of Circuits: 1

## Insertion Loss Characteristics

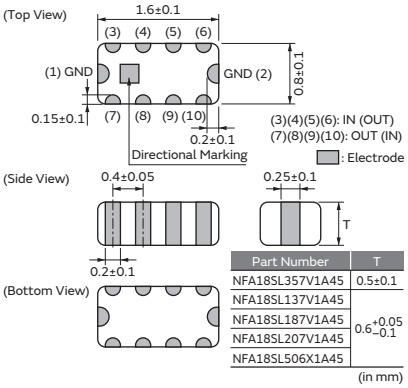


Chip EMIFIL®

# NFA18SL Series 0603/1608(inch/mm)

## Appearance/Dimensions

NFA18SL 137/187/207/357 V1A45
NFA18SL506X1A45

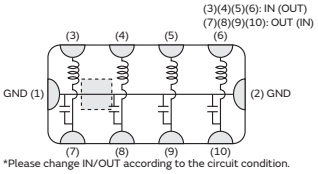



| Part Number | T |
|---|---|
| NFA18SL357V1A45 | 0.5±0.1 |
| NFA18SL137V1A45 | 0.6 +0.05 −0.1 |
| NFA18SL187V1A45 | |
| NFA18SL207V1A45 | |
| NFA18SL506X1A45 | |

## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 4000 |
| B | Bulk(Bag) | 1000 |

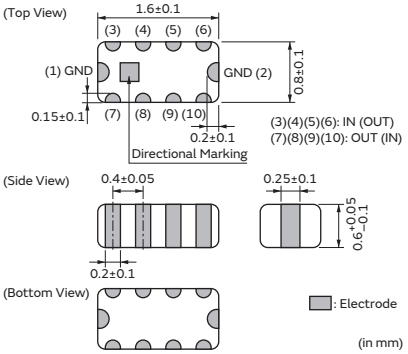
## Equivalent Circuit




*Please change IN/OUT according to the circuit condition.

## Appearance/Dimensions

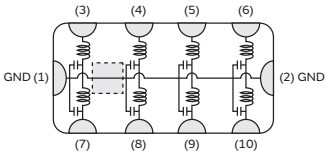
NFA18SL227V1A45




## Packaging

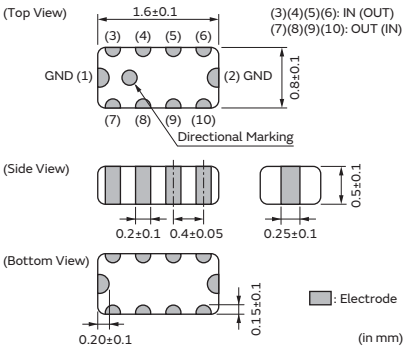
| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 4000 |
| B | Bulk(Bag) | 1000 |

## Equivalent Circuit




## Appearance/Dimensions

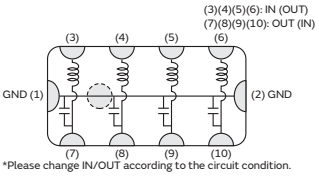
NFA18SL 307/407/487 V1A45




## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 4000 |
| B | Bulk(Bag) | 1000 |

## Equivalent Circuit




*Please change IN/OUT according to the circuit condition.

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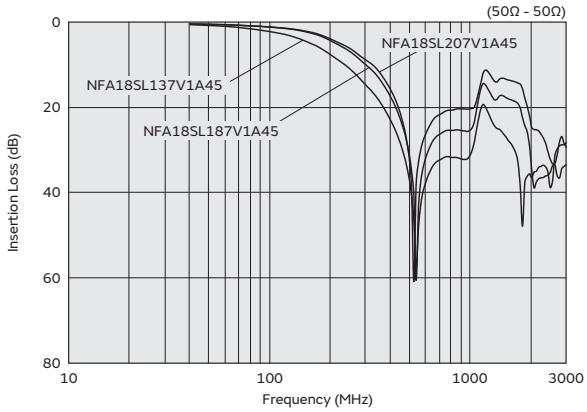
## Rated Value (□: packaging code)

| Part Number | Nominal Cut-off Frequency | Insertion Loss (Cut-off Frequency) | Insertion Loss (470MHz) (min.) | Insertion Loss (800MHz) (min.) | Insertion Loss (900MHz) (min.) | Insertion Loss (2000MHz) (min.) | Rated Current | Rated Voltage | Insulation Resistance (min.) | Withstand Voltage |
|---|---|---|---|---|---|---|---|---|---|---|
| **NFA18SL137V1A45□** | 130MHz | 6dB max. | 25dB | - | 25dB | - | 50mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA18SL187V1A45□** | 180MHz | 6dB max. | 20dB | - | 20dB | - | 50mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA18SL207V1A45□** | 200MHz | 6dB max. | 15dB | - | 15dB | - | 50mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA18SL227V1A45□** | 220MHz | 6dB max. | - | - | 30dB | 30dB | 25mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA18SL307V1A45□** | 300MHz | 6dB max. | - | 20dB | 20dB | - | 100mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA18SL357V1A45□** | 350MHz | 6dB max. | - | - | 15dB | 13dB | 35mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA18SL407V1A45□** | 400MHz | 6dB max. | - | 18dB | 18dB | - | 100mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA18SL487V1A45□** | 480MHz | 6dB max. | - | 15dB | 15dB | - | 100mA | 10Vdc | 1000M ohm | 30Vdc |

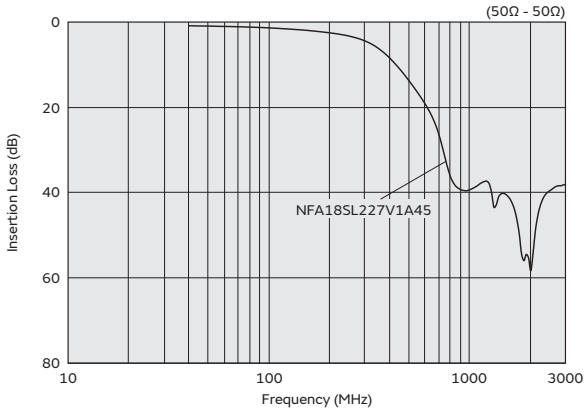
Operating Temperature Range: -40°C to 85°C (NFA18SL 137/187/207/227/357 V1A45), -55°C to 125°C (NFA18SL 307/407/487 V1A45) Number of Circuits: 4

## Insertion Loss Characteristics

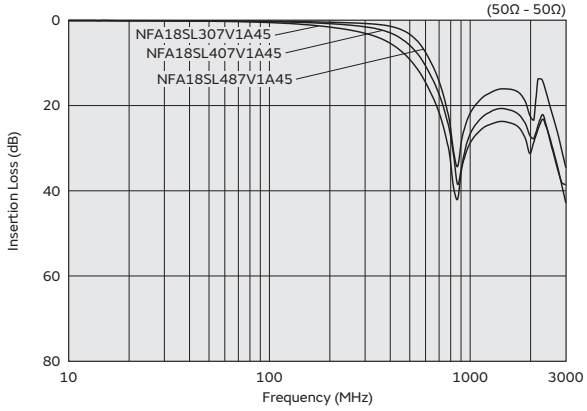
**NFA18SL 137/187/207 V1A45**



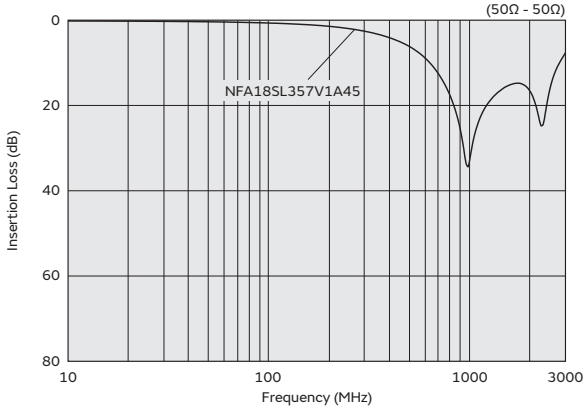

**NFA18SL227V1A45**




**NFA18SL 307/407/487 V1A45**




**NFA18SL357V1A45**

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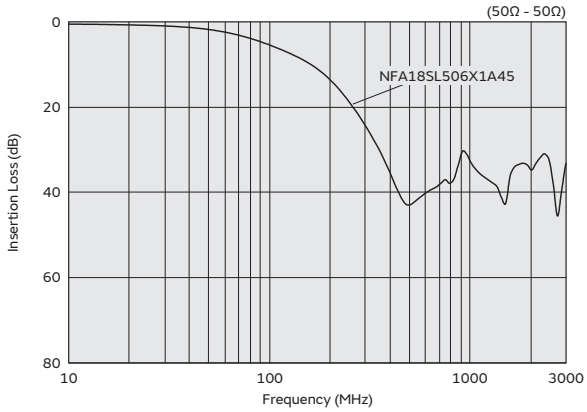
## Rated Value (□: packaging code)

| Part Number | Nominal Cut-off Frequency | Insertion Loss (Cut-off Frequency) | Insertion Loss (500MHz) (min.) | Insertion Loss (1000MHz) (min.) | Rated Current | Rated Voltage | Insulation Resistance (min.) | Withstand Voltage |
|---|---|---|---|---|---|---|---|---|
| **NFA18SL506X1A45□** | 50MHz | 6dB max. | 30dB | 25dB | 25mA | 10Vdc | 1000M ohm | 30Vdc |

Operating Temperature Range: -40°C to 85°C  Number of Circuits: 4

## Insertion Loss Characteristics

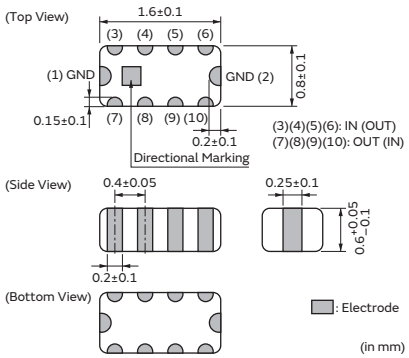
**NFA18SL_X**



Chip EMIFIL®

# NFA18SD Series 0603/1608(inch/mm)

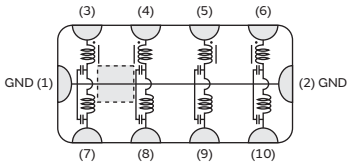
## Appearance/Dimensions




## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 4000 |
| B | Bulk(Bag) | 1000 |

## Equivalent Circuit

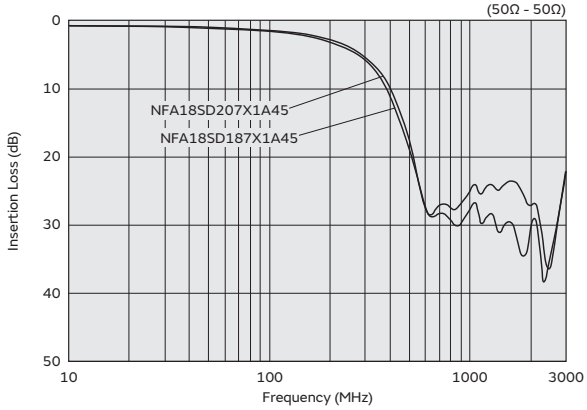



## Rated Value (□: packaging code)

| Part Number | Nominal Cut-off Frequency | Insertion Loss (Cut-off Frequency) | Insertion Loss (500MHz) (min.) | Insertion Loss (900MHz) (min.) | Insertion Loss (1500MHz) (min.) | Insertion Loss (2000MHz) (min.) | Rated Current | Rated Voltage | Insulation Resistance (min.) | Withstand Voltage |
|---|---|---|---|---|---|---|---|---|---|---|
| **NFA18SD187X1A45□** | 180MHz | 6dB max. | 15dB | 20dB | 20dB | 20dB | 25mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA18SD207X1A45□** | 200MHz | 6dB max. | 13dB | 20dB | 20dB | 20dB | 25mA | 10Vdc | 1000M ohm | 30Vdc |

Operating Temperature Range: -40°C to 85°C  Number of Circuits: 4

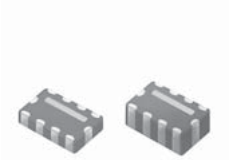
## Insertion Loss Characteristics

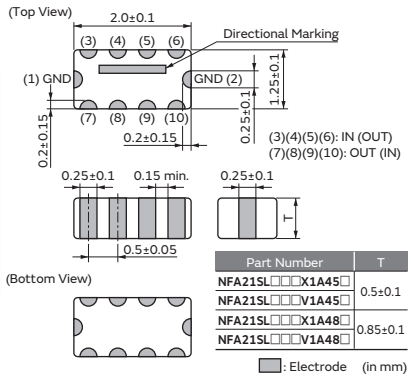


Chip EMIFIL®

# NFA21SL Series 0805/2012(inch/mm)

## Appearance/Dimensions



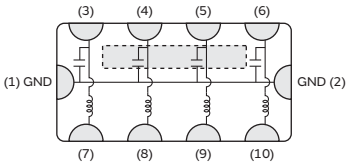



| Part Number | T |
|---|---|
| NFA21SL□□□X1A45□ | 0.5±0.1 |
| NFA21SL□□□V1A45□ | |
| NFA21SL□□□X1A48□ | 0.85±0.1 |
| NFA21SL□□□V1A48□ | |

## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 4000 |
| B | Bulk(Bag) | 1000 |

## Equivalent Circuit



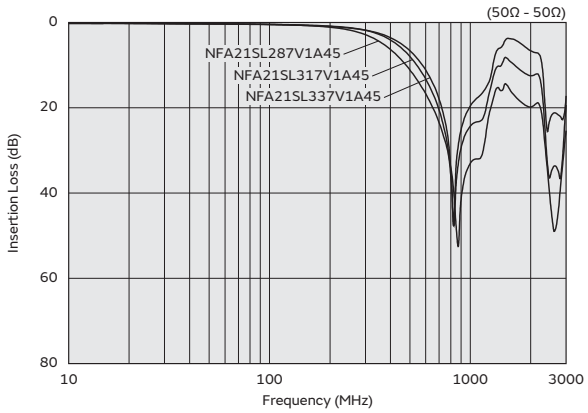

## Rated Value (□: packaging code)

| Part Number | Nominal Cut-off Frequency | Insertion Loss (Cut-off Frequency) | Insertion Loss (800MHz) (min.) | Insertion Loss (900MHz) (min.) | Rated Current | Rated Voltage | Insulation Resistance (min.) | Withstand Voltage |
|---|---|---|---|---|---|---|---|---|
| NFA21SL287V1A45□ | 280MHz | 6dB max. | 25dB | 25dB | 100mA | 10Vdc | 1000M ohm | 30Vdc |
| NFA21SL317V1A45□ | 310MHz | 6dB max. | 20dB | 20dB | 100mA | 10Vdc | 1000M ohm | 30Vdc |
| NFA21SL337V1A45□ | 330MHz | 6dB max. | 15dB | 15dB | 100mA | 10Vdc | 1000M ohm | 30Vdc |
| NFA21SL287V1A48□ | 280MHz | 6dB max. | 25dB | 25dB | 100mA | 10Vdc | 1000M ohm | 30Vdc |
| NFA21SL317V1A48□ | 310MHz | 6dB max. | 20dB | 20dB | 100mA | 10Vdc | 1000M ohm | 30Vdc |
| NFA21SL337V1A48□ | 330MHz | 6dB max. | 20dB | 20dB | 100mA | 10Vdc | 1000M ohm | 30Vdc |

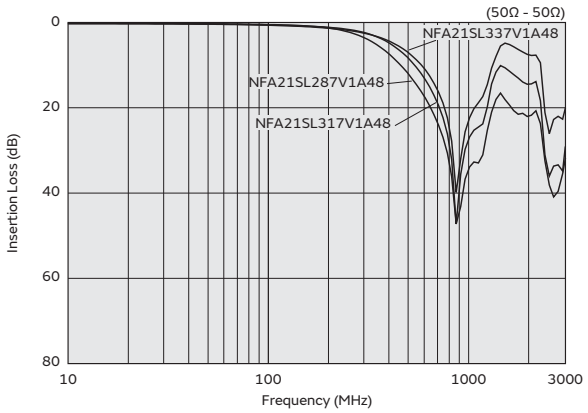
Operating Temperature Range: -55°C to 125°C  Number of Circuits: 4

## Insertion Loss Characteristics

**NFA21SL_V1A45**




**NFA21SL_V1A48**

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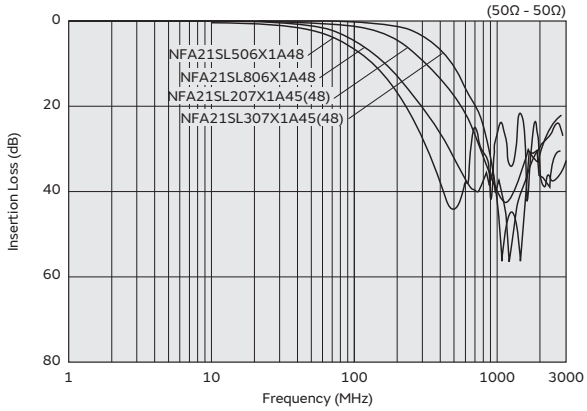
## Rated Value (□: packaging code)

| Part Number | Nominal Cut-off Frequency | Insertion Loss (Cut-off Frequency) | Insertion Loss (500MHz) (min.) | Insertion Loss (800MHz) (min.) | Insertion Loss (1000MHz) (min.) | Rated Current | Rated Voltage | Insulation Resistance (min.) | Withstand Voltage |
|---|---|---|---|---|---|---|---|---|---|
| **NFA21SL207X1A45□** | 200MHz | 2dB to 7dB | 13dB | 25dB | 25dB | 100mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA21SL307X1A45□** | 300MHz | 2dB to 7dB | 7dB | 20dB | 25dB | 100mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA21SL506X1A48□** | 50MHz | 0dB to 6dB | 30dB | - | 20dB | 20mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA21SL806X1A48□** | 80MHz | 2dB to 7dB | 25dB | - | 25dB | 20mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA21SL207X1A48□** | 200MHz | 2dB to 7dB | 13dB | 25dB | 25dB | 100mA | 10Vdc | 1000M ohm | 30Vdc |
| **NFA21SL307X1A48□** | 300MHz | 2dB to 7dB | 7dB | 20dB | 25dB | 100mA | 10Vdc | 1000M ohm | 30Vdc |

Operating Temperature Range: -55°C to 125°C  Number of Circuits: 4

## Insertion Loss Characteristics

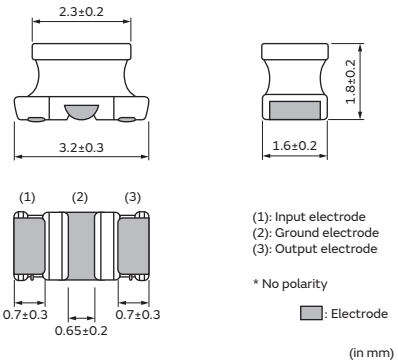
**NFA21SL_X**



Chip EMIFIL®

# NFW31SP Series 1206/3216(inch/mm)

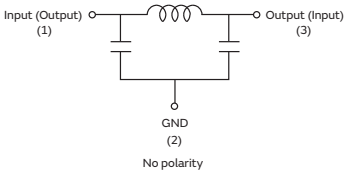
## Appearance/Dimensions




## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 2000 |
| K | ø330mm Embossed Tape | 7500 |

## Equivalent Circuit

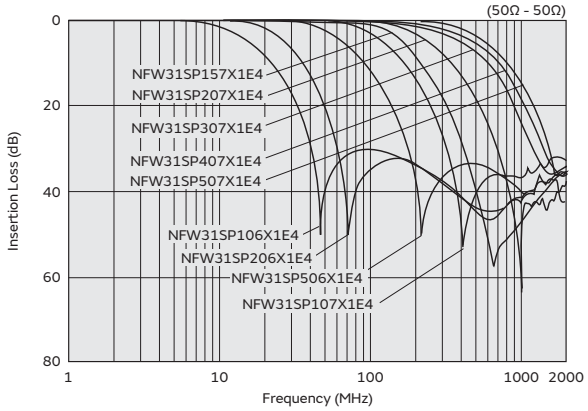



## Rated Value (□: packaging code)

| Part Number | Nominal Cut-off Frequency | Insertion Loss at 10MHz | Insertion Loss at 20MHz | Insertion Loss at 50MHz | Insertion Loss at 100MHz | Insertion Loss at 150MHz | Insertion Loss at 200MHz | Insertion Loss at 300MHz | Insertion Loss at 400MHz | Insertion Loss at 500MHz | Insertion Loss at 1000MHz |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **NFW31SP106X1E4□** | 10MHz | 6dB max. | 5dB min. | 25dB min. | 25dB min. | - | 25dB min. | - | - | 30dB min. | 30dB min. |
| **NFW31SP206X1E4□** | 20MHz | - | 6dB max. | 5dB min. | 25dB min. | - | 25dB min. | - | - | 30dB min. | 30dB min. |
| **NFW31SP506X1E4□** | 50MHz | - | - | 6dB max. | 10dB min. | - | 30dB min. | - | - | 30dB min. | 30dB min. |
| **NFW31SP107X1E4□** | 100MHz | - | - | - | 6dB max. | - | 5dB min. | - | - | 20dB min. | 30dB min. |
| **NFW31SP157X1E4□** | 150MHz | - | - | - | - | 6dB max. | - | 10dB min. | 20dB min. | 30dB min. | 30dB min. |
| **NFW31SP207X1E4□** | 200MHz | - | - | - | - | - | 6dB max. | - | - | 10dB min. | 30dB min. |
| **NFW31SP307X1E4□** | 300MHz | - | - | - | - | - | - | 6dB max. | - | 5dB min. | 15dB min. |
| **NFW31SP407X1E4□** | 400MHz | - | - | - | - | - | - | - | 6dB max. | - | 10dB min. |
| **NFW31SP507X1E4□** | 500MHz | - | - | - | - | - | - | - | - | 6dB max. | 10dB min. |

Rated Current: 200mA Rated Voltage: 25Vdc Operating Temperature Range: -40°C to 85°C Number of Circuit: 1

## Insertion Loss Characteristics



# Chip EMIFIL® (NFL/NFA/NFW/NFE) ⚠Caution/Notice

## ⚠Caution

### Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

## Notice

### Storage and Operating Conditions

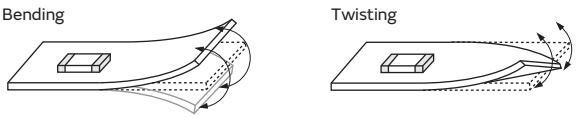
<Operating Environment>
Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
Do not use products in an environment close to an organic solvent.
<Storage and Handling Requirements>
1. Storage Period
Should be used within 12 months. Solderability should be checked if this period is exceeded.
2. Storage Conditions
(1) Storage temperature: -10 to +40˚C
Relative humidity: 15 to 85%
Avoid sudden changes in temperature and humidity.
(2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

### Notice (Soldering and Mounting)

1. Cleaning
Failure and degradation of a product can be caused by the cleaning method. When you clean in conditions that are not in the mounting information, please contact Murata engineering.
2. Soldering
Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in the mounting information.
3. Other
Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

### Handling

1. Resin Coating
Using resin for coating/molding products may affect the product's performance.
So please pay careful attention in selecting resin.
Prior to use, please make a reliability evaluation with the product mounted in your application set.
2. Caution for Use (NFW Series)
When you hold products with a tweezer, please hold by the sides. Sharp materials, such as a pair of tweezers or other material such as cleaning brush bristles, should not touch the winding portion of this product to prevent breaking the wire. To prevent breaking the core, mechanical shock should not be applied to the products mounted on the board.
3. Handling of Substrates
After mounting products on a substrate, do not apply any stress to the product by bending or twisting the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening a screw to the substrate.
Excessive mechanical stress may cause cracking in the product.



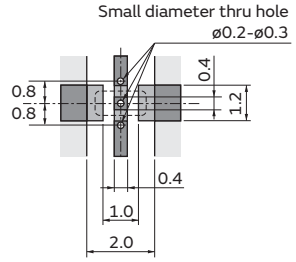
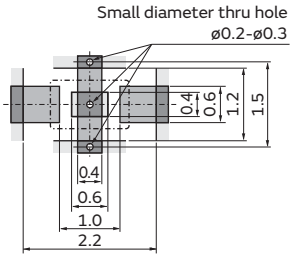
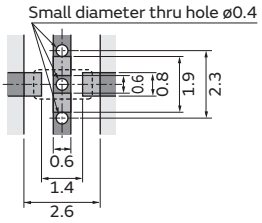
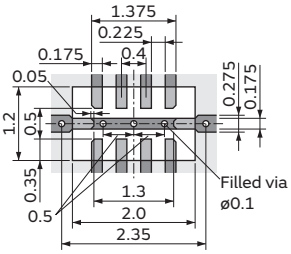
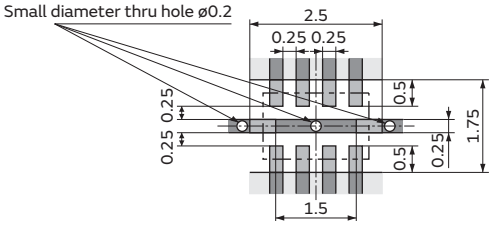
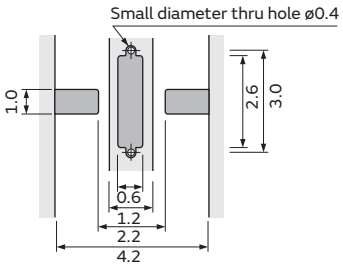
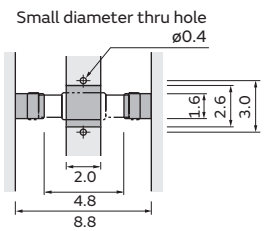
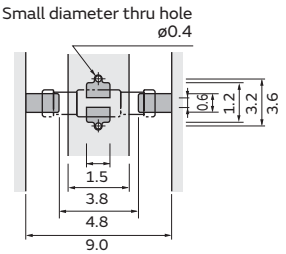
# Chip EMIFIL® (NFL/NFA/NFW/NFE) Soldering and Mounting

## 1. Standard Land Pattern Dimensions

NF□ series suppresses noise by conducting the high-frequency noise element to ground. Therefore, to obtain maximum performance from these filters, the ground pattern should be made as large as possible during the PCB design stage. As shown below, one side of the PCB is used for chip mounting, and the other is used for grounding.
Small diameter feed-through holes are then used to connect the grounds on each side of the PCB. This reduces the high-frequency impedance of the grounding and maximizes the filter's performance.

Land Pattern + Solder Resist
Land Pattern
Solder Resist

(in mm)

| Series | Standard Land Dimensions |
|---|---|
| **NFL18SP**<br>**NFL18ST**<br>**NFL21SP** | ● Reflow Soldering<br>NFL18SP<br>  <br>NFL18ST<br>  <br>NFL21SP<br>  |
| **NFA18SL**<br>**NFA18SD**<br>**NFA21SL** | ● Reflow Soldering<br>NFA18SL/NFA18SD<br>  <br>NFA21SL<br>  |
| **NFW31SP**<br>**NFE31PT** | ● Reflow and Flow NFW31SP<br>● Reflow Soldering NFE31PT<br>  |
| **NFE61PT** | ● Reflow Soldering<br>  <br>● Flow Soldering<br>  |

Continued on the following page.↗

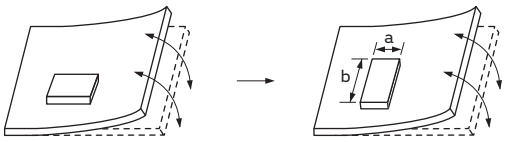
# Chip EMIFIL® (NFL/NFA/NFW/NFE) Soldering and Mounting

Continued from the preceding page.↘

● PCB Warping

PCB should be designed so that products are not subjected to mechanical stress caused by warping the board.

Products should be located in a sideways direction (Length: a<b) to the mechanical stress.



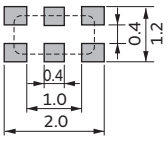
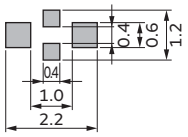
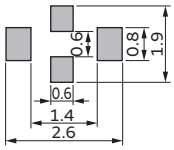
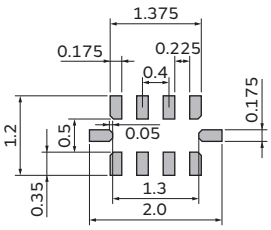
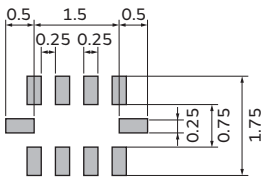

Poor example　　Good example

## 2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip EMI suppression filter, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the EMI suppression filter, apply the adhesive in accordance with the following conditions.
If too much adhesive is applied, it may overflow into the land or termination areas and yield poor solderability.
In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during the flow soldering process.

(in mm)

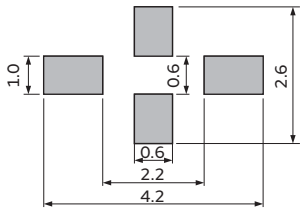
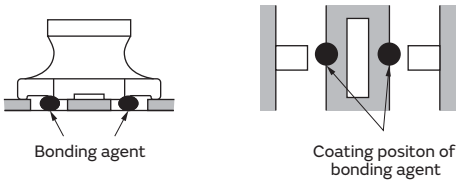
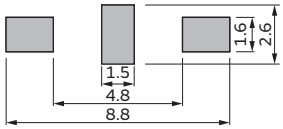
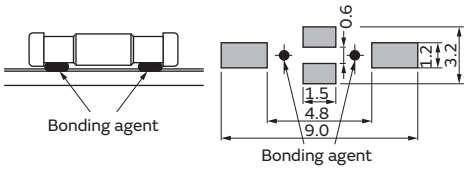
| Series | Solder Paste Printing | Adhesive Application |
|---|---|---|
| **NFL18SP**<br>**NFL18ST**<br>**NFL21SP**<br>**NFA18SL**<br>**NFA18SD**<br>**NFA21SL** | ●Guideline of solder paste thickness:<br>100-150μm: NFL, NFA18SL/18SD/21SL<br>NFL18SP<br>  <br>NFL18ST<br>  <br>NFL21SP<br>  <br>NFA18SL/18SD<br>  <br>NFA21SL<br>  | |

Continued on the following page.↗

# Chip EMIFIL® (NFL/NFA/NFW/NFE) Soldering and Mounting

Continued from the preceding page.↘

(in mm)

| Series | Solder Paste Printing | Adhesive Application |
|---|---|---|
| **NFW31SP**<br>**NFE31PT** | ●Guideline of solder paste thickness:<br>150-200μm<br>  | **NFW31SP Series**<br>Apply 0.2mg of bonding agent at each chip.<br>  |
| **NFE61PT** | ●Guideline of solder paste thickness:<br>150-200μm<br>  | Apply 1.0mg of bonding agent at each chip.<br>  |

### 3. Standard Soldering Conditions

(1) Soldering Methods

Use flow and reflow soldering methods only.
Use standard soldering conditions when soldering chip EMI suppression filters.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.

