



**THE DATASHEET OF  
BWCU00321619161M02**



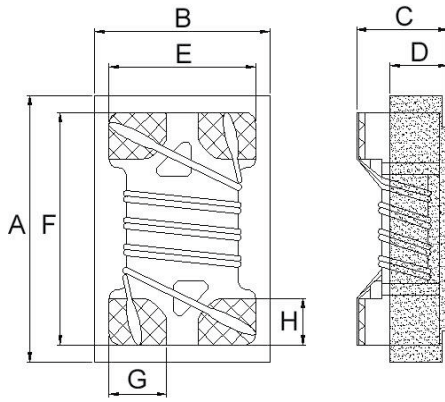


# SMD Common Mode Choke

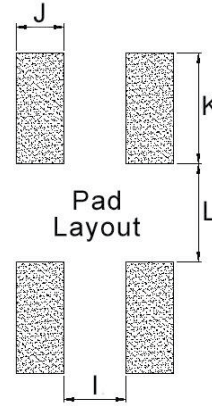
BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications

## Shape and Dimensions

**BWCU00231512**



## Recommended Pattern



Dimensions in mm

| TYPE         | A                  | B                  | C                  | D   | E    | F    | G   | H    | I   | J    | K   | L   |
|--------------|--------------------|--------------------|--------------------|-----|------|------|-----|------|-----|------|-----|-----|
| BWCU00231512 | 2.29 <sup>+0</sup> | 1.52 <sup>+0</sup> | 1.20 <sup>+0</sup> | 0.5 | 1.27 | 2.03 | 0.5 | 0.40 | 0.5 | 0.38 | 0.9 | 0.8 |

# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications



## Electrical Characteristics

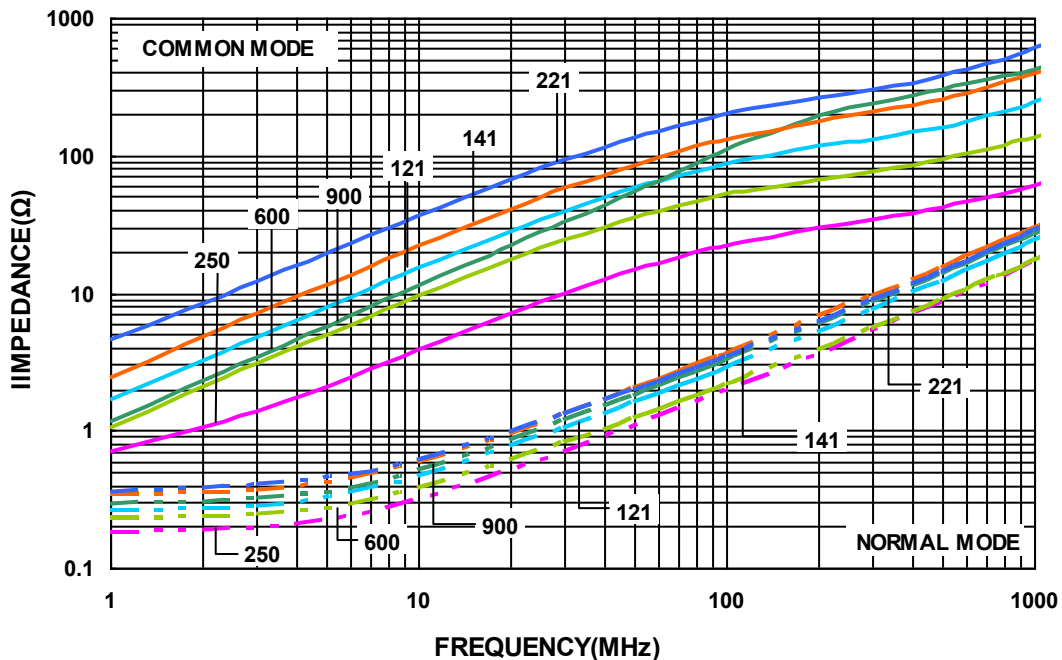
| Part Number        | Impedance (Ω) | Tolerance (±%) | Test Frequency (MHz) | RDC (Ω) Max | I <sub>rms</sub> (mA) Max | Rated Voltage (Vdc) | Withstand Voltage (Vdc) | Insulation Resistance (MΩ) Min |
|--------------------|---------------|----------------|----------------------|-------------|---------------------------|---------------------|-------------------------|--------------------------------|
| BWCU00160811250M02 | 25            | 20,25          | 100                  | 0.077       | 500                       | 50                  | 125                     | 10                             |
| BWCU00160811600M02 | 60            | 20,25          | 100                  | 0.109       | 500                       | 50                  | 125                     | 10                             |
| BWCU00160811900M02 | 90            | 20,25          | 100                  | 0.142       | 500                       | 50                  | 125                     | 10                             |
| BWCU00160811121M02 | 120           | 20,25          | 100                  | 0.160       | 500                       | 50                  | 125                     | 10                             |
| BWCU00160811141M02 | 140           | 20,25          | 100                  | 0.174       | 500                       | 50                  | 125                     | 10                             |
| BWCU00160811221M02 | 220           | 20,25          | 100                  | 0.209       | 500                       | 50                  | 125                     | 10                             |

**Note:** When ordering, please specify tolerance code. Tolerance: M=±20% , Y=±25%

- Operating temperature range - 40°C ~ 105°C(Including self - temperature rise)
- rms for 20°C rise from 25°C ambient
- Measure Equipment :  
 Z : Agilent HP4287A+Agilent 16197A  
 RDC : HP4338B or Chroma 16502 (Single Wire Test Value)  
 I<sub>rms</sub> : HP4284A+HP42841A/HP4285A+HP42841A  
 Insulation Resistance : Agilent HP4339B

**Test Instruments :** HP4287A Material/Impedance Analyzer

Typical Impedance vs. Frequency



# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications



## Electrical Characteristics

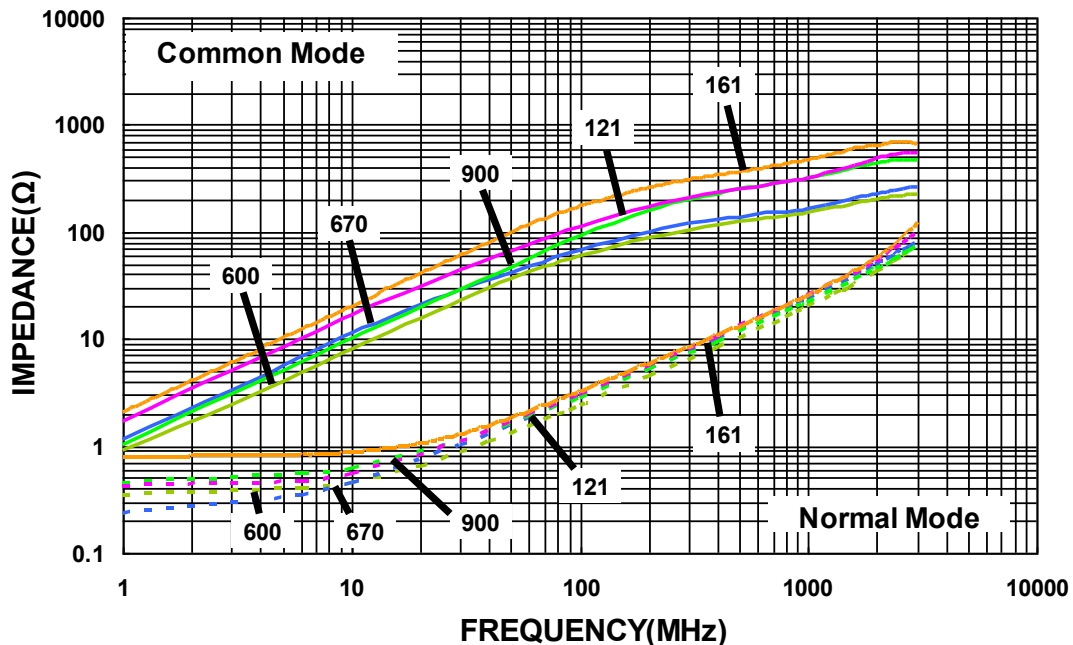
| Part Number        | Impedance (Ω) | Tolerance (±%) | Test Frequency (MHz) | RDC (Ω) Max | IDC (mA) | Rated Voltage (Vdc) | Withstand Voltage (Vdc) | Insulation Resistance (MΩ) Min |
|--------------------|---------------|----------------|----------------------|-------------|----------|---------------------|-------------------------|--------------------------------|
| BWCU00121008250T02 | 25            | 30             | 100                  | 0.30        | 400      | 50                  | 125                     | 100                            |
| BWCU00121008600M02 | 60            | 20             | 100                  | 0.40        | 300      | 50                  | 125                     | 100                            |
| BWCU00121008670M02 | 67            | 20             | 100                  | 0.25        | 300      | 50                  | 125                     | 100                            |
| BWCU00121008900M02 | 90            | 20             | 100                  | 0.30        | 250      | 50                  | 125                     | 100                            |
| BWCU00121008121M02 | 120           | 20             | 100                  | 0.40        | 200      | 50                  | 125                     | 100                            |
| BWCU00121008161M02 | 160           | 20             | 100                  | 0.43        | 160      | 50                  | 125                     | 100                            |
| BWCU00121008201M02 | 200           | 20             | 100                  | 0.80        | 120      | 50                  | 125                     | 100                            |
| BWCU00121008331Y02 | 330           | 25             | 100                  | 1.30        | 100      | 50                  | 125                     | 100                            |

