



**THE DATASHEET OF  
ECJ-MFF1A226Z**



### Multilayer Ceramic Capacitors (High Capacitance)

Series: **ECJ**



#### ■ Features

- Small size and high capacitance
- Low ESR/ESL and excellent high-frequency characteristics
- Ideal alternative to TANTALUM CHIP CAPACITORS and ALUMINUM ELECTROLYTIC CAPACITORS
- RoHS compliant

#### ■ Recommended Applications

- **Class 2 (Hi-K Type)**
  - Power supply circuitry decoupling applications
  - DC-DC converter power supply circuitry of the high-speed LSI smoothing circuit

#### ■ Handling Precautions

See Page 48 to 53

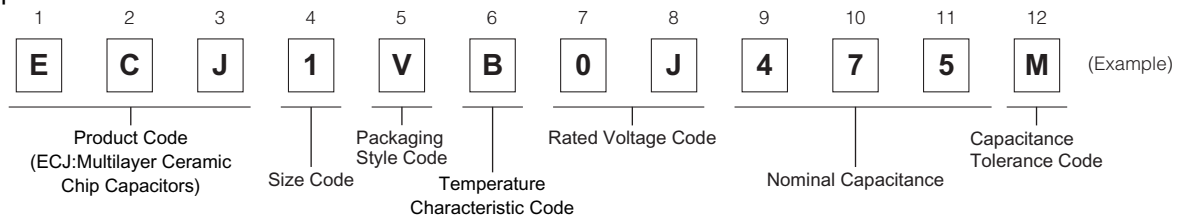
#### ■ Packaging Specifications

See Page 45, 46, 56

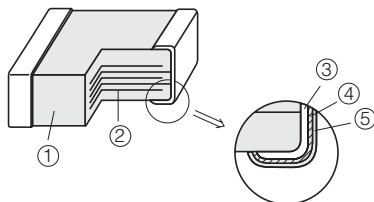
#### ■ Discontinued / Revised Part Numbers, Alternative Part Numbers

See Page 54, 55

#### ■ Explanation of Part Numbers

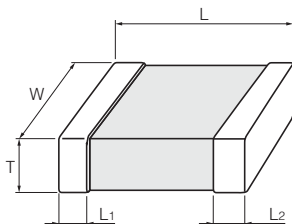


#### ■ Construction



| No | Name               |                        |
|----|--------------------|------------------------|
| ①  | Ceramic dielectric |                        |
| ②  | Internal electrode |                        |
| ③  | Terminal electrode | Substrate electrode    |
| ④  |                    | Intermediate electrode |
| ⑤  |                    | External electrode     |

#### ■ Dimensions in mm (not to scale)



| Size Code | Size (EIA) | L                                      | W                                      | T                                      | L <sub>1</sub> , L <sub>2</sub> |
|-----------|------------|--|--|--|---------------------------------|
| 0         | 0402       | 1.00±0.05                              | 0.50±0.05                              | 0.50±0.05                              | 0.2±0.1                         |
|           |            | 1.00 <sup>+0.15</sup> <sub>-0.05</sub> | 0.50 <sup>+0.15</sup> <sub>-0.05</sub> | 0.50 <sup>+0.15</sup> <sub>-0.05</sub> |                                 |
| 1         | 0603       | 1.6±0.1                                | 0.8±0.1                                | 0.8±0.1                                | 0.3±0.2                         |
|           |            | 1.60±0.15                              | 0.80±0.15                              | 0.80±0.15                              |                                 |
| 2         | 0805       | 2.0±0.1                                | 1.25±0.10                              | 0.85±0.10                              | 0.50±0.25                       |
|           |            | 2.00±0.15                              | 1.25±0.15                              | 1.25±0.15                              |                                 |
|           |            | 2.0±0.2                                | 1.25±0.20                              | 1.25±0.20                              |                                 |
| G         |            | 2.00±0.15                              | 1.25±0.15                              | 0.85±0.10                              |                                 |
| 3         | 1206       | 3.20±0.15                              | 1.60±0.15                              | 0.85±0.10                              | 0.6±0.3                         |
|           |            |  |  | 1.15±0.10                              |                                 |
| D         |            | 3.2±0.2                                | 1.6±0.2                                | 0.85±0.10                              |                                 |
| M         |            |  |  | 1.15±0.10                              |                                 |