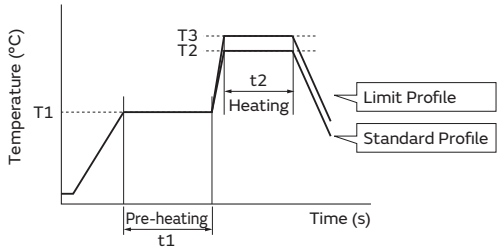
Flux:

- Use rosin-based flux.
  In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

(2) Soldering Profile

●Flow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



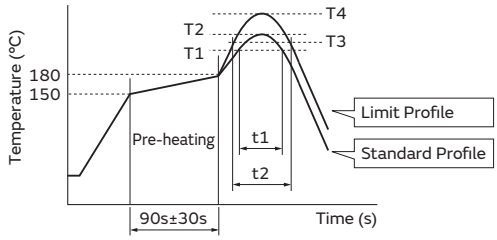

| Series | Pre-heating | | Standard Profile | | | Limit Profile | | |
|---|---|---|---|---|---|---|---|---|
| | | | Heating | | Cycle of Flow | Heating | | Cycle of Flow |
| | Temp. (T1) | Time (t1) | Temp. (T2) | Time (t2) | | Temp. (T3) | Time (t2) | |
| **NFE61PT** | 150°C | 60s min. | 250°C | 4 to 6s | 2 times max. | 265±3°C | 5s max. | 2 times max. |
| **NFW31SP** | 150°C | 60s min. | 250°C | 4 to 6s | 2 times max. | 265±3°C | 5s max. | 1 times max. |

Continued on the following page.↗

# Chip EMIFIL® (NFL/NFA/NFW/NFE) Soldering and Mounting

Continued from the preceding page.↘

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)




| Series | Standard Profile | | | | Limit Profile | | | |
|---|---|---|---|---|---|---|---|---|
| | Heating | | Peak Temperature (T2) | Cycle of Reflow | Heating | | Peak Temperature (T4) | Cycle of Reflow |
| | Temp. (T1) | Time (t1) | | | Temp. (T3) | Time (t2) | | |
| **NFA18S/21S NFE, NFL** | 220°C min. | 30 to 60s | 245±3°C | 2 times max. | 230°C min. | 60s max. | 260°C/10s | 2 times max. |
| **NFW31SP** | 220°C min. | 30 to 60s | 245±3°C | 2 times max. | 230°C min. | 60s max. | 260°C/10s | 1 times max. |

(3) Reworking with a soldering Iron
The following conditions must be strictly followed when using a soldering iron.
Pre-heating: 150°C 60s min.
Soldering iron power output / Tip diameter:
30W max. / ø3mm max.
Temperature of soldering iron tip / Soldering time / Times:
350°C max. / 3-4s / 2 times*1
*1 NFE31PT152Z1E9: 280°C max. / 10s max. / 2 times

Do not allow the tip of the soldering iron to directly contact the chip.
For additional methods of reworking with a soldering iron, please contact Murata engineering.

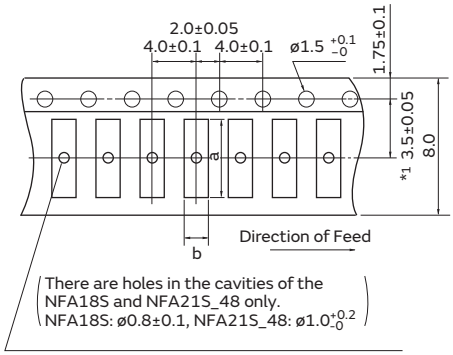
### 4. Cleaning

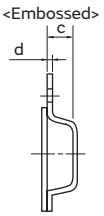
The following conditions should be observed when cleaning chip EMI filters.
(1) Cleaning temperature: 60°C max. (40°C max. for alcohol type cleaner)
(2) Ultrasonic
Output: 20W/liter max.
Duration: 5 minutes max.
Frequency: 28 to 40kHz
(3) Cleaning Agent
The following cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.
(a) Alcohol cleaning agent
Isopropyl alcohol (IPA)
(b) Aqueous cleaning agent
Pine Alpha ST-100S
(4) Ensure that flux residue is completely removed.
The component should be thoroughly dried after the aqueous agent has been removed with deionized water.

# Chip EMIFIL® (NFL/NFA/NFW/NFE) Packaging

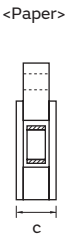
## Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape

(Common to Paper Tape / Embossed Tape)




c: Depth of Cavity
(Embossed Tape)



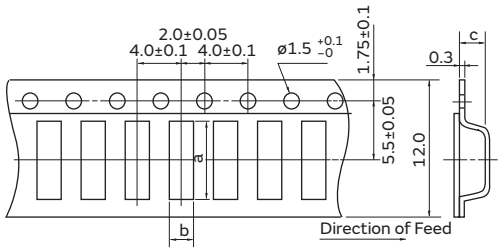

c: Total Thickness of Tape
(Paper Tape)

Dimension of the cavity of embossed tape is measured at the bottom side.

| Part Number | Dimensions | | | | Minimum Qty. (pcs.) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | ø180mm Reel | | ø330mm Reel | | Bulk |
| | a | b | c | d | Paper Tape | Embossed Tape | Paper Tape | Embossed Tape | |
| **NFL18SP/NFL18ST_H** | 1.85 | 1.05 | 0.9 max. | - | 4000 | - | - | - | 1000 |
| **NFL18ST_X** | | | 1.1 max. | | | | | | |
| **NFL21SP** | 2.3 | 1.55 | 1.1 max. | | | | | | |
| **NFA18SL/18SD** | 1.8 | 1.0 | 0.7 | 0.25 | - | 4000 | - | - | 1000 |
| **NFA21SL_45** | 2.30 | 1.55 | 0.7 | 0.25 | - | 4000 | - | - | 1000 |
| **NFA21SL_48** | 2.25 | 1.45 | 1.05 | 0.25 | - | 4000 | - | - | 1000 |
| **NFE31PT** | 3.6 | 1.8 | 1.85 | 0.2 | - | 2000 | - | 8000 | 500 |
| **NFW31SP** | 3.6 | 1.9 | 2.0 | 0.2 | - | 2000 | - | 7500 | - |

(in mm)

## Minimum Quantity and Dimensions of 12mm Width Embossed Tape




c: Depth of Cavity

Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **NFE61PT** | 7.2 | 1.9 | 1.75 | 2500 | 8000 | 500 |

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity."

## Common Mode Choke Coil · Common Mode Noise Filter DLM/DLP/DLW/NFP/PLT Series

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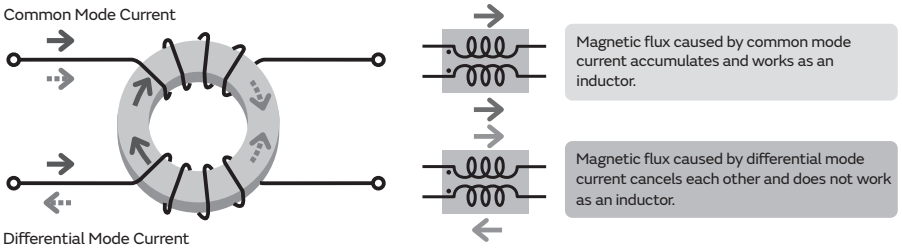
Product Detail ····· p202
⚠Caution/Notice ····· p240
Soldering and Mounting ····· p243
Packaging ····· p250

# Common Mode Choke Coil/Common Mode Noise Filter (DL□/NFP/PLT) Series Introduction




| Category | Features, Classification | Structure | Part Number | Comments |
|---|---|---|---|---|
| For signal lines | Ultra-high cut-off frequency for high-speed differential signal lines | Multilayer type | **DLM0QSB_HY2**<br>**DLM0NSB_HY2** | · High common impedance for outstanding noise control effectiveness. |
| | | Film type | **NFP0QHB_HS2**<br>**NFP0QSB_HL2**<br>**DLP0QSA**<br>**DLP0NSA**<br>**DLP11SA**<br>**DLP11RB**<br>**DLP11TB**<br>**DLP2ADA** | · Low profile, small size, suitable for mobile equipment.<br>· Tight terminal pitch enables high-density layout.<br>· Very high cut-off frequency and its matching to characteristic impedance enable good transmission of high-speed signals.<br>· DLP2ADA is an array-type product incorporating two circuits. |
| | | Winding type | **DLW21SN_HQ2**<br>**DLW21HN_HQ2**<br>**DLW21SN_XK2**<br>**DLW21SN_XQ2** | · Very high self-resonance frequency enables high cut-off frequency.<br>· Its matching to characteristic impedance enables good transmission of high-speed signals.<br>· DLW21HN_HQ2 is designed to be low profile. |
| | High cut-off frequency for high-speed differential signal lines | Multilayer type | **DLM11SN_HY2**<br>**DLM0QSN**<br>**DLM0NSN** | · Enables noise suppression for differential signal lines without distortion in high-speed signal transmission.<br>· High cut-off frequency and its matching to characteristic impedance enable good transmission of high-speed signals. |
| | | Film type | **DLP0NSC**<br>**DLP0NSN** | · Low profile, small size, suitable for mobile equipment.<br>· Tight terminal pitch enables high-density layout.<br>· High cut-off frequency and its matching to characteristic impedance enable good transmission of high-speed signals. |
| | | | **DLP11SN**<br>**DLP11RN** | · Low profile, small size, suitable for mobile equipment.<br>· High cut-off frequency enables good transmission of high-speed signals.<br>· DLP11RN has low DC resistance to reduce attenuation of the signal. |
| | | | **DLP1NDN**<br>**DLP2ADN** | · Array-type product incorporating two circuits.<br>· Very high cut-off frequency and its matching to characteristic impedance enable good transmission of high-speed signals. |
| | | Winding type | **DLW21SN_SQ2**<br>**DLW21HN_SQ2**<br>**DLW21SN_SK2**<br>**DLW31SN** | · High impedance in the high frequency band for more effective noise suppression.<br>· High self-resonance frequency enables high cut-off frequency.<br>· DLW21HN_SQ2 is designed to be low profile. |
| | | | **DLW21SR** | · Matches the characteristic impedance to enable good transmission of high-speed signals.<br>· Particularly suitable for the receiving side of the HDMI interface. |
| | For general differential signal lines | Film type | **DLP31SN**<br>**DLP31DN** | · High common impedance for outstanding noise control effectiveness.<br>· DLP31D is an array-type product incorporating two circuits. |
| For power lines | | Winding type | **DLW44SM** | · Supports large currents (3.1 A max.) and is designed to be low profile. |
| | | | **DLW5AHN**<br>**DLW5BSM**<br>**DLW5ATN**<br>**DLW5BTM** | · Supports large currents (6 A max.), suitable for input connector from an AC adaptor.<br>· DLW5AT/DLW5BT is designed to be low profile. |
| For audio lines | | Multilayer type | **DLM11GN** | · Modified differential mode impedance is higher than other common mode choke coils; this feature makes it possible to suppress both common mode and differential mode noise.<br>· Ideal to maintain low distortion audio signals. |
| For power lines | Large current automotive available | Winding type | **PLT5BPH** | · Highly reliable and supports large currents (up to 5.6 A).<br>· Suitable for power lines for ADAS, IVI, and similar systems. |
| | | Winding type cased structure | **PLT10HH** | · Highly reliable and supports large currents (up to 18 A).<br>· Suitable for power lines for DC-DC converters and other electrical components in motors, HEVs, and Evs. |

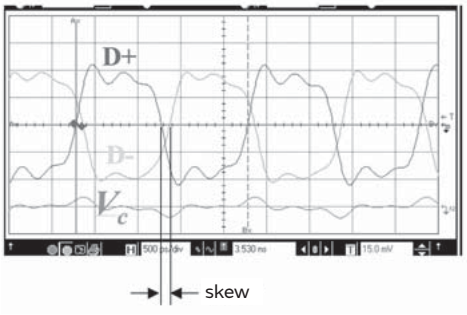
# Common Mode Choke Coil/Common Mode Noise Filter (DLP/DLW Series) Noise Suppression Example

## Skew Improvement Effect of Common Mode Choke Coil

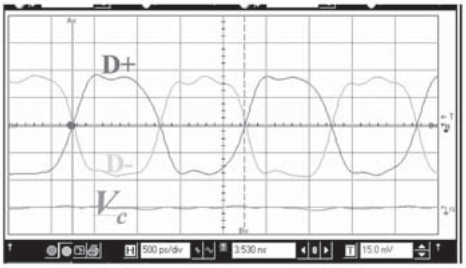
Example of Skew Improvement by Common Mode Choke Coil
(Tested using pulse generator waveform)

Waveform is equivalent to 1000Mbps signal

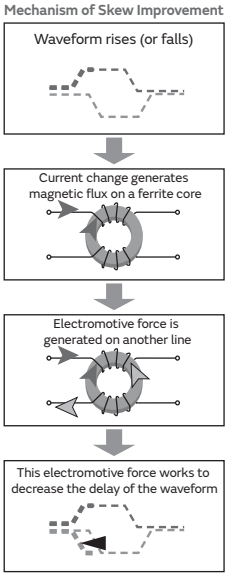
Waveform with intentionally made skew (skew: 100ps)




Skew is improved by common mode choke coil

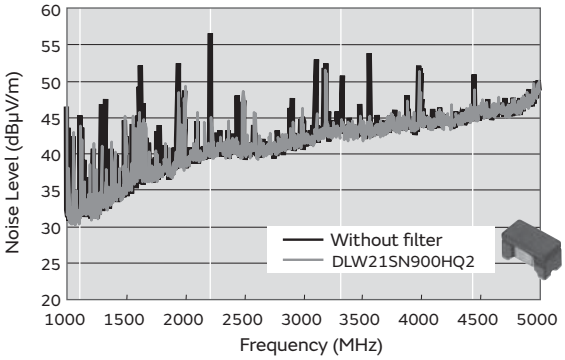


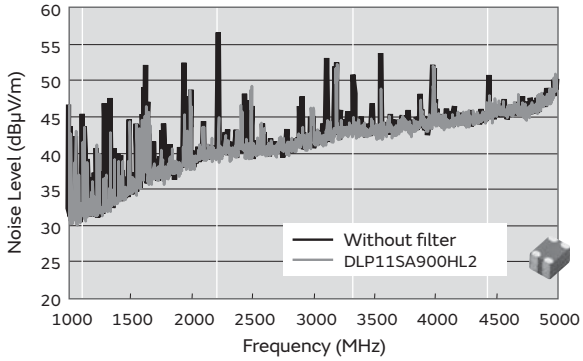

Mechanism of Skew Improvement




## Noise Suppression of Common Mode Choke Coil in HDMI Line

Device under test / Transmitter: game machine
/ Receiver: projector
/ Cable: HDMI category 2 3m cable
Test resolution / 1080p Deep color 12bit (Data 1.11GHz) DVD play mode

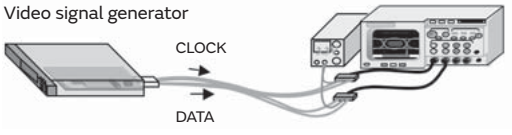


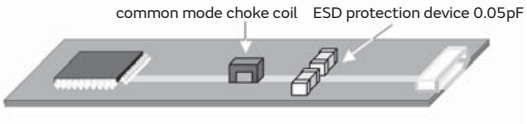




## Test Example of HDMI 1.3 Waveform Transmission

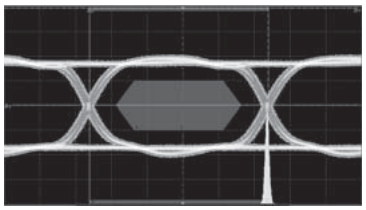
~Using ESD protection device
LXES15AAA1-100 (0.05pF)~

Signal frequency: 1.11GHz (Deep color 12bit)

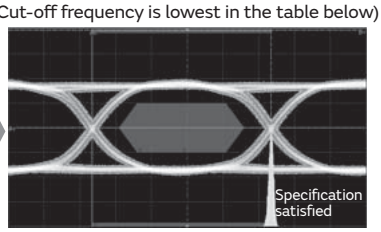



ESD protection device only



Film Type DLP11SN900HL2
(Cut-off frequency is lowest in the table below)




| | Wound Type DLW21SN900HQ2 | Film Type DLP11SA900HL2 | Film Type Array DLP2ADN900HL4 |
|---|---|---|---|
| Cut-off Frequency | Over 10GHz | Around 6GHz | Around 4GHz |
| Judgment | Specification satisfied | Specification satisfied | Specification satisfied |
| Transition Time | Rise time: 83.4ps<br>Fall time: 77.4ps | Rise time: 90.4ps<br>Fall time: 85.5ps | Rise time: 100ps<br>Fall time: 97.4ps |

Each common mode choke coil can keep the waveform and satisfy the specification.

## Part Numbering

### Chip Common Mode Choke Coil

(Part Number) DL P 0N S N 900 H L 2 L
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶Product ID

| Product ID | |
|---|---|
| DL | Chip Common Mode Choke Coils |

❷Structure

| Code | Structure |
|---|---|
| M | Multilayer Type |
| P | Film Type |

❸Dimensions (LxW)

| Code | Dimensions (LxW) | Size Code (inch) |
|---|---|---|
| 0Q | 0.65x0.5mm | 025020 |
| 0N | 0.85x0.65mm | 03025 |
| 11 | 1.25x1.0mm | 0504 |
| 1N | 1.5x0.65mm | 05025 |
| 2A | 2.0x1.0mm | 0804 |
| 31 | 3.2x1.6mm | 1206 |

❹Features (1)

| Code | Type |
|---|---|
| S | Magnetically Shielded One Circuit Type |
| D | Magnetically Shielded Two Circuit Type |
| G | Magnetically Shielded Audio Type |
| R/T | One Circuit Low Profile Type |

❺Category

| Code | Category |
|---|---|
| A | For General |
| B | |
| C | |
| N | |

❻Impedance
Typical impedance at 100MHz is expressed by three figures. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

❼Circuit

| Code | Circuit |
|---|---|
| S | Expressed by a letter. |
| M | |
| H | |
| U | |

❽Features (2)

| Code | Features |
|---|---|
| D | Expressed by a letter. |
| L | |
| Y | |

❾Number of Signal Lines

| Code | Number of Signal Lines |
|---|---|
| 2 | Two Lines |
| 4 | Four Lines |

❿Packaging

| Code | Packaging |
|---|---|
| L | Embossed Taping (ø180mm Reel) |
| D | Paper Taping (ø180mm Reel) |
| B | Bulk |

## Chip Common Mode Choke Coil

(Part Number) DL W 21 S N 371 S Q 2 L
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶Product ID

| Product ID | |
|---|---|
| DL | Chip Common Mode Choke Coils |

❷Structure

| Code | Structure |
|---|---|
| W | Wire Wound Type |

❸Dimensions (LxW)

| Code | Dimensions (LxW) | Size Code (inch) |
|---|---|---|
| 21 | 2.0x1.2mm | 0805 |
| 31 | 3.2x1.6mm | 1206 |
| 44 | 4.0x4.0mm | 1515 |
| 5A | 5.0x3.6mm | 2014 |
| 5B | 5.0x5.0mm | 2020 |

❹Features (1)

| Code | Type |
|---|---|
| S | Magnetically Shielded One Circuit Type |
| H | Open Magnetic One Circuit Type |
| T | One Circuit Low Profile Type |

❺Category

| Code | Category |
|---|---|
| M | For General-Purpose |
| N | |
| R | |

❻Impedance
Typical impedance at 100MHz is expressed by three figures. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.
Typical impedance at peak frequency should be applied for the product whose impedance peak frequency is less than 100MHz. (**DLW44SM**)

❻Inductance (**DLW43SH**)
Expressed by three figures. The unit is micro-henry (μH). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

❼Circuit

| Code | Circuit |
|---|---|
| S | Expressed by a letter. |
| M | |
| H | |
| T | |
| X | |

❽Features (2)

| Code | Features |
|---|---|
| K | Expressed by a letter. |
| Q | |

❾Number of Signal Lines

| Code | Number of Signal Lines |
|---|---|
| 2 | Two Lines |

❿Packaging

| Code | Packaging |
|---|---|
| K | Embossed Taping (ø330mm Reel) |
| L | Embossed Taping (ø180mm Reel) |
| B | Bulk |

## Common Mode Noise Filter

(Part Number)

| NF | P | 0R | S | N | 112 | H | L | 2 | D |
|---|---|---|---|---|---|---|---|---|---|
| ❶ | ❷ | ❸ | ❹ | ❺ | ❻ | ❼ | ❽ | ❾ | ❿ |

❶Product ID

| Product ID | |
|---|---|
| NF | Chip EMIFIL® |

❷Structure

| Code | Structure |
|---|---|
| P | Film Type Common Mode Noise Filter |

❸Dimensions (LxW)

| Code | Dimensions (LxW) | Size Code (inch) |
|---|---|---|
| 0Q | 0.65x0.5mm | 025020 |

❹Features (1)

| Code | Type |
|---|---|
| S | Standard 1 Circuit |
| H | High Insertion Loss 1 Circuit |

❺Category

| Code | Category |
|---|---|
| B | High Cut-Off Frequency |

❻SRF

Typical SRF of common mode noise supression effect is expressed by three figures. The unit is in MHz. The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

❼Circuit

| Code | Circuit |
|---|---|
| H | Expressed by a letter |

❽Features (2)

| Code | Features |
|---|---|
| L | Expressed by a letter |
| S | |

❾Number of Signal Lines

| Code | Number of Signal Lines |
|---|---|
| 2 | Two Lines |

❿Packaging

| Code | Packaging |
|---|---|
| D | Paper Taping (ø180mm Reel) |
| B | Bulk |

## Common Mode Choke Coil

(Part Number) PL T 10H H 102 6R0 P N B
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶Product ID

| Product ID | |
|---|---|
| PL | Common Mode Choke Coils |

❷Type

| Code | Type |
|---|---|
| T | DC Type |

❸Applications

| Code | Applications |
|---|---|
| 10H | For DC Line High-frequency Type |
| 5BP | 5.0x5.0mm Size, for DC Lines |

❹Features (1)

| Code | Features | |
|---|---|---|
| H | For Automotive | Powertrain, Safety |

❺Impedance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

❻Rated Current

Expressed by three figures. The unit is ampere (A). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.
A decimal point is expressed by the capital letter "R." In this case, all figures are significant digits.

❼Features (2)

| Code | Features |
|---|---|
| P | Expressed by a letter. |
| S | |

❽Lead Dimensions

| Code | Lead Dimensions |
|---|---|
| N | No Lead Terminal (SMD) |

❾Packaging

| Code | Packaging |
|---|---|
| B | Bulk |
| L | Embossed Taping (ø178mm/ø180mm Reel) |
| K | Embossed Taping (ø330mm Reel) |

# Series Lineup

## DLM/DLP/DLW/NFP

Common Mode Choke Coil/Common Mode Noise Filter

| Type | Size Code in inches (mm) | Thickness (mm) | Part Number | Common Mode Impedance (at 100MHz) | Rated Current |
|---|---|---|---|---|---|
| Multilayer Type Limited for differential signal interface line | 025020 (0605) | 0.3 | **DLM0QSB120HY2** p202 | 12Ω±5Ω | 150mA |
| | | 0.3 | **DLM0QSB350HY2** p202 | 35Ω±30% | 120mA |
| | | 0.3 | **DLM0QSN500HY2** p202 | 50Ω±35% | 100mA |
| | | 0.3 | **DLM0QSN650HY2** p202 | 65Ω±35% | 100mA |
| | | 0.3 | **DLM0QSN900HY2** p202 | 90Ω±25% | 50mA |
| | 03025 (0806) | 0.45 | **DLM0NSB120HY2** p203 | 12Ω±5Ω | 160mA |
| | | 0.45 | **DLM0NSB280HY2** p203 | 28Ω±30% | 130mA |
| | | 0.45 | **DLM0NSN500HY2** p203 | 50Ω±25% | 100mA |
| | | 0.45 | **DLM0NSN900HY2** p203 | 90Ω±25% | 100mA |
| Multilayer Type for Audio Lines | 0504 (1210) | 0.5 | **DLM11GN601SD2** p205 | 600Ω±25% | 100mA |
| Multilayer Type for Differential Signal Lines | | 0.5 | **DLM11SN450HY2** p206 | 45Ω±25% | 100mA |
| | | 0.5 | **DLM11SN900HY2** p206 | 90Ω±25% | 100mA |
| Film Type for Differential Signal Lines | 025020 (0605) | 0.3 | **DLP0QSA070HL2** p207 | 7Ω±2Ω | 100mA |
| | | 0.3 | **DLP0QSA150HL2** p207 | 15Ω±5Ω | 100mA |
| | | 0.3 | **DLP0QSA350HL2** p207 | 35Ω±10Ω | 100mA |
| | 03025 (0806) | 0.45 | **DLP0NSN350HL2** p208 | 35Ω±10Ω | 100mA |
| | | 0.45 | **DLP0NSN670HL2** p208 | 67Ω±20% | 110mA |
| | | 0.45 | **DLP0NSN900HL2** p208 | 90Ω±20% | 100mA |
| | | 0.45 | **DLP0NSN121HL2** p208 | 120Ω±20% | 90mA |
| | | 0.45 | **DLP0NSA070HL2** p208 | 7Ω±2Ω | 100mA |
| | | 0.45 | **DLP0NSA150HL2** p208 | 15Ω±5Ω | 100mA |
| | | 0.45 | **DLP0NSC280HL2** p208 | 28Ω±20% | 100mA |
| | | 0.45 | **DLP0NSC900HL2** p208 | 90Ω±35% | 75mA |
| | 0504 (1210) | 0.5 | **DLP11RB150UL2** p210 | 15Ω±5Ω | 100mA |
| | | 0.5 | **DLP11RB400UL2** p210 | 40Ω±10Ω | 100mA |
| | | 0.5 | **DLP11RN450UL2** p210 | 45Ω±25% | 100mA |
| | | 0.82 | **DLP11SN900HL2** p212 | 90Ω±20% | 150mA |
| | | 0.82 | **DLP11SN201HL2** p212 | 200Ω±20% | 110mA |
| | | 0.82 | **DLP11SN241HL2** p212 | 240Ω±20% | 100mA |
| | | 0.82 | **DLP11SN281HL2** p212 | 280Ω±20% | 90mA |
| | | 0.82 | **DLP11SN331HL2** p212 | 330Ω±20% | 80mA |
| | | 0.82 | **DLP11SN670SL2** p212 | 67Ω±20% | 180mA |
| | | 0.82 | **DLP11SN121SL2** p212 | 120Ω±20% | 140mA |
| | | 0.82 | **DLP11SN161SL2** p212 | 160Ω±20% | 120mA |
| | | 0.82 | **DLP11SA350HL2** p212 | 35Ω±20% | 170mA |
| | | 0.82 | **DLP11SA670HL2** p212 | 67Ω±20% | 150mA |
| | | 0.82 | **DLP11SA900HL2** p212 | 90Ω±20% | 150mA |
| | | 0.3 | **DLP11TB800UL2** p214 | 80Ω±25% | 100mA |
| | 1206 (3216) | 1.15 | **DLP31SN121ML2** p215 | 120Ω±20% | 100mA |
| | | 1.15 | **DLP31SN221ML2** p215 | 220Ω±20% | 100mA |
| | | 1.15 | **DLP31SN551ML2** p215 | 550Ω±20% | 100mA |
| Film Array Type for Differential Signal Lines | 05025 (1506) | 0.45 | **DLP1NDN350HL4** p216 | 35Ω±20% | 100mA |
| | | 0.45 | **DLP1NDN670HL4** p216 | 67Ω±20% | 80mA |
| | | 0.45 | **DLP1NDN900HL4** p216 | 90Ω±20% | 60mA |
| | 0804 (2010) | 0.82 | **DLP2ADN670HL4** p217 | 67Ω±20% | 140mA |
| | | 0.82 | **DLP2ADN900HL4** p217 | 90Ω±20% | 130mA |
| | | 0.82 | **DLP2ADN121HL4** p217 | 120Ω±20% | 120mA |
| | | 0.82 | **DLP2ADN161HL4** p217 | 160Ω±20% | 100mA |
| | | 0.82 | **DLP2ADN201HL4** p217 | 200Ω±20% | 90mA |
| | | 0.82 | **DLP2ADN241HL4** p217 | 240Ω±20% | 80mA |
| | | 0.82 | **DLP2ADN281HL4** p217 | 280Ω±20% | 80mA |

Continued on the following page. ↗

| Type | Size Code in inches (mm) | Thickness (mm) | Part Number | Common Mode Impedance (at 100MHz) | Rated Current |
|---|---|---|---|---|---|
| Film Array Type for Differential Signal Lines | 0804 (2010) | 0.82 | **DLP2ADA350HL4** p217 | 35Ω±20% | 150mA |
| | | 0.82 | **DLP2ADA670HL4** p217 | 67Ω±20% | 130mA |
| | | 0.82 | **DLP2ADA900HL4** p217 | 90Ω±20% | 120mA |
| | 1206 (3216) | 1.15 | **DLP31DN900ML4** p219 | 90Ω±20% | 160mA |
| | | 1.15 | **DLP31DN131ML4** p219 | 130Ω±20% | 120mA |
| | | 1.15 | **DLP31DN201ML4** p219 | 200Ω±20% | 100mA |
| | | 1.15 | **DLP31DN321ML4** p219 | 320Ω±20% | 80mA |
| | | 1.15 | **DLP31DN441ML4** p219 | 440Ω±20% | 70mA |
| Wire Wound Type for Differential Signal Lines | 0805 (2012) | 0.9 | **DLW21HN670SQ2** p220 | 67Ω±25% | 330mA |
| | | 0.9 | **DLW21HN900SQ2** p220 | 90Ω±25% | 330mA |
| | | 0.9 | **DLW21HN121SQ2** p220 | 120Ω±25% | 280mA |
| | | 0.9 | **DLW21HN181SQ2** p220 | 180Ω±25% | 250mA |
| | | 0.9 | **DLW21HN670HQ2** p220 | 67Ω±25% | 240mA |
| | | 0.9 | **DLW21HN900HQ2** p220 | 90Ω±25% | 220mA |
| | | 0.9 | **DLW21HN121HQ2** p220 | 120Ω±25% | 200mA |
| | | 1.2 | **DLW21SN670SQ2** p222 | 67Ω±25% | 400mA |
| | | 1.2 | **DLW21SN900SQ2** p222 | 90Ω±25% | 330mA |
| | | 1.2 | **DLW21SN121SQ2** p222 | 120Ω±25% | 370mA |
| | | 1.2 | **DLW21SN181SQ2** p222 | 180Ω±25% | 330mA |
| | | 1.2 | **DLW21SN261SQ2** p222 | 260Ω±25% | 300mA |
| | | 1.2 | **DLW21SN371SQ2** p222 | 370Ω±25% | 280mA |
| | | 1.2 | **DLW21SN501SK2** p222 | 500Ω±25% | 250mA |
| | | 1.2 | **DLW21SN921SK2** p222 | 920Ω±25% | 160mA |
| | | 1.2 | **DLW21SN670HQ2** p222 | 67Ω±25% | 320mA |
| | | 1.2 | **DLW21SN900HQ2** p222 | 90Ω±25% | 280mA |
| | | 1.2 | **DLW21SN121HQ2** p222 | 120Ω±25% | 280mA |
| | | 1.2 | **DLW21SN211XK2** p222 | 210Ω±25% | 360mA |
| | | 1.2 | **DLW21SN181XQ2** p222 | 180Ω±25% | 240mA |
| | | 1.2 | **DLW21SN261XQ2** p222 | 260Ω±25% | 220mA |
| | | 1.2 | **DLW21SN491XQ2** p222 | 490Ω±25% | 190mA |
| | | 1.2 | **DLW21SR670HQ2** p222 | 67Ω±25% | 400mA |
| | 1206 (3216) | 1.9 | **DLW31SN900SQ2** p225 | 90Ω±25% | 370mA |
| | | 1.9 | **DLW31SN161SQ2** p225 | 160Ω±25% | 340mA |
| | | 1.9 | **DLW31SN261SQ2** p225 | 260Ω±25% | 310mA |
| | | 1.9 | **DLW31SN601SQ2** p225 | 600Ω±25% | 260mA |
| | | 1.9 | **DLW31SN102SQ2** p225 | 1000Ω±25% | 230mA |
| | | 1.9 | **DLW31SN222SQ2** p225 | 2200Ω±25% | 200mA |
| Film Type for Differential Signal Lines | 025020 (0605) | 0.3 | **NFP0QHB242HS2** p226 | - | 100mA |
| | | 0.3 | **NFP0QHB372HS2** p226 | - | 100mA |
| | | 0.3 | **NFP0QHB542HS2** p226 | - | 100mA |
| | | 0.3 | **NFP0QSB132HL2** p226 | 90Ω (Typ.) | 100mA |
| Wire Wound Type for Power Lines | 1515 (4040) | 1.4 | **DLW44SM101SK2** p228 | 100Ω (Typ.) | 3.1A |
| | | 1.4 | **DLW44SM251SK2** p228 | 250Ω (Typ.) | 2.6A |
| | | 1.4 | **DLW44SM401SK2** p228 | 400Ω (Typ.) | 2.1A |
| | | 1.4 | **DLW44SM851SK2** p228 | 850Ω (Typ.) | 1.9A |
| | | 1.4 | **DLW44SM172SK2** p228 | 1700Ω (Typ.) | 1.5A |
| | | 1.4 | **DLW44SM302SK2** p228 | 2200Ω (Typ.) | 1.1A |
| | | 1.4 | **DLW44SM242SK2** p228 | 2400Ω (Typ.) | 1.4A |
| Wire Wound Type for Power Lines and Signal Lines | 2014 (5036) | 4.3 | **DLW5AHN402SQ2** p229 | 4000Ω (Typ.) | 200mA |
| | 2020 (5050) | 4.5 | **DLW5BSM191SQ2** p229 | 190Ω (Typ.) | 5A |
| | | 4.5 | **DLW5BSM351SQ2** p229 | 350Ω (Typ.) | 2A |