**Note: When ordering, please specify tolerance code. Tolerance: M=±20% , Y=±25% , T=±30%**

- Operating temperature range - 40°C ~ 105°C(Including self - temperature rise)
- IDC for Inductance drop 10% from its value without current
- Measure Equipment :  
 Z : Agilent HP4287A+Agilent 16197A  
 RDC : Chroma 16502 (Single Wire Test Value)  
 IDC : HP4284A+HP42841A/HP4285A+HP42841A  
 Insulation Resistance : Agilent HP4339B

## Test Instruments : HP4287A Material/Impedance Analyzer

Typical Impedance vs. Frequency



# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications



## Electrical Characteristics

| Part Number        | Impedance<br>( $\Omega$ ) | Tolerance<br>( $\pm\%$ ) | Test<br>Frequency<br>(MHz) | RDC<br>( $\Omega$ ) Max | IDC<br>(mA) | Rated<br>Voltage<br>(Vdc) | Withstand<br>Voltage<br>(Vdc) | Insulation<br>Resistance<br>(M $\Omega$ ) Min |
|--------------------|---------------------------|--------------------------|----------------------------|-------------------------|-------------|---------------------------|-------------------------------|-----------------------------------------------|
| BWCU00201212300M02 | 30                        | 20                       | 100                        | 0.20                    | 450         | 50                        | 125                           | 10                                            |
| BWCU00201212670M02 | 67                        | 20                       | 100                        | 0.25                    | 400         | 50                        | 125                           | 10                                            |
| BWCU00201212750M02 | 75                        | 20                       | 100                        | 0.30                    | 360         | 50                        | 125                           | 10                                            |
| BWCU00201212900M02 | 90                        | 20                       | 100                        | 0.35                    | 330         | 50                        | 125                           | 10                                            |
| BWCU00201212121M02 | 120                       | 20                       | 100                        | 0.30                    | 400         | 50                        | 125                           | 10                                            |
| BWCU00201212161M02 | 160                       | 20                       | 100                        | 0.35                    | 350         | 50                        | 125                           | 10                                            |
| BWCU00201212181M02 | 180                       | 20                       | 100                        | 0.35                    | 330         | 50                        | 125                           | 10                                            |
| BWCU00201212201M02 | 200                       | 20                       | 100                        | 0.35                    | 330         | 50                        | 125                           | 10                                            |
| BWCU00201212221M02 | 220                       | 20                       | 100                        | 0.35                    | 310         | 50                        | 125                           | 10                                            |
| BWCU00201212261M02 | 260                       | 20                       | 100                        | 0.40                    | 300         | 50                        | 125                           | 10                                            |
| BWCU00201212301M02 | 300                       | 20                       | 100                        | 0.40                    | 290         | 50                        | 125                           | 10                                            |
| BWCU00201212361M02 | 360                       | 20                       | 100                        | 0.45                    | 280         | 50                        | 125                           | 10                                            |
| BWCU00201212371M02 | 370                       | 20                       | 100                        | 0.45                    | 280         | 50                        | 125                           | 10                                            |
| BWCU00201212501M02 | 500                       | 20                       | 100                        | 0.55                    | 170         | 50                        | 125                           | 10                                            |
| BWCU00201212671M02 | 670                       | 20                       | 100                        | 0.60                    | 140         | 50                        | 125                           | 10                                            |
| BWCU00201212801M02 | 800                       | 20                       | 100                        | 0.88                    | 300         | 50                        | 125                           | 10                                            |
| BWCU00201212901M02 | 900                       | 20                       | 100                        | 0.60                    | 80          | 50                        | 125                           | 10                                            |

**Note: When ordering, please specify tolerance code. Tolerance: M=±20%**

- Operating temperature range - 40°C ~ 105°C(Including self - temperature rise)
- IDC for Inductance drop 10% from its value without current
- Measure Equipment :
  - Z : Agilent HP4287A+Agilent 16197A
  - RDC : Chroma 16502 (Single Wire Test Value)
  - IDC : HP4284A+HP42841A/HP4285A+HP42841A
  - Insulation Resistance : Agilent HP4339B

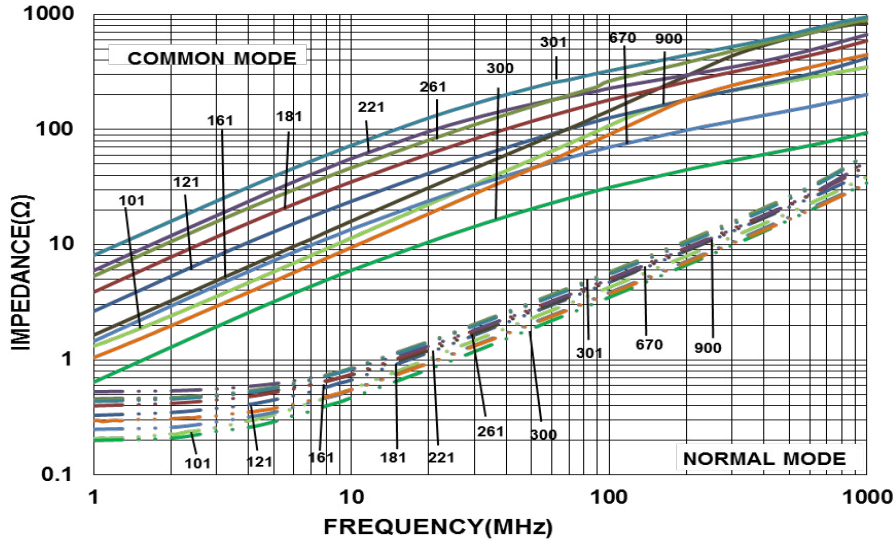
# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications



Test Instruments : HP4291A Material/Impedance Analyzer

Typical Impedance vs. Frequency



## Electrical Characteristics

| Part Number        | Impedance (Ω) | Tolerance (±%) | Test Frequency (MHz) | RDC (Ω) Max | IDC (mA) | Rated Voltage (Vdc) | Withstand Voltage (Vdc) | Insulation Resistance (MΩ) Min |
|--------------------|---------------|----------------|----------------------|-------------|----------|---------------------|-------------------------|--------------------------------|
| BWCU00321619900M02 | 90            | 20             | 100                  | 0.3         | 370      | 50                  | 125                     | 10                             |
| BWCU00321619121M02 | 120           | 20             | 100                  | 0.3         | 370      | 50                  | 125                     | 10                             |
| BWCU00321619161M02 | 160           | 20             | 100                  | 0.4         | 340      | 50                  | 125                     | 10                             |
| BWCU00321619221M02 | 220           | 20             | 100                  | 0.4         | 320      | 50                  | 125                     | 10                             |
| BWCU00321619261M02 | 260           | 20             | 100                  | 0.5         | 310      | 50                  | 125                     | 10                             |
| BWCU00321619601M02 | 600           | 20             | 100                  | 0.8         | 260      | 50                  | 125                     | 10                             |
| BWCU00321619102M02 | 1000          | 20             | 100                  | 1.0         | 230      | 50                  | 125                     | 10                             |
| BWCU00321619222M02 | 2200          | 20             | 100                  | 1.2         | 200      | 50                  | 125                     | 10                             |

Note: When ordering, please specify tolerance code. Tolerance: M=±20%

- Operating temperature range - 40°C ~ 105°C(Including self - temperature rise)
- IDC for Inductance drop 10% from its value without current
- Measure Equipment :  
 Z : Agilent HP4287A+Agilent 16197A  
 RDC : Chroma 16502 (Single Wire Test Value)  
 IDC : HP4284A+HP42841A/HP4285A+HP42841A  
 Insulation Resistance : Agilent HP4339B

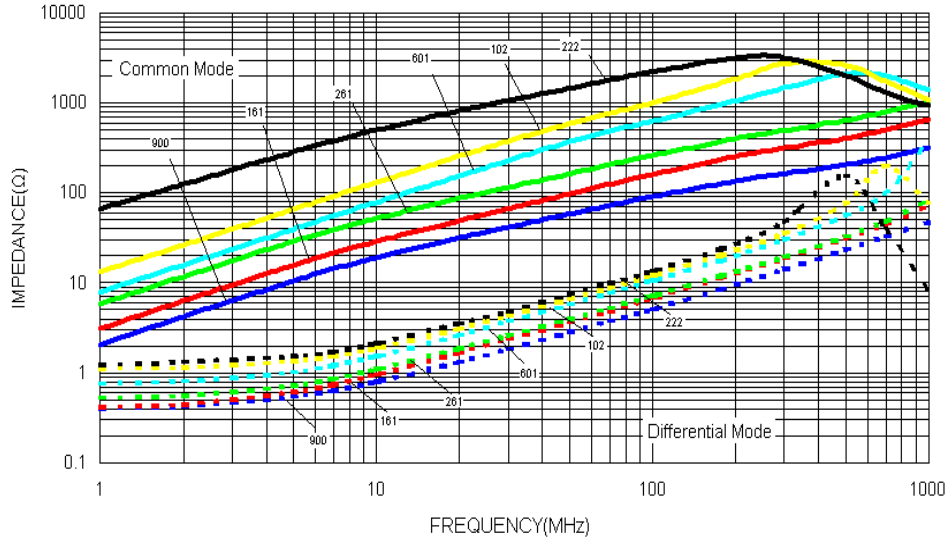
# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications