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

### ■ Packaging Styles and Standard Packaging Quantities

Quantity : pcs./reel

| Packaging Style Code | Packaging Styles | Size<br>Thickness              | 0402   | 0603  | 0805   |        | 1206   |        |       |
|----------------------|------------------|--------------------------------|--------|-------|--------|--------|--------|--------|-------|
|                      |                  |                                | T=0.5  | T=0.8 | T=0.85 | T=1.25 | T=0.85 | T=1.15 | T=1.6 |
| E                    | φ180 reel        | Paper taping (Pitch : 2 mm)    | 10,000 | —     | —      | —      | —      | —      | —     |
| V                    |                  | Paper taping (Pitch : 4 mm)    | —      | 4,000 | 4,000  | —      | 4,000  | —      | —     |
| F                    |                  | Embossed taping (Pitch : 4 mm) | —      | —     | —      | 3,000  | —      | 3,000  | —     |
| Y                    |                  |                                | —      | —     | —      | —      | —      | —      | 2,000 |

φ330 reel and Bulk case Type : Please contact us.

### ■ Temperature Characteristics

#### ● Class 2

| Temperature Characteristic Code | Temperature Characteristics | Capacitance Change | Measurement Temperature Range | Reference Temperature |
|---------------------------------|-----------------------------|--------------------|-------------------------------|-----------------------|
| B, X                            | B                           | ±10 %              | -25 to 85 °C                  | 20 °C                 |
|                                 | X7R                         | ±15 %              | -55 to 125 °C                 | 25 °C                 |
|                                 | X5R                         | ±15 %              | -55 to 85 °C                  | 25 °C                 |
| F                               | F                           | +30, -80 %         | -25 to 85 °C                  | 20 °C                 |
|                                 | Y5V                         | +22, -82 %         | -30 to 85 °C                  | 25 °C                 |

For applicable "Temperature Characteristics", see the lists of standard products on page 6 to 7.

### ■ Rated Voltage

| Code          | 1H      | 1E      | 1C      | 1A      | 0J       |
|---------------|---------|---------|---------|---------|----------|
| Rated Voltage | DC 50 V | DC 25 V | DC 16 V | DC 10 V | DC 6.3 V |

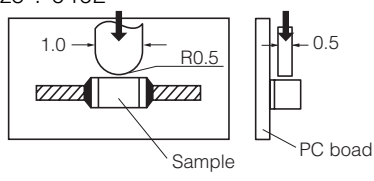
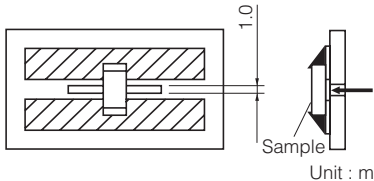
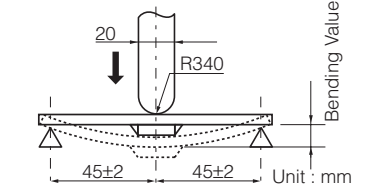
### ■ Nominal Capacitance

| Ex.                 | 105                    | 225                      | 106                      | 226                      |
|---------------------|------------------------|--------------------------|--------------------------|--------------------------|
| Nominal Capacitance | 1,000,000 pF<br>(1 μF) | 2,200,000 pF<br>(2.2 μF) | 10,000,000 pF<br>(10 μF) | 22,000,000 pF<br>(22 μF) |

### ■ Capacitance Tolerance

| Class | Temperature Characteristics | Capacitance Tolerance Code | Capacitance Tolerance |
|-------|-----------------------------|----------------------------|-----------------------|
| 2     | B, X7R, X5R                 | K                          | ±10 %                 |
|       |                             | M                          | ±20 %                 |
|       | F, Y5V                      | Z                          | +80, -20 %            |