Continued on the following page. ↗

| Type | Size Code in inches (mm) | Thickness (mm) | Part Number | Common Mode Impedance (at 100MHz) | Rated Current |
|---|---|---|---|---|---|
| Wire Wound Type for Power Lines and Signal Lines | 2020 (5050) | 4.5 | **DLW5BSM102SQ2** p229 | 1000Ω (Typ.) | 1.5A |
| | | 4.5 | **DLW5BSM152SQ2** p229 | 1500Ω (Typ.) | 1A |
| | | 4.5 | **DLW5BSM302SQ2** p229 | 3000Ω (Typ.) | 500mA |
| | 2014 (5036) | 2.2 | **DLW5ATN111SQ2** p231 | 110Ω (Typ.) | 5A |
| | | 2.2 | **DLW5ATN401SQ2** p231 | 400Ω (Typ.) | 2A |
| | | 2.2 | **DLW5ATN501SQ2** p231 | 500Ω (Typ.) | 1.5A |
| | | 2.2 | **DLW5ATN851SQ2** p231 | 850Ω (Typ.) | 1.5A |
| | | 2.2 | **DLW5ATN272SQ2** p231 | 2700Ω (Typ.) | 1A |
| | | 2.2 | **DLW5ATN500MQ2** p233 | 50Ω (Typ.) | 6A |
| | | 2.2 | **DLW5ATN151MQ2** p233 | 150Ω (Typ.) | 5A |
| | | 2.2 | **DLW5ATN331MQ2** p233 | 330Ω (Typ.) | 4A |
| | | 2.2 | **DLW5ATN501MQ2** p233 | 500Ω (Typ.) | 2.5A |
| | | 2.2 | **DLW5ATN112MQ2** p233 | 1100Ω (Typ.) | 2A |
| | | 2.2 | **DLW5ATN111TQ2** p234 | 110Ω (Typ.) | 5A |
| | | 2.2 | **DLW5ATN231TQ2** p234 | 230Ω (Typ.) | 4A |
| | | 2.2 | **DLW5ATN401TQ2** p234 | 400Ω (Typ.) | 2.5A |
| | | 2.2 | **DLW5ATN501TQ2** p234 | 500Ω (Typ.) | 2A |
| | 2020 (5050) | 4.5 | **DLW5BSM501TQ2** p235 | 500Ω (Typ.) | 1A |
| | | 4.5 | **DLW5BSM601TQ2** p235 | 600Ω (Typ.) | 1.4A |
| | | 4.5 | **DLW5BSM801TQ2** p235 | 800Ω (Typ.) | 2A |
| | | 2.35 | **DLW5BTM101SQ2** p236 | 100Ω (Typ.) | 6A |
| | | 2.35 | **DLW5BTM251SQ2** p236 | 250Ω (Typ.) | 5A |
| | | 2.35 | **DLW5BTM501SQ2** p236 | 500Ω (Typ.) | 4A |
| | | 2.35 | **DLW5BTM102SQ2** p236 | 1000Ω (Typ.) | 2A |
| | | 2.35 | **DLW5BTM142SQ2** p236 | 1400Ω (Typ.) | 1.5A |
| | | 2.35 | **DLW5BTM101TQ2** p237 | 100Ω (Typ.) | 6A |
| | | 2.35 | **DLW5BTM251TQ2** p237 | 250Ω (Typ.) | 5A |
| | | 2.35 | **DLW5BTM501TQ2** p237 | 500Ω (Typ.) | 4A |
| | | 2.35 | **DLW5BTM102TQ2** p237 | 1000Ω (Typ.) | 2.5A |
| | | 2.35 | **DLW5BTM142TQ2** p237 | 1400Ω (Typ.) | 2A |

# PLT

Large Current Common Mode Choke Coil for Automotive Available

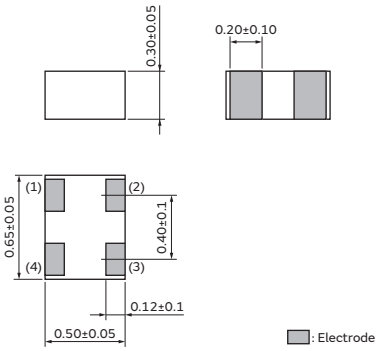
| Size Code in inches (mm) | Thickness (mm) | Part Number | Common Mode Impedance (at 10MHz) | Rated Current |
|---|---|---|---|---|
| 2020 (5050) | 5.0 | **PLT5BPH1015R6SN** p238 | 100Ω (Typ.) | 5.6A |
| | 5.0 | **PLT5BPH2014R4SN** p238 | 200Ω (Typ.) | 4.4A |
| | 5.0 | **PLT5BPH3013R7SN** p238 | 300Ω (Typ.) | 3.7A |
| | 5.0 | **PLT5BPH5013R1SN** p238 | 500Ω (Typ.) | 3.1A |
| (12.9×6.6) | 9.4 | **PLT10HH450180PN** p239 | 45Ω (Typ.) | 18A |
| | 9.4 | **PLT10HH101150PN** p239 | 100Ω (Typ.) | 15A |
| | 9.4 | **PLT10HH401100PN** p239 | 400Ω (Typ.) | 10A |
| | 9.4 | **PLT10HH501100PN** p239 | 500Ω (Typ.) | 10A |
| | 9.4 | **PLT10HH9016R0PN** p239 | 900Ω (Typ.) | 6A |
| | 9.4 | **PLT10HH1026R0PN** p239 | 1000Ω (Typ.) | 6A |

## Common mode choke coil/Common mode noise filter

# DLM0QS Series 025020/0605(inch/mm)

Use for differential signal interface line.

### Appearance/Dimensions

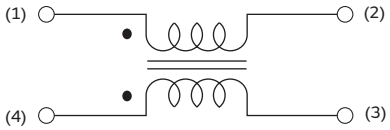



(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



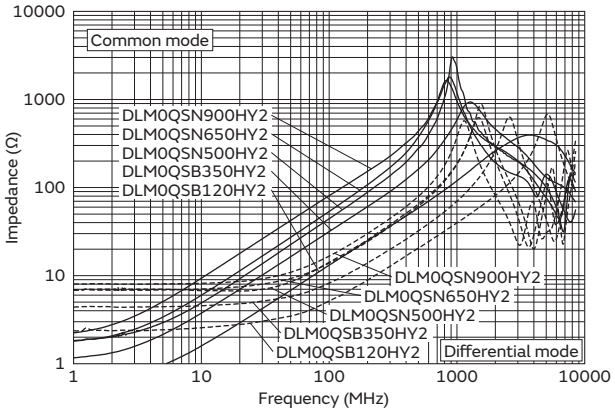

No Polarity.

### Rated Value (□: packaging code)

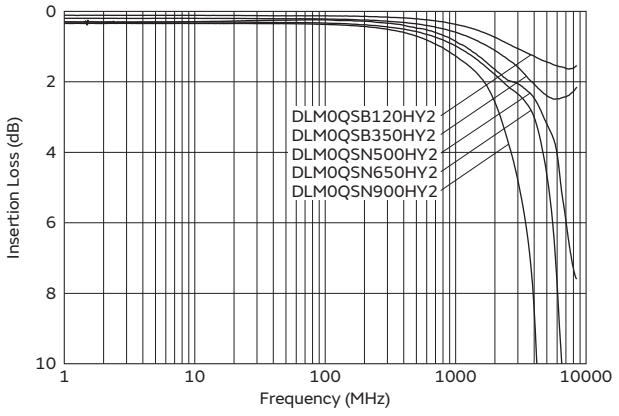
| Part Number | Common Mode Impedance at 100MHz | Cutoff Frequency | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|---|
| **DLM0QSB120HY2□** | 12Ω±5Ω | 8.0GHz (Typ.) | 150mA | 5Vdc | 10MΩ | 12.5Vdc | 1.6Ω±25% |
| **DLM0QSB350HY2□** | 35Ω±30% | 8.0GHz (Typ.) | 120mA | 5Vdc | 10MΩ | 12.5Vdc | 2.3Ω±25% |
| **DLM0QSN500HY2□** | 50Ω±35% | 4.0GHz (Typ.) | 100mA | 5Vdc | 10MΩ | 12.5Vdc | 3.6Ω±25% |
| **DLM0QSN650HY2□** | 65Ω±35% | 4.0GHz (Typ.) | 100mA | 5Vdc | 10MΩ | 12.5Vdc | 3.6Ω±25% |
| **DLM0QSN900HY2□** | 90Ω±25% | 2.0GHz (Typ.) | 50mA | 5Vdc | 10MΩ | 12.5Vdc | 4.0Ω±25% |

Operating Temp. Range: -40°C to 85°C

### Z-f Characteristics: DLM0QS_HY2 Series




### Differential mode transmission characteristics: DLM0QS_HY2series

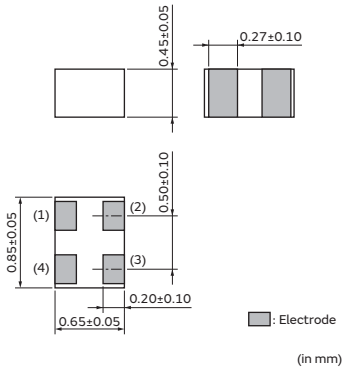


## Common mode choke coil/Common mode noise filter

# DLM0NS Series 03025/0806(inch/mm)

Use for differential signal interface line.

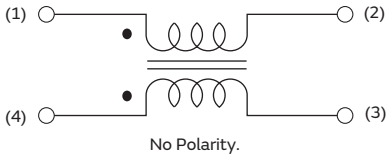
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



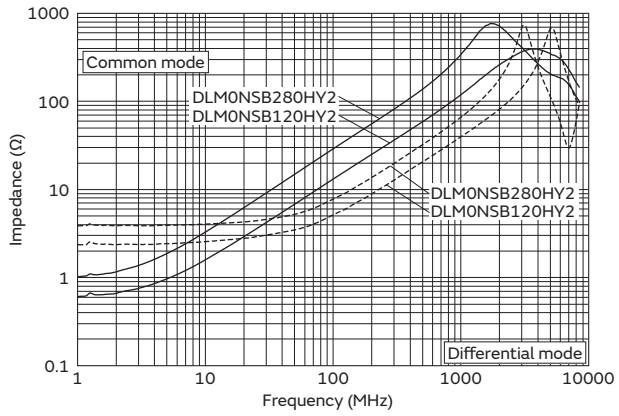

No Polarity.

### Rated Value (□: packaging code)

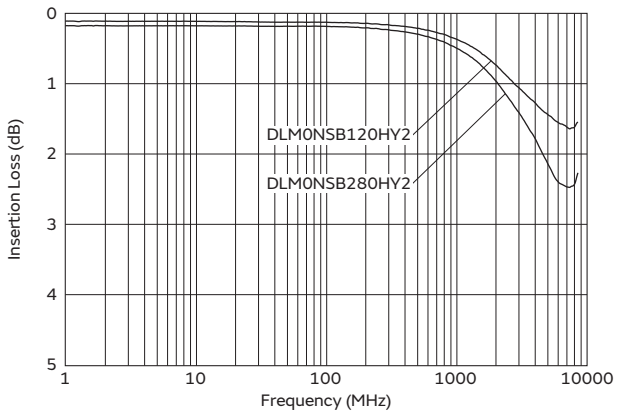
| Part Number | Common Mode Impedance at 100MHz | Cutoff Frequency | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|---|
| **DLM0NSB120HY2□** | 12Ω±5Ω | 8.0GHz (Typ.) | 160mA | 5Vdc | 10MΩ | 12.5Vdc | 1.2Ω±25% |
| **DLM0NSB280HY2□** | 28Ω±30% | 8.0GHz (Typ.) | 130mA | 5Vdc | 10MΩ | 12.5Vdc | 1.9Ω±25% |
| **DLM0NSN500HY2□** | 50Ω±25% | 5.0GHz (Typ.) | 100mA | 5Vdc | 10MΩ | 12.5Vdc | 2.7Ω±25% |
| **DLM0NSN900HY2□** | 90Ω±25% | 2.0GHz (Typ.) | 100mA | 5Vdc | 10MΩ | 12.5Vdc | 4.0Ω±25% |

Operating Temp. Range: -40°C to 85°C

### Z-f Characteristics: DLM0NSB_HY2 Series




### Differential mode transmission characteristics: DLM0NSB_HY2series

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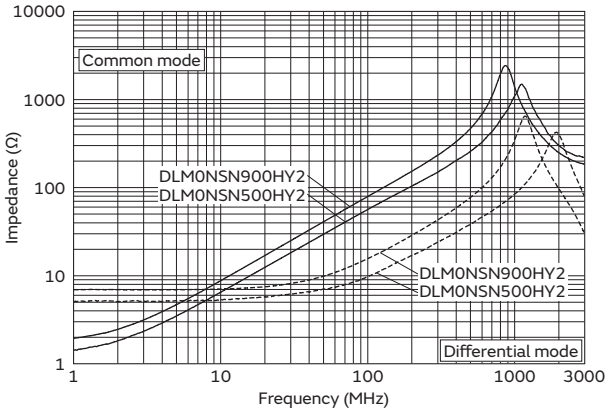
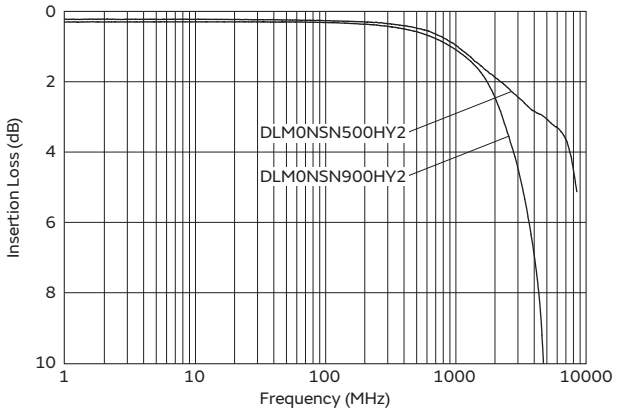
## Z-f Characteristics: DLM0NSN_HY2 Series



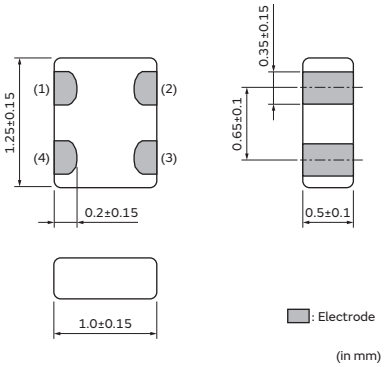

## Differential mode transmission characteristics: DLM0NSN_HY2series



## Common mode choke coil/Common mode noise filter

# DLM11G Series 0504/1210(inch/mm)

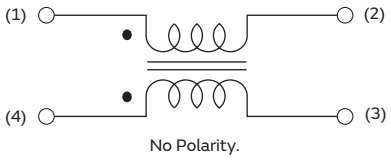
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 10000 |
| B | Bulk(Bag) | 1000 |

### Equivalent Circuit

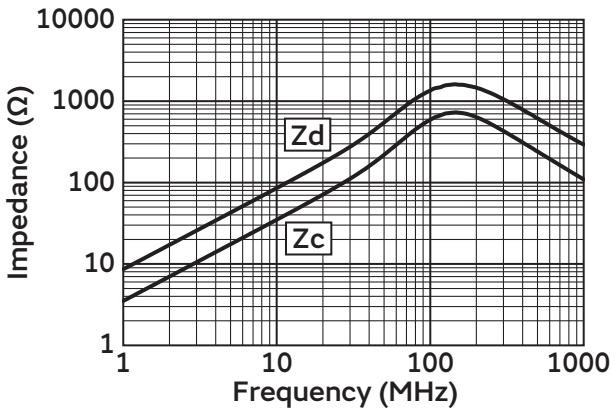



No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance | Operating Temp. Range |
|---|---|---|---|---|---|---|---|
| DLM11GN601SD2□ | 600Ω±25% | 100mA | 5Vdc | 100MΩ | 25Vdc | 0.8Ω max. | -40°C to 85°C |

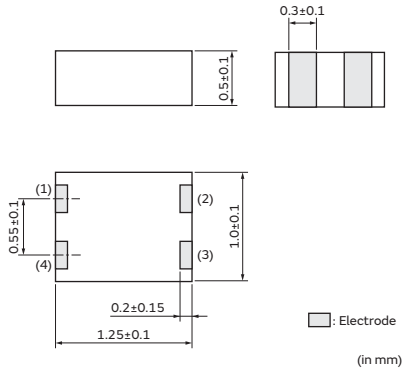
### Z-f Characteristics: DLM11GN_SD2 Series



## Common mode choke coil/Common mode noise filter

# DLM11S Series 0504/1210(inch/mm)

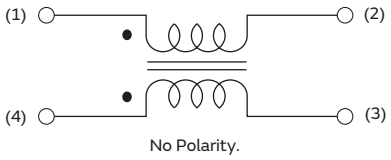
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 4000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



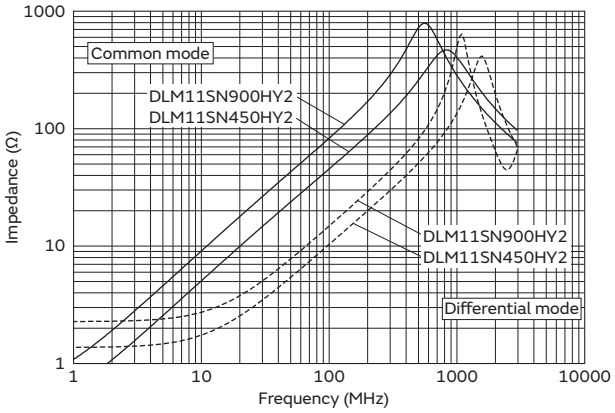

No Polarity.

### Rated Value (□: packaging code)

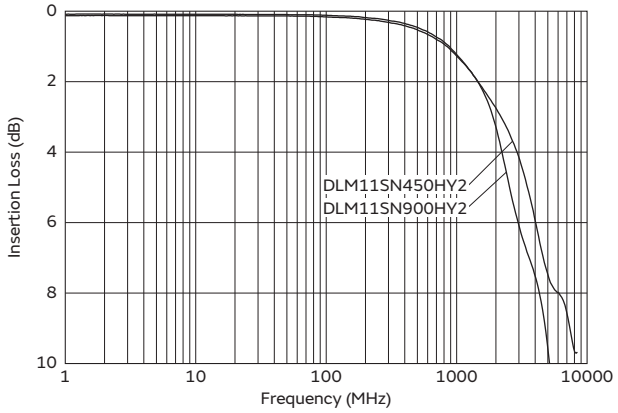
| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| **DLM11SN450HY2□** | 45Ω±25% | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 0.7Ω±25% |
| **DLM11SN900HY2□** | 90Ω±25% | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 1.1Ω±25% |

Operating Temp. Range: -40°C to 85°C

### Z-f Characteristics: DLM11SN_HY2 Series



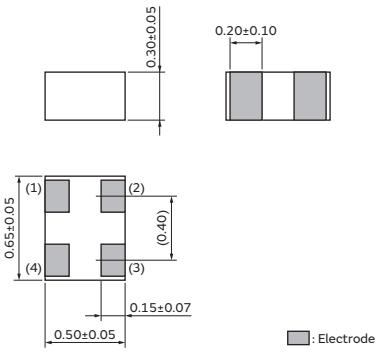

### Differential mode transmission characteristics: DLM11SN_HY2series



## Common mode choke coil/Common mode noise filter

# DLP0QS Series 025020/0605(inch/mm)

### Appearance/Dimensions

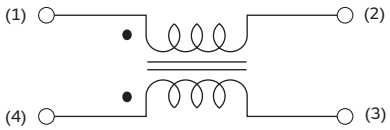



(in mm)

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



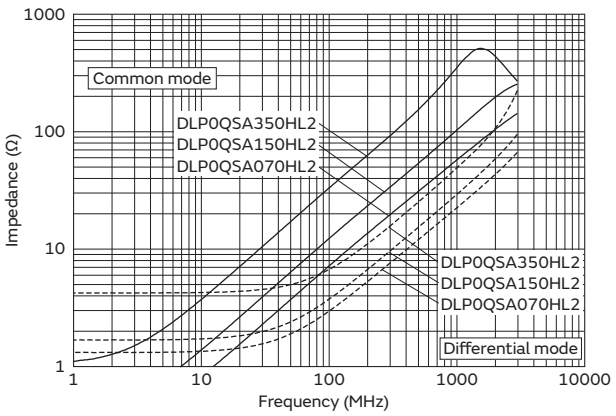

No Polarity.

### Rated Value (□: packaging code)

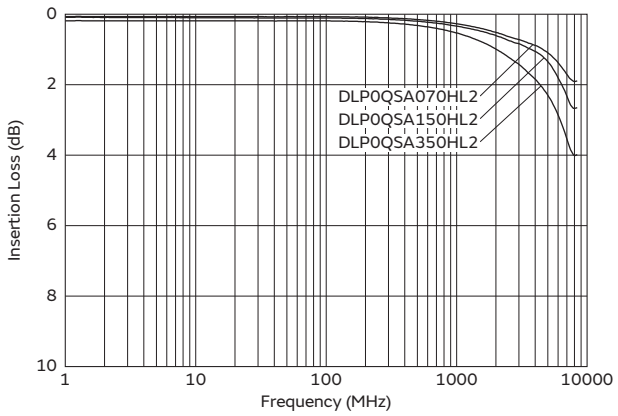
| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| DLP0QSA070HL2□ | 7Ω±2Ω | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 0.7Ω±25% |
| DLP0QSA150HL2□ | 15Ω±5Ω | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 0.8Ω±25% |
| DLP0QSA350HL2□ | 35Ω±10Ω | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 2.2Ω±25% |

Operating Temp. Range: -40°C to 85°C

### Z-f Characteristics: DLP0QSA_HL2 Series



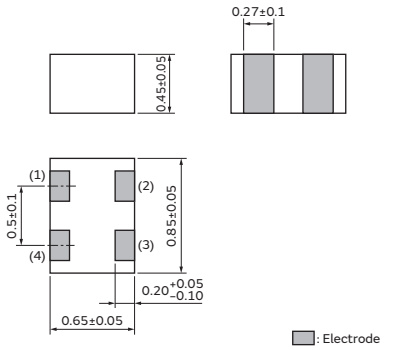

### Differential mode transmission characteristics: DLP0QSA_HL2series



## Common mode choke coil/Common mode noise filter

# DLP0NS Series 03025/0806(inch/mm)

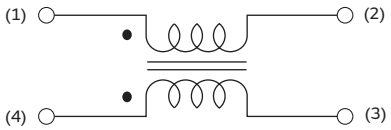
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 10000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



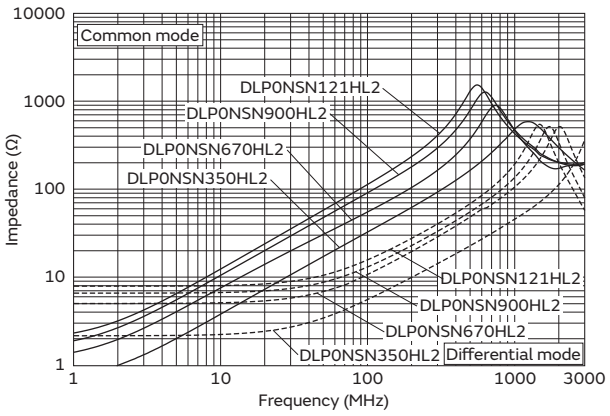

No Polarity.

### Rated Value (□: packaging code)

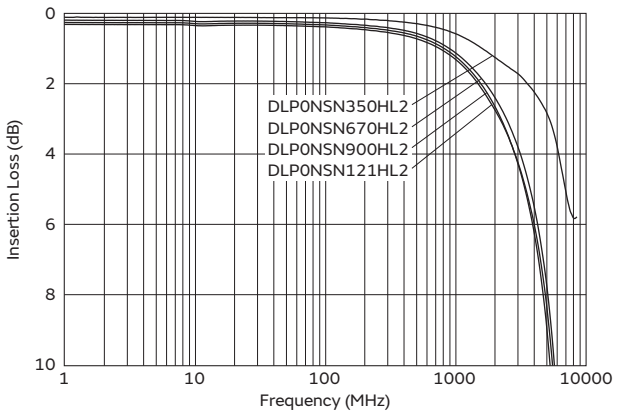
| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| **DLP0NSN350HL2□** | 35Ω±10Ω | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 1.2Ω±25% |
| **DLP0NSN670HL2□** | 67Ω±20% | 110mA | 5Vdc | 100MΩ | 12.5Vdc | 2.4Ω±25% |
| **DLP0NSN900HL2□** | 90Ω±20% | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 3.0Ω±25% |
| **DLP0NSN121HL2□** | 120Ω±20% | 90mA | 5Vdc | 100MΩ | 12.5Vdc | 3.8Ω±25% |
| **DLP0NSA070HL2□** | 7Ω±2Ω | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 0.6Ω±25% |
| **DLP0NSA150HL2□** | 15Ω±5Ω | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 0.95Ω±25% |
| **DLP0NSC280HL2□** | 28Ω±20% | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 1.3Ω±25% |
| **DLP0NSC900HL2□** | 90Ω±35% | 75mA | 5Vdc | 100MΩ | 12.5Vdc | 4.0Ω±30% |

Operating Temp. Range: -40°C to 85°C

### Z-f Characteristics: DLP0NSN_HL2 Series




### Differential mode transmission characteristics: DLP0NSN_HL2series

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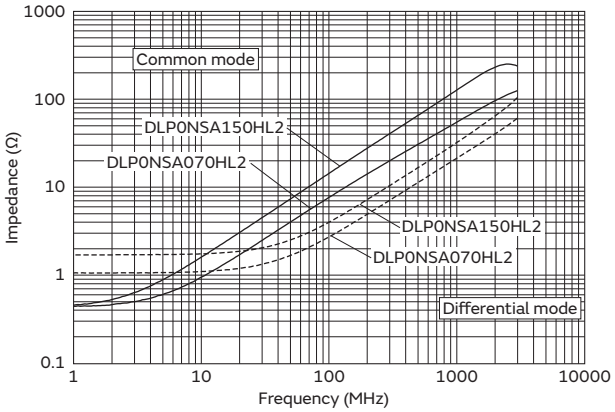
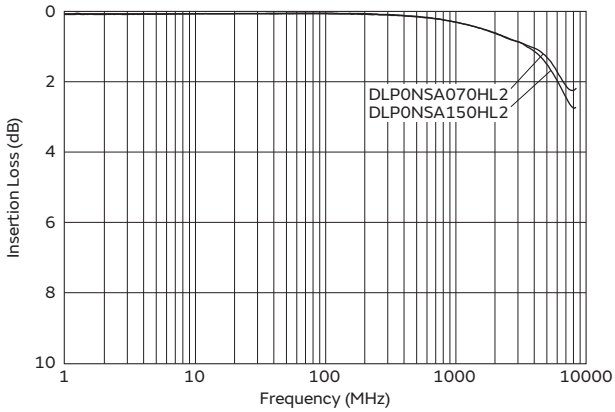
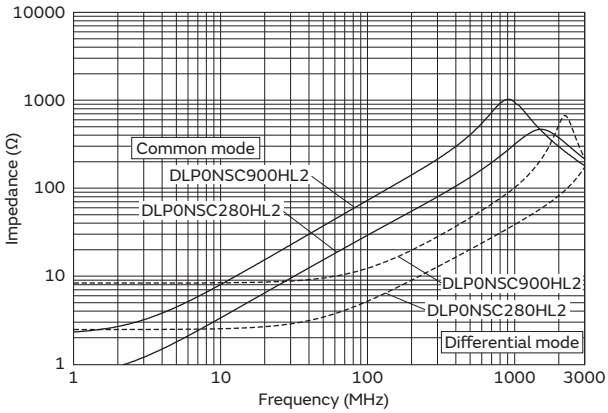
## Z-f Characteristics: DLP0NSA_HL2 Series



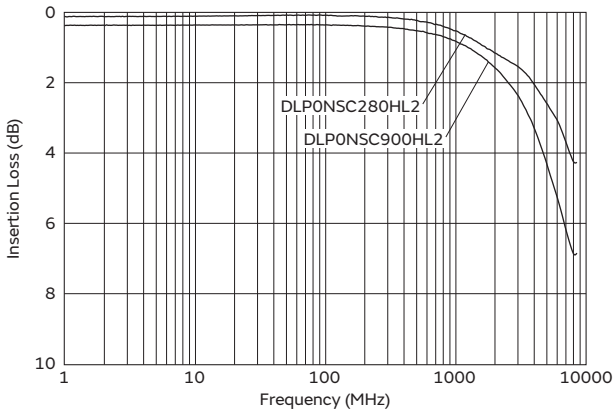

## Differential mode transmission characteristics: DLP0NSA_HL2series




## Z-f Characteristics: DLP0NSC_HL2 Series



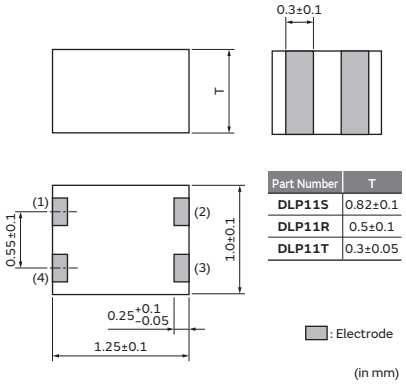

## Differential mode transmission characteristics: DLP0NSC_HL2series



## Common mode choke coil/Common mode noise filter

# DLP11R Series 0504/1210(inch/mm)

### Appearance/Dimensions

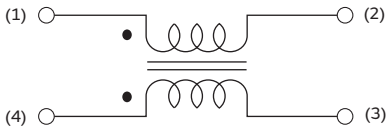



| Part Number | T |
|---|---|
| DLP11S | 0.82±0.1 |
| DLP11R | 0.5±0.1 |
| DLP11T | 0.3±0.05 |

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 4000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



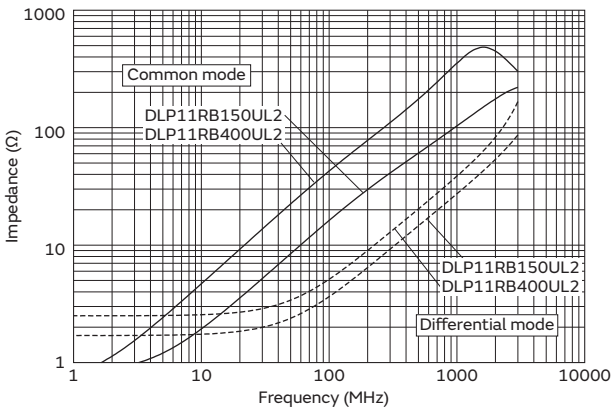

No Polarity.