**Test Instruments :** HP4291A Material/Impedance Analyzer

**Typical Impedance vs. Frequency**



## Electrical Characteristics

| Part Number        | Impedance (Ω) | Tolerance (±%) | Test Frequency (MHz) | RDC (Ω) Max | IDC (mA) | Rated Voltage (Vdc) | Withstand Voltage (Vdc) | Insulation Resistance (MΩ) Min |
|--------------------|---------------|----------------|----------------------|-------------|----------|---------------------|-------------------------|--------------------------------|
| BWCU00231512300M02 | 30            | 20             | 100                  | 0.20        | 1300     | 50                  | 125                     | 10                             |
| BWCU00231512420M02 | 42            | 20             | 100                  | 0.20        | 1300     | 50                  | 125                     | 10                             |
| BWCU00231512670M02 | 67            | 20             | 100                  | 0.25        | 1200     | 50                  | 125                     | 10                             |
| BWCU00231512900M02 | 90            | 20             | 100                  | 0.27        | 1000     | 50                  | 125                     | 10                             |
| BWCU00231512121M02 | 120           | 20             | 100                  | 0.30        | 900      | 50                  | 125                     | 10                             |
| BWCU00231512181M02 | 180           | 20             | 100                  | 0.40        | 700      | 50                  | 125                     | 10                             |
| BWCU00231512261M02 | 260           | 20             | 100                  | 0.60        | 700      | 50                  | 125                     | 10                             |

**Note: When ordering, please specify tolerance code. Tolerance: M=±20%**

- Operating temperature range - 40°C ~ 105°C(Including self - temperature rise)
- IDC for Inductance drop 10% from its value without current.
- Measure Equipment :  
 Z : Agilent HP4291A  
 RDC : HP4338B or Chroma 16502 (Single Wire Test Value)  
 IDC : HP4284A+HP42841A/HP4285A+HP42841A  
 Insulation Resistance : Agilent HP4339B

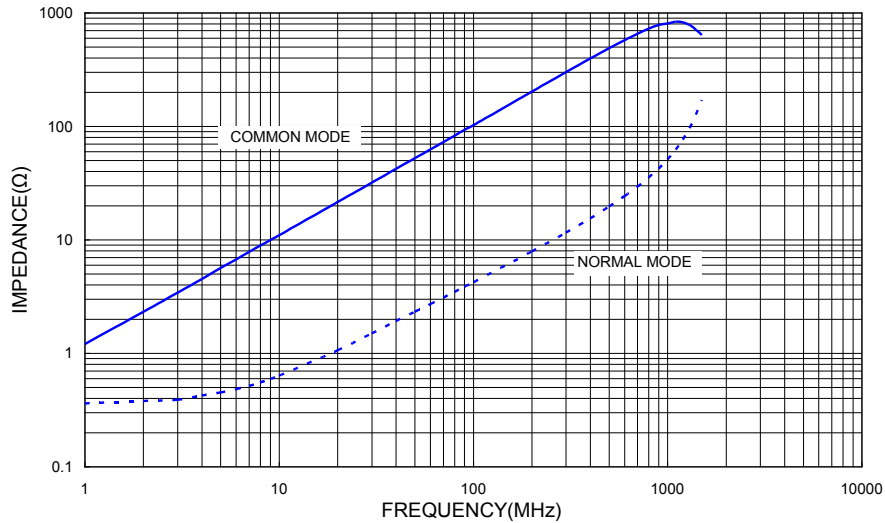
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BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications

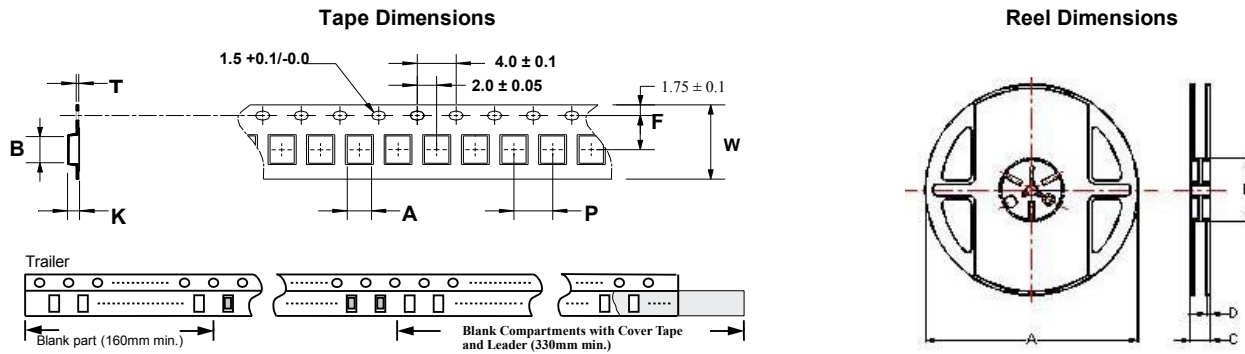
Test Instruments : HP4291A Material/Impedance Analyzer

## Typical Impedance vs. Frequency

### BWCU00231512900M02



## Packaging Specifications



## Dimensions in mm

| TYPE         | Tape Dimensions |      |      |   |   |     |      | Reel Dimensions |    |    |     | Quantity<br>PCS / Reel |
|--------------|-----------------|------|------|---|---|-----|------|-----------------|----|----|-----|------------------------|
|              | A               | B    | T    | W | P | F   | K    | A               | B  | C  | D   |                        |
| BWCU00160811 | 0.95            | 1.70 | 0.24 | 8 | 4 | 3.5 | 1.15 | 178             | 60 | 12 | 1.5 | 2000                   |
| BWCU00121008 | 1.15            | 1.45 | 0.24 | 8 | 4 | 3.5 | 1.00 | 178             | 60 | 12 | 1.5 | 2000                   |
| BWCU00201212 | 1.50            | 2.25 | 0.24 | 8 | 4 | 3.5 | 1.35 | 178             | 60 | 12 | 1.5 | 2000                   |
| BWCU00231512 | 1.60            | 2.42 | 0.26 | 8 | 4 | 3.5 | 1.14 | 178             | 60 | 12 | 1.5 | 2000                   |
| BWCU00321619 | 1.76            | 3.47 | 0.22 | 8 | 4 | 3.5 | 2.05 | 178             | 60 | 12 | 1.5 | 2000                   |



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BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications



## Electrical Characteristics

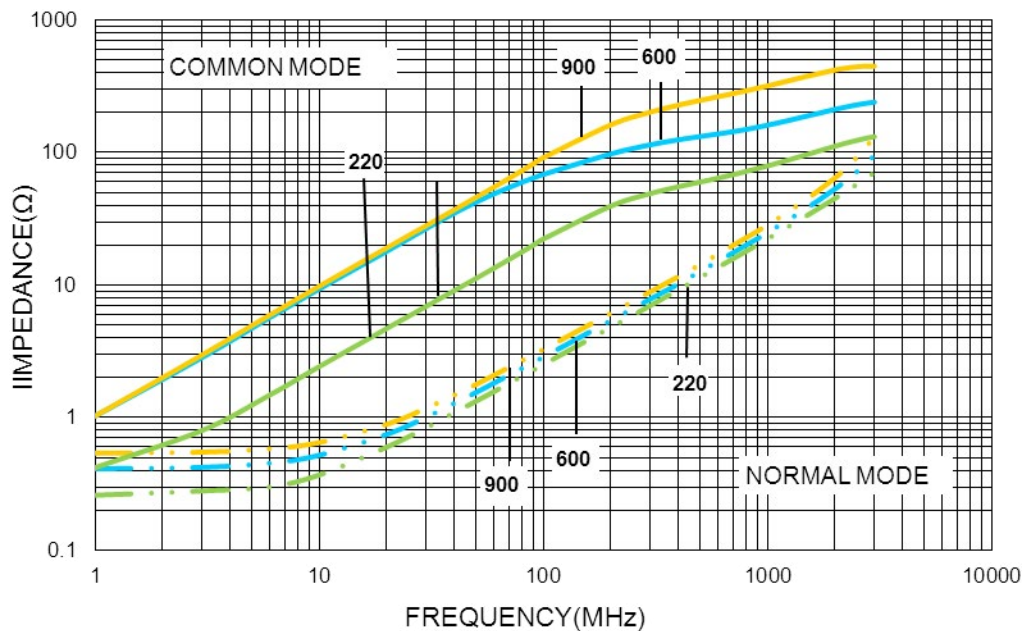
| Part Number        | Impedance (Ω) | Tolerance (±%) | Test Frequency (MHz) | RDC (Ω) Max | IDC (mA) Max | Rated Voltage (Vdc) | Withstand Voltage (Vdc) | Insulation Resistance (MΩ) Min |
|--------------------|---------------|----------------|----------------------|-------------|--------------|---------------------|-------------------------|--------------------------------|
| BWCU00121008220Y03 | 22            | 25             | 100                  | 0.20        | 400          | 50                  | 125                     | 100                            |
| BWCU00121008600Y03 | 60            | 25             | 100                  | 0.40        | 250          | 50                  | 125                     | 100                            |
| BWCU00121008900Y03 | 90            | 25             | 100                  | 0.30        | 250          | 50                  | 125                     | 100                            |

**Note: When ordering, please specify tolerance code. Tolerance: Y=±25%**

- Operating temperature range - 40°C ~ 105°C(Including self - temperature rise)
- IDC for Inductance drop 10% from its value without current.
- Measure Equipment :  
 Z : HP4286A/HP4287A/Agilent E4991A+Agilent16197A  
 RDC : Chroma 16502 (Single Wire Test Value)  
 IDC : HP4284A+HP42841A/HP4285A+HP42841A  
 Insulation Resistance : Agilent HP4339B