### ■ Specifications and Testing Methods

| Item  | Specification  | Test Method  |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
|---|--|--|---------------------|---------|---------|---------------------|------------|-------------|-------------------|--------------|--------------|-------|---------|--------|--------|--------|--------|----------------------|-------|-------|-------|-------|---------|-------|--------|-------|-------|---------|-------|-------|-------|-------|
| Operating Temperature Range   | Temp. Char. B, X7R : -55 to 125 °C<br>Temp. Char. B, X5R : -55 to 85 °C<br>Temp. Char. F, Y5V : -30 to 85 °C               | —————  |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Dielectric Withstanding Voltage   | No dielectric breakdown and/or damage  | Test voltage : Rated voltage x250 %<br>Duration:1 to 5 s.<br>Charge / Discharge current: 50 mA max.  |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Insulation Resistance (I.R.)  | 500/C (MΩ) min.<br>Note : 100/C(MΩ)min. for DC 10 V max.<br>C : Nominal Cap. in μF   | Measuring voltage : Rated voltage<br>Duration : 60±5 s<br>Charge / Discharge current: 50 mA max.   |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Capacitance   | Within the specified tolerance   | Measuring temperature: 20±2 °C<br>Preconditioning: The capacitors shall be kept in temperature of 150 +0/-10 °C for 1 hour and subject to standard condition* 48±4 hours before initial measurement.   |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Dissipation Factor (tan δ)  | 0.2 max.<br>Please see the technical specifications for details.   |  |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| <table border="1"> <thead> <tr> <th>Nominal capacitance</th> <th>C≤10 μF</th> <th>C&gt;10 μF</th> </tr> </thead> <tbody> <tr> <td>Measuring frequency</td> <td>1 kHz±10 %</td> <td>120 Hz±20 %</td> </tr> <tr> <td>Measuring voltage</td> <td>1.0±0.2 Vrms</td> <td>0.5±0.2 Vrms</td> </tr> </tbody> </table> |  |  | Nominal capacitance | C≤10 μF | C>10 μF | Measuring frequency | 1 kHz±10 % | 120 Hz±20 % | Measuring voltage | 1.0±0.2 Vrms | 0.5±0.2 Vrms |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Nominal capacitance   | C≤10 μF  | C>10 μF  |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Measuring frequency   | 1 kHz±10 %   | 120 Hz±20 %  |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Measuring voltage   | 1.0±0.2 Vrms   | 0.5±0.2 Vrms   |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Temperature Characteristics   | Temperature Characteristics<br>B : ±10 %<br>X7R : ±15 %<br>X5R : ±15 %<br>F : +30, -80 %<br>Y5V : +22, -82 %               | Maximum capacitance change at stages 1 to 5 <table border="1"> <thead> <tr> <th>Temp. Char.</th> <th>B, F</th> <th>X7R</th> <th>X5R</th> <th>Y5V</th> </tr> </thead> <tbody> <tr> <td>Stage 1</td> <td>20 °C</td> <td>25 °C</td> <td>25 °C</td> <td>25 °C</td> </tr> <tr> <td>Stage 2</td> <td>-25 °C</td> <td>-55 °C</td> <td>-55 °C</td> <td>-30 °C</td> </tr> <tr> <td>Stage 3 (Ref. Temp.)</td> <td>20 °C</td> <td>25 °C</td> <td>25 °C</td> <td>25 °C</td> </tr> <tr> <td>Stage 4</td> <td>85 °C</td> <td>125 °C</td> <td>85 °C</td> <td>85 °C</td> </tr> <tr> <td>Stage 5</td> <td>20 °C</td> <td>25 °C</td> <td>25 °C</td> <td>25 °C</td> </tr> </tbody> </table> See the technical specifications for details such as measuring voltage. | Temp. Char.         | B, F    | X7R     | X5R                 | Y5V        | Stage 1     | 20 °C             | 25 °C        | 25 °C        | 25 °C | Stage 2 | -25 °C | -55 °C | -55 °C | -30 °C | Stage 3 (Ref. Temp.) | 20 °C | 25 °C | 25 °C | 25 °C | Stage 4 | 85 °C | 125 °C | 85 °C | 85 °C | Stage 5 | 20 °C | 25 °C | 25 °C | 25 °C |
| Temp. Char.   | B, F   | X7R  | X5R                 | Y5V     |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Stage 1   | 20 °C  | 25 °C  | 25 °C               | 25 °C   |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Stage 2   | -25 °C   | -55 °C   | -55 °C              | -30 °C  |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Stage 3 (Ref. Temp.)  | 20 °C  | 25 °C  | 25 °C               | 25 °C   |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Stage 4   | 85 °C  | 125 °C   | 85 °C               | 85 °C   |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Stage 5   | 20 °C  | 25 °C  | 25 °C               | 25 °C   |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Adhesion  | Terminal electrodes shall be free from peeling or signs of peeling.  | Applied force : 5 N<br>Duration : 10 s<br>Size : 0402 <br>Size : 0603 to 1206 <br>Unit : mm  |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Bending Strength  | Appearance: No mechanical damage<br>Capacitance change:<br>Temp. Char. B, X7R, X5R: within ±12.5 %<br>F, Y5V: within ±30 % | Bending value :1 mm<br>Bending speed : 1 mm/s <br>Unit : mm   |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |
| Vibration Proof   | Appearance : No mechanical damage.<br>Capacitance : Within the specified tolerance<br>tanδ : Initial standard value        | Total amplitude : 1.5 mm<br>Vibration frequency : 10 to 55 to 10 Hz for 1 min<br>3 perpendicular directions for 2 hours each, a total of 6 hours   |                     |         |         |                     |            |             |                   |              |              |       |         |        |        |        |        |                      |       |       |       |       |         |       |        |       |       |         |       |       |       |       |