### Rated Value (□: packaging code)

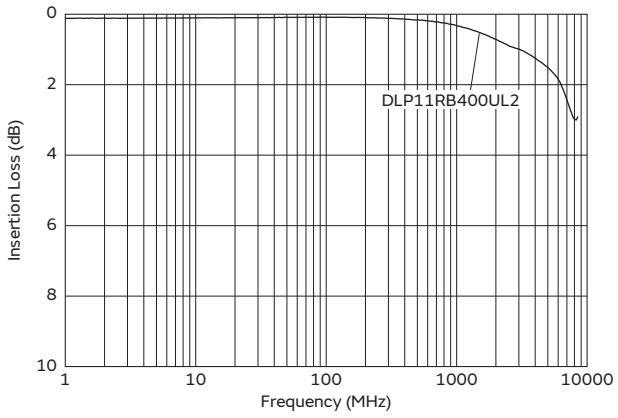
| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| DLP11RB150UL2□ | 15Ω±5Ω | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 0.8Ω±25% |
| DLP11RB400UL2□ | 40Ω±10Ω | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 1.3Ω±25% |
| DLP11RN450UL2□ | 45Ω±25% | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 0.8Ω±25% |

Operating Temp. Range: -40°C to 85°C

### Z-f Characteristics: DLP11RB_UL2 Series




### Differential mode transmission characteristics: DLP11RB_UL2series

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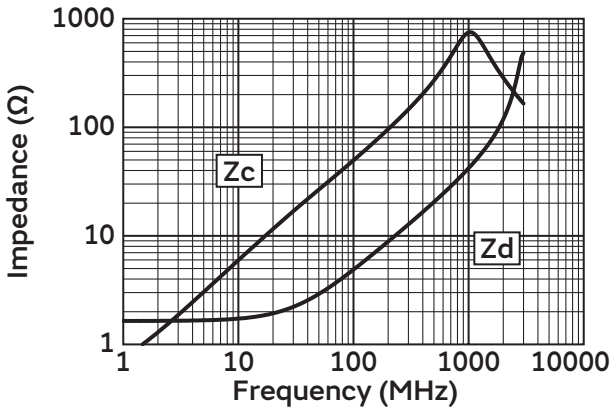
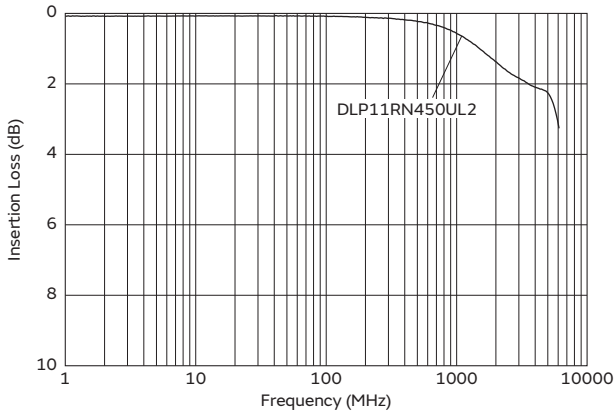
## Z-f Characteristics: DLP11RN_UL2 Series



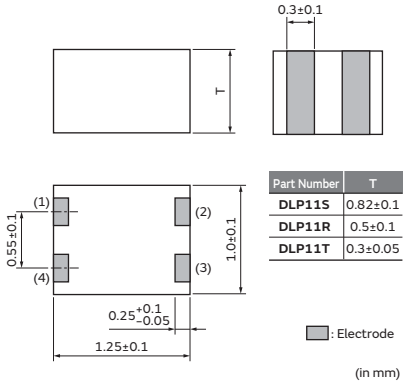

## Differential mode transmission characteristics: DLP11RN_UL2series



## Common mode choke coil/Common mode noise filter

# DLP11S Series 0504/1210(inch/mm)

### Appearance/Dimensions

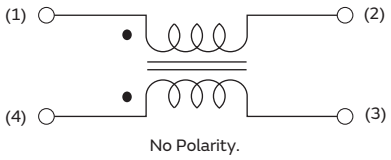



| Part Number | T |
|---|---|
| DLP11S | 0.82±0.1 |
| DLP11R | 0.5±0.1 |
| DLP11T | 0.3±0.05 |

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 3000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



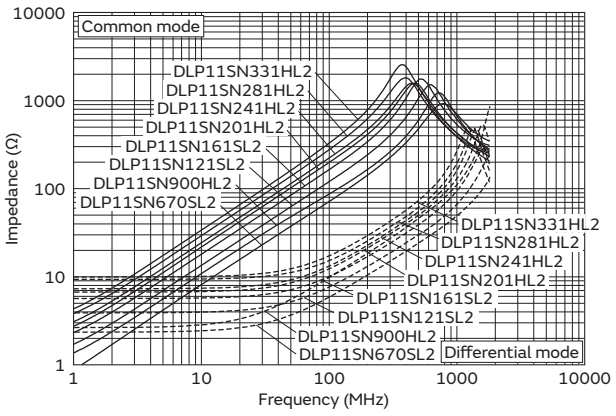

No Polarity.

### Rated Value (□: packaging code)

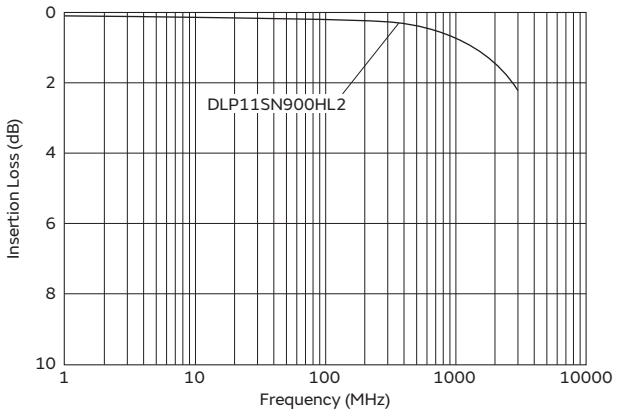
| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| DLP11SN900HL2□ | 90Ω±20% | 150mA | 5Vdc | 100MΩ | 12.5Vdc | 1.5Ω±25% |
| DLP11SN201HL2□ | 200Ω±20% | 110mA | 5Vdc | 100MΩ | 12.5Vdc | 3.1Ω±25% |
| DLP11SN241HL2□ | 240Ω±20% | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 3.5Ω±25% |
| DLP11SN281HL2□ | 280Ω±20% | 90mA | 5Vdc | 100MΩ | 12.5Vdc | 4.2Ω±25% |
| DLP11SN331HL2□ | 330Ω±20% | 80mA | 5Vdc | 100MΩ | 12.5Vdc | 4.9Ω±25% |
| DLP11SN670SL2□ | 67Ω±20% | 180mA | 5Vdc | 100MΩ | 12.5Vdc | 1.3Ω±25% |
| DLP11SN121SL2□ | 120Ω±20% | 140mA | 5Vdc | 100MΩ | 12.5Vdc | 2.0Ω±25% |
| DLP11SN161SL2□ | 160Ω±20% | 120mA | 5Vdc | 100MΩ | 12.5Vdc | 2.7Ω±25% |
| DLP11SA350HL2□ | 35Ω±20% | 170mA | 5Vdc | 100MΩ | 12.5Vdc | 0.9Ω±25% |
| DLP11SA670HL2□ | 67Ω±20% | 150mA | 5Vdc | 100MΩ | 12.5Vdc | 1.2Ω±25% |
| DLP11SA900HL2□ | 90Ω±20% | 150mA | 5Vdc | 100MΩ | 12.5Vdc | 1.4Ω±25% |

Operating Temp. Range: -40°C to 85°C

### Z-f Characteristics: DLP11SN_HL2/SL2 Series




### Differential mode transmission characteristics: DLP11SN_HL2series

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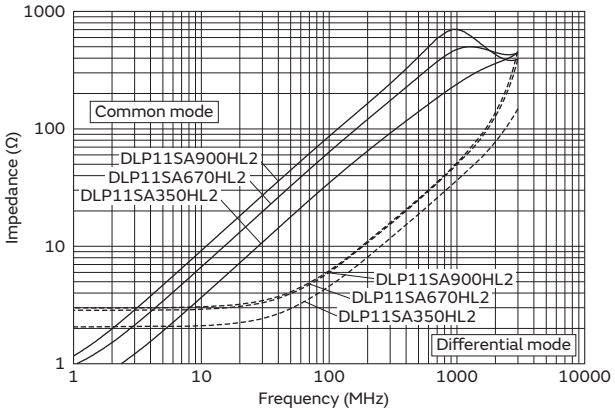
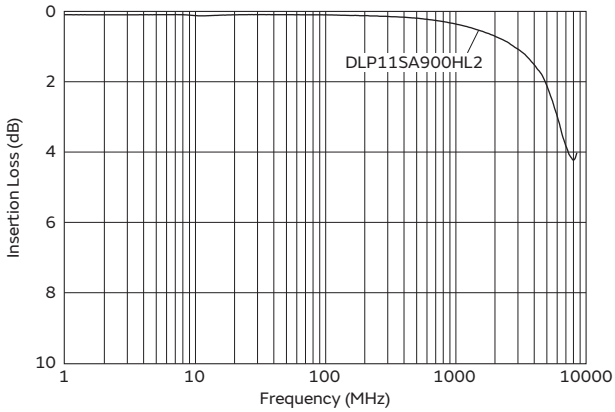
## Z-f Characteristics: DLP11SA_HL2 Series



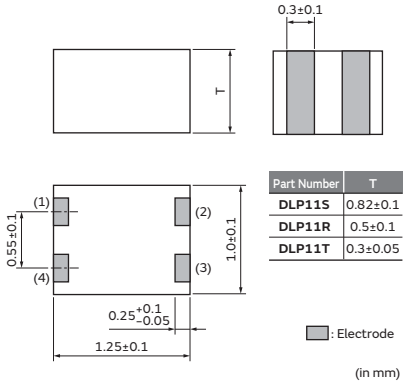

## Differential mode transmission characteristics: DLP11SA_HL2series



## Common mode choke coil/Common mode noise filter

# DLP11T Series 0504/1210(inch/mm)

### Appearance/Dimensions

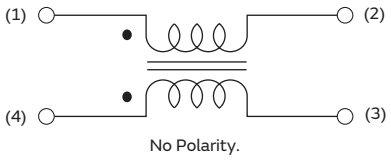



| Part Number | T |
|---|---|
| DLP11S | 0.82±0.1 |
| DLP11R | 0.5±0.1 |
| DLP11T | 0.3±0.05 |

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 5000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit

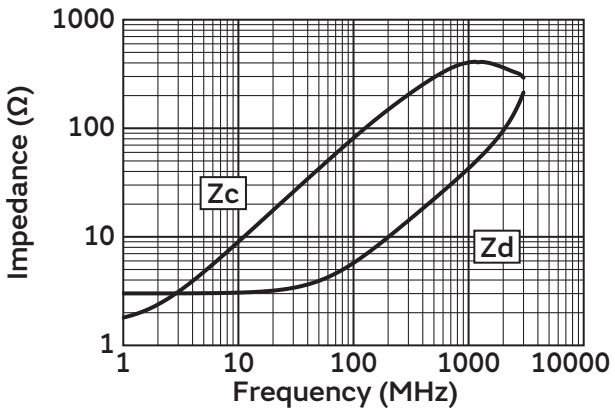



No Polarity.

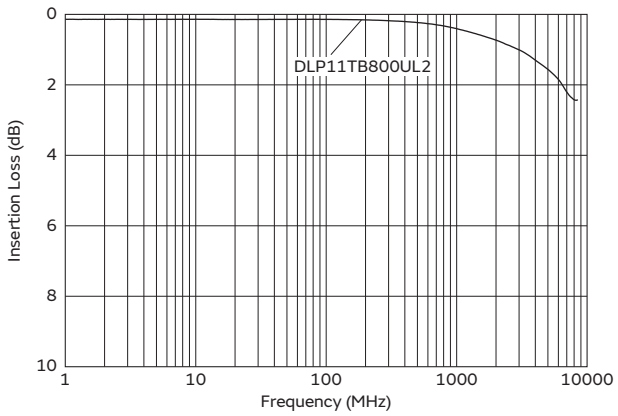
### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance | Operating Temp. Range |
|---|---|---|---|---|---|---|---|
| DLP11TB800UL2□ | 80Ω±25% | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 1.5Ω±25% | -40°C to 85°C |

### Z-f Characteristics: DLP11TB_UL2 Series



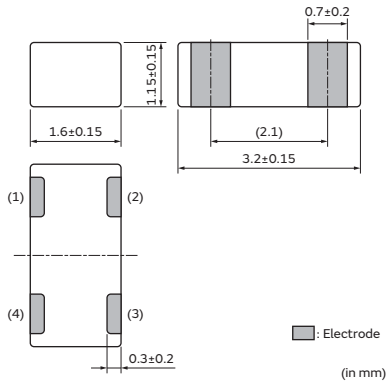

### Differential mode transmission characteristics: DLP11TB_UL2series



## Common mode choke coil/Common mode noise filter

# DLP31S Series 1206/3216(inch/mm)

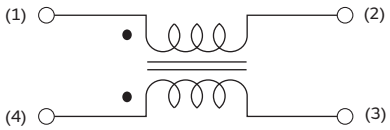
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 3000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



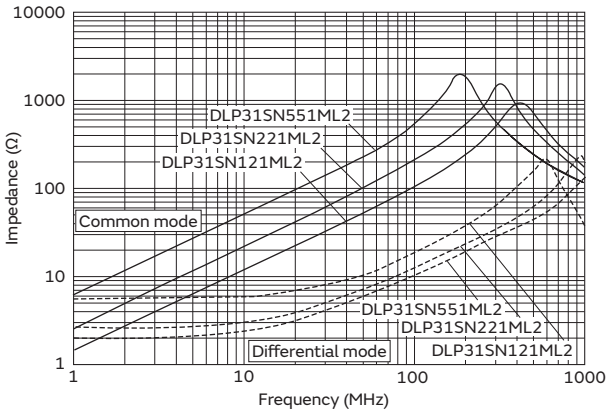

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| **DLP31SN121ML2□** | 120Ω±20% | 100mA | 16Vdc | 100MΩ | 40Vdc | 2.0Ω max. |
| **DLP31SN221ML2□** | 220Ω±20% | 100mA | 16Vdc | 100MΩ | 40Vdc | 2.5Ω max. |
| **DLP31SN551ML2□** | 550Ω±20% | 100mA | 16Vdc | 100MΩ | 40Vdc | 3.6Ω max. |

Operating Temp. Range: -40°C to 85°C

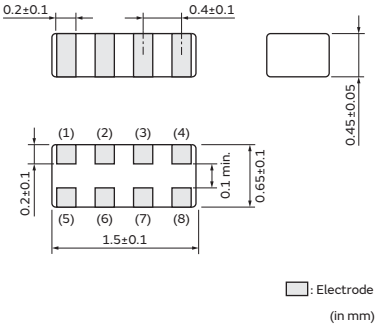
### Z-f Characteristics: DLP31SN_ML2 Series



## Common mode choke coil/Common mode noise filter

# DLP1ND Series 05025/1506(inch/mm)

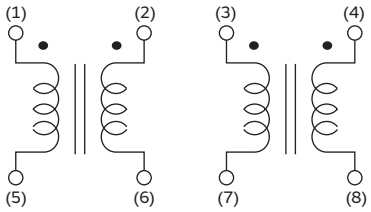
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 5000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



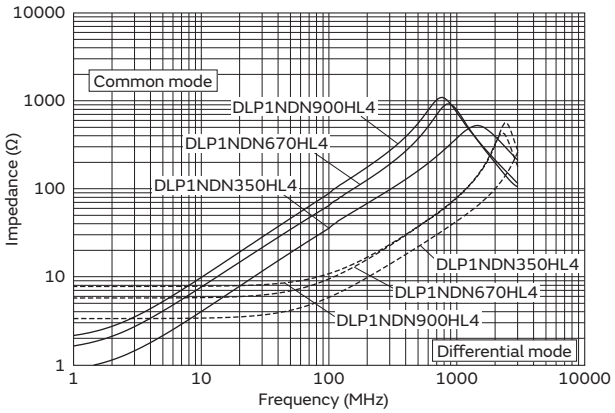

No Polarity.

### Rated Value (□: packaging code)

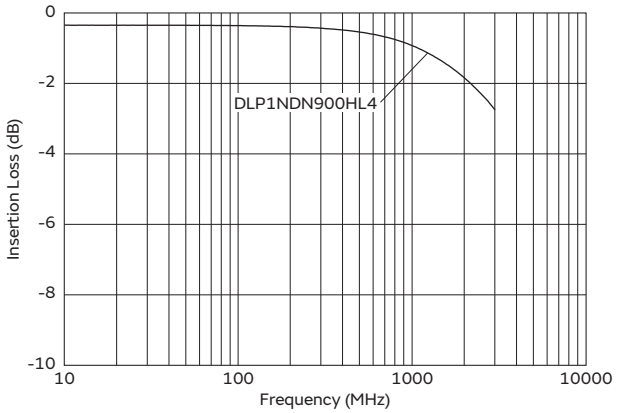
| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| DLP1NDN350HL4□ | 35Ω±20% | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 1.8Ω±25% |
| DLP1NDN670HL4□ | 67Ω±20% | 80mA | 5Vdc | 100MΩ | 12.5Vdc | 2.9Ω±25% |
| DLP1NDN900HL4□ | 90Ω±20% | 60mA | 5Vdc | 100MΩ | 12.5Vdc | 3.7Ω±25% |

Operating Temp. Range: -40°C to 85°C

### Z-f Characteristics: DLP1NDN_HL4 Series



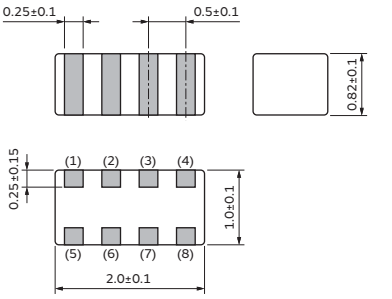

### Differential mode transmission characteristics: DLP1NDN_HL4series



## Common mode choke coil/Common mode noise filter

# DLP2AD Series 0804/2010(inch/mm)

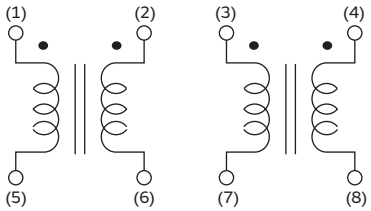
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 3000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



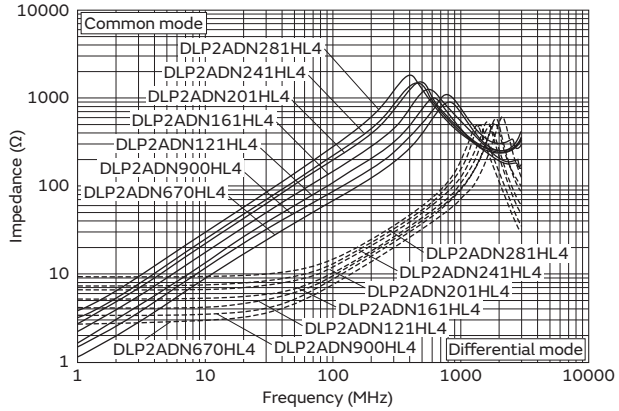

No Polarity.

### Rated Value (□: packaging code)

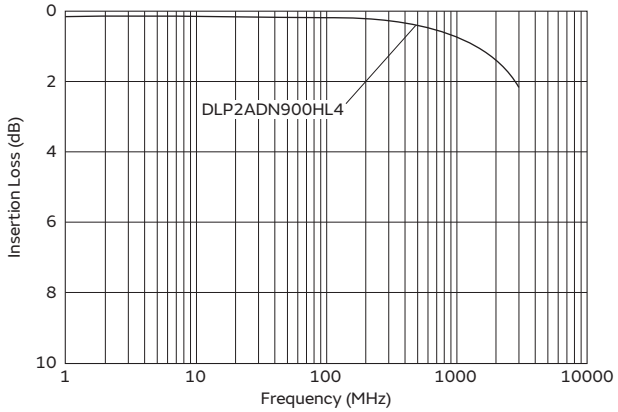
| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| **DLP2ADN670HL4□** | 67Ω±20% | 140mA | 5Vdc | 100MΩ | 12.5Vdc | 1.3Ω±25% |
| **DLP2ADN900HL4□** | 90Ω±20% | 130mA | 5Vdc | 100MΩ | 12.5Vdc | 1.7Ω±25% |
| **DLP2ADN121HL4□** | 120Ω±20% | 120mA | 5Vdc | 100MΩ | 12.5Vdc | 2.0Ω±25% |
| **DLP2ADN161HL4□** | 160Ω±20% | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 2.5Ω±25% |
| **DLP2ADN201HL4□** | 200Ω±20% | 90mA | 5Vdc | 100MΩ | 12.5Vdc | 3.2Ω±25% |
| **DLP2ADN241HL4□** | 240Ω±20% | 80mA | 5Vdc | 100MΩ | 12.5Vdc | 3.8Ω±25% |
| **DLP2ADN281HL4□** | 280Ω±20% | 80mA | 5Vdc | 100MΩ | 12.5Vdc | 4.6Ω±25% |
| **DLP2ADA350HL4□** | 35Ω±20% | 150mA | 5Vdc | 100MΩ | 12.5Vdc | 0.8Ω±25% |
| **DLP2ADA670HL4□** | 67Ω±20% | 130mA | 5Vdc | 100MΩ | 12.5Vdc | 1.0Ω±25% |
| **DLP2ADA900HL4□** | 90Ω±20% | 120mA | 5Vdc | 100MΩ | 12.5Vdc | 1.4Ω±25% |

Operating Temp. Range: -40°C to 85°C

### Z-f Characteristics: DLP2ADN_HL4 Series




### Differential mode transmission characteristics: DLP2ADN_HL4series

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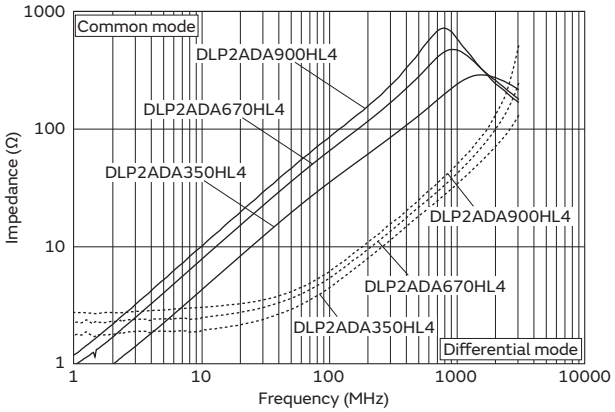
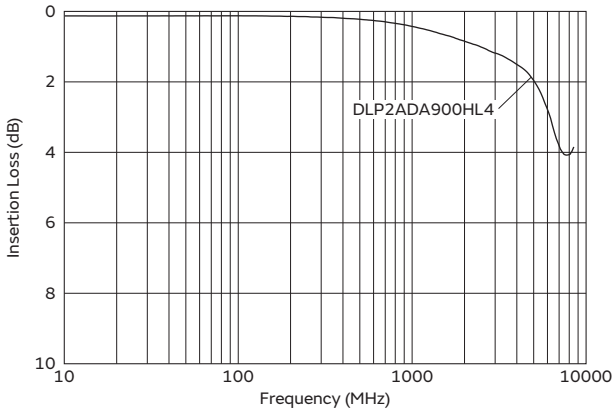
## Z-f Characteristics: DLP2ADA_HL4 Series



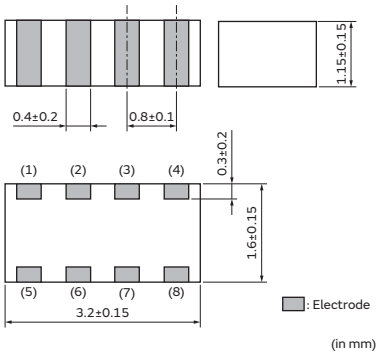

## Differential mode transmission characteristics: DLP2ADA_HL4series



## Common mode choke coil/Common mode noise filter

# DLP31D Series 1206/3216(inch/mm)

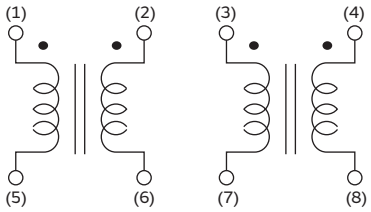
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 3000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



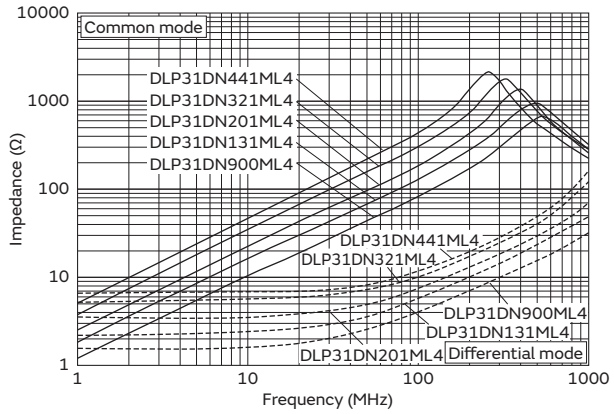

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| **DLP31DN900ML4□** | 90Ω±20% | 160mA | 10Vdc | 100MΩ | 25Vdc | 1.1Ω max. |
| **DLP31DN131ML4□** | 130Ω±20% | 120mA | 10Vdc | 100MΩ | 25Vdc | 1.6Ω max. |
| **DLP31DN201ML4□** | 200Ω±20% | 100mA | 10Vdc | 100MΩ | 25Vdc | 2.2Ω max. |
| **DLP31DN321ML4□** | 320Ω±20% | 80mA | 10Vdc | 100MΩ | 25Vdc | 3.5Ω max. |
| **DLP31DN441ML4□** | 440Ω±20% | 70mA | 10Vdc | 100MΩ | 25Vdc | 4.3Ω max. |

Operating Temp. Range: -40°C to 85°C

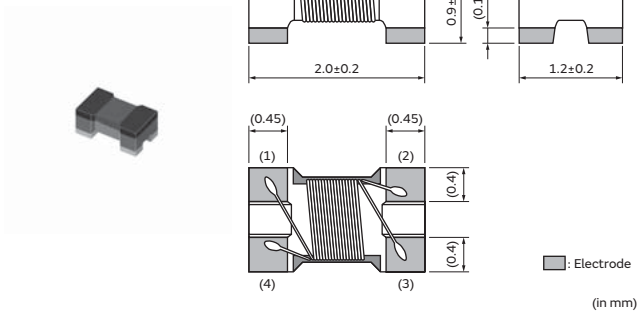
### Z-f Characteristics: DLP31DN_ML4 Series



## Common mode choke coil/Common mode noise filter

# DLW21H Series 0805/2012(inch/mm)

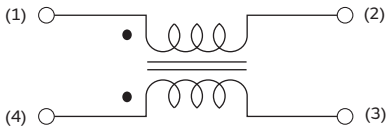
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 3000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



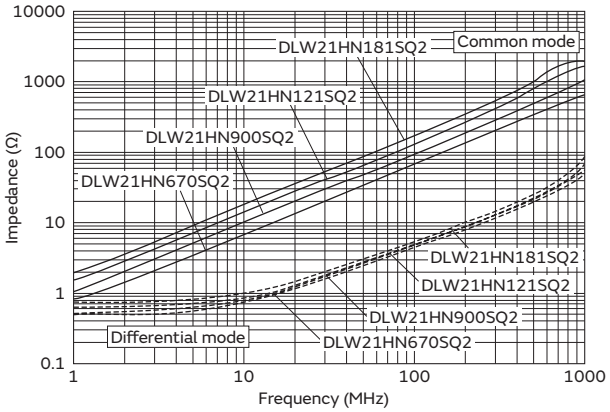

No Polarity.