**Test Instruments :** HP4291A Material/Impedance Analyzer

### Typical Impedance vs. Frequency



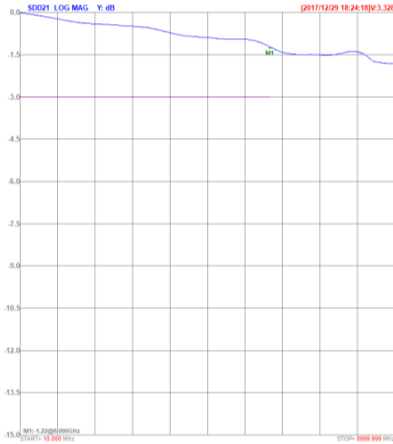
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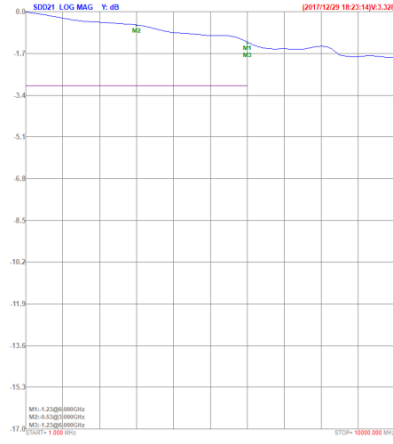


BWCU00121008220Y03

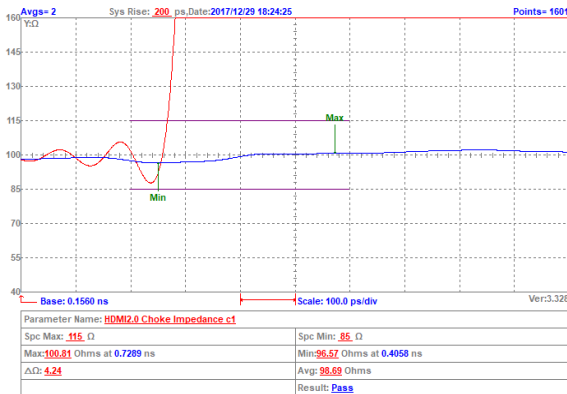
## Insertion Loss For HDMI2.0 Testing:



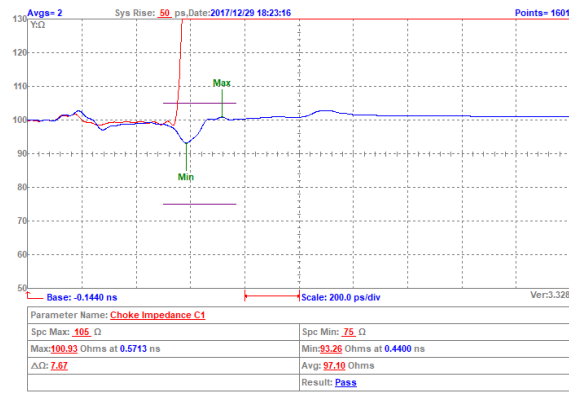
## Insertion Loss For USB3.0 Testing:



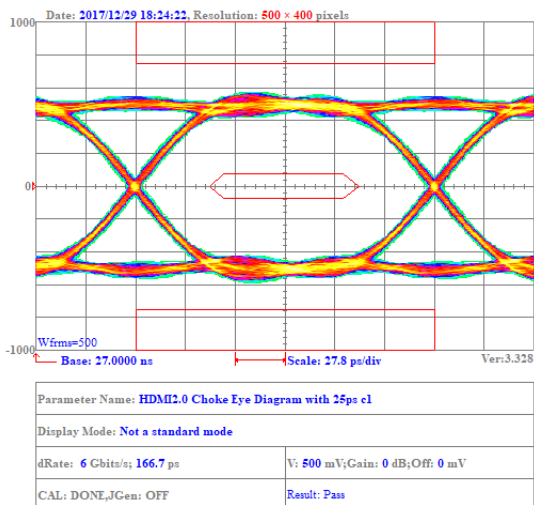
## TDR For HDMI2.0 Testing:



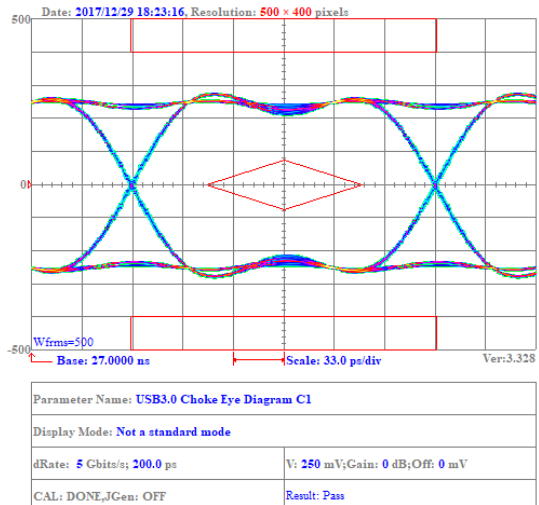
## TDR For USB3.0 Testing:



## Eye Diagram For HDMI2.0 Testing:



## Eye Diagram For USB3.0 Testing:



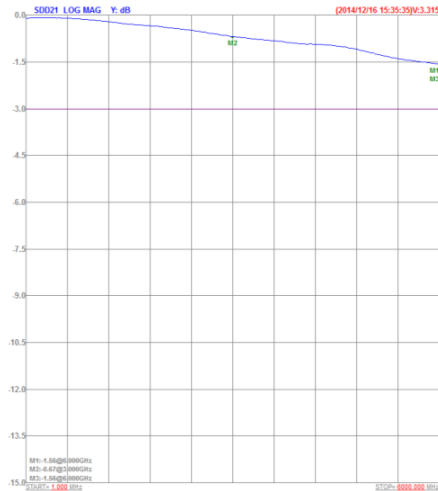
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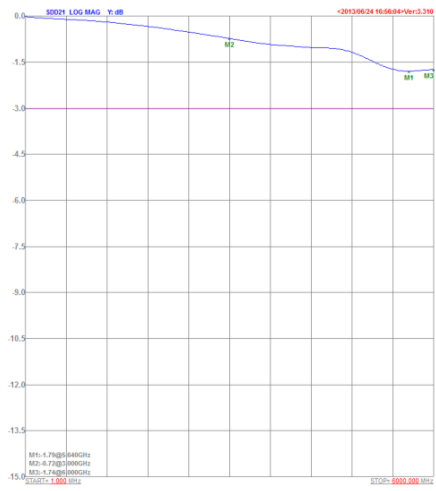


BWCU00121008600Y03

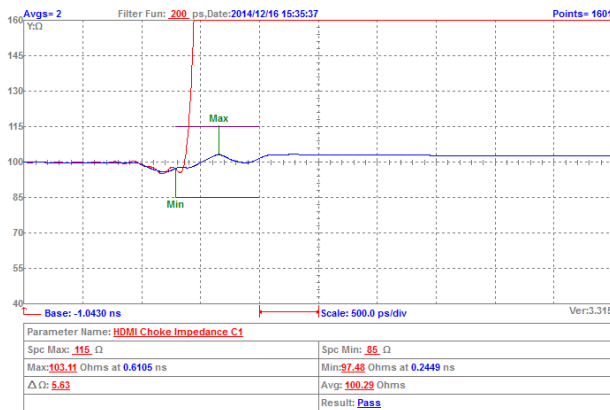
## Insertion Loss For HDMI2.0 Testing:



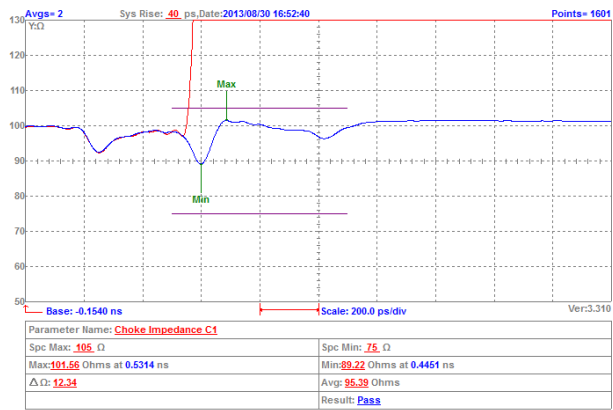
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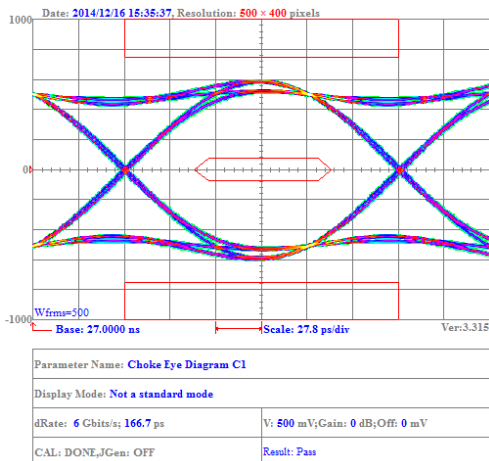
## TDR For HDMI2.0 Testing:



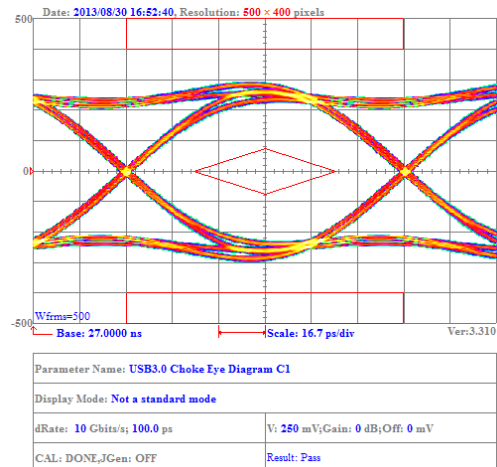
## TDR For USB3.0 Testing:



## Eye Diagram For HDMI2.0 Testing:



## Eye Diagram For USB3.0 Testing:



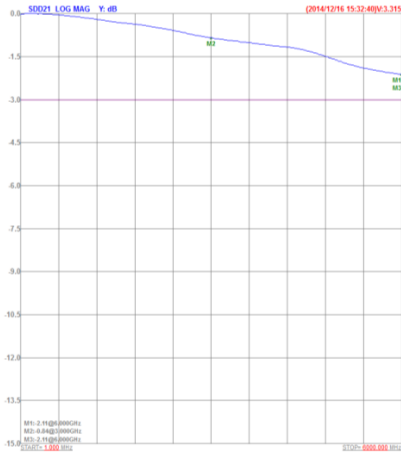
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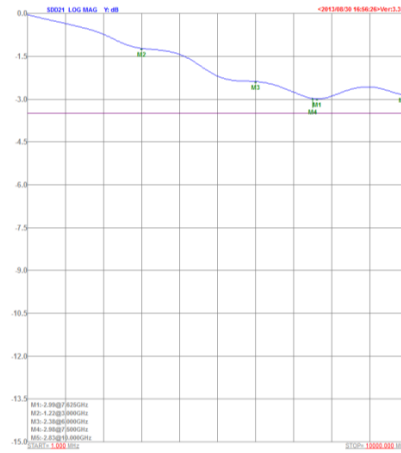


BWCU00121008900Y03

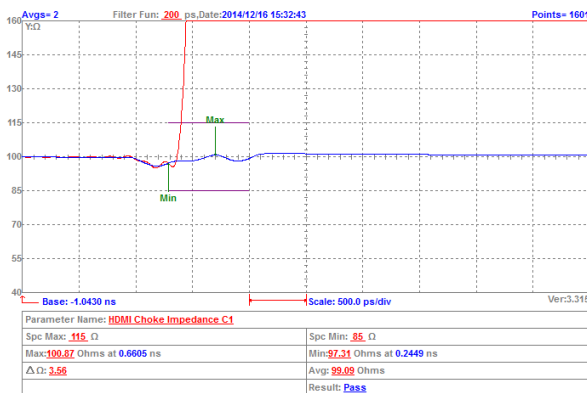
## Insertion Loss For HDMI2.0 Testing:



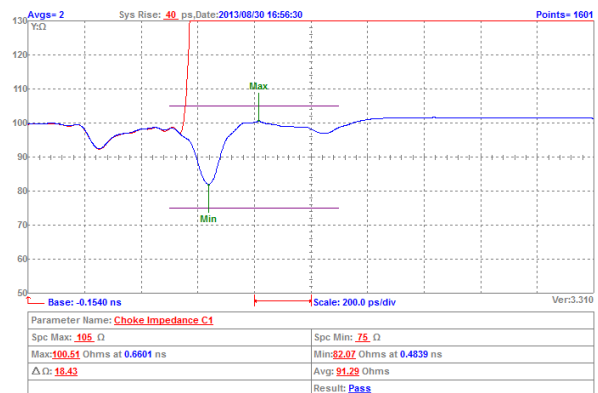
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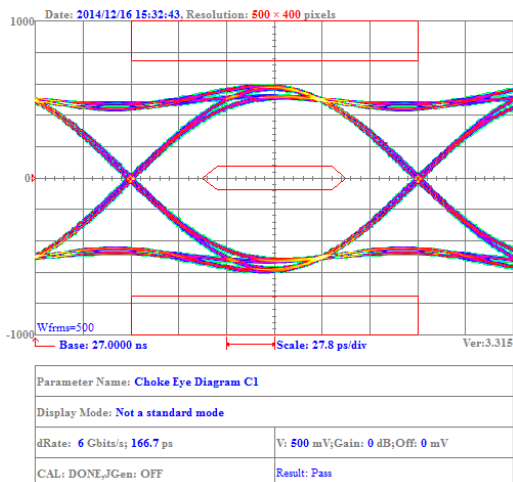
## TDR For HDMI2.0 Testing:



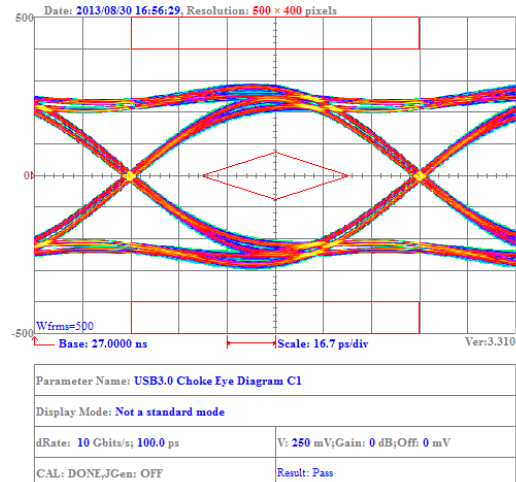
## TDR For USB3.0 Testing:



## Eye Diagram For HDMI2.0 Testing:



## Eye Diagram For USB3.0 Testing:



# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications



## Electrical Characteristics

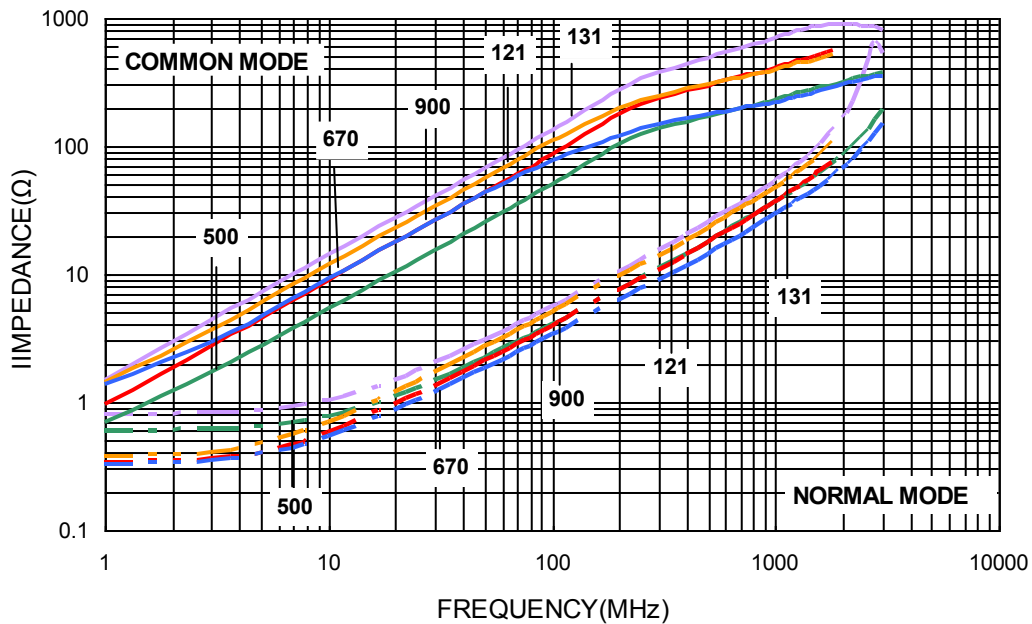
| Part Number        | Impedance (Ω) | Tolerance (±%) | Test Frequency (MHz) | RDC (Ω) Max | IDC (mA) Max | Rated Voltage (Vdc) | Withstand Voltage (Vdc) | Insulation Resistance (MΩ) Min |
|--------------------|---------------|----------------|----------------------|-------------|--------------|---------------------|-------------------------|--------------------------------|
| BWCU00201212500Y03 | 50            | 25             | 100                  | 0.20        | 500          | 50                  | 125                     | 10                             |
| BWCU00201212670Y03 | 67            | 25             | 100                  | 0.30        | 500          | 50                  | 125                     | 10                             |
| BWCU00201212900Y03 | 90            | 25             | 100                  | 0.30        | 500          | 50                  | 125                     | 10                             |
| BWCU00201212121Y03 | 120           | 25             | 100                  | 0.35        | 330          | 50                  | 125                     | 10                             |
| BWCU00201212131Y03 | 130           | 25             | 100                  | 0.40        | 300          | 50                  | 125                     | 10                             |

**Note: When ordering, please specify tolerance code. Tolerance: Y=±25%**

- Operating temperature range - 40°C ~ 105°C(Including self - temperature rise)
- IDC for Inductance drop 10% from its value without current.
- Measure Equipment :  
 Z : HP4286A/HP4287A/Agilent E4991A+Agilent16197A  
 RDC : Chroma 16502 (Single Wire Test Value)  
 IDC : HP4284A+HP42841A/HP4285A+HP42841A  
 Insulation Resistance : Agilent HP4339B