\*Standard condition : Temperature 15 to 35 °C, Relative humidity 45 to 75 %

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Should a safety concern arise regarding this product, please be sure to contact us immediately.

02 Dec. 2008

| Item                         | Specification  | Test Method  |             |            |                |           |   |           |             |             |   |            |             |             |
|------------------------------|--|--|-------------|------------|----------------|-----------|---|-----------|-------------|-------------|---|------------|-------------|-------------|
| Resistance to Soldering Heat | Appearance : No mechanical damage<br>Capacitance change :<br>Temp. Char. B, X7R, X5R : within $\pm 7.5$ %<br>F, Y5V : within $\pm 20$ %<br>$\tan\delta$ : Initial standard value<br>IR : Initial standard value<br>Withstand voltage : No dielectric breakdown or damage   | Soldering bath method<br>Preconditioning : Heat treatment <sup>(*1)</sup><br>Solder temperature : $270\pm 5$ °C<br>Dipping period : $3.0\pm 0.5$ s<br>Preheat condition :<br><table border="1"> <thead> <tr> <th>Order</th> <th>Temp. (°C)</th> <th>Size 0805 max.</th> <th>Size 1206</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>80 to 100</td> <td>120 to 180s</td> <td>300 to 360s</td> </tr> <tr> <td>2</td> <td>150 to 200</td> <td>120 to 180s</td> <td>300 to 360s</td> </tr> </tbody> </table> Recovery (Standard condition) : $48\pm 4$ h | Order       | Temp. (°C) | Size 0805 max. | Size 1206 | 1 | 80 to 100 | 120 to 180s | 300 to 360s | 2 | 150 to 200 | 120 to 180s | 300 to 360s |
| Order                        | Temp. (°C)   | Size 0805 max.   | Size 1206   |            |                |           |   |           |             |             |   |            |             |             |
| 1                            | 80 to 100  | 120 to 180s  | 300 to 360s |            |                |           |   |           |             |             |   |            |             |             |
| 2                            | 150 to 200   | 120 to 180s  | 300 to 360s |            |                |           |   |           |             |             |   |            |             |             |
| Solderability                | More than 95 % of the soldered area of both terminal electrodes shall be covered with fresh solder.  | Soldering bath method<br>Solder temperature : $230\pm 5$ °C<br>Dipping period : $4\pm 1$ s<br>Solder : H63A (JIS-Z-3282)   |             |            |                |           |   |           |             |             |   |            |             |             |
| Temperature Cycle            | Appearance : No mechanical damage<br>Capacitance change :<br>Temp. Char. B, X7R, X5R : within $\pm 7.5$ %<br>F, Y5V : within $\pm 20$ %<br>$\tan\delta$ : Initial standard value<br>IR : Initial standard value<br>Withstand voltage : No dielectric breakdown and/or damage   | Preconditioning : Heat treatment <sup>(*1)</sup><br>Step 1: Minimum operating temp. $30\pm 3$ min<br>Step 2: Room temp. 3 min max.<br>Step 3: Maximum operating temp. $30\pm 3$ min<br>Step 4: Room temp. 3 min max.<br>Number of cycles : 5 cycles<br>Recovery(Standard condition) : $48\pm 4$ h  |             |            |                |           |   |           |             |             |   |            |             |             |