### Rated Value (□: packaging code)

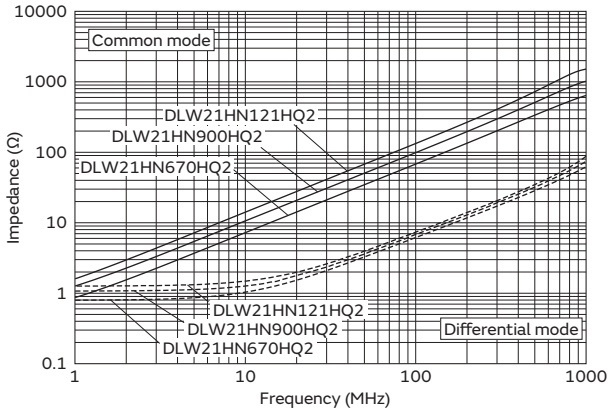
| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| **DLW21HN670SQ2□** | 67Ω±25% | 330mA | 50Vdc | 10MΩ | 125Vdc | 0.35Ω max. |
| **DLW21HN900SQ2□** | 90Ω±25% | 330mA | 50Vdc | 10MΩ | 125Vdc | 0.35Ω max. |
| **DLW21HN121SQ2□** | 120Ω±25% | 280mA | 50Vdc | 10MΩ | 125Vdc | 0.45Ω max. |
| **DLW21HN181SQ2□** | 180Ω±25% | 250mA | 50Vdc | 10MΩ | 125Vdc | 0.50Ω max. |
| **DLW21HN670HQ2□** | 67Ω±25% | 240mA | 20Vdc | 10MΩ | 50Vdc | 0.49Ω max. |
| **DLW21HN900HQ2□** | 90Ω±25% | 220mA | 20Vdc | 10MΩ | 50Vdc | 0.59Ω max. |
| **DLW21HN121HQ2□** | 120Ω±25% | 200mA | 20Vdc | 10MΩ | 50Vdc | 0.68Ω max. |

Operating Temp. Range: -40°C to 85°C

### Z-f Characteristics: DLW21HN_SQ2 Series




### Z-f Characteristics: DLW21HN_HQ2 Series

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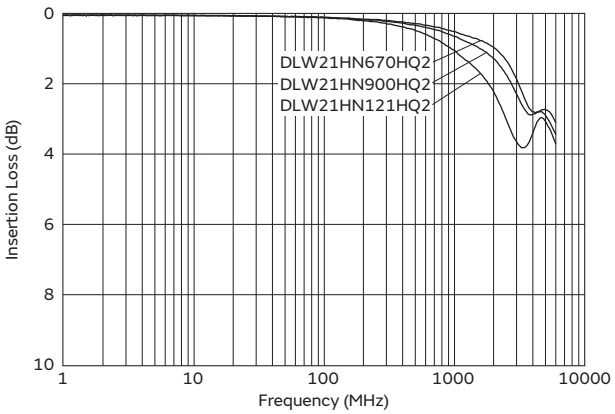
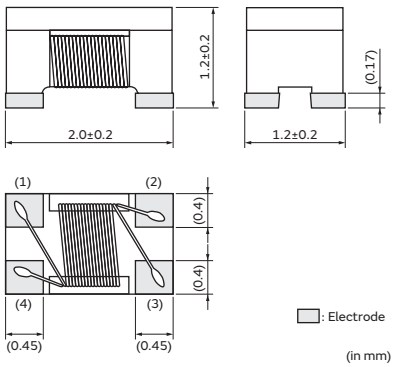
## Differential mode transmission characteristics: DLW21HN_HQ2series



## Common mode choke coil/Common mode noise filter

# DLW21S Series 0805/2012(inch/mm)

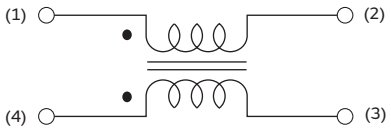
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 2000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit




No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| DLW21SN670SQ2□ | 67Ω±25% | 400mA | 50Vdc | 10MΩ | 125Vdc | 0.25Ω max. |
| DLW21SN900SQ2□ | 90Ω±25% | 330mA | 50Vdc | 10MΩ | 125Vdc | 0.35Ω max. |
| DLW21SN121SQ2□ | 120Ω±25% | 370mA | 50Vdc | 10MΩ | 125Vdc | 0.30Ω max. |
| DLW21SN181SQ2□ | 180Ω±25% | 330mA | 50Vdc | 10MΩ | 125Vdc | 0.35Ω max. |
| DLW21SN261SQ2□ | 260Ω±25% | 300mA | 50Vdc | 10MΩ | 125Vdc | 0.40Ω max. |
| DLW21SN371SQ2□ | 370Ω±25% | 280mA | 50Vdc | 10MΩ | 125Vdc | 0.45Ω max. |
| DLW21SN501SK2□ | 500Ω±25% | 250mA | 50Vdc | 10MΩ | 125Vdc | 0.5Ω max. |
| DLW21SN921SK2□ | 920Ω±25% | 160mA | 50Vdc | 10MΩ | 125Vdc | 0.95Ω max. |
| DLW21SN670HQ2□ | 67Ω±25% | 320mA | 20Vdc | 10MΩ | 50Vdc | 0.31Ω max. |
| DLW21SN900HQ2□ | 90Ω±25% | 280mA | 20Vdc | 10MΩ | 50Vdc | 0.41Ω max. |
| DLW21SN121HQ2□ | 120Ω±25% | 280mA | 20Vdc | 10MΩ | 50Vdc | 0.41Ω max. |
| DLW21SN211XK2□ | 210Ω±25% | 360mA | 20Vdc | 10MΩ | 50Vdc | 0.33Ω max. |
| DLW21SN181XQ2□ | 180Ω±25% | 240mA | 20Vdc | 10MΩ | 50Vdc | 0.39Ω max. |
| DLW21SN261XQ2□ | 260Ω±25% | 220mA | 20Vdc | 10MΩ | 50Vdc | 0.59Ω max. |
| DLW21SN491XQ2□ | 490Ω±25% | 190mA | 20Vdc | 10MΩ | 50Vdc | 0.77Ω max. |
| DLW21SR670HQ2□ | 67Ω±25% | 400mA | 20Vdc | 10MΩ | 50Vdc | 0.25Ω max. |

Operating Temp. Range: -40°C to 85°C

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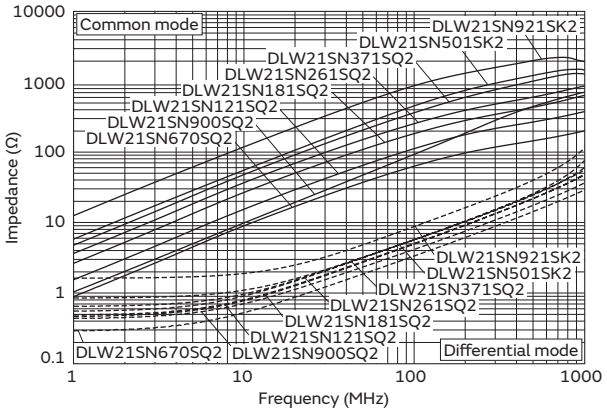
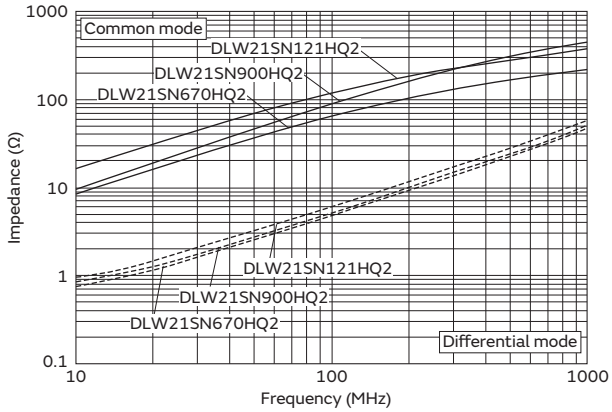
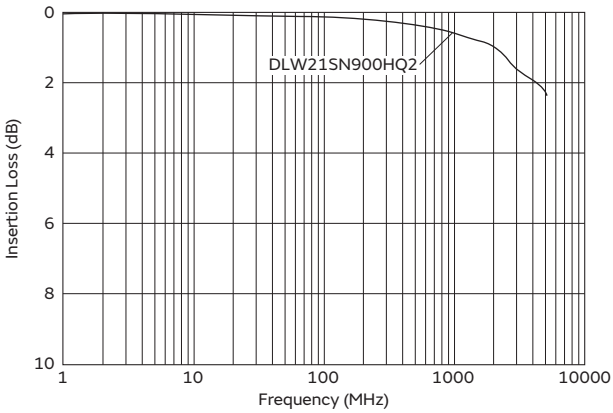
## Z-f Characteristics: DLW21SN_SQ2/SK2 Series



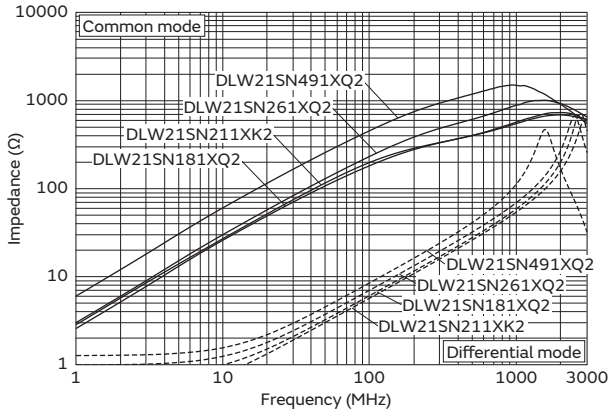

## Z-f Characteristics: DLW21SN_HQ2 Series




## Differential mode transmission characteristics: DLW21SN_HQ2series




## Z-f Characteristics: DLW21SN_XK2/XQ2 Series

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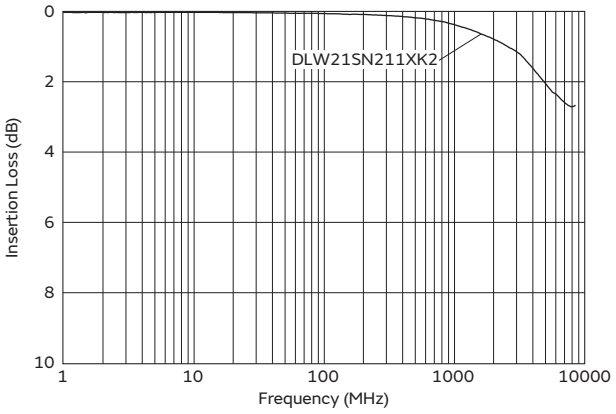
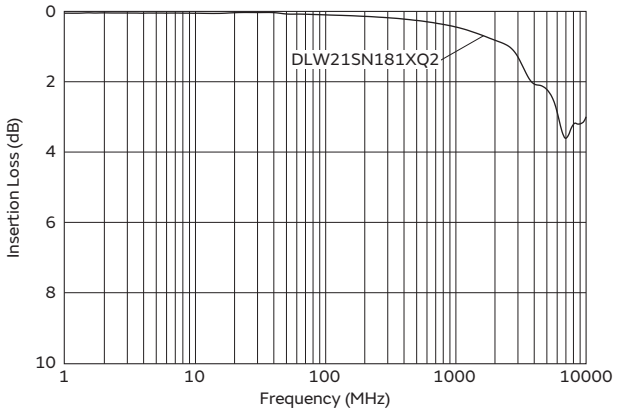
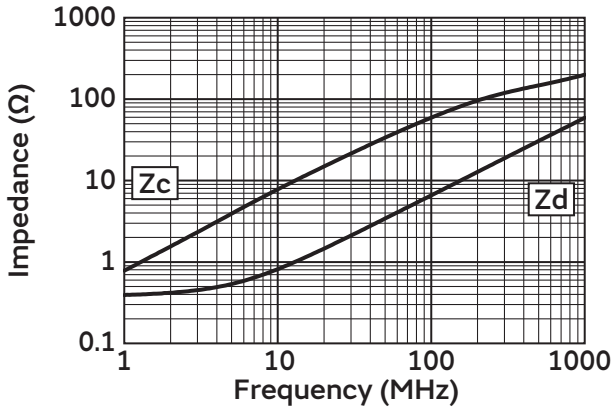
## Differential mode transmission characteristics: DLW21SN_XK2series




## Differential mode transmission characteristics: DLW21SN_XQ2series



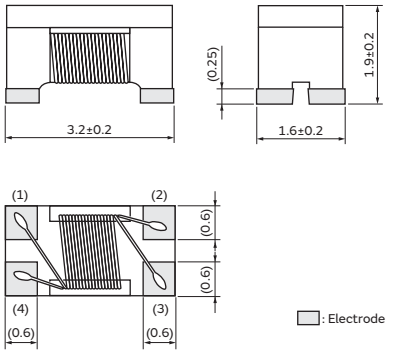

## Z-f Characteristics: DLW21SR_HQ2 Series



## Common mode choke coil/Common mode noise filter

# DLW31S Series 1206/3216(inch/mm)

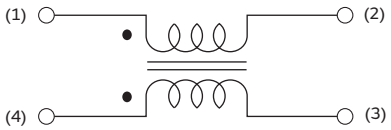
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 2000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



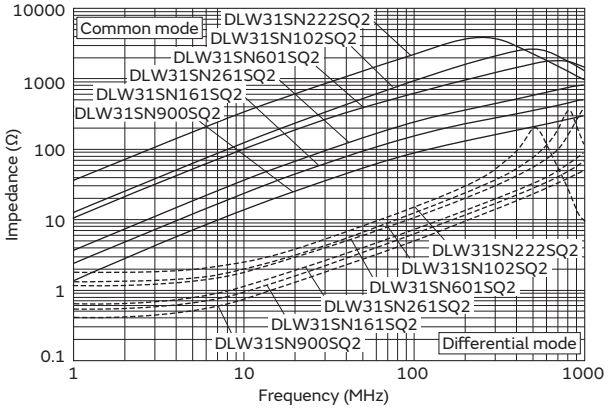

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| **DLW31SN900SQ2□** | 90Ω±25% | 370mA | 50Vdc | 10MΩ | 125Vdc | 0.3Ω max. |
| **DLW31SN161SQ2□** | 160Ω±25% | 340mA | 50Vdc | 10MΩ | 125Vdc | 0.4Ω max. |
| **DLW31SN261SQ2□** | 260Ω±25% | 310mA | 50Vdc | 10MΩ | 125Vdc | 0.5Ω max. |
| **DLW31SN601SQ2□** | 600Ω±25% | 260mA | 50Vdc | 10MΩ | 125Vdc | 0.8Ω max. |
| **DLW31SN102SQ2□** | 1000Ω±25% | 230mA | 50Vdc | 10MΩ | 125Vdc | 1.0Ω max. |
| **DLW31SN222SQ2□** | 2200Ω±25% | 200mA | 50Vdc | 10MΩ | 125Vdc | 1.2Ω max. |

Operating Temp. Range: -40°C to 85°C

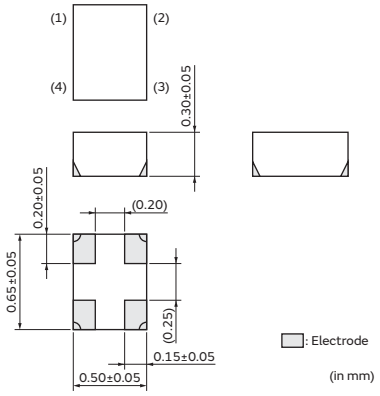
### Z-f Characteristics: DLW31SN_SQ2 Series



## Common mode choke coil/Common mode noise filter

# NFP0Q Series 025020/0605(inch/mm)

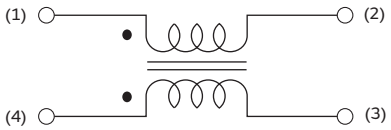
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| D | ø180mm Paper Tape | 15000 |
| B | Bulk(Bag) | 500 |

### Equivalent Circuit



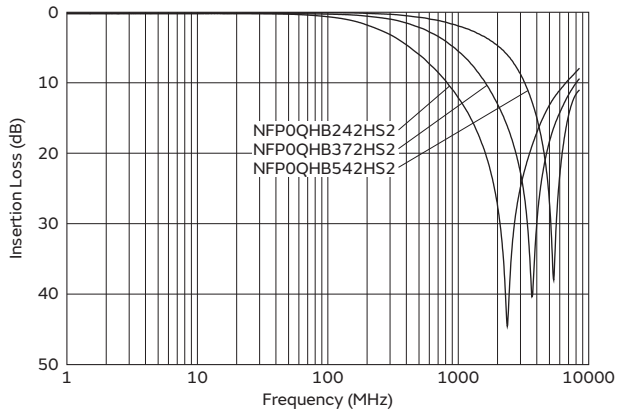

No Polarity.

### Rated Value (□: packaging code)

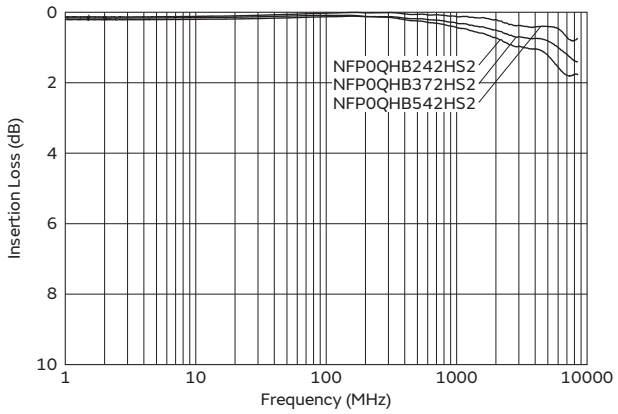
| Part Number | Common Mode Impedance at 100MHz | Cutoff Frequency | Common Mode Insertion Loss | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|---|---|
| NFP0QHB242HS2□ | - | 8.5GHz (Typ.) | 27dB Typ.(2.0GHz), 43dB Typ.(2.4GHz), 23dB Typ.(3.0GHz) | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 1.7Ω±30% |
| NFP0QHB372HS2□ | - | 10GHz (Typ.) | 15dB Typ.(2.4GHz), 40dB Typ.(3.7GHz), 15dB Typ.(6.0GHz) | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 2.2Ω±30% |
| NFP0QHB542HS2□ | - | 10GHz (Typ.) | 30dB Typ.(5.0GHz), 40dB Typ.(5.4GHz), 25dB Typ.(6.0GHz) | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 1.5Ω±30% |
| NFP0QSB132HL2□ | 90Ω(Typ.) | 7.5GHz (Typ.) | 20dB Typ.(700MHz), 23dB Typ.(900MHz), 25dB Typ.(1.7GHz), 22dB Typ.(2.4GHz), 14dB Typ.(5.0GHz) | 100mA | 5Vdc | 100MΩ | 12.5Vdc | 2.0Ω±30% |

Operating Temp. Range: -40°C to 85°C

### Common mode insertion loss: NFP0QHB_HS2series




### Differential mode transmission characteristics: NFP0QHB_HS2series

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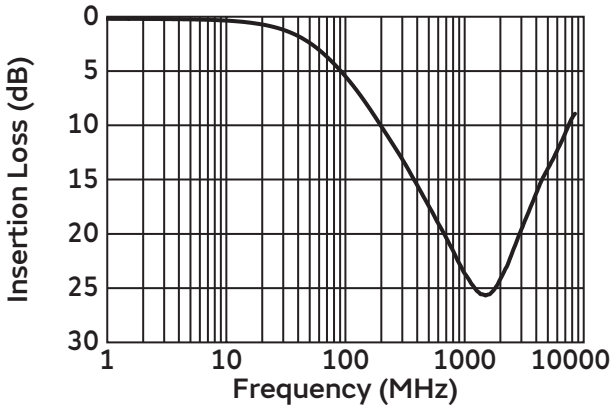
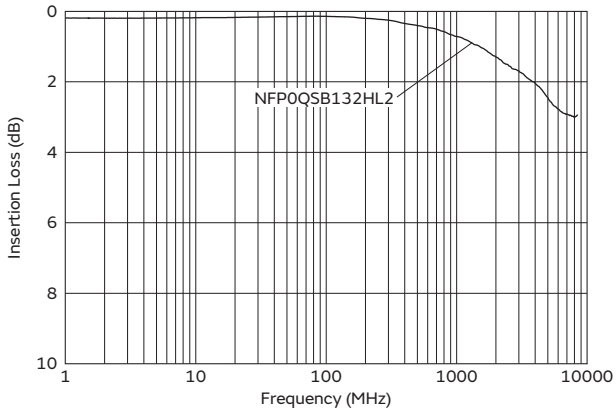
## Common mode insertion loss: NFP0QSB_HL2series



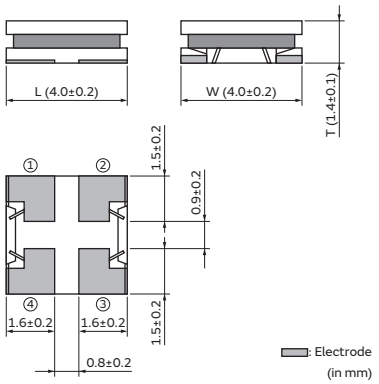

## Differential mode transmission characteristics: NFP0QSB_HL2series



## Common mode choke coil/Common mode noise filter

# DLW44S Series 1515/4040(inch/mm)

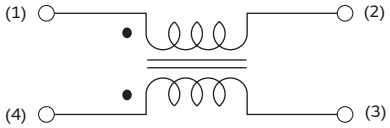
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 3500 |
| L | ø180mm Embossed Tape | 1000 |
| B | Bulk(Bag) | 100 |

### Equivalent Circuit



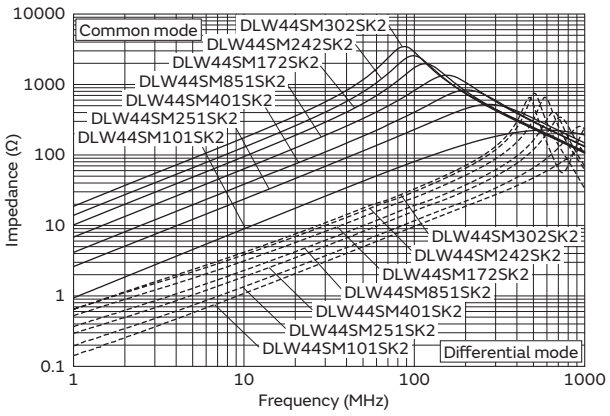

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 10MHz | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|---|
| **DLW44SM101SK2□** | 10Ω±40% | 100Ω(Typ.) | 3.1A | 60Vdc | 10MΩ | 150Vdc | 0.016Ω±40% |
| **DLW44SM251SK2□** | 24Ω±40% | 250Ω(Typ.) | 2.6A | 60Vdc | 10MΩ | 150Vdc | 0.024Ω±40% |
| **DLW44SM401SK2□** | 37.5Ω±40% | 400Ω(Typ.) | 2.1A | 60Vdc | 10MΩ | 150Vdc | 0.030Ω±40% |
| **DLW44SM851SK2□** | 65Ω±40% | 850Ω(Typ.) | 1.9A | 60Vdc | 10MΩ | 150Vdc | 0.040Ω±40% |
| **DLW44SM172SK2□** | 100Ω±40% | 1700Ω(Typ.) | 1.5A | 60Vdc | 10MΩ | 150Vdc | 0.060Ω±40% |
| **DLW44SM302SK2□** | 180Ω±40% | 2200Ω(Typ.) | 1.1A | 60Vdc | 10MΩ | 150Vdc | 0.120Ω±40% |
| **DLW44SM242SK2□** | 140Ω±40% | 2400Ω(Typ.) | 1.4A | 60Vdc | 10MΩ | 150Vdc | 0.075Ω±40% |

Operating Temp. Range: -40°C to 105°C

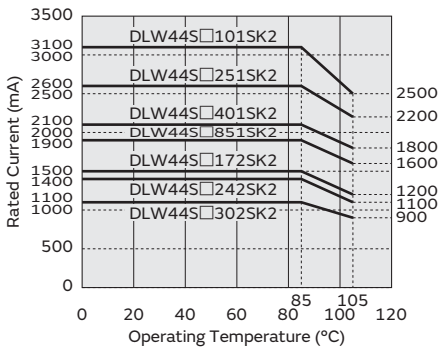
### Z-f Characteristics: DLW44SM_SK2 Series




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for DLW44S series. Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

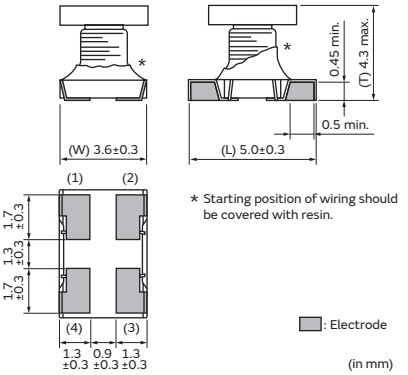


# Common mode choke coil/Common mode noise filter

# DLW5AH_SQ2 Series 2014/5036(inch/mm)/DLW5BS_SQ2 Series 2020/5050(inch/mm)

## Appearance/Dimensions

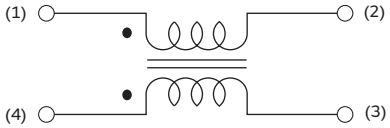
DLW5AHN_SQ2




## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 1500 |
| L | ø180mm Embossed Tape | 400 |
| B | Bulk(Bag) | 100 |

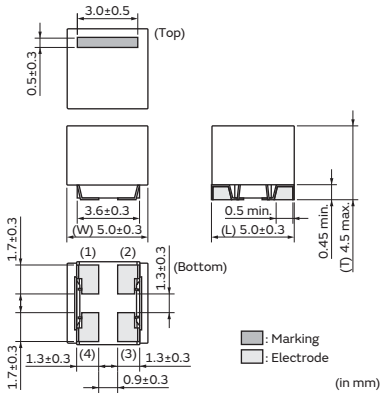
## Equivalent Circuit




No Polarity.

## Appearance/Dimensions

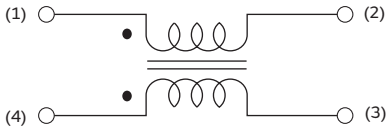
DLW5BSM_SQ2




## Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 1500 |
| L | ø180mm Embossed Tape | 400 |
| B | Bulk(Bag) | 100 |

## Equivalent Circuit




No Polarity.

## Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 10MHz | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance | Operating Temp. Range |
|---|---|---|---|---|---|---|---|---|
| DLW5AHN402SQ2□ | 300Ωmin. | 4000Ω(Typ.) | 200mA | 50Vdc | 10MΩ | 125Vdc | 3.0Ω max. | -25°C to 85°C |
| DLW5BSM191SQ2□ | 19Ωmin. | 190Ω(Typ.) | 5A | 50Vdc | 10MΩ | 125Vdc | 0.02Ω max. | -40°C to 85°C |
| DLW5BSM351SQ2□ | 50Ωmin. | 350Ω(Typ.) | 2A | 50Vdc | 10MΩ | 125Vdc | 0.04Ω max. | -40°C to 85°C |
| DLW5BSM102SQ2□ | 100Ωmin. | 1000Ω(Typ.) | 1.5A | 50Vdc | 10MΩ | 125Vdc | 0.06Ω max. | -40°C to 85°C |
| DLW5BSM152SQ2□ | 150Ωmin. | 1500Ω(Typ.) | 1A | 50Vdc | 10MΩ | 125Vdc | 0.1Ω max. | -40°C to 85°C |
| DLW5BSM302SQ2□ | 300Ωmin. | 3000Ω(Typ.) | 500mA | 50Vdc | 10MΩ | 125Vdc | 0.3Ω max. | -40°C to 85°C |

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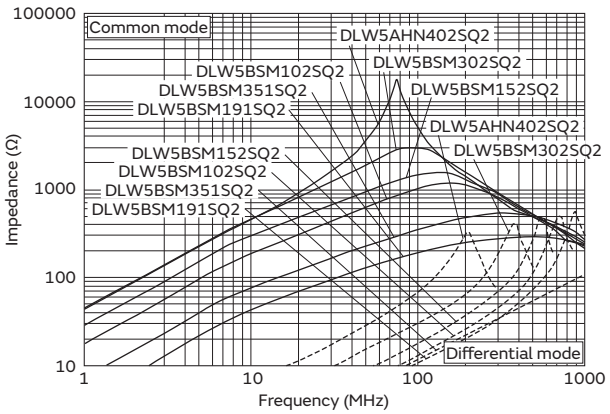
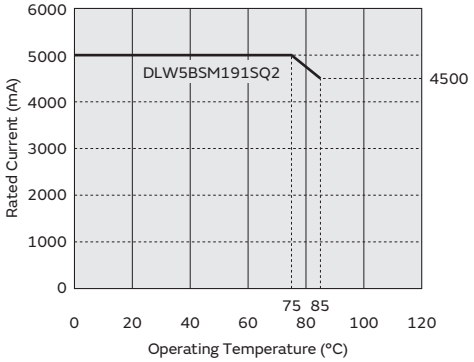
## Z-f Characteristics: DLW5AH_SQ2/DLW5BS_SQ2 Series




## Derating of Rated Current

In operating temperature exceeding +75°C, derating of current is necessary for DLW5BSM191SQ2.
Please apply the derating curve shown in chart according to the operating temperature.

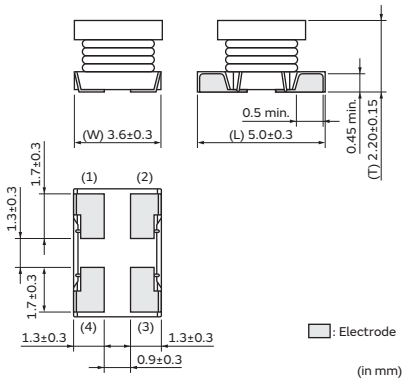
Derating of Rated Current



## Common mode choke coil/Common mode noise filter

# DLW5AT_SQ2 Series 2014/5036(inch/mm)

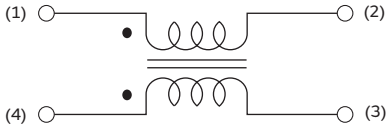
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 2500 |
| L | ø180mm Embossed Tape | 700 |
| B | Bulk(Bag) | 100 |

### Equivalent Circuit



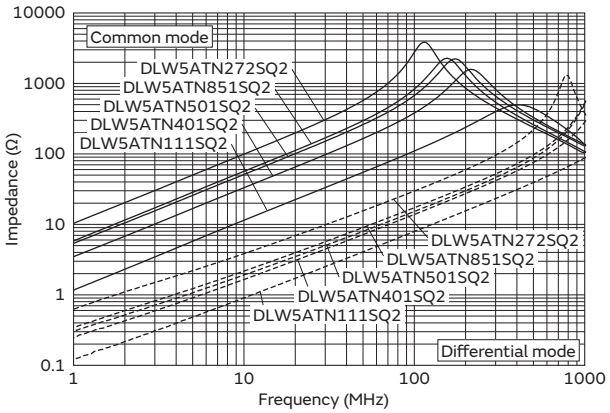

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 10MHz | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|---|
| DLW5ATN111SQ2□ | 12Ω±25% | 110Ω(Typ.) | 5A | 50Vdc | 10MΩ | 125Vdc | 0.020Ω max. |
| DLW5ATN401SQ2□ | 35Ω±25% | 400Ω(Typ.) | 2A | 50Vdc | 10MΩ | 125Vdc | 0.034Ω max. |
| DLW5ATN501SQ2□ | 55Ω±25% | 500Ω(Typ.) | 1.5A | 50Vdc | 10MΩ | 125Vdc | 0.056Ω max. |
| DLW5ATN851SQ2□ | 60Ω±25% | 850Ω(Typ.) | 1.5A | 50Vdc | 10MΩ | 125Vdc | 0.073Ω max. |
| DLW5ATN272SQ2□ | 100Ω±25% | 2700Ω(Typ.) | 1A | 50Vdc | 10MΩ | 125Vdc | 0.12Ω max. |

Operating Temp. Range: -40°C to 85°C

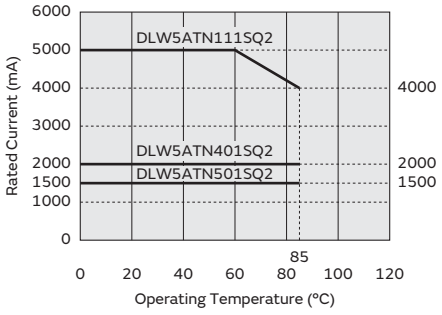
### Z-f Characteristics: DLW5ATN_SQ2 Series




### Derating of Rated Current

In operating temperature exceeding +60°C, derating of current is necessary for DLW5AT series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

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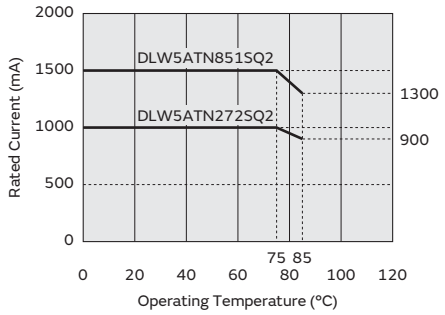
## Derating of Rated Current

In operating temperature exceeding +75°C, derating of current is necessary for DLW5AT series.
Please apply the derating curve shown in chart according to the operating temperature.

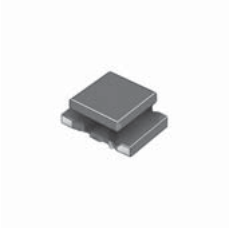
Derating of Rated Current

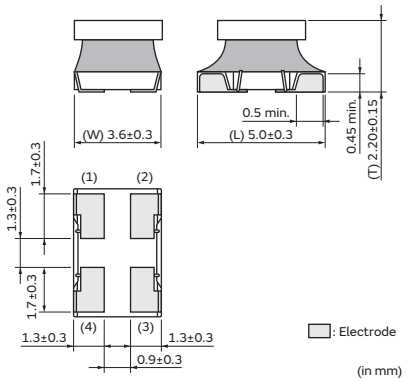


## Common mode choke coil/Common mode noise filter

# DLW5AT_MQ2 Series 2014/5036(inch/mm)

### Appearance/Dimensions

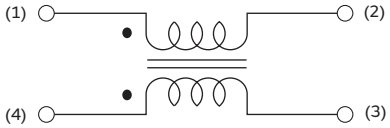





### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 2500 |
| L | ø180mm Embossed Tape | 700 |
| B | Bulk(Bag) | 100 |

### Equivalent Circuit



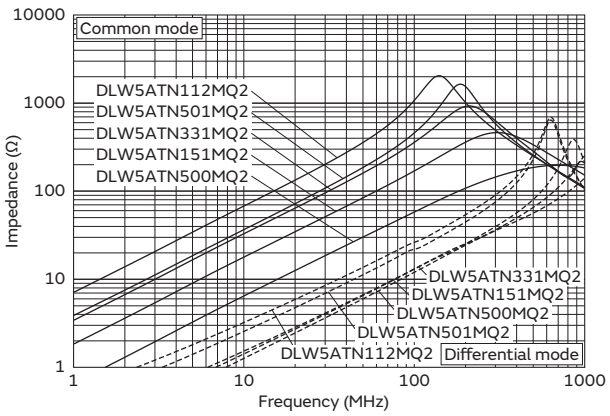

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 10MHz | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|---|
| **DLW5ATN500MQ2□** | 4.6Ωmin. | 50Ω(Typ.) | 6A | 50Vdc | 10MΩ | 125Vdc | 0.013Ω max. |
| **DLW5ATN151MQ2□** | 11Ωmin. | 150Ω(Typ.) | 5A | 50Vdc | 10MΩ | 125Vdc | 0.020Ω max. |
| **DLW5ATN331MQ2□** | 20Ωmin. | 330Ω(Typ.) | 4A | 50Vdc | 10MΩ | 125Vdc | 0.027Ω max. |
| **DLW5ATN501MQ2□** | 35Ωmin. | 500Ω(Typ.) | 2.5A | 50Vdc | 10MΩ | 125Vdc | 0.034Ω max. |
| **DLW5ATN112MQ2□** | 50Ωmin. | 1100Ω(Typ.) | 2A | 50Vdc | 10MΩ | 125Vdc | 0.056Ω max. |

Operating Temp. Range: -40°C to 105°C

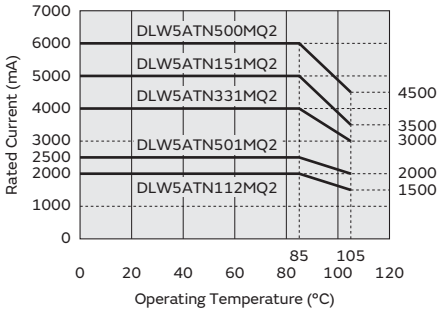
### Z-f Characteristics: DLW5ATN_MQ2 Series




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for DLW5AT series (105 degree C available type). Please apply the derating curve shown in chart according to the operating temperature.