**Test Instruments :** HP4291A Material/Impedance Analyzer

### Typical Impedance vs. Frequency



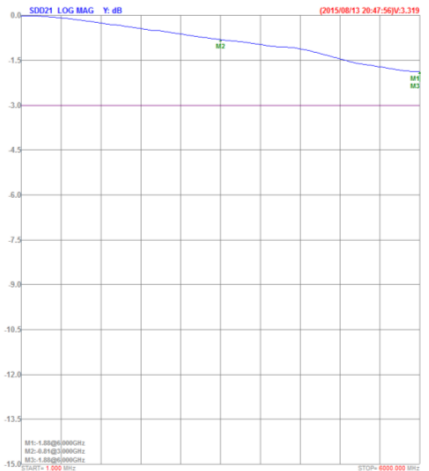
# SMD Common Mode Choke

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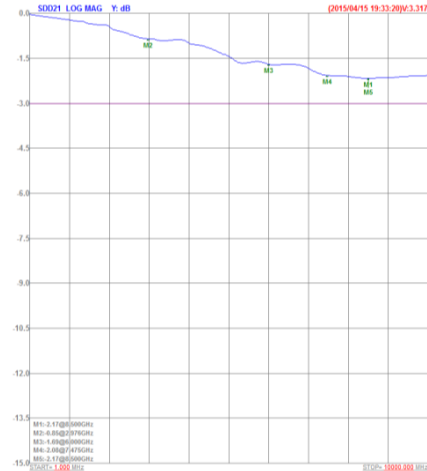


BWCU00201212500Y03

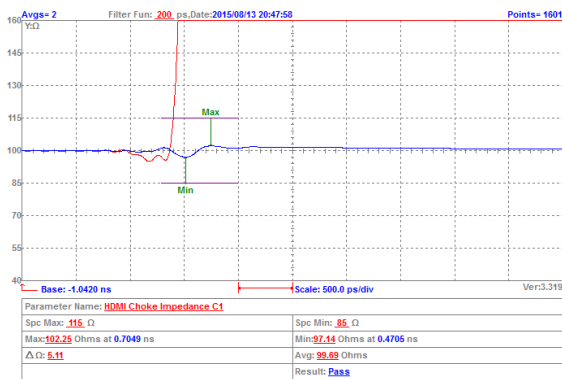
## Insertion Loss For HDMI2.0 Testing:



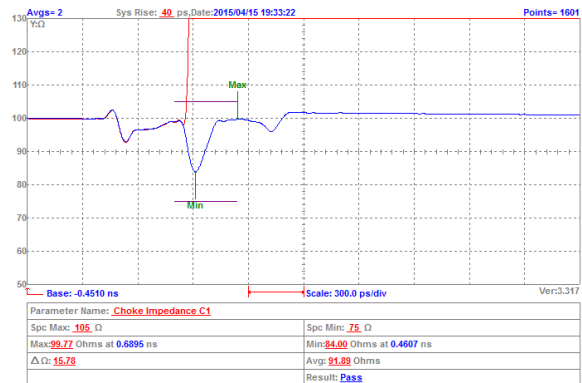
## Insertion Loss For USB3.0 Testing:



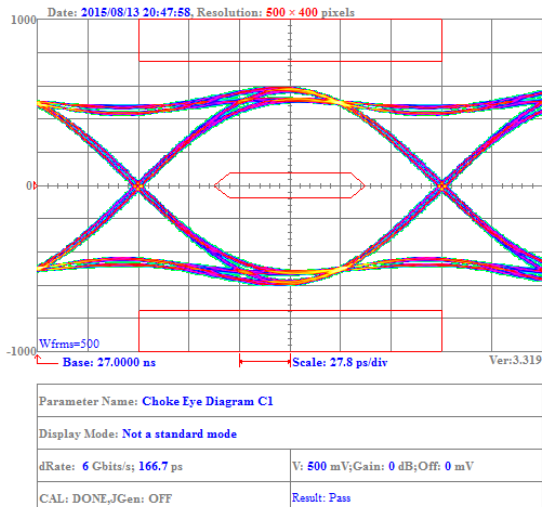
## TDR For HDMI2.0 Testing:



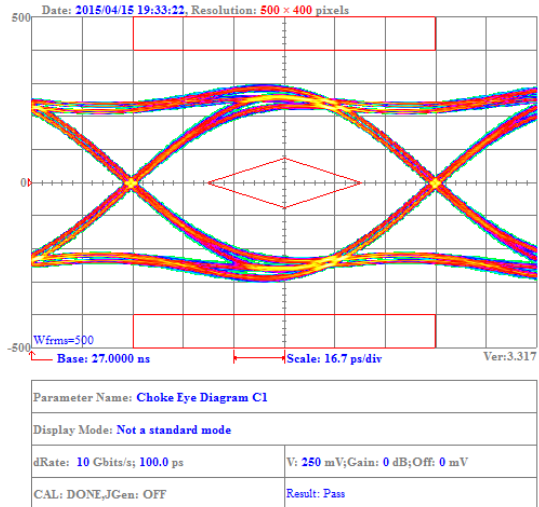
## TDR For USB3.0 Testing:



## Eye Diagram For HDMI2.0 Testing:



## Eye Diagram For USB3.0 Testing:



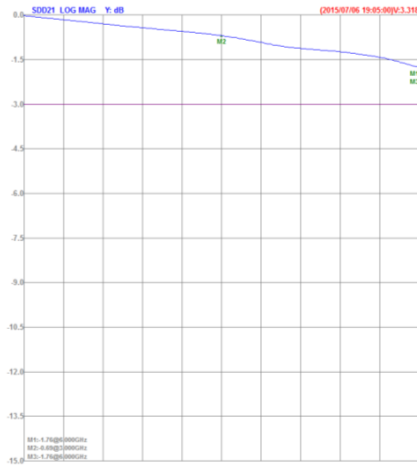
# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications

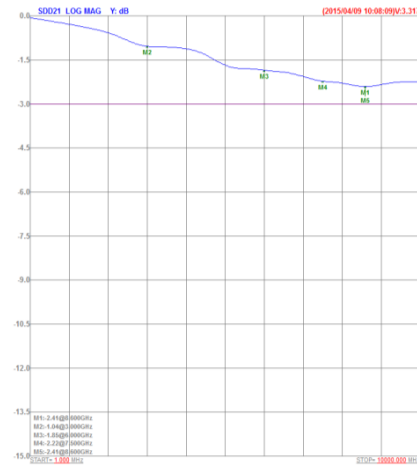


BWCU00201212670Y03

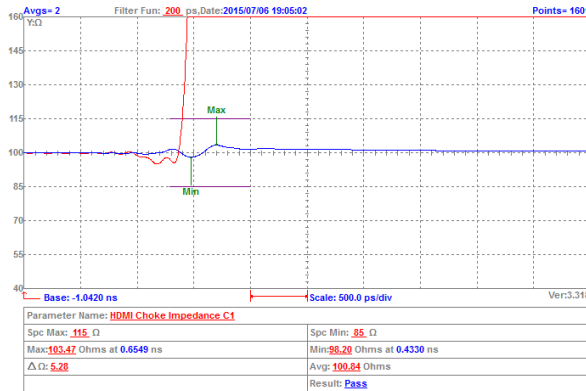
## Insertion Loss For HDMI2.0 Testing:



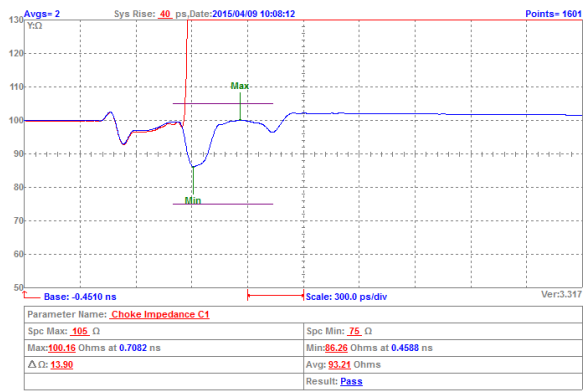
## Insertion Loss For USB3.0 Testing:



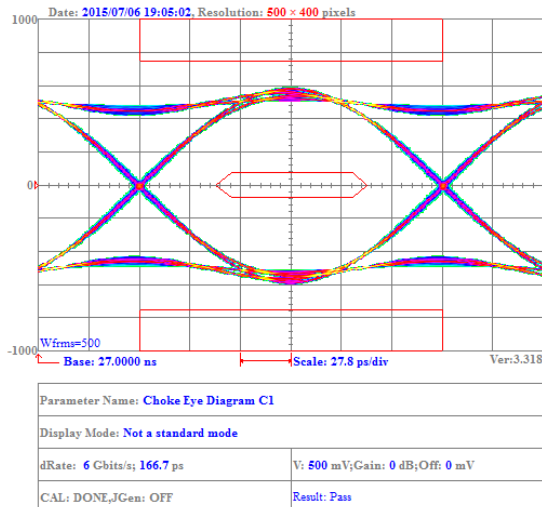
## TDR For HDMI2.0 Testing:



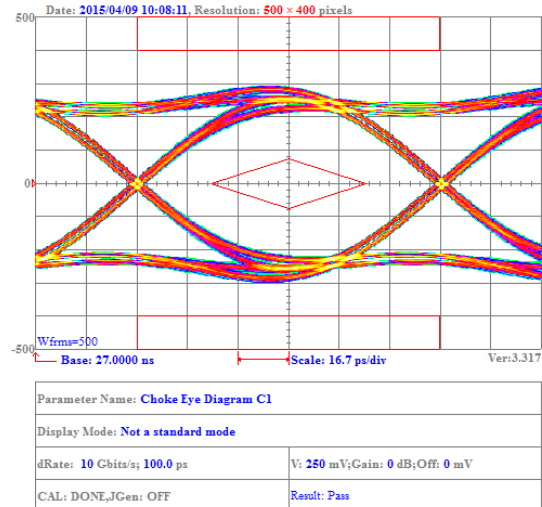
## TDR For USB3.0 Testing:



## Eye Diagram For HDMI2.0 Testing:



## Eye Diagram For USB3.0 Testing:



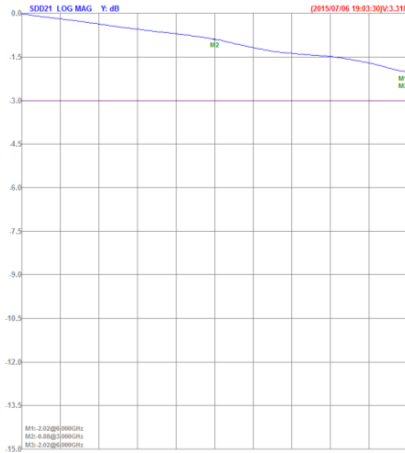
# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications

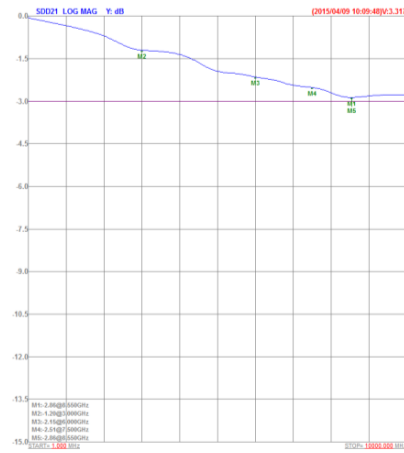
BWCU00201212900Y03



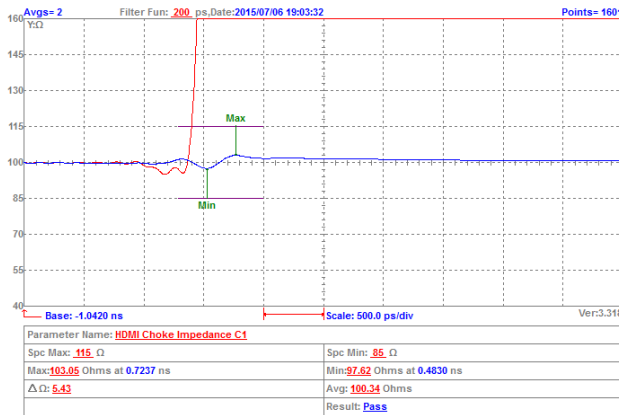
## Insertion Loss For HDMI2.0 Testing:



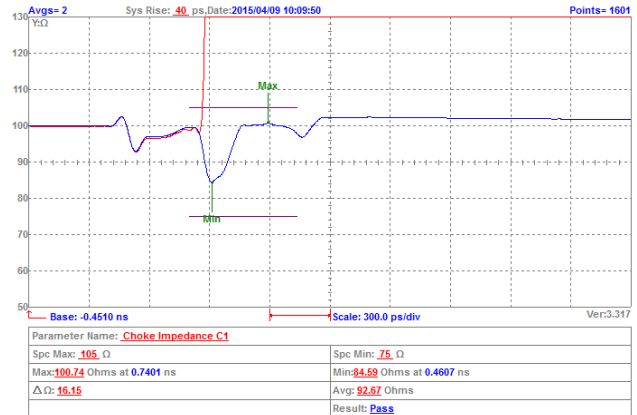
## Insertion Loss For USB3.0 Testing:



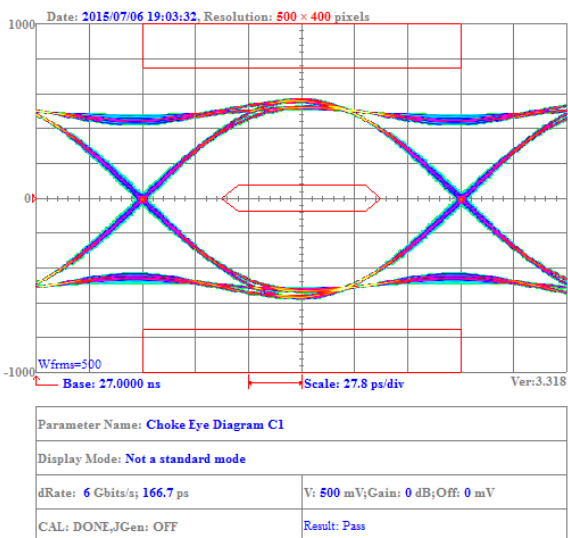
## TDR For HDMI2.0 Testing:



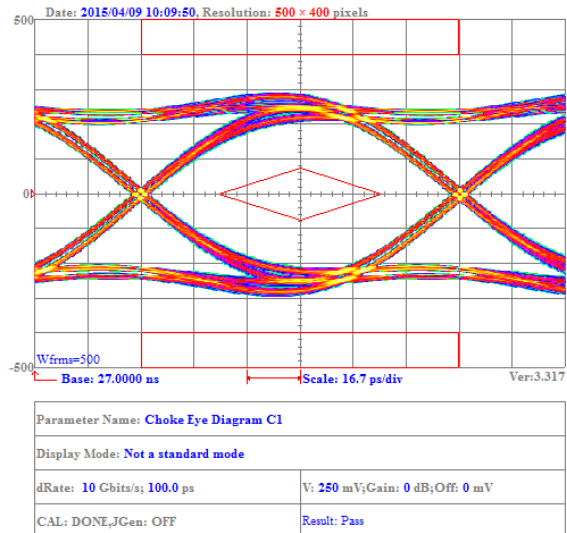
## TDR For USB3.0 Testing:



## Eye Diagram For HDMI2.0 Testing:



## Eye Diagram For USB3.0 Testing:



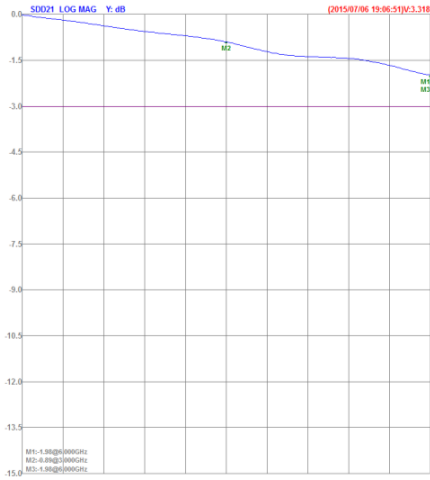
# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications

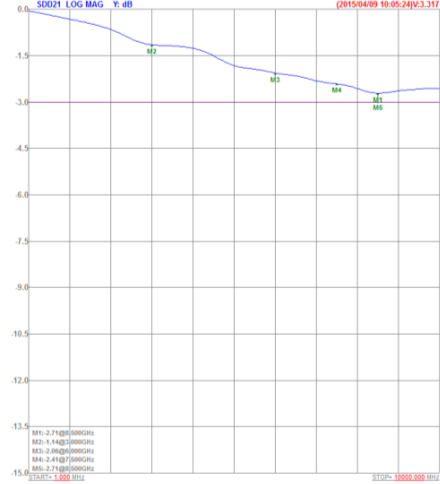


BWCU00201212121Y03

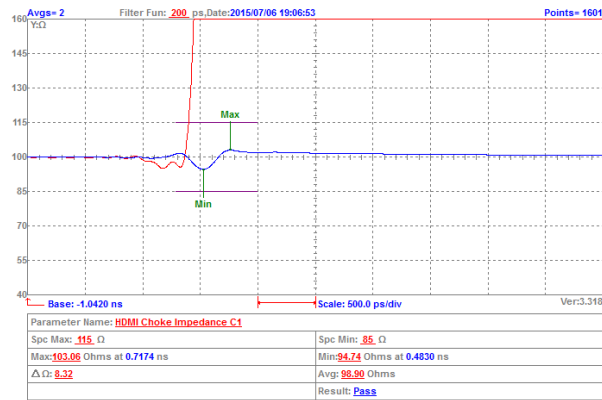
## Insertion Loss For HDMI2.0 Testing:



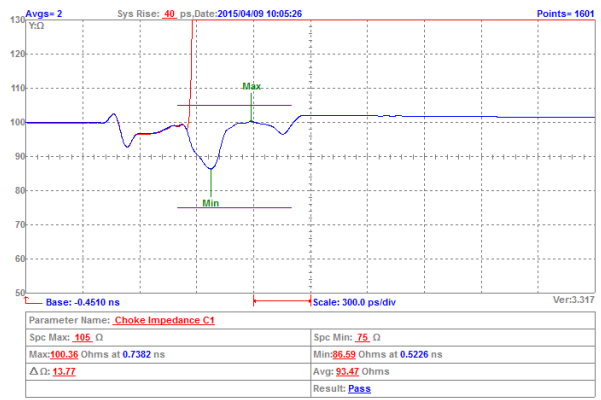
## Insertion Loss For USB3.0 Testing:



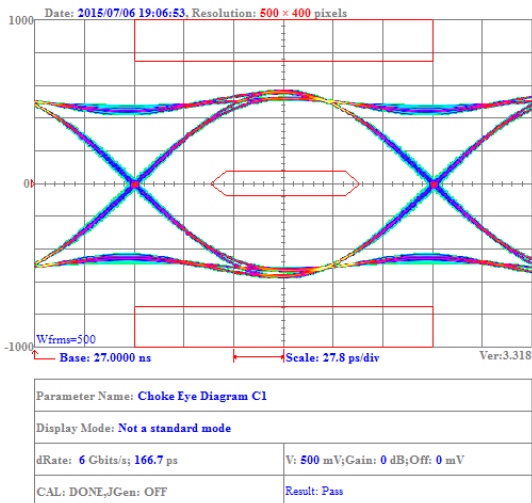
## TDR For HDMI2.0 Testing:



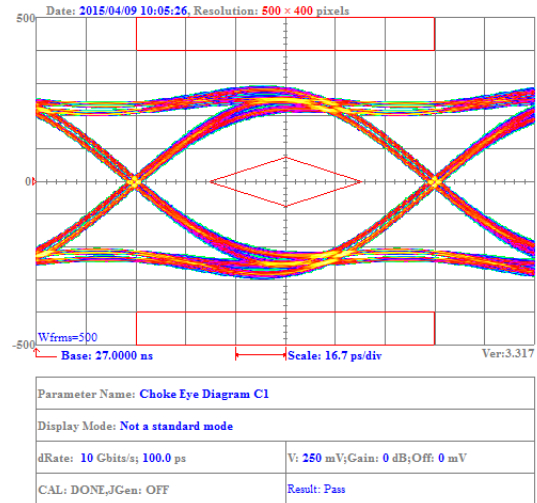
## TDR For USB3.0 Testing:



## Eye Diagram For HDMI2.0 Testing:



## Eye Diagram For USB3.0 Testing:



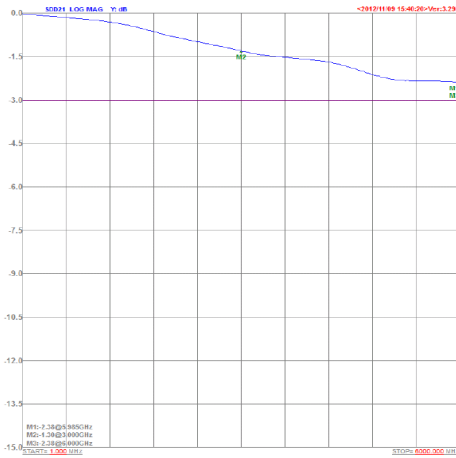
# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications

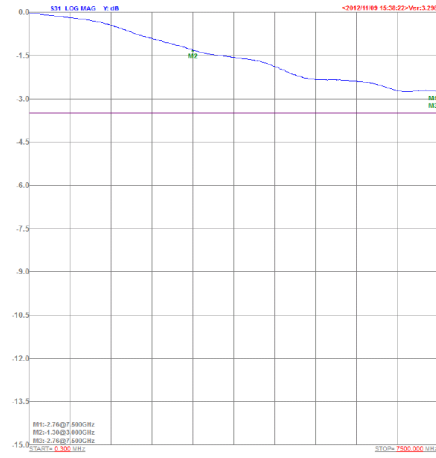
BWCU00201212131Y03



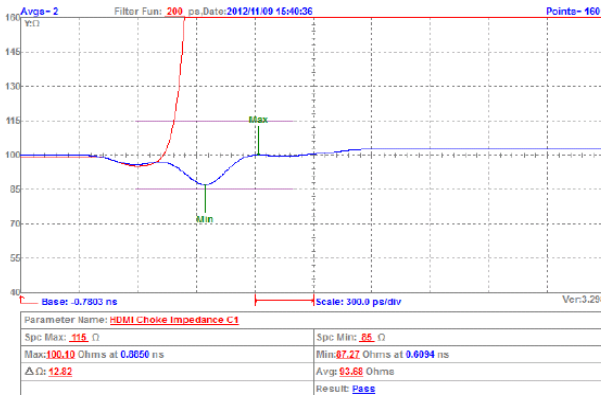
## Insertion Loss For HDMI Testing:



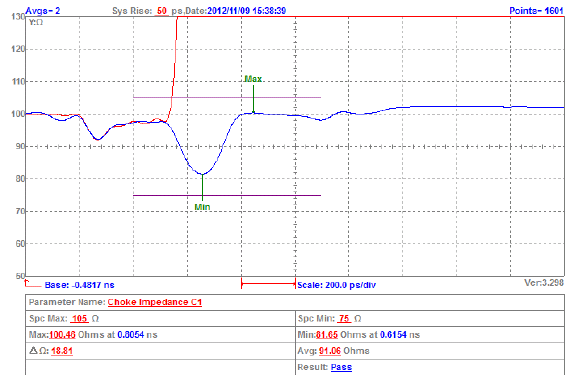
## Insertion Loss For USB3.0 Testing:



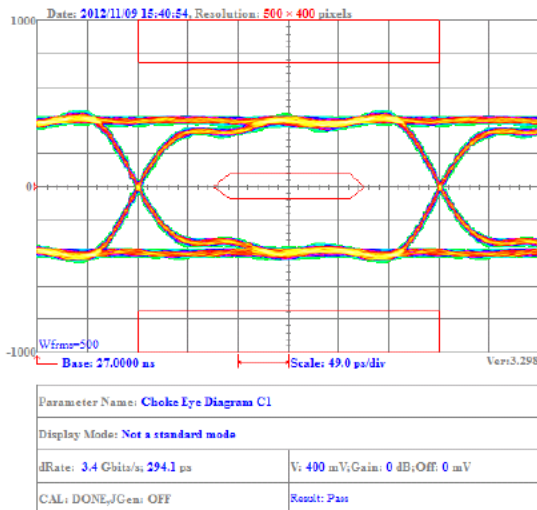
## TDR For HDMI Testing:



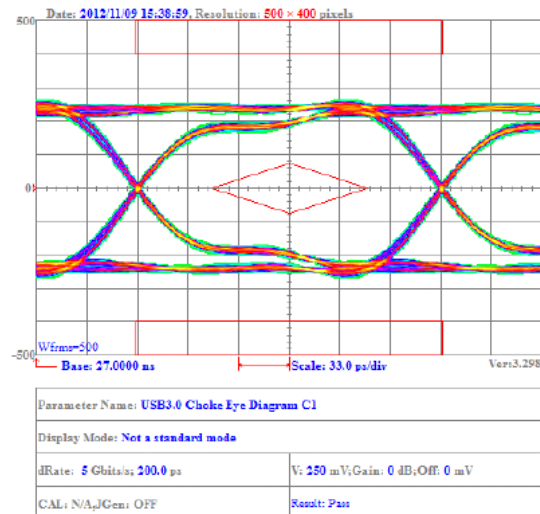
## TDR For USB3.0 Testing:



## Eye Diagram For HDMI Testing:



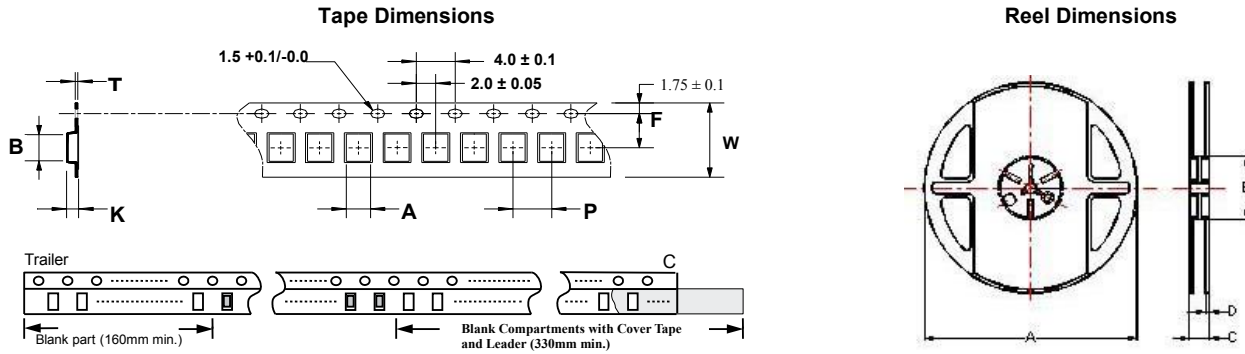
## Eye Diagram For USB3.0 Testing:



# SMD Common Mode Choke

BWCU\_02 Series For USB 2.0, IE EE1394b, LVDS Applications

## Packaging Specifications



### Dimensions in mm

| TYPE         | Tape Dimensions |      |      |   |   |     |      | Reel Dimensions |    |    |     | Quantity<br>PCS / Reel |
|--------------|-----------------|------|------|---|---|-----|------|-----------------|----|----|-----|------------------------|
|              | A               | B    | T    | W | P | F   | K    | A               | B  | C  | D   |                        |
| BWCU00121008 | 1.15            | 1.45 | 0.25 | 8 | 4 | 3.5 | 1.00 | 178             | 60 | 12 | 1.5 | 2000                   |
| BWCU00201212 | 1.50            | 2.25 | 0.24 | 8 | 4 | 3.5 | 1.35 | 178             | 60 | 12 | 1.5 | 2000                   |

### For More Information:

Americas - [prodinfo\\_power\\_americas@yageo.com](mailto:prodinfo_power_americas@yageo.com) | Europe - [prodinfo\\_power\\_emea@yageo.com](mailto:prodinfo_power_emea@yageo.com) | Asia - [prodinfo\\_power\\_asia@yageo.com](mailto:prodinfo_power_asia@yageo.com)

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