| Damp Heat (steady state)     | Appearance : No mechanical damage<br>Capacitance change :<br>Temp. Char. B, X7R, X5R : within $\pm 20$ %<br>F, Y5V : within $\pm 30$ %<br>$\tan\delta$ : Temp. Char. B, X7R, X5R : 0.25 max.<br>F, Y5V : 0.3 max.<br>IR : 50/C (M $\Omega$ ) min.<br>Note : 10/C (M $\Omega$ ) min. for rated vol. DC 10 V max.<br>C:Nominal cap. in $\mu$ F<br>Please see the technical specifications for details. | Preconditioning : Heat treatment <sup>(*1)</sup><br>Temperature : $40\pm 2$ °C<br>Relative humidity : 90 to 95 %<br>Test period : 500+24/0 h<br>Recovery(Standard condition) : $48\pm 4$ h   |             |            |                |           |   |           |             |             |   |            |             |             |
| Damp Heat Load               | Appearance : No mechanical damage<br>Capacitance change :<br>Temp. Char. B, X7R, X5R : within $\pm 20$ %<br>F, Y5V : within $\pm 30$ %<br>$\tan\delta$ : Temp. Char. B, X7R, X5R : 0.25 max.<br>F, Y5V : 0.3 max.<br>IR : 25/C (M $\Omega$ ) min.<br>Note : 5/C (M $\Omega$ ) min. for rated vol. DC 10 V max.<br>C:Nominal cap. in $\mu$ F<br>Please see the technical specifications for details.  | Preconditioning : Voltage treatment <sup>(*2)</sup><br>Temperature : $40\pm 2$ °C<br>Relative humidity : 90 to 95 %<br>Applied voltage : Rated voltage<br>Charge/discharge current : 50 mA max.<br>Test period : 500+24/0 h<br>Recovery(Standard condition) : $48\pm 4$ h  |             |            |                |           |   |           |             |             |   |            |             |             |
| High Temperature Load        | Appearance : no mechanical damage<br>Capacitance change :<br>Temp. Char. B, X7R, X5R : within $\pm 20$ %<br>F, Y5V : within $\pm 30$ %<br>$\tan\delta$ : Temp. Char. B, X7R, X5R : 0.25 max.<br>F, Y5V : 0.3 max.<br>IR : 50/C (M $\Omega$ ) min.<br>Note : 10/C (M $\Omega$ ) min. for rated vol. DC 10 V max.<br>C:Nominal cap. in $\mu$ F<br>Please see the technical specifications for details. | Preconditioning : Voltage treatment <sup>(*2)</sup><br>Temperature : Maximum operation temp. $\pm 3$ °C<br>Applied voltage : (1)Rated voltage $\times 200$ %<br>(2)Rated voltage $\times 150$ %<br>(3)Rated voltage $\times 100$ %<br>Please see the technical specifications for details.<br>Charge/discharge current : 50 mA max.<br>Test period : 1000+48/0 h<br>Recovery (Standard condition) : $48\pm 4$ h  |             |            |                |           |   |           |             |             |   |            |             |             |

(\*1) Heat treatment : 1 h of heat treatment at  $150\pm 0/-10$  °C followed by  $48\pm 4$  h recovery under standard conditions.