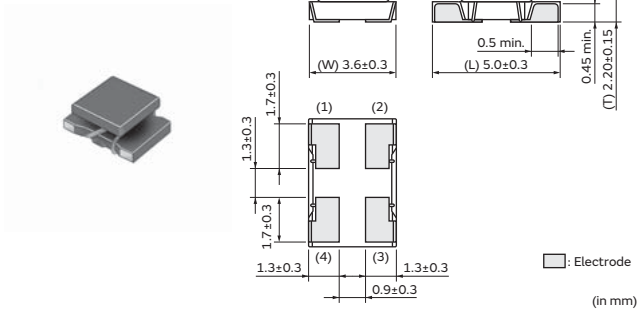
Derating of Rated Current



## Common mode choke coil/Common mode noise filter

# DLW5AT_TQ2 Series 2014/5036(inch/mm)

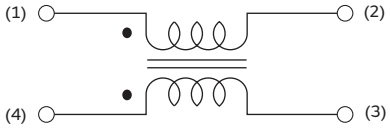
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 2500 |
| L | ø180mm Embossed Tape | 700 |
| B | Bulk(Bag) | 100 |

### Equivalent Circuit



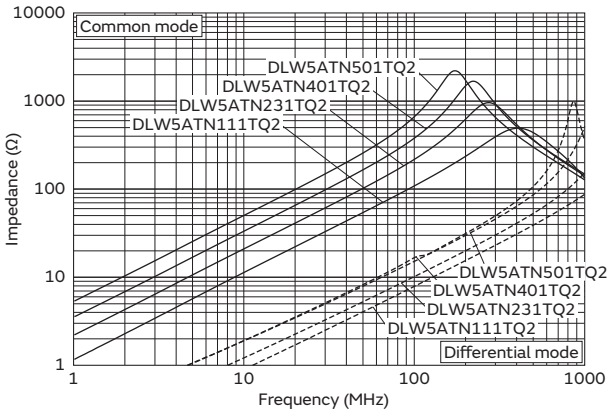

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 10MHz | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|---|
| DLW5ATN111TQ2□ | 12Ω±25% | 110Ω(Typ.) | 5A | 50Vdc | 10MΩ | 125Vdc | 0.020Ω max. |
| DLW5ATN231TQ2□ | 22Ω±25% | 230Ω(Typ.) | 4A | 50Vdc | 10MΩ | 125Vdc | 0.027Ω max. |
| DLW5ATN401TQ2□ | 35Ω±25% | 400Ω(Typ.) | 2.5A | 50Vdc | 10MΩ | 125Vdc | 0.034Ω max. |
| DLW5ATN501TQ2□ | 55Ω±25% | 500Ω(Typ.) | 2A | 50Vdc | 10MΩ | 125Vdc | 0.056Ω max. |

Operating Temp. Range: -40°C to 105°C

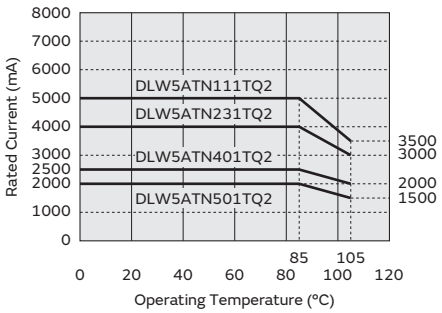
### Z-f Characteristics: DLW5ATN_TQ2 Series




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for DLW5AT series (105 degree C available type). Please apply the derating curve shown in chart according to the operating temperature.

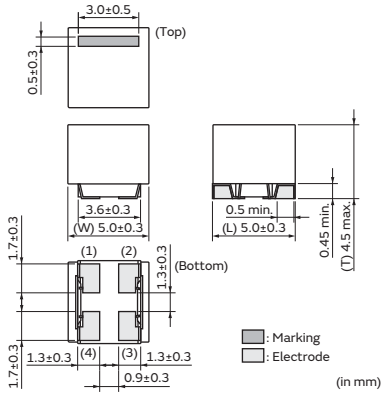
Derating of Rated Current



## Common mode choke coil/Common mode noise filter

# DLW5BS_TQ2 Series 2020/5050(inch/mm)

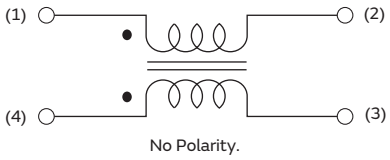
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 1500 |
| L | ø180mm Embossed Tape | 400 |
| B | Bulk(Bag) | 100 |

### Equivalent Circuit



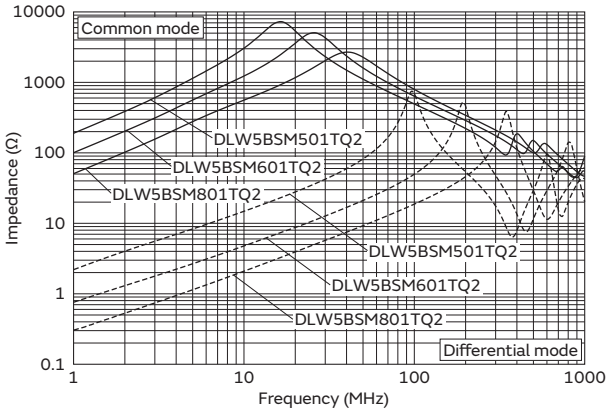

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 10MHz | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|---|
| **DLW5BSM501TQ2□** | 2800Ω±40% | 500Ω(Typ.) | 1A | 50Vdc | 10MΩ | 125Vdc | 0.23Ω max. |
| **DLW5BSM601TQ2□** | 1200Ω±40% | 600Ω(Typ.) | 1.4A | 50Vdc | 10MΩ | 125Vdc | 0.12Ω max. |
| **DLW5BSM801TQ2□** | 550Ω±40% | 800Ω(Typ.) | 2A | 50Vdc | 10MΩ | 125Vdc | 0.056Ω max. |

Operating Temp. Range: -40°C to 105°C

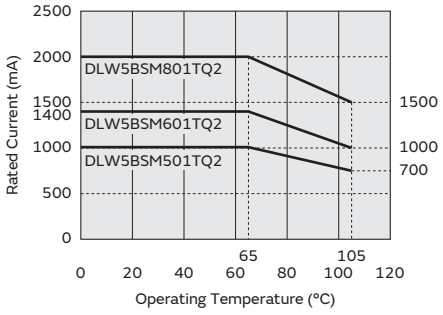
### Z-f Characteristics: DLW5BSM_TQ2 Series




### Derating of Rated Current

In operating temperature exceeding +65°C, derating of current is necessary for DLW5BS_TQ2 series.
Please apply the derating curve shown in chart according to the operating temperature.

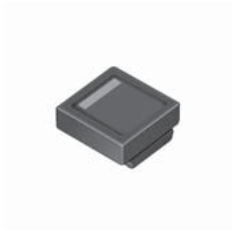
Derating of Rated Current

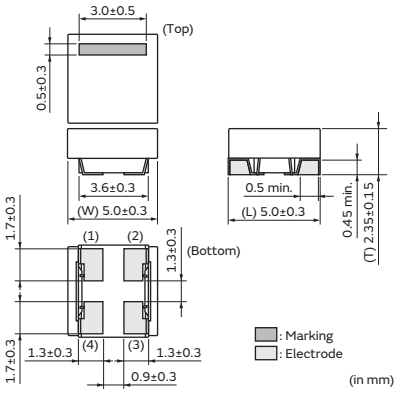


## Common mode choke coil/Common mode noise filter

# DLW5BT_SQ2 Series 2020/5050(inch/mm)

### Appearance/Dimensions

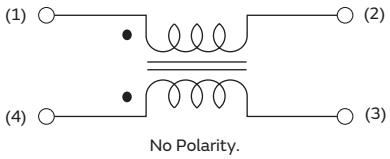





### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 2500 |
| L | ø180mm Embossed Tape | 700 |
| B | Bulk(Bag) | 100 |

### Equivalent Circuit



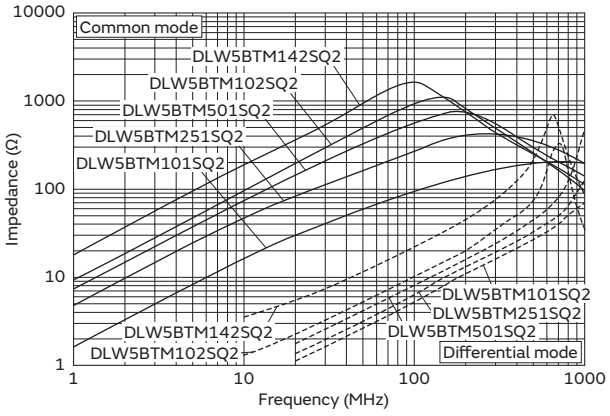

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 10MHz | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|---|
| **DLW5BTM101SQ2□** | 10Ωmin. | 100Ω(Typ.) | 6A | 50Vdc | 10MΩ | 125Vdc | 0.013Ω max. |
| **DLW5BTM251SQ2□** | 20Ωmin. | 250Ω(Typ.) | 5A | 50Vdc | 10MΩ | 125Vdc | 0.020Ω max. |
| **DLW5BTM501SQ2□** | 30Ωmin. | 500Ω(Typ.) | 4A | 50Vdc | 10MΩ | 125Vdc | 0.027Ω max. |
| **DLW5BTM102SQ2□** | 60Ωmin. | 1000Ω(Typ.) | 2A | 50Vdc | 10MΩ | 125Vdc | 0.034Ω max. |
| **DLW5BTM142SQ2□** | 100Ωmin. | 1400Ω(Typ.) | 1.5A | 50Vdc | 10MΩ | 125Vdc | 0.056Ω max. |

Operating Temp. Range: -40°C to 85°C

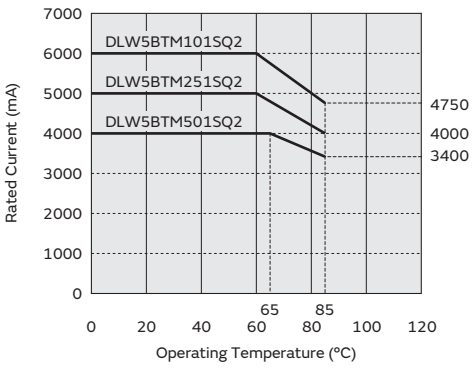
### Z-f Characteristics: DLW5BTM_SQ2 Series




### Derating of Rated Current

In operating temperature exceeding +60°C, derating of current is necessary for the following part name of DLW5BT series. Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



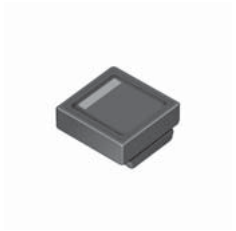


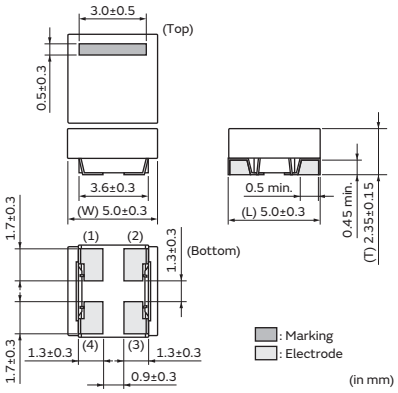

muRata

## Common mode choke coil/Common mode noise filter

# DLW5BT_TQ2 Series 2020/5050(inch/mm)

### Appearance/Dimensions

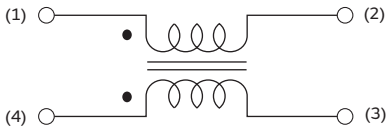





### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 2500 |
| L | ø180mm Embossed Tape | 700 |
| B | Bulk(Bag) | 100 |

### Equivalent Circuit



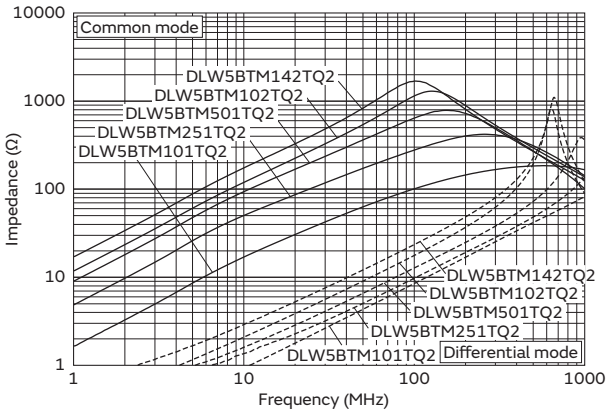

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 10MHz | Common Mode Impedance at 100MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|---|
| **DLW5BTM101TQ2□** | 10Ωmin. | 100Ω(Typ.) | 6A | 50Vdc | 10MΩ | 125Vdc | 0.013Ω max. |
| **DLW5BTM251TQ2□** | 20Ωmin. | 250Ω(Typ.) | 5A | 50Vdc | 10MΩ | 125Vdc | 0.020Ω max. |
| **DLW5BTM501TQ2□** | 30Ωmin. | 500Ω(Typ.) | 4A | 50Vdc | 10MΩ | 125Vdc | 0.027Ω max. |
| **DLW5BTM102TQ2□** | 60Ωmin. | 1000Ω(Typ.) | 2.5A | 50Vdc | 10MΩ | 125Vdc | 0.034Ω max. |
| **DLW5BTM142TQ2□** | 100Ωmin. | 1400Ω(Typ.) | 2A | 50Vdc | 10MΩ | 125Vdc | 0.056Ω max. |

Operating Temp. Range: -40°C to 105°C

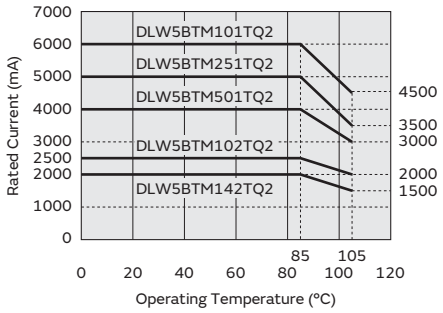
### Z-f Characteristics: DLW5BTM_TQ2 Series




### Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for DLW5BT series (105 degree C available type). Please apply the derating curve shown in chart according to the operating temperature.

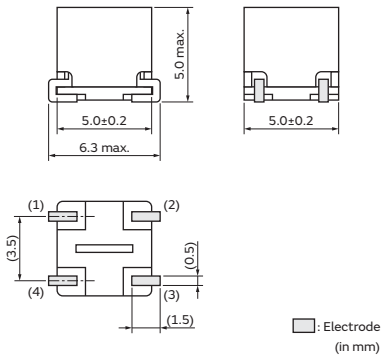
Derating of Rated Current



## Common mode choke coil/Common mode noise filter

# PLT5BPH Series 2020/5050(inch/mm)

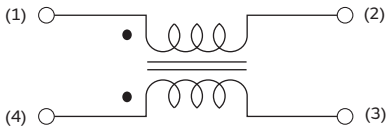
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 300 |
| B | Bulk(Bag) | 50 |

### Equivalent Circuit



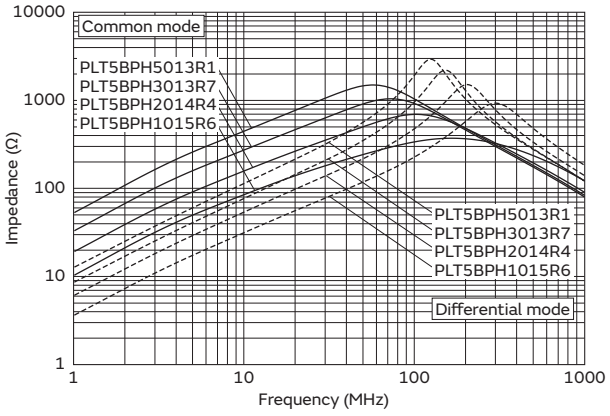

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 10MHz | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance |
|---|---|---|---|---|---|---|
| PLT5BPH1015R6SN□ | 100Ω(Typ.) | 5.6A | 80Vdc | 10MΩ | 200Vdc | 4mΩ±30% |
| PLT5BPH2014R4SN□ | 200Ω(Typ.) | 4.4A | 80Vdc | 10MΩ | 200Vdc | 7mΩ±30% |
| PLT5BPH3013R7SN□ | 300Ω(Typ.) | 3.7A | 80Vdc | 10MΩ | 200Vdc | 11mΩ±30% |
| PLT5BPH5013R1SN□ | 500Ω(Typ.) | 3.1A | 80Vdc | 10MΩ | 200Vdc | 17mΩ±30% |

Operating Temp. Range: -55°C to 150°C

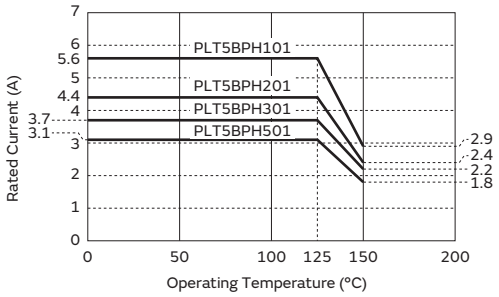
### Z-f characteristics: PLT5BPH series




### Derating of Rated Current

In operating temperature exceeding +125°C, derating of current is necessary for PLT5BP series.
Please apply the derating curve shown in chart according to the operating temperature.

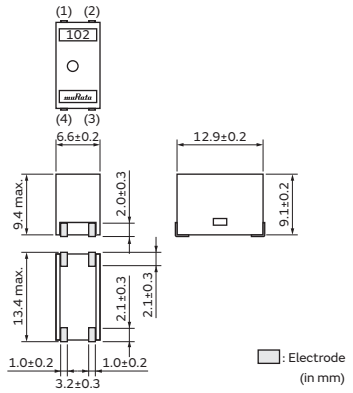
Derating of Rated Current



## Common mode choke coil/Common mode noise filter

# PLT10HH Series

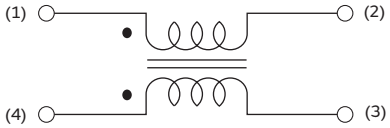
### Appearance/Dimensions




### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| K | ø330mm Embossed Tape | 500 |
| L | ø180mm Embossed Tape | 125 |
| B | Bulk(Bag) | 50 |

### Equivalent Circuit



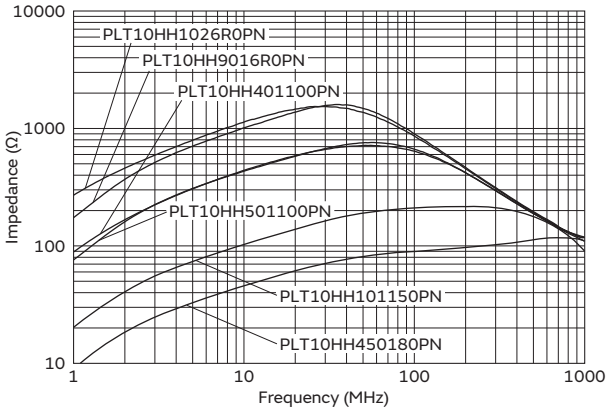

No Polarity.

### Rated Value (□: packaging code)

| Part Number | Common Mode Impedance at 10MHz | Common Mode Inductance | Rated Current | Rated Voltage | Insulation Resistance (Min.) | Withstanding Voltage | DC Resistance | Operating Temp. Range |
|---|---|---|---|---|---|---|---|---|
| **PLT10HH450180PN□** | 45Ω(Typ.) | 0.8μHmin. | 18A | 300Vdc | 10MΩ | 750Vdc | 1.3mΩ±0.5mΩ | -55°C to 125°C |
| **PLT10HH101150PN□** | 100Ω(Typ.) | 2.0μHmin. | 15A | 300Vdc | 10MΩ | 750Vdc | 1.8mΩ±0.5mΩ | -55°C to 125°C |
| **PLT10HH401100PN□** | 400Ω(Typ.) | 6μHmin. | 10A | 100Vdc | 10MΩ | 250Vdc | 3.6mΩ±0.5mΩ | -55°C to 125°C |
| **PLT10HH501100PN□** | 500Ω(Typ.) | 9μHmin. | 10A | 100Vdc | 10MΩ | 250Vdc | 3.6mΩ±0.5mΩ | -55°C to 105°C |
| **PLT10HH9016R0PN□** | 900Ω(Typ.) | 14μHmin. | 6A | 100Vdc | 10MΩ | 250Vdc | 8.0mΩ±0.5mΩ | -55°C to 125°C |
| **PLT10HH1026R0PN□** | 1000Ω(Typ.) | 20μHmin. | 6A | 100Vdc | 10MΩ | 250Vdc | 8.0mΩ±0.5mΩ | -55°C to 105°C |

Operating temperature should include self-temperature rise.

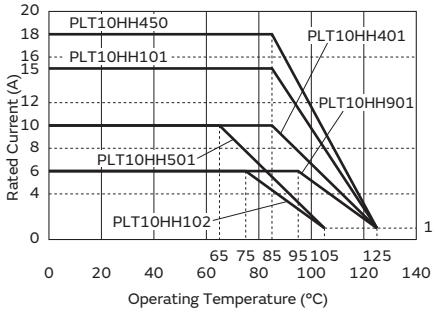
### Z-f characteristics: PLT10HH series




### Derating of Rated Current

In operating temperature exceeding +65°C, derating of current is necessary for PLT10H series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



# Common Mode Choke Coil/Common Mode Noise Filter (DLM/DLP/DLW/NFP) ⚠Caution/Notice

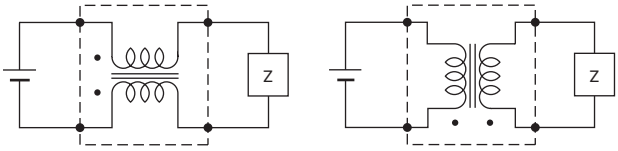
## ⚠Caution

### Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance. Be sure to provide an appropriate fail-safe function on your product to prevent secondary damage that may be caused by the abnormal function or the failure our product.

### Soldering and Mounting

1. Self-heating
   Please pay special attention when mounting chip common mode choke coils DLW5 series in close proximity to other products that radiate heat.
   The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.
2. Mounting Direction
   Mount Chip Common Mode Choke Coils in the right direction. The wrong direction, which is 90 degrees rotated from the right direction, causes not only open or short circuit but also flames or other serious problems.



right direction　　wrong direction

## Notice

### Storage and Operating Conditions

<Operating Environment>
Do not use products in a corrodible atmosphere such as acidic gases, alkaline gases, chlorine, sulfur gases, organic gases (a sea breeze, $Cl_2$, $H_2S$, $NH_3$, $SO_2$, $NO_2$, etc.).
Do not use products in an environment close to an organic solvent.
<Storage and Handling Requirements>
1. Storage Period
   DLM11G series should be used within 6 months; the other series should be used within 12 months.
   Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40˚C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

### Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product can be caused by the cleaning method. When you clean in conditions that are not in the mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in the mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

Continued on the following page. ↗

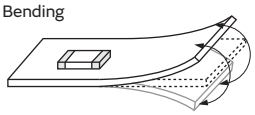
# Common Mode Choke Coil/Common Mode Noise Filter (DLM/DLP/DLW/NFP) ⚠Caution/Notice

Continued from the preceding page.↘

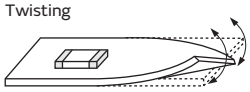
## Handling

1. Resin Coating (except for DLW Series)
   Using resin for coating/molding products may affect the product's performance.
   So please pay careful attention in selecting resin.
   Prior to use, please make a reliability evaluation with the product mounted in your application set.
2. Resin Coating (DLW Series)
   The impedance value may change due to high cure-stress of resin to be used for coating/molding products. An open circuit issue may occur by mechanical stress caused by the resin, amount/cured shape of resin, or operating conditions, etc. Some resins containing impurities or chloride may possibly generate chlorine by hydrolysis under some operating conditions, causing corrosion of the coil wire and leading to an open circuit.
   Therefore, please pay careful attention to selecting the resin for coating/molding the products. Prior to using the coating resin, please ensure that no reliability issue is observed by evaluating products mounted on your board.
3. Caution for Use (DLW Series)
   When you hold products with a tweezer, please hold by the sides. Sharp materials, such as a pair of tweezers, should not touch the winding portion to prevent breaking the wire. To prevent breaking the core, mechanical shock should not be applied to the products mounted on the board.
4. Brushing
   When you clean the neighborhood of products such as connector pins, cleaning brush bristles should not be touched to the winding portion of this product to prevent breaking the wire.
5. Handling of Substrates
   After mounting products on a substrate, do not apply any stress to the product by bending or twisting the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening a screw to the substrate. Excessive mechanical stress may cause cracking in the product.

Bending



Twisting



# Common Mode Choke Coil (PLT) ⚠Caution/Notice

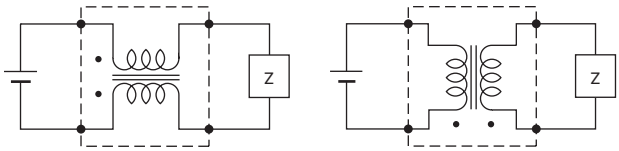
## ⚠Caution

### Rating

1. Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.
2. Be sure to provide an appropriate fail-safe function on your product to prevent secondary damage that may be caused by the abnormal function or the failure our product.

### Soldering and Mounting

1. Self-heating
   Please pay special attention when mounting chip common mode choke coils in close proximity to other products that radiate heat.
   The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.
2. Mounting Direction
   Mount Chip Common Mode Choke Coils in the right direction. The wrong direction, which is 90 degrees rotated from the right direction, causes not only open or short circuit but also flames or other serious problems.



right direction　　wrong direction

## Notice

### Storage and Operating Conditions

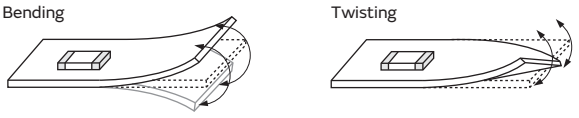
<Operating Environment>
Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
Do not use products in an environment close to an organic solvent.
<Storage and Handling Requirements>
1. Storage Period
   PLT10H series should be used within 12 months.
   Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40˚C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

### Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product can be caused by the cleaning method. When you clean in conditions that are not in the mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in the mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

### Handling

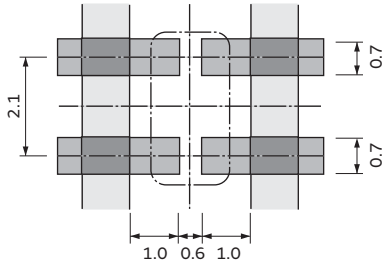
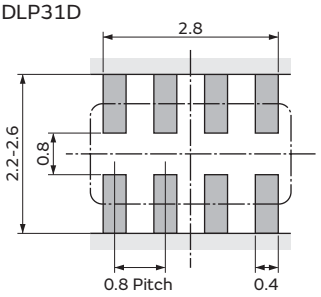
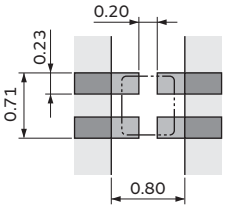
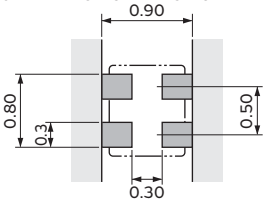
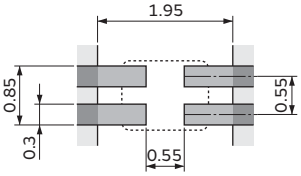
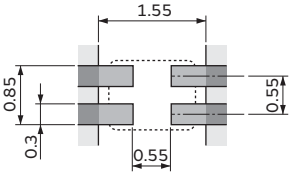
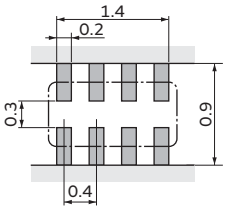
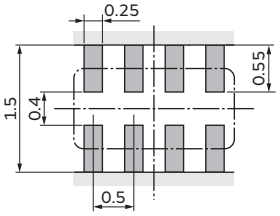
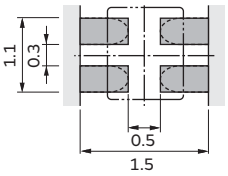
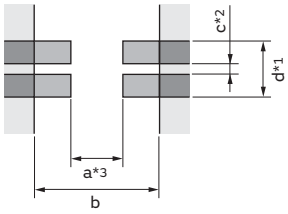
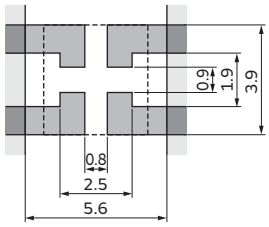
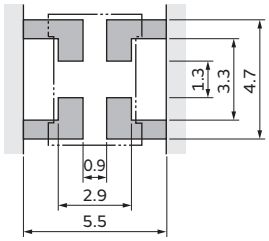
1. Handling of Substrates
   After mounting products on a substrate, do not apply any stress to the product by bending or twisting the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening a screw to the substrate.
   Excessive mechanical stress may cause cracking in the product.



# Common Mode Choke Coil/Common Mode Noise Filter (DLM/DLP/DLW/NFP) Soldering and Mounting

## 1. Standard Land Pattern Dimensions

Land Pattern + Solder Resist | Land Pattern | Solder Resist (in mm)

| Series | Standard Land Dimensions |
|---|---|
| **DLM0QS**<br>**DLM0NS**<br>**DLM11G**<br>**DLM11S**<br>**DLP0QS**<br>**DLP0NS**<br>**DLP11R**<br>**DLP11S**<br>**DLP11T**<br>**DLP31S**<br>**DLP1ND**<br>**DLP2AD**<br>**DLP31D**<br>**DLW21H**<br>**DLW21S**<br>**DLW31SN**<br>**NFP0QH**<br>**NFP0QS**<br>**DLW44**<br>**DLW5A**<br>**DLW5B** | ●Reflow and Flow<br>DLP31S<br>  <br><br>DLP31D<br>  <br><br>●Reflow Soldering<br>DLM0QS/DLP0QS/NFP0QH/0QS<br>  <br><br>DLM0NS/DLP0NS<br>  <br><br>DLP11S/DLM11S<br>  <br><br>DLP11R/11T<br>  <br><br>DLP1ND<br>  <br><br>DLP2AD<br>  <br><br>DLM11G<br>  <br><br>DLW21S/21H/31SN<br>  <br><br>DLW44<br>  <br><br>DLW5A/5B<br>(except for DLW5AT_MQ2)<br>  <br> |

| Series | a | b | c | d |
|---|---|---|---|---|
| **DLW21S/H** | 0.8 | 2.6 | 0.4 | 1.2 |
| **DLW31SN** | 1.6 | 3.7 | 0.4 | 1.6 |

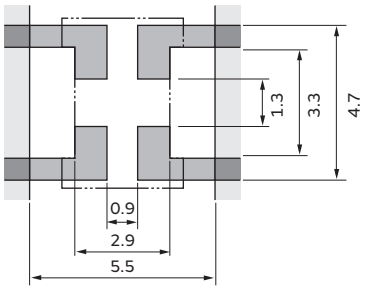
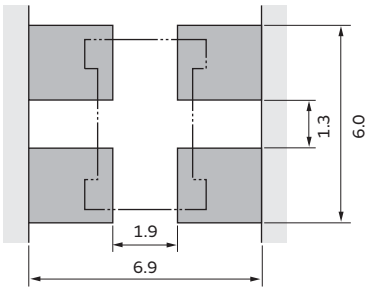
*1: If the pattern is made wider than 1.2mm (DLW21) / 1.6mm (DLW31S) it may result in components turning around, because melting speed is different. In the worst case, short circuit between lines may occur.
*2: If the pattern is made with less than specified dimensions, in the worst case, short circuit between lines may occur due to spread of soldering paste or mount placing accuracy.
*3: If the pattern is made wider than 0.8mm (DLW21) / 1.6mm (DLW31SN), the bending strength will be reduced. Do not use gild pattern; excess soldering heat may dissolve the metal of a copper wire.

Continued on the following page.↗

# Common Mode Choke Coil/Common Mode Noise Filter (DLM/DLP/DLW/NFP) Soldering and Mounting

Continued from the preceding page.↘

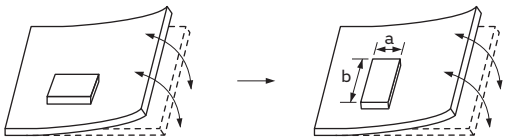
Land Pattern + Solder Resist　Land Pattern　Solder Resist　(in mm)

| Series | Standard Land Dimensions |
|---|---|
| **DLW5AT_MQ2** | ●Reflow Soldering Chip Mounting Side<br>DLW5AT_MQ2<br>  <br><br>●Flow Soldering Chip Mounting Side<br>DLW5AT_MQ2<br>  <br> |

● PCB Warping

PCB should be designed so that products are not subjected to mechanical stress caused by warping the board.

Products should be located in a sideways direction (Length: a<b) to the mechanical stress.




Poor example　Good example

## 2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip common mode choke coils, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.
When flow soldering the chip common mode choke coils, apply the adhesive in accordance with the following conditions.
If too much adhesive is applied, it may overflow into the land or termination areas and yield poor solderability.
In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during the flow soldering process.

Continued on the following page.↗

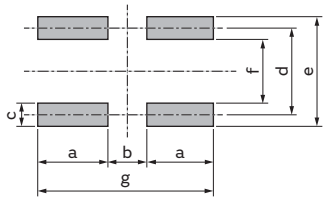
# Common Mode Choke Coil/Common Mode Noise Filter (DLM/DLP/DLW/NFP) Soldering and Mounting

Continued from the preceding page.↘

(in mm)

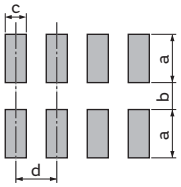
| Series | Solder Paste Printing | Adhesive Application |
|---|---|---|
| **DLM**<br>**DLP**<br>**DLW**<br>**NFP** | ●Guideline of solder paste thickness:<br>80-100μm: DLP0QS<br>100-150μm: DLM0QS/0NS/DLM11G/11S, DLP0NS/11R/11S/11T/1ND/2AD, DLW21H/21S/31S, NFP0QH/0QS<br>150-200μm: DLP31D/31S, DLW5A/5B<br>*Solderability is subject to reflow conditions and thermal conductivity. Please ensure that your product has been evaluated in view of your specifications with our product being mounted to your product. | DLP31S/DLP31D/<br>DLW5AT_MQ2<br>Apply 0.3mg of bonding agent at each chip. |

DLM0QS/0NS/11G/11S/DLP0QS/0NS/11R/11S/11T/31S/NFP0QH/0QS



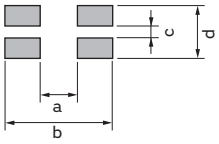

| Series | a | b | c | d | e | f | g |
|---|---|---|---|---|---|---|---|
| **DLM0QS/DLP0QS/NFP0QH/0QS** | 0.3 | 0.2 | 0.23 | - | 0.71 | - | - |
| **DLM0NS/DLP0NS** | 0.3 | 0.3 | 0.3 | 0.5 | - | - | - |
| **DLM11G** | - | 0.5 | - | - | 1.1 | 0.3 | 1.5 |
| **DLM11S/DLP11S** | 0.7 | 0.55 | 0.3 | 0.55 | - | - | - |
| **DLP11R/T** | 0.5 | 0.55 | 0.3 | 0.55 | - | - | - |
| **DLP31S** | 1.0 | 0.6 | 0.7 | 2.1 | - | - | - |

DLP1ND/2AD/31D



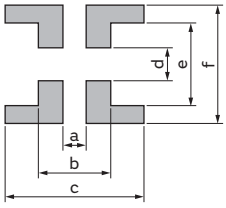

| Series | a | b | c | d |
|---|---|---|---|---|
| **DLP1ND** | 0.3 | 0.3 | 0.2 | 0.4 |
| **DLP2AD** | 0.55 | 0.4 | 0.25 | 0.5 |
| **DLP31D** | 1.0 | 0.8 | 0.4 | 0.8 |

DLW21S/21H/31S



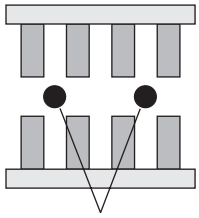

| Series | a | b | c | d |
|---|---|---|---|---|
| **DLW21S/H** | 0.8 | 2.6 | 0.5 | 1.2 |
| **DLW31S** | 1.6 | 3.7 | 0.4 | 1.6 |

DLW44/5A/5B



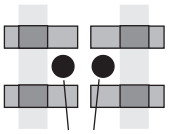

| Series | a | b | c | d | e | f |
|---|---|---|---|---|---|---|
| **DLW44** | 0.8 | 2.5 | 5.6 | 0.9 | 1.9 | 3.9 |
| **DLW5A/5B** | 0.9 | 2.9 | 5.5 | 1.3 | 3.3 | 4.7 |

DLP31D



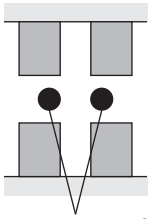
Coating Position of Bonding Agent

DLP31S



Coating Position of Bonding Agent

DLW5AT_MQ2



Coating Position of Bonding Agent

Continued on the following page.↗

# Common Mode Choke Coil/Common Mode Noise Filter (DLM/DLP/DLW/NFP) Soldering and Mounting

Continued from the preceding page.↘

## 3. Standard Soldering Conditions

(1) Soldering Methods

Use flow and reflow soldering methods only.
Use standard soldering conditions when soldering chip common mode choke coils.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.
If using DLP/DLM series with Sn-Zn based solder, please contact Murata in advance.

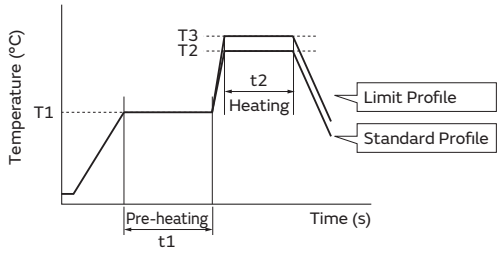
Flux:

- Use rosin-based flux.
  In case of DLW21/31 series, use rosin-based flux with converting chlorine content of 0.06 to 0.1wt%.
  In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

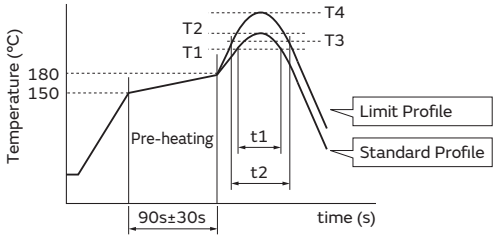
(2) Soldering Profile

●Flow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)




| Series | Pre-heating | | Standard Profile | | | Limit Profile | | |
|---|---|---|---|---|---|---|---|---|
| | | | Heating | | Cycle of Flow | Heating | | Cycle of Flow |
| | Temp. (T1) | Time (t1) | Temp. (T2) | Time (t2) | | Temp. (T3) | Time (t2) | |
| **DLW5AT_MQ2 DLP31D/31S** | 150°C | 60s min. | 250°C | 4 to 6s | 2 times max. | 265±3°C | 5s max. | 2 times max. |

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)




| Series | Standard Profile | | | | Limit Profile | | | |
|---|---|---|---|---|---|---|---|---|
| | Heating | | Peak Temperature (T2) | Cycle of Reflow | Heating | | Peak Temperature (T4) | Cycle of Reflow |
| | Temp. (T1) | Time (t1) | | | Temp. (T3) | Time (t2) | | |
| **DLM/DLP DLW21/31 NFP** | 220°C min. | 30 to 60s | 245±3°C | 2 times max. | 230°C min. | 60s max. | 260°C/10s | 2 times max. |
| **DLW44/5A/5B** | 220°C min. | 30 to 60s | 250±3°C | 2 times max. | 230°C min. | 60s max. | 260°C/10s | 2 times max. |

Continued on the following page.↗

## Common Mode Choke Coil/Common Mode Noise Filter (DLM/DLP/DLW/NFP) Soldering and Mounting

Continued from the preceding page.↘

(3) Reworking with a soldering Iron
The following conditions must be strictly followed when using a soldering iron.
Pre-heating: 150°C 60s min.
Soldering iron power output / Tip diameter:
30W max. / ø3mm max.
Temperature of soldering iron tip / Soldering time / Times:
350°C max. / 3-4s / 2 times*1

*1 DLM0Q/0N,DLP0QS/0NS,DLP11S/11T/1ND
DLP2AD: 380°C max. / 3-4s / 2 times
NFP0QH/0QS cannot be reworked with a soldering iron.
Do not allow the tip of the soldering iron to directly contact the chip.
For additional methods of reworking with a soldering iron, please contact Murata engineering.

### 4. Cleaning

The following conditions should be observed when cleaning chip EMI filters.
(1) Cleaning temperature: 60°C max. (40°C max. for alcohol type cleaner)
(2) Ultrasonic
Output: 20W/liter max.
Duration: 5 minutes max.
Frequency: 28 to 40kHz
(3) Cleaning agent
The following cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.
Do not clean DLW (except for DLW21H) series.
Before cleaning, please contact Murata engineering.
(a) Alcohol cleaning agent
Isopropyl alcohol (IPA)
(b) Aqueous cleaning agent
Pine Alpha ST-100S

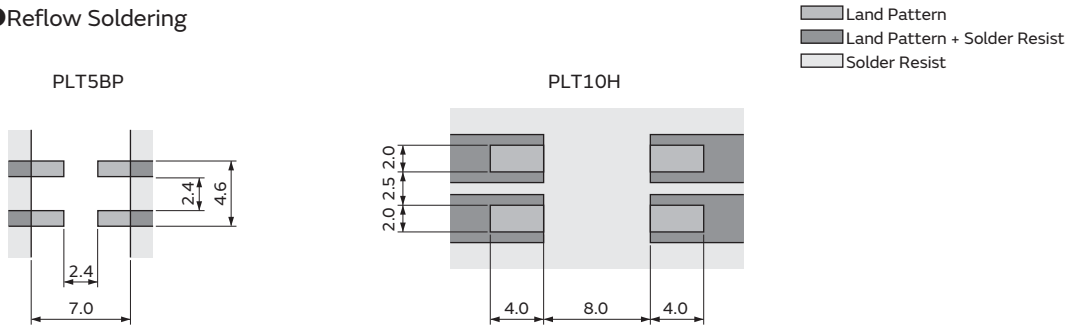
(4) Ensure that flux residue is completely removed.
The component should be thoroughly dried after the aqueous agent has been removed with deionized water.

# Common Mode Choke Coil (PLT) Soldering and Mounting

## 1. Standard Land Pattern Dimensions

(in mm)

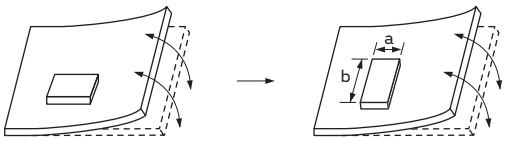
| Series | Standard Land Dimensions |
|---|---|
| **PLT5BP**<br>**PLT10H** | ●Reflow Soldering |




● PCB Warping

PCB should be designed so that products are not subjected to mechanical stress caused by warping the board.

Products should be located in a sideways direction (Length: a<b) to the mechanical stress.




## 2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip common mode choke coils, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the chip common mode choke coils, apply the adhesive in accordance with the following conditions.
If too much adhesive is applied, it may overflow into the land or termination areas and yield poor solderability.
In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during the flow soldering process.

| Series | Solder Paste Printing |
|---|---|
| **PLT5BP**<br>**PLT10H** | ●Guideline of solder paste thickness:<br>150μm: PLT5BP<br>150-200μm: PLT10H<br>For the solder paste printing pattern, use standard land dimensions.<br><br>*Solderability is subject to reflow conditions and thermal conductivity. Please ensure that your product has been evaluated in view of your specifications with our product being mounted to your product. |

Continued on the following page.↗

# Common Mode Choke Coil (PLT) Soldering and Mounting

Continued from the preceding page.↘

### 3. Standard Soldering Conditions

(1) Soldering Methods

Use reflow soldering methods only.
Use standard soldering conditions when soldering chip common mode choke coils.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.

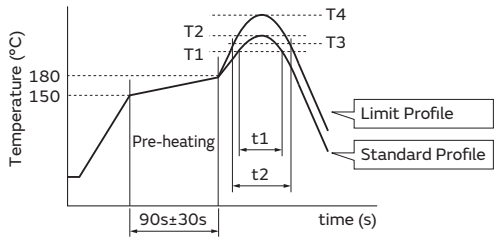
Flux:

- Use rosin-based flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

(2) Soldering Profile

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)




| Series | Standard Profile | | | | Limit Profile | | | |
|---|---|---|---|---|---|---|---|---|
| | Heating | | Peak Temperature (T2) | Cycle of Reflow | Heating | | Peak Temperature (T4) | Cycle of Reflow |
| | Temp. (T1) | Time (t1) | | | Temp. (T3) | Time (t2) | | |
| **PLT5BP** | 220°C min. | 30 to 60s | 245±3°C | 2 times | 240°C min. | 30s max. | 260°C/10s | 2 times |
| **PLT10H** | 220°C min. | 30 to 60s | 250±3°C | 2 times max. | 230°C min. | 60s max. | 260°C/10s | 2 times max. |

(3) Reworking with a soldering Iron

The following conditions must be strictly followed when using a soldering iron.
Pre-heating: 150°C 60s min.
Soldering iron power output / Tip diameter:
30W max. / ø3mm max.: PLT5BP
80W max. / ø3mm max.: PLT10H
Temperature of soldering iron tip / Soldering time / Times:
350°C max. / 3 to 4s / 2 times: PLT5BP
400°C max. / 5s / 2 times: PLT10H

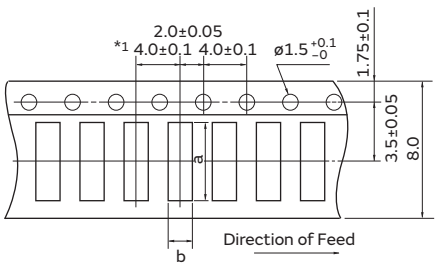
Do not allow the tip of the soldering iron to directly contact the chip.
For additional methods of reworking with a soldering iron, please contact Murata engineering.

### 4. Cleaning

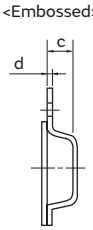
Do not clean after soldering. If cleaning, please contact us.

# Common Mode Choke Coil/Common Mode Noise Filter (DLM/DLP/DLW/NFP) Packaging

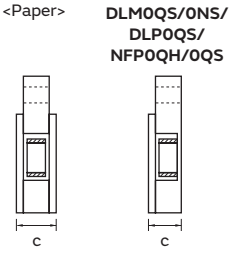
## Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape




*1 DLM0NS/11G/DLP0QS/NFP0QH/0QS: 2.0±0.05
DLP0NS: 2.0±0.1




c: Depth of Cavity
(Embossed Tape)



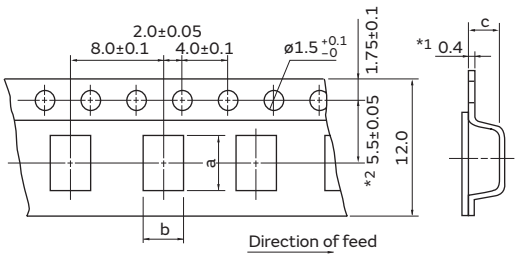

c: Total Thickness of Tape
(Paper Tape)

Dimension of the cavity of embossed tape is measured at the bottom side.

| Part Number | Dimensions | | | | Minimum Qty. (pcs.) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | ø180mm Reel | | ø330mm Reel | | Bulk |
| | a | b | c | d | Paper Tape | Embossed Tape | Paper Tape | Embossed Tape | |
| **DLM0QS/DLP0QS** | 0.73 | 0.6 | 0.55 max. | - | 15000 | - | - | - | 500 |
| **DLM0NS** | 0.97 | 0.77 | 0.8 max. | - | 10000 | - | - | - | 500 |
| **DLM11G** | 1.45 | 1.2 | 0.8 max. | - | 10000 | - | - | - | 1000 |
| **DLM11S** | 1.4 | 1.15 | 0.65 | 0.25 | - | 4000 | - | - | 500 |
| **DLP0NS** | 0.95 | 0.75 | 0.55 | 0.25 | - | 10000 | - | - | 500 |
| **DLP11R** | 1.4 | 1.15 | 0.7 | 0.25 | - | 4000 | - | - | 500 |
| **DLP11S** | 1.4 | 1.2 | 0.98 | 0.25 | - | 3000 | - | - | 500 |
| **DLP11T** | 1.35 | 1.1 | 0.45 | 0.25 | - | 5000 | - | - | 500 |
| **DLP31S/31D** | 3.5 | 1.9 | 1.3 | 0.25 | - | 3000 | - | - | 500 |
| **DLP1ND** | 1.7 | 0.84 | 0.57 | 0.25 | - | 5000 | - | - | 500 |
| **DLP2AD** | 2.2 | 1.2 | 0.98 | 0.25 | - | 3000 | - | - | 500 |
| **DLW21H** | 2.3 | 1.55 | 1.1 | 0.25 | - | 3000 | - | - | 500 |
| **DLW21SN** | 2.25 | 1.45 | 1.4 | 0.25 | - | 2000 | - | - | 500 |
| **DLW31S** | 3.6 | 2.0 | 2.1 | 0.3 | - | 2000 | - | - | 500 |
| **NFP0QH/0QS** | 0.73 | 0.6 | 0.43 max. | - | 15000 | - | - | - | 500 |

(in mm)

## Minimum Quantity and Dimensions of 12mm Width Embossed Tape




*1 DLW44/DLW5AT: 0.3 c: Depth of Cavity
*2 DLW44: 5.5±0.1

Dimension of the cavity is measured at the bottom side.

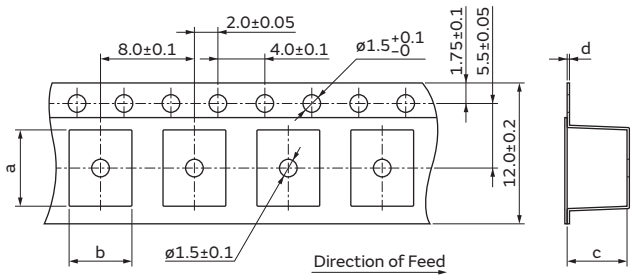
| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **DLW44S** | 4.3 | 4.3 | 1.7 | 1000 | 3500 | 100 |
| **DLW5AH** | 5.4 | 4.1 | 4.4 | 400 | 1500 | 100 |
| **DLW5AT** | 5.4 | 4.1 | 2.7 | 700 | 2500 | 100 |
| **DLW5BS** | 5.5 | 5.4 | 4.7 | 400 | 1500 | 100 |
| **DLW5BT** | 5.5 | 5.5 | 2.7 | 700 | 2500 | 100 |

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity."

# Common Mode Choke Coil (PLT) Packaging

## Minimum Quantity and Dimensions of 12mm Width Embossed Tape

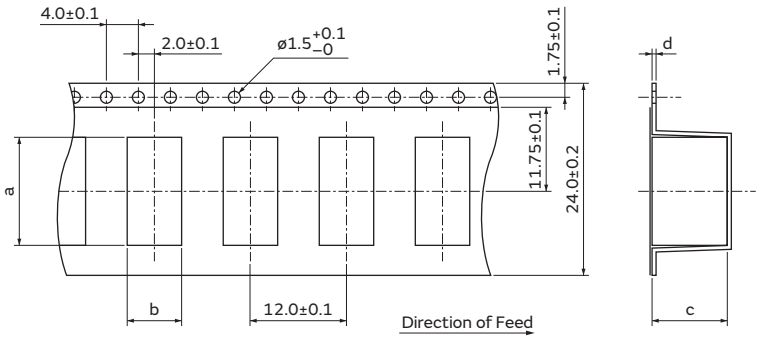



Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|---|
| | a | b | c | d | ø180mm Reel | ø330mm Reel | Bulk |
| **PLT5BP** | 6.5 | 5.35 | 5.1 | 0.4 | 300 | - | 50 |

(in mm)

## Minimum Quantity and Dimensions of 24mm Width Embossed Tape




Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|---|
| | a | b | c | d | ø180mm Reel | ø330mm Reel | Bulk |
| **PLT10H** | 13.5 | 6.8 | 9.4 | 0.5 | 125 | 500 | 50 |

(in mm)

# MEMO

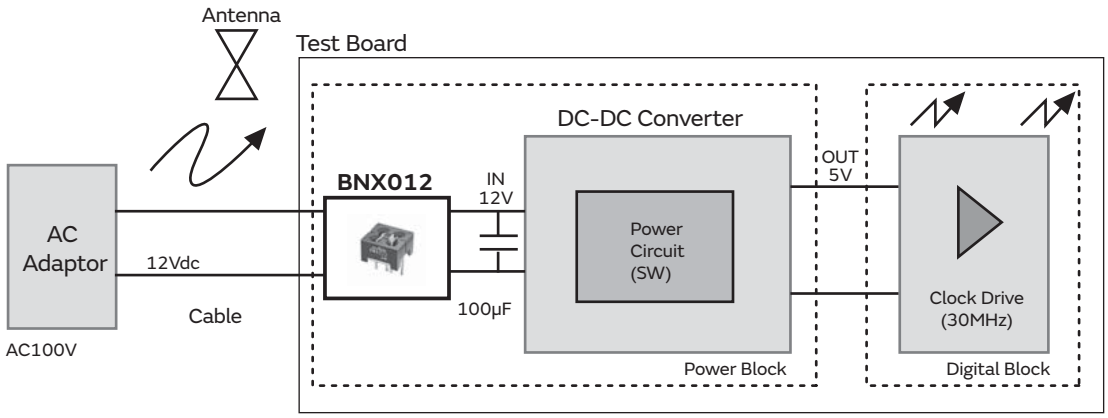
## Block Type EMIFIL®
## BNX Series

Series Lineup/Function Example ····· p254
Product Detail ····· p256
⚠Caution/Notice ····· p260
Soldering and Mounting ····· p262
Packaging ····· p266

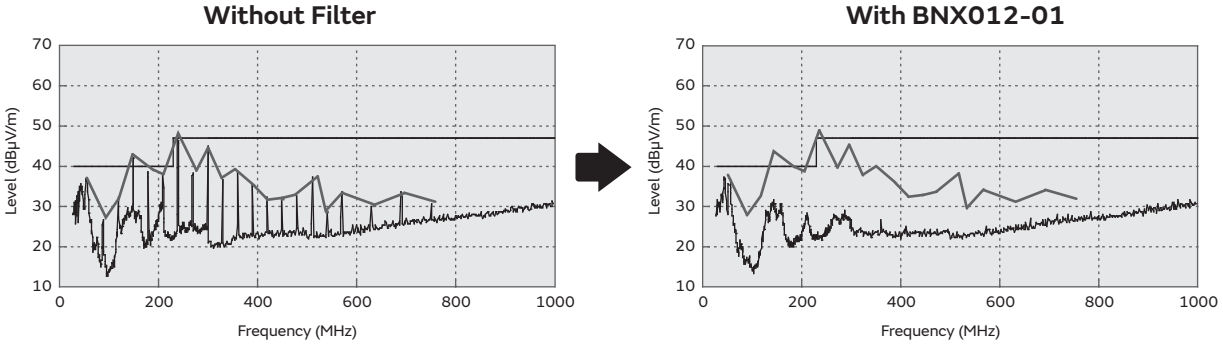
# Block Type EMIFIL® (BNX) Series Lineup / Function Example

| Type | Part Number | Thickness (mm) | Rated Voltage | Effective Frequency Range | Rated Current | Comments |
|---|---|---|---|---|---|---|
| SMD Type for Power Lines p256 | **BNX022-01□** | 3.1 | 50Vdc | 1MHz to 1GHz:35dB min. | 20A | |
| | **BNX023-01□** | 3.1 | 100Vdc | 1MHz to 1GHz:35dB min. | 20A | |
| | **BNX028-01□** | 3.5 | 16Vdc | 30kHz to 1GHz:35dB min. | 20A | |
| | **BNX029-01□** | 3.5 | 6.3Vdc | 15kHz to 1GHz:35dB min. | 20A | |
| | **BNX024H01□** | 3.5 | 50Vdc | 100kHz to 1GHz:35dB min. | 20A | Automotive Available |
| | **BNX025H01□** | 3.5 | 25Vdc | 50kHz to 1GHz:35dB min. | 20A | Automotive Available |
| | **BNX026H01□** | 3.5 | 50Vdc | 50kHz to 1GHz:35dB min. | 20A | Automotive Available |
| | **BNX027H01□** | 3.5 | 16Vdc | 40kHz to 1GHz:35dB min. | 20A | Automotive Available |
| Lead Type Low Profile for Power Lines p258 | **BNX012-01** | 8.0 | 50Vdc | 1MHz to 1GHz:40dB min. | 15A | |
| | **BNX016-01** | 8.0 | 25Vdc | 100kHz to 1GHz:40dB min. | 15A | |

## Suppression of Radiation Noise from Power Line Cable

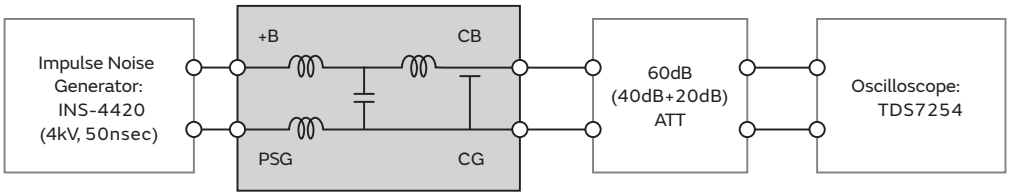



Test Result



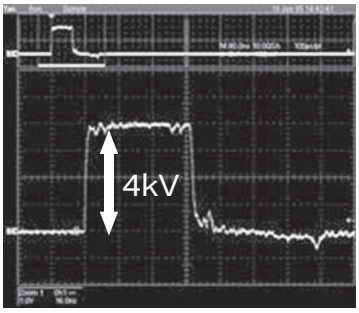
# Block Type EMIFIL® (BNX) Series Lineup / Function Example

## Impulse Noise Countermeasure



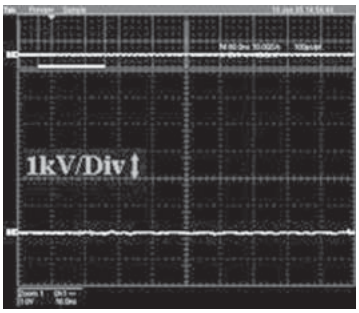

**BNX**

Without Filter

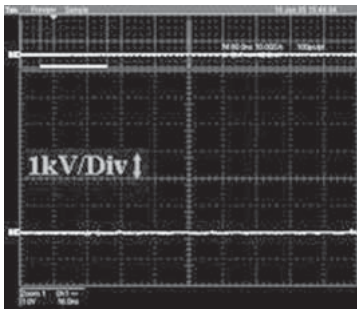



Applied Impulse Voltage: 4kV/50nS
Y-AXIS: 1kV/div

With Filter

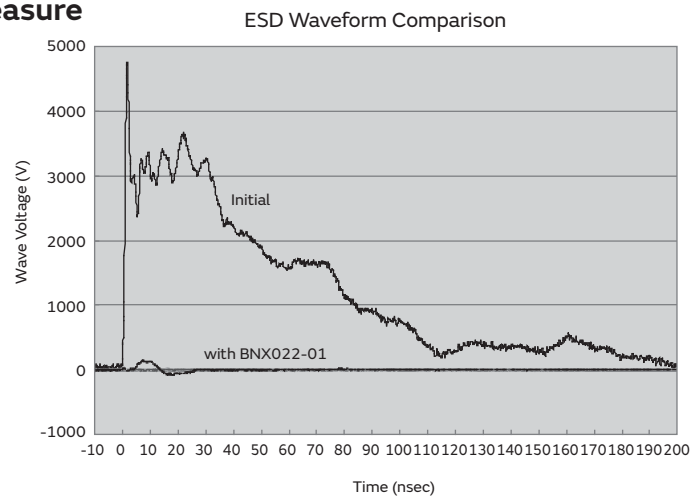



BNX012-01




BNX022-01

## ESD Countermeasure

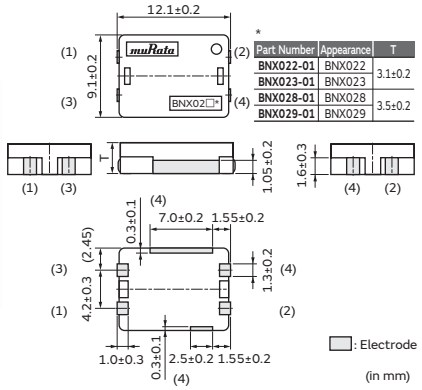


## Block Type EMIFIL®

# BNX02□ Series

### Appearance/Dimensions

BNX022/023/028/029

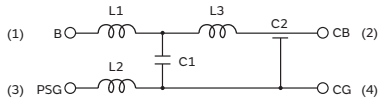



| Part Number | Appearance | T |
|---|---|---|
| BNX022-01 | BNX022 | 3.1±0.2 |
| BNX023-01 | BNX023 | |
| BNX028-01 | BNX028 | 3.5±0.2 |
| BNX029-01 | BNX029 | |

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 400 |
| K | ø330mm Embossed Tape | 1500 |
| B | Bulk(Bag) | 100 |

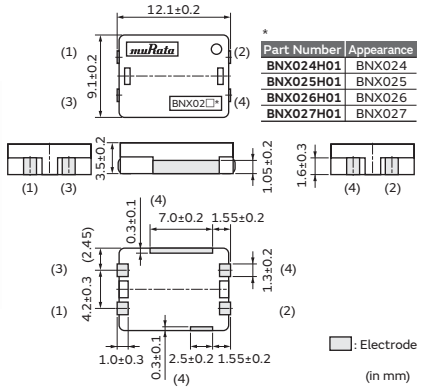
### Equivalent Circuit




(1)-(4): Terminal Number
PSG: Power Supply Ground
CG: Circuit Ground
CB: Circuit+B

### Appearance/Dimensions

BNX024H/025H/026H/027H

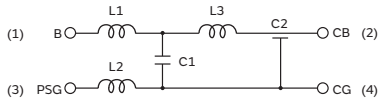



| Part Number | Appearance |
|---|---|
| BNX024H01 | BNX024 |
| BNX025H01 | BNX025 |
| BNX026H01 | BNX026 |
| BNX027H01 | BNX027 |

### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| L | ø180mm Embossed Tape | 400 |
| K | ø330mm Embossed Tape | 1500 |
| B | Bulk(Bag) | 100 |

### Equivalent Circuit




(1)-(4): Terminal Number
PSG: Power Supply Ground
CG: Circuit Ground
CB: Circuit+B

### Rated Value (□: packaging code)

| Part Number | Rated Voltage | Withstand Voltage | Rated Current | Insulation Resistance (min.) | Insertion Loss (Line impedance=50 ohm) |
|---|---|---|---|---|---|
| BNX022-01□ | 50Vdc | 125Vdc | 20A | 500MΩ | 1MHz to 1GHz:35dB min. |
| BNX023-01□ | 100Vdc | 250Vdc | 20A | 500MΩ | 1MHz to 1GHz:35dB min. |
| BNX028-01□ | 16Vdc | 40Vdc | 20A | 1.1MΩ | 30kHz to 1GHz:35dB min. |
| BNX029-01□ | 6.3Vdc | 15.8Vdc | 20A | 0.5MΩ | 15kHz to 1GHz:35dB min. |
| BNX024H01□ | 50Vdc | 125Vdc | 20A | 100MΩ | 100kHz to 1GHz:35dB min. |
| BNX025H01□ | 25Vdc | 62.5Vdc | 20A | 50MΩ | 50kHz to 1GHz:35dB min. |
| BNX026H01□ | 50Vdc | 125Vdc | 20A | 10MΩ | 50kHz to 1GHz:35dB min. |
| BNX027H01□ | 16Vdc | 40Vdc | 20A | 1MΩ | 40kHz to 1GHz:35dB min. |

Operating Temperature Range: -40˚C to 125˚C (BNX022/023/029), -40˚C to 105˚C (BNX028), -55˚C to 125˚C (BNX024H/025H/026H/027H)

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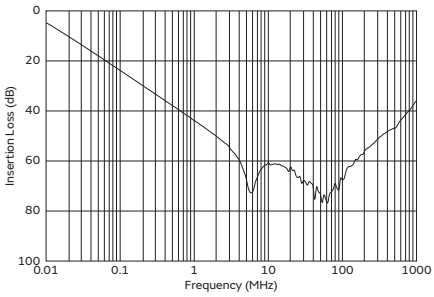
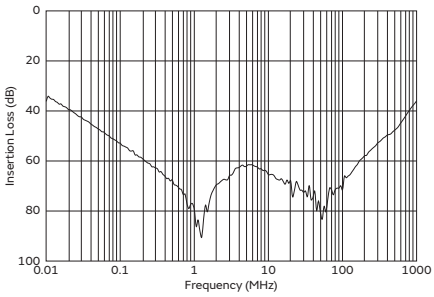
## Insertion Loss Characteristics

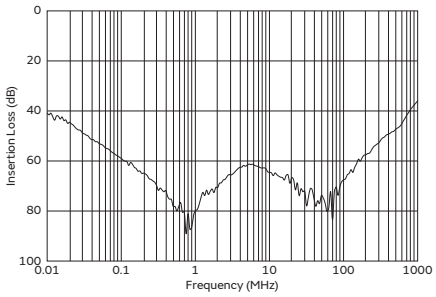
**BNX022/023**



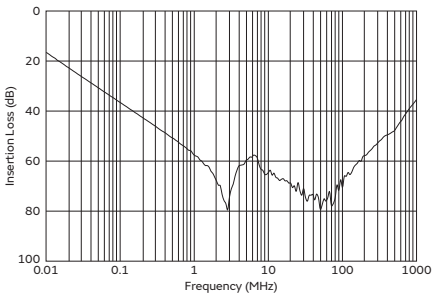

**BNX028**



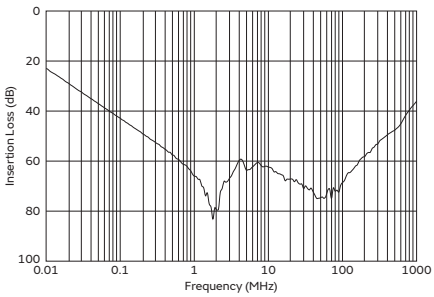

**BNX029**



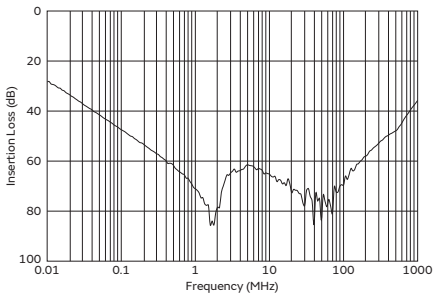

**BNX024H01**




**BNX025H01/026H01**



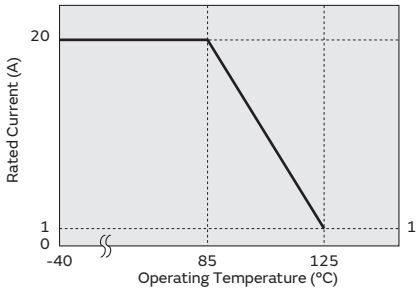

**BNX027H01**




## Derating of Rated Current

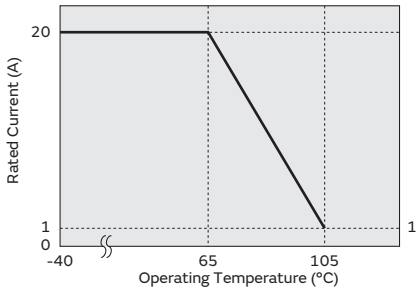
In operating temperature exceeding +85°C, derating of current is necessary for BNX022/023/029/024H/025H/026H/027H series. Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current




In operating temperature exceeding +65°C, derating of current is necessary for BNX028 series. Please apply the derating curve shown in chart according to the operating temperature.