(\*2) Voltage treatment : 1 h of voltage treatment under the specified temperature and voltage for testing followed by  $48\pm 4$  h of recovery under standard conditions.

### ■ Standard Products for EIA Size "0402", Taped Version

#### ● Class 2

##### ◆ Temperature Characteristic Code : B (Temperature Characteristics : X5R)

| Rated Voltage    |                         | DC 16 V      |             |                 | DC 10 V      |             |                 | DC 6.3 V     |             |                 |
|------------------|-------------------------|--------------|-------------|-----------------|--------------|-------------|-----------------|--------------|-------------|-----------------|
| Capacitance (μF) | Capacitance Tolerance   | Part No.     | Dim. T (mm) | Temp. Char. X5R | Part No.     | Dim. T (mm) | Temp. Char. X5R | Part No.     | Dim. T (mm) | Temp. Char. X5R |
| 1                | ±10 %(K)<br>or ±20 %(M) | ECJ0EB1C105M | 0.5*        | ○               | ECJ0EB1A105□ | 0.5         | ○               | ECJ0EB0J105□ | 0.5         | ○               |
| 2.2              |                         |              |             |                 |              |             |                 | ECJ0EB0J225M | 0.5         | ○               |
| 4.7              |                         |              |             |                 |              |             |                 | ECJ0EB0J475M | 0.5*        | ○               |

□ : Capacitance tolerance code : "□" for "K" or "M"

Dimensional tolerance of L, W, T : ±0.05 mm for no mark,  $\pm 0.05$  mm for "\*" mark.

Standard packaging quantity of Packaging Style Code "E" (T = 0.5 mm) : 10,000 pcs./reel.

Avoid flow soldering.

##### ◆ Temperature Characteristic Code : F (Temperature Characteristics : F, Y5V)

| Rated Voltage    |                       | DC 6.3 V     |             |                   |
|------------------|-----------------------|--------------|-------------|-------------------|
| Capacitance (μF) | Capacitance Tolerance | Part No.     | Dim. T (mm) | Temp. Char. F Y5V |
| 1                | +80, -20 % (Z)        | ECJ0EF0J105Z | 0.5         | ○ ○               |

Standard packaging quantity of Packaging Style Code "E" (T = 0.5 mm) : 10,000 pcs./reel.

Recommend soldering method : Reflow soldering.

### ■ Standard Products for EIA Size "0603", Taped Version

#### ● Class 2

##### ◆ Temperature Characteristic Code : B (Temperature Characteristics : X5R)

| Rated Voltage    |                            | DC 25 V      |             |                 | DC 16 V       |             |                 | DC 10 V       |             |                 | DC 6.3 V      |             |                 |
|------------------|----------------------------|--------------|-------------|-----------------|---------------|-------------|-----------------|---------------|-------------|-----------------|---------------|-------------|-----------------|
| Capacitance (μF) | Capacitance Tolerance      | Part No.     | Dim. T (mm) | Temp. Char. X5R | Part No.      | Dim. T (mm) | Temp. Char. X5R | Part No.      | Dim. T (mm) | Temp. Char. X5R | Part No.      | Dim. T (mm) | Temp. Char. X5R |
| 1                | ±10 %(K)<br>or<br>±20 %(M) | ECJ1VB1E105□ | 0.8         | ○               | ECJ1VB1C105□  | 0.8         | ○               | ECJ1VB1A105□  | 0.8         | ○               | ECJ1VB0J105□  | 0.8         | ○               |
| 2.2              |                            |              |             |                 | ECJ1VB1C225□* | 0.8         | ○               | ECJ1VB1A225□* | 0.8         | ○               | ECJ1VB0J225□  | 0.8         | ○               |
| 4.7              |                            |              |             |                 | ECJ1VB1C475□* | 0.8**       | ○               | ECJ1VB1A475□* | 0.8         | ○               | ECJ1VB0J475□* | 0.8         | ○               |
| 10               |                            |              |             |                 |               |             |                 | ECJ1VB1A106M* | 0.8**       | ○               | ECJ1VB0J106M* | 0.8**       | ○               |

□ : Capacitance tolerance code : "□" for "K" or "M"

Standard packaging quantity of Packaging Style Code "V" (T = 0.8 mm) : 4,000 pcs./reel.

\* : Avoid flow soldering.

\*\* : "L", "W", "T" Dimension Tolerance ±0.15 mm

##### ◆ Temperature Characteristic Code : F (Temperature Characteristics : F, Y5V)

| Rated Voltage    |                       | DC 25 V      |             |               | DC 16 V      |             |               | DC 10 V      |             |                   | DC 6.3 V     |             |                   |
|------------------|-----------------------|--------------|-------------|---------------|--------------|-------------|---------------|--------------|-------------|-------------------|--------------|-------------|-------------------|
| Capacitance (μF) | Capacitance Tolerance | Part No.     | Dim. T (mm) | Temp. Char. F | Part No.     | Dim. T (mm) | Temp. Char. F | Part No.     | Dim. T (mm) | Temp. Char. F Y5V | Part No.     | Dim. T (mm) | Temp. Char. F Y5V |
| 1                | +80,                  | ECJ1VF1E105Z | 0.8         | ○             | ECJ1VF1C105Z | 0.8         | ○             | ECJ1VF1A105Z | 0.8         | ○ ○               |              |             |                   |
| 2.2              | -20 % (Z)             |              |             |               |              |             |               | ECJ1VF1A225Z | 0.8         | ○ ○               | ECJ1VF0J225Z | 0.8         | ○ ○               |

Standard packaging quantity of Packaging Style Code "V" (T = 0.8 mm) : 4,000 pcs./reel.

### ■ Standard Products for EIA Size "0805", Taped Version

#### ● Class 2

##### ◆ Temperature Characteristic Code : B (Temperature Characteristics : B, X5R)

| Rated Voltage    |                            | DC 25 V      |              |                 | DC 16 V      |              |                 | DC 10 V      |              |                   | DC 6.3 V     |              |                 |
|------------------|----------------------------|--------------|--------------|-----------------|--------------|--------------|-----------------|--------------|--------------|-------------------|--------------|--------------|-----------------|
| Capacitance (μF) | Capacitance Tolerance      | Part No.     | Dim. T (mm)  | Temp. Char. X5R | Part No.     | Dim. T (mm)  | Temp. Char. X5R | Part No.     | Dim. T (mm)  | Temp. Char. B X5R | Part No.     | Dim. T (mm)  | Temp. Char. X5R |
| 1                | ±10 %(K)<br>or<br>±20 %(M) | ECJ2FB1E105□ | 1.25*        | ○               | ECJ2FB1C105□ | 1.25*        | ○               | ECJ2FB1A105□ | 1.25         | ○ ○               |              |              |                 |
| 2.2              |                            |              |              |                 | ECJ2FB1C225□ | 1.25*        | ○               | ECJ2FB1A225□ | 1.25*        | — ○               | ECJ2FB0J225□ | 1.25         | ○               |
| 4.7              |                            |              | ECJ2FB1E475□ | 1.25*           | ○            | ECJ2FB1C475□ | 1.25*           | ○            | ECJ2FB1A475□ | 1.25*             | — ○          | ECJ2FB0J475□ | 1.25*           |
| 10               |                            |              |              |                 | ECJ2FB1C106□ | 1.25**       | ○               | ECJ2FB1A106□ | 1.25**       | — ○               | ECJ2FB0J106□ | 1.25**       | ○               |
| 22               |                            |              |              |                 |              |              |                 | ECJ2FB1A226M | 1.25**       | — ○               | ECJ2FB0J226M | 1.25**       | ○               |

□ : Capacitance tolerance code : "□" for "K" or "M"

Dimensional tolerance of L, W, T : L, W : ±0.1 mm for no mark, ±0.15 mm for "\*" mark, ±0.2 mm for "\*\*" mark.

Standard packaging quantity of Packaging Style Code "F" (T = 1.25 mm) : 3,000 pcs./reel.

Avoid flow soldering.