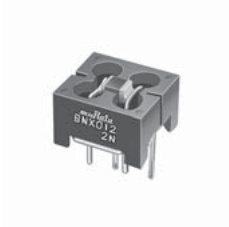
Derating of Rated Current

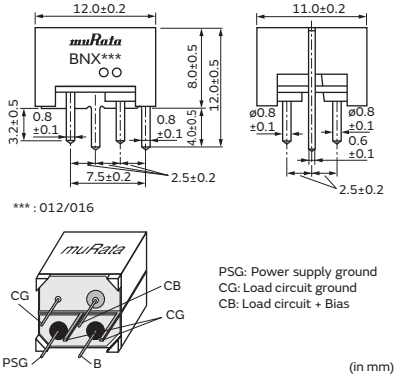


## Block Type EMIFIL®

# BNX01□ Series

### Appearance/Dimensions

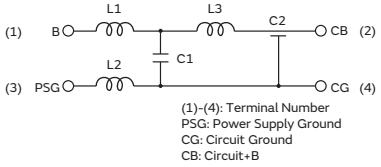





### Packaging

| Code | Packaging | Minimum Quantity |
|---|---|---|
| - | Box | 150 |

### Equivalent Circuit



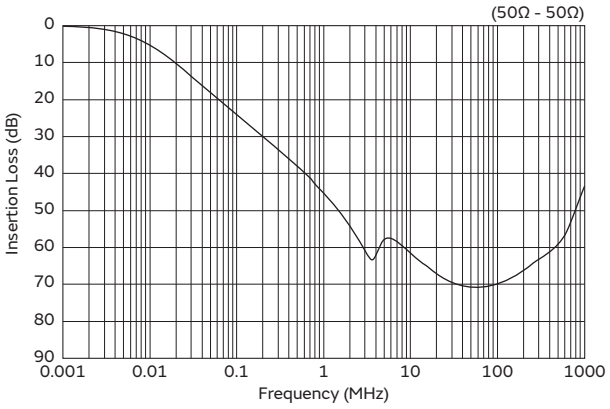

### Rated Value

| Part Number | Rated Voltage | Withstand Voltage | Rated Current | Insulation Resistance (min.) | Insertion Loss (Line impedance=50 ohm) |
|---|---|---|---|---|---|
| **BNX012-01** | 50Vdc | 125Vdc | 15A | 500M ohm | 1MHz to 1GHz:40dB min. |
| **BNX016-01** | 25Vdc | 62.5Vdc | 15A | 50M ohm | 100kHz to 1GHz:40dB min. |

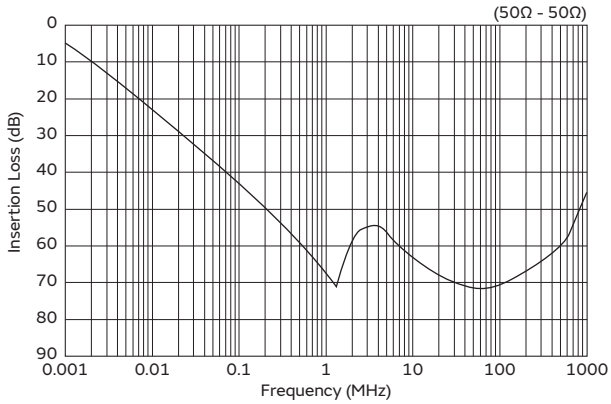
Operating Temperature Range: -40°C to 125°C

### Insertion Loss Characteristics

**BNX012-01**




**BNX016-01**

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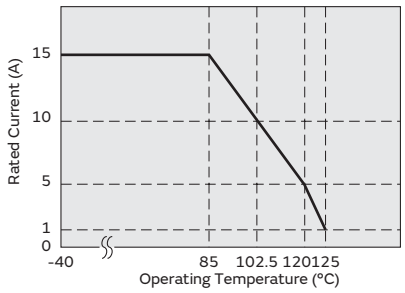
## Derating of Rated Current

In operating temperature exceeding +85°C, derating of current is necessary for BNX01□ series. Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current




● Connecting ± power line

In case of using ± power line, please connect to each terminal as shown.

| Power Supply (BNX Input) | | BNX | | | Circuit (BNX Output) |
|---|---|---|---|---|---|
| Power Supply +Bias | – | B | CB | – | Load Circuit +Bias |
| Power Supply Ground | – | PSG | CG | – | Load Circuit Ground |
| Power Supply -Bias | – | B | CB | – | Load Circuit -Bias |
| Power Supply Ground | – | PSG | CG | – | Load Circuit Ground |

# Block Type EMIFIL® SMD Type (BNX) ⚠Caution/Notice

## ⚠Caution

### Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

## Notice

### Storage and Operating Conditions

<Operating Environment>
Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
Do not use products in an environment close to an organic solvent.
<Storage and Handling Requirements>
1. Storage Period
BNX series should be used within 12 months.
Solderability should be checked if this period is exceeded.

2. Storage Conditions
(1) Storage temperature: -10 to +40°C
Relative humidity: 15 to 85%
Avoid sudden changes in temperature and humidity.
(2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

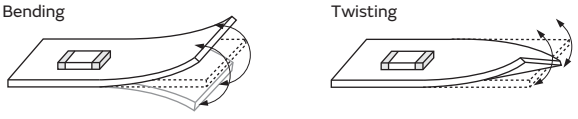
### Notice (Soldering and Mounting)

1. Cleaning
Do not clean BNX series (SMD Type).
Before cleaning, please contact Murata engineering.
2. Soldering
Reliability decreases with improper soldering methods.
Please solder by the standard soldering conditions shown in the mounting information.

3. Other
Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

### Handling

1. Resin Coating
Using resin for coating/molding products may affect the product's performance.
So please pay careful attention in selecting resin.
Prior to use, please make a reliability evaluation with the product mounted in your application set.
2. Handling of Substrates (for BNX02□)
After mounting products on a substrate, do not apply any stress to the product by bending or twisting the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening a screw to the substrate.
Excessive mechanical stress may cause cracking in the product.



# Block Type EMIFIL® Lead Type (BNX) ⚠Caution/Notice

## ⚠Caution

### Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

## Notice

### Storage and Operating Conditions

<Operating Environment>
1. Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
2. Do not use products near water, oil or organic solvents.

<Storage and Handling Requirements>
1. Storage Period
   BNX Series should be used within 12 months. Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40°C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

### Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product can be caused by the cleaning method. When you clean in conditions that are not in the mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in the mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters "EMIFIL" may vary, depending on the circuits and ICs used, type of noise, mounting pattern, lead wire length, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

### Notice (Appearance)

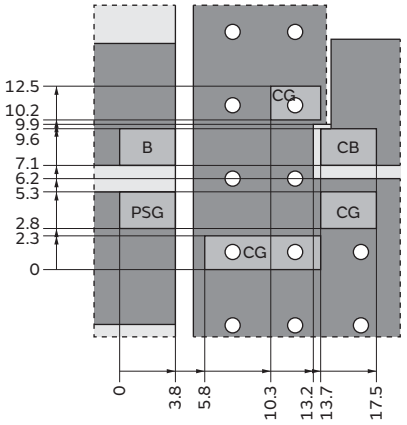
In some cases, parts of the product surface have a whitish appearance; this is the result of the waxing process for humidity resistance improvement. This wax has no adverse effect on mechanical or electrical performance or on the reliability of the product.

# Block Type EMIFIL® SMD Type (BNX) Soldering and Mounting

## 1. Standard Land Pattern Dimensions

Land Pattern + Solder Resist
Land Pattern
Solder Resist
Through Hole

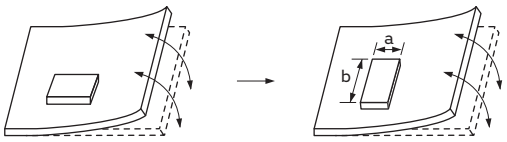
(in mm)

| Series | Standard Land Dimensions |
|---|---|
| **BNX022**<br>**BNX023**<br>**BNX024**<br>**BNX025**<br>**BNX026**<br>**BNX027**<br>**BNX028**<br>**BNX029** |  |

(1) When a double-sided print board (or multilayer board) as shown in the left figure is designed, apply a soldering Cu electrode with a product electrode to a "Land Pattern"; apply resist to a "Land Pattern + Solder Resist" at the Cu electrode.
(2) This product is designed to meet large current. Please design the PCB pattern connected to this product not to become too hot by applied large current.
(3) Drop the CG on a ground electrode on the back layer (the same also in a multilayer case) by the through hole. A surface-to-ground electrode layer may also take a large area as much as possible.
(4) It is recommended to use a double-sided printed circuit board with BNX mounting on one side and the ground pattern on the other in order to maximize filtering performance; multiple feed-through holes are required to maximize the BNX's connection to ground.
(5) The ground pattern should be designed to be as large as possible to achieve maximum filtering performance.

● PCB Warping (for BNX02□)
PCB should be designed so that products are not subjected to mechanical stress caused by warping the board.

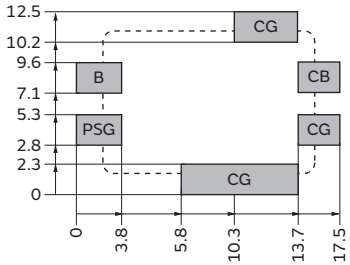
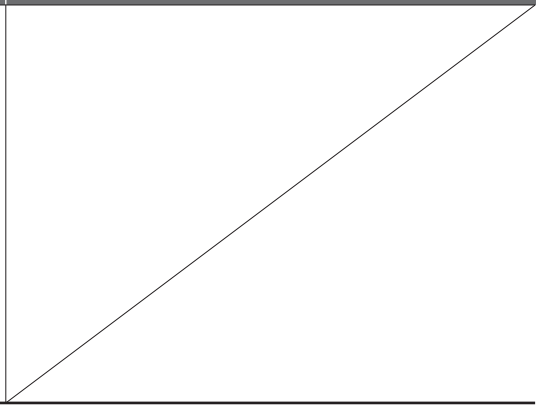
Products should be located in a sideways direction (Length: a<b) to the mechanical stress.




Poor example　　Good example

## 2. Solder Paste Printing and Adhesive Application

When reflow soldering the block type EMIFIL®, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

| Series | Solder Paste Printing | Adhesive Application |
|---|---|---|
| **BNX022**<br>**BNX023**<br>**BNX024**<br>**BNX025**<br>**BNX026**<br>**BNX027**<br>**BNX028**<br>**BNX029** | ●Guideline of solder paste thickness: 150-200μm<br>  |  |

Continued on the following page.↗

# Block Type EMIFIL® SMD Type (BNX) Soldering and Mounting

Continued from the preceding page.↘

## 3. Standard Soldering Conditions

(1) Soldering Methods

Use reflow soldering methods only.
Use standard soldering conditions when soldering block type EMIFIL® SMD type.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.

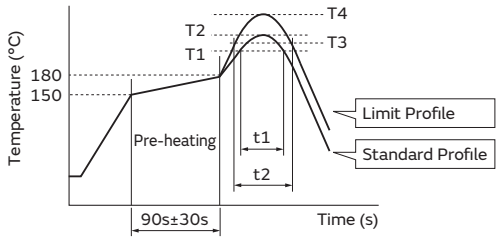
Flux:

- Use rosin-based flux.
  In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

(2) Soldering Profile

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu solder)




| Series | Standard Profile | | | | Limit Profile | | | |
|---|---|---|---|---|---|---|---|---|
| | Heating | | Peak Temperature (T2) | Cycle of Reflow | Heating | | Peak Temperature (T4) | Cycle of Reflow |
| | Temp. (T1) | Time (t1) | | | Temp. (T3) | Time (t2) | | |
| **BNX022/023/024/025/026/027/028/029** | 220°C min. | 30 to 60s | 250±3°C | 2 times max. | 230°C min. | 60s max. | 260°C/10s | 2 times max. |

(3) Reworking with a soldering Iron

The following conditions must be strictly followed when using a soldering iron.
Pre-heating: 150°C 60s min.
Soldering iron power output: 100W max.
Temperature of soldering iron tip / Soldering time / Times:
450°C max. / 5s max. / 2 time

Do not allow the tip of the soldering iron to directly contact the chip.
For additional methods of reworking with a soldering iron, please contact Murata engineering.

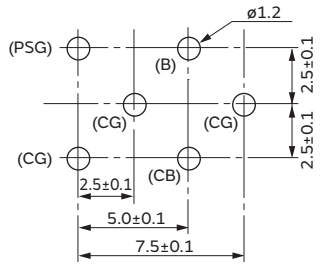
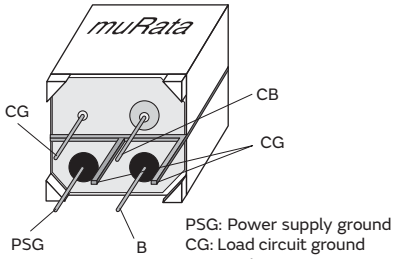
## 4. Cleaning

Do not clean BNX022/023/024/025/026/027/028/029 series. In case of cleaning, please contact Murata engineering.

# Block Type EMIFIL® Lead Type (BNX) Soldering and Mounting

## 1. Mounting Hole

■ Mounting holes should be designed as specified below.

| Series | Mounting Hole |
|---|---|
| **BNX01□** | Component Side   Terminal Layout (Bottom figure)   PSG: Power supply ground<br>CG: Load circuit ground<br>CB: Load circuit + Bias |

## 2. Using the Block Type EMIFIL® (Lead Type) Effectively

(1) How to use effectively

This product effectively prevents undesired radiation and external noise from going out / entering the circuit by grounding the high frequency components that cause noise problems. Therefore, grounding conditions may affect the performance of the filter and attention should be paid to the following for effective use.

(a) Design maximized grounding area in the PCB, and grounding pattern for all the grounding terminals of the product to be connected. (Please follow the specified recommendations.)

(b) Minimize the distance between ground of the PCB and the ground plate of the product. (Recommend using the through hole connection between the grounding area both on the component side and the bottom side.)

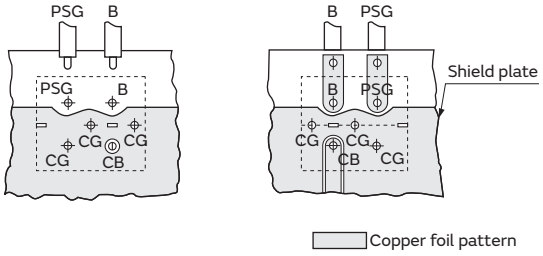
(c) Insert the terminals into the holes on the PCB completely.

(d) Don't connect PSG terminal with CG terminal directly. (See the item 1. Terminal Layout)

PCB Patterns

Use a bilateral PCB. Insert the BNX into the PCB until the root of the terminal is secured, then solder.

(1) Component Side View (2) Bottom View




(2) Self-heating

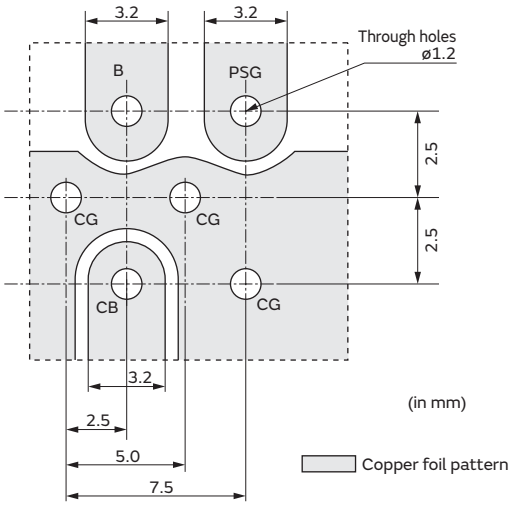
Though this product has a large rated current, localized self-heating may be caused depending on soldering conditions. To avoid this, attention should be paid to the following:

(a) Use a PCB with our recommendation on hole diameter / land pattern dimensions, mentioned in the right-hand drawing, especially for 4 terminals that pass current.

(b) Solder the terminals to the PCB with solder cover area at least 90%. Otherwise, excess self-heating at the connection between terminals and the PCB may lead to smoke and / or fire of the product even when operating at rated current.

(c) After installing this product in your product, please ensure that the self-heating is within the rated current recommended.

Recommended Land Pattern

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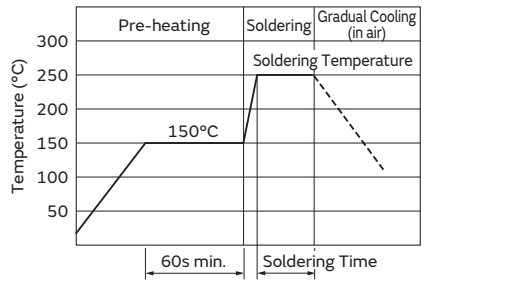
# Block Type EMIFIL® Lead Type (BNX) Soldering and Mounting

Continued from the preceding page.↘

### 3. Soldering

(1) Use Sn-3.0Ag-0.5Cu solder.
(2) Use rosin-based flux. Do not use strong acidic flux with halide content exceeding 0.2wt% (chlorine conversion value).
(3) Products and the leads should not be subjected to any mechanical stress during the soldering process, or while subjected to the equivalent high temperatures.
(4) Standard flow soldering profile




| Solder | Soldering Temperature | Soldering Time |
|---|---|---|
| Sn-3.0Ag-0.5Cu solder | 250 to 260°C | 4 to 6s |

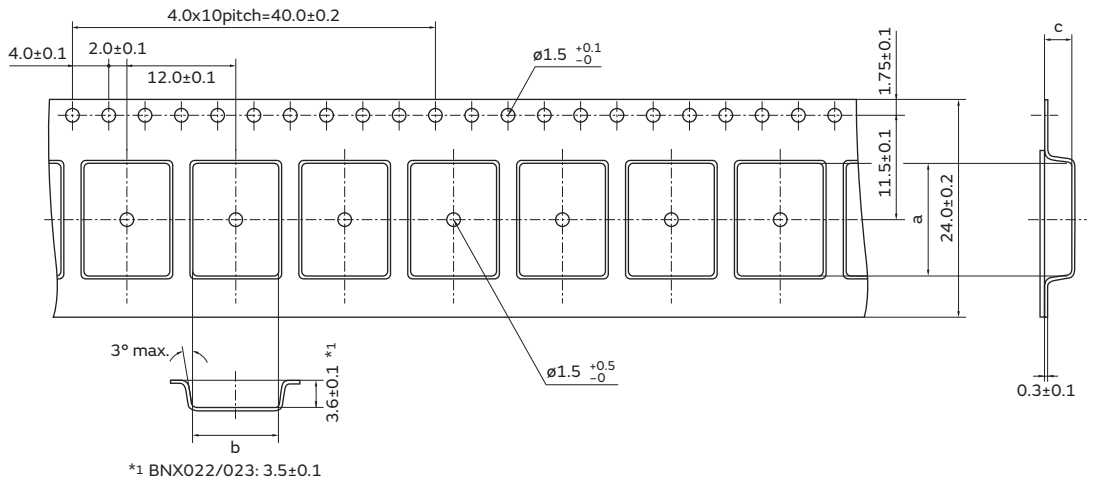
### 4. Cleaning

Clean the block Type EMIFIL®(Lead Type) in the following conditions.

(1) Cleaning temperature should be limited to 60°C max. (40°C max for alcohol type cleaner).
(2) Ultrasonic cleaning should comply with the following conditions, avoiding the resonance phenomenon at the mounted products and PCB.
Power: 20W/liter max.
Frequency: 28 to 40kHz
Time: 5 min. max.
(3) Cleaner
(a) Alcohol type cleaner
Isopropyl alcohol (IPA)
(b) Aqueous agent
Pine Alpha ST-100S
(4) There should be no residual flux or residual cleaner left after cleaning.
In the case of using aqueous agent, products should be dried completely after rinsing with de-ionized water in order to remove the cleaner.
(5) The surface of products may become dirty after cleaning, but there is no deterioration of mechanical or electrical characteristics or reliability.
(6) Other cleaning: Please contact us.

# Block Type EMIFIL® SMD Type (BNX) Packaging

## Minimum Quantity and Dimensions of 24mm Width Embossed Tape




*1 BNX022/023: 3.5±0.1

Dimension of the cavity is measured at the bottom side.

| Part Number | Dimensions | | | Minimum Qty. (pcs.) | | |
|---|---|---|---|---|---|---|
| | a | b | c | ø180mm Reel | ø330mm Reel | Bulk |
| **BNX022/023** | 12.4 | 9.4 | 3.5 | 400 | 1500 | 100 |
| **BNX024/025/026/027/028/029** | 12.4 | 9.4 | 3.6 | | | |

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity."

## EMC Absorber
## EA20/EA21 Series

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Product Detail ····· p269
Notice ····· p270

## Part Numbering

### EMC Absorber

(Part Number) EA 2070 A 050 M 200 200
❶ ❷ ❸ ❹ ❺ ❻ ❼

❶Product ID

| Product ID | |
|---|---|
| **EA** | EMC Absorber |

❷Sheet Type

| Code | Sheet Type |
|---|---|
| **2070** | Metal Flake Powder (Halogen Free type) |
| **2100** | Metal Flake Powder (UL certified type) |

❸Adhesive Tape Type

| Code | Adhesive Tape Type |
|---|---|
| **A** | Standard tape type (Halogen Free type) |
| **B** | Thin adhesive tape type (Halogen Free type) |

❹Outer Dimension Supplement Code

Expressed by 3 digits including the second decimal place in mm.

Ex.)

| Code | Sheet Thickness |
|---|---|
| **020** | 0.20mm |

❺Unit of Dimension

One capital letter expresses Unit of Dimension (❻) and Dimensions Length (❼).

| Code | Unit of Dimension |
|---|---|
| **M** | in mm (Standard) |
| **C** | in cm (Standard) |

Standard shape is a rectangle.
Please contact us for other shapes.

❻Dimension (Length)

Expressed by 3 digits including the first decimal place.

❼Dimension (Width)

Expressed by 3 digits including the first decimal place.

Ex.)

| Code | Dimension (Length × Width) |
|---|---|
| **M300150** | 30.0×15.0 mm |
| **C150100** | 15.0×10.0 cm |

"Halogen Free" is defined to satisfy the following conditions for EMC Absorber listed in this catalog.

1. Chlorine will not exceed 900ppm.
2. Bromine will not exceed 900ppm.
3. The total amount of chlorine and bromine will not exceed 1500ppm.

EMC Absorber

# EA20/EA21 Series

## Appearance/Dimensions

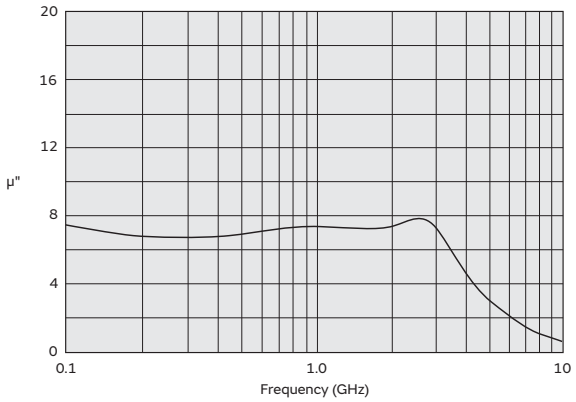
## Packaging

When inquiring, please contact us with size code, refering to "Part Numbering."

## Rated Value

| Part Number | Applicable Frequency (Typ.) | Thickness (Typ.) | Flame Class | Halogen | Operating Temperature Range |
|---|---|---|---|---|---|
| **EA2070A050** | 0.1 to 3.0GHz | 0.50mm | - | Halogen Free | -40°C to 120°C |
| **EA2070A100** | 0.1 to 3.0GHz | 1.00mm | - | Halogen Free | -40°C to 120°C |
| **EA2070B010** | 0.1 to 3.0GHz | 0.10mm | - | Halogen Free | -40°C to 120°C |
| **EA2070B013** | 0.1 to 3.0GHz | 0.13mm | - | Halogen Free | -40°C to 120°C |
| **EA2070B020** | 0.1 to 3.0GHz | 0.20mm | - | Halogen Free | -40°C to 120°C |
| **EA2100A050** | 0.1 to 3.0GHz | 0.50mm | UL94V-0 | - | -40°C to 120°C |
| **EA2100A100** | 0.1 to 3.0GHz | 1.00mm | UL94V-0 | - | -40°C to 120°C |
| **EA2100B020** | 0.1 to 3.0GHz | 0.20mm | UL94V-0 | - | -40°C to 120°C |

## Magnetic Permeability-Reluctance

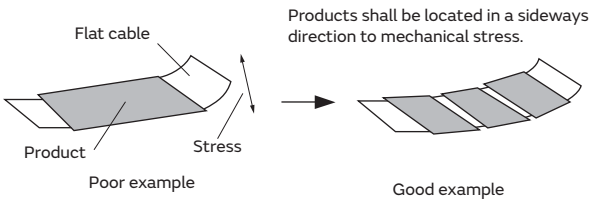


# EMC Absorber (EA20/EA21) Notice

## Notice

### Storage and Operating Conditions

1. Adhesive Tape Stress
   This product is designed to use adhesive tape to hold itself to the object.
   And please avoid causing mechanical stress by bending or variation of the object.




2. Cleaning
   Avoid cleaning this product.
3. Handling of the Product
   Adhesive tape must be clean to maintain the quality of adhesion.
   Please wipe off any dirt, dust and any kind of oil from the surface of the object before use.
4. Storage Conditions
   (1) Storage period
   Products that were inspected by Murata over 6 months ago should be examined and used. This can be confirmed by the inspection number marked on the container.
   Adhesiveness should be checked if this period is exceeded.
   (2) Storage conditions
   · Products should be stored in the warehouse in the following conditions:
   Temperature: -10 to +40˚C
   Humidity: 30 to 70% relative humidity
   No rapid change of temperature or humidity
   · Products should be stored in the warehouse without heat shock condition, vibration, direct sunlight and so on.

# Part Number Quick Reference

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**BLA2ABD** ····· 90
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**BLA31BD** ····· 93
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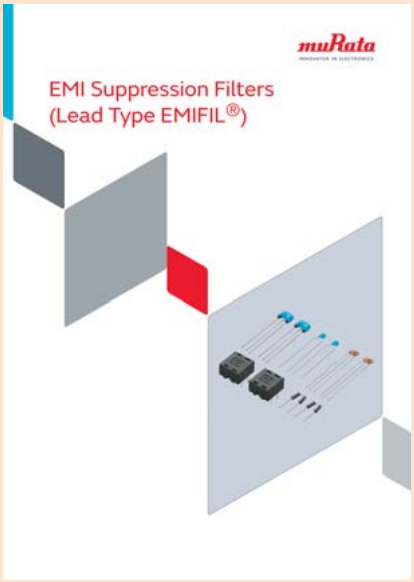
# Introduction of Related Catalog: Lead Type EMIFIL®

**Please refer to catalog below for Lead Type EMIFIL®.**

## Lead Type EMIFIL®

### EMI Suppression Filters (Lead Type EMIFIL®)

Contents
- Ferrite Beads Inductors
- Disc Type EMIFIL®
- EMIGUARD® (EMIFIL® with Varistor Function)
- Common Mode Choke Coils



# Noise Suppression Basic Course

**Use this course to improve your knowledge of various EMI suppression topics, including: noise emission mechanisms, conduction route, characteristics of electromagnetic noise.**

**https://www.murata.com/en-global/products/emc/emifil/knowhow/basic?intcid5=com_xxx_xxx_cmn_hd_xxx**

C31E.pdf
Mar. 26,2019
Cat. No. C31E-27

# Global Locations

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② *Aerospace equipment*
③ *Undersea equipment*
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⑥ *Transportation equipment (vehicles, trains, ships, etc.)*
⑦ *Traffic signal equipment*
⑧ *Disaster prevention / crime prevention equipment*
⑨ *Data-processing equipment*
⑩ *Application of similar complexity and/or reliability requirements to the applications listed above*

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