##### ◆ Temperature Characteristic Code : F (Temperature Characteristics : F, Y5V)

| Rated Voltage    |                       | DC 50 V      |             |               | DC 16 V      |             |               | DC 10 V      |             |                   | DC 10 V      |             |                   |
|------------------|-----------------------|--------------|-------------|---------------|--------------|-------------|---------------|--------------|-------------|-------------------|--------------|-------------|-------------------|
| Capacitance (μF) | Capacitance Tolerance | Part No.     | Dim. T (mm) | Temp. Char. F | Part No.     | Dim. T (mm) | Temp. Char. F | Part No.     | Dim. T (mm) | Temp. Char. F Y5V | Part No.     | Dim. T (mm) | Temp. Char. F Y5V |
| 1                | +80,<br>-20 % (Z)     | ECJ2FF1H105Z | 1.25*       | ○             | ECJ2FF1E105Z | 1.25*       | ○             | ECJ2VF1C105Z | 0.85        | ○ ○               |              |             |                   |
| 2.2              |                       |              |             |               | ECJ2FF1E225Z | 1.25*       | ○             | ECJGVF1C225Z | 0.85        | ○ ○               |              |             |                   |
| 4.7              |                       |              |             |               |              |             |               | ECJGVF1C475Z | 0.85        | ○ ○               | ECJGVF1A475Z | 0.85        | ○ ○               |
| 10               |                       |              |             |               |              |             |               |              |             |                   | ECJ2FF1A106Z | 1.25*       | ○ ○               |

Dimensional tolerance of L, W, T : L, W : ±0.15 mm / T : ±0.1 mm for no mark, ±0.15 mm for "\*" mark.

Standard packaging quantity of Packaging Style Code "V" (T = 0.85 mm) : 4,000 pcs./reel, "F" (T = 1.25 mm) : 3,000 pcs./reel.

Soldering method of dimension T > 1 mm: Avoid flow soldering.

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.  
Should a safety concern arise regarding this product, please be sure to contact us immediately.

### ■ Standard Products for EIA Size "1206", Taped Version

#### ● Class 2

◆ Temperature Characteristic Code : B (Temperature Characteristics : B, X7R, X5R)

| Rated Voltage | DC 25 V                      |              |             |                       | DC 16 V      |             |                       |              | DC 10 V     |                       |              |             | DC 6.3 V              |          |             |                 |  |
|---------------|------------------------------|--------------|-------------|-----------------------|--------------|-------------|-----------------------|--------------|-------------|-----------------------|--------------|-------------|-----------------------|----------|-------------|-----------------|--|
|               | Capacitance Tolerance        | Part No.     | Dim. T (mm) | Temp. Char. B X7R X5R | Part No.     | Dim. T (mm) | Temp. Char. B X7R X5R | Part No.     | Dim. T (mm) | Temp. Char. B X7R X5R | Part No.     | Dim. T (mm) | Temp. Char. B X7R X5R | Part No. | Dim. T (mm) | Temp. Char. X5R |  |
| 1             | ±10 % (K)<br>or<br>±20 % (M) | ECJ3YB1E105□ | 1.6         | ○ ○                   | ECJ3FB1C105□ | 1.15*       | ○ ○                   |              |             |                       |              |             |                       |          |             |                 |  |
| 2.2           |                              | ECJ3YB1E225□ | 1.6         | — — ○                 | ECJ3YB1C225□ | 1.6         | ○ ○                   | ECJ3YB1A225□ | 1.6         | ○ ○                   |              |             |                       |          |             |                 |  |
| 4.7           |                              | ECJ3YB1E475□ | 1.6         | — — ○                 | ECJ3YB1C475□ | 1.6         | — — ○                 | ECJ3YB1A475□ | 1.6         | — — ○                 | ECJ3YB0J475□ | 1.6         | — — ○                 |          |             |                 |  |
| 10            |                              | ECJ3YB1E106□ | 1.6         | — — ○                 | ECJ3YB1C106□ | 1.6         | — — ○                 | ECJ3YB1A106□ | 1.6         | — — ○                 | ECJDV50J106M | 0.85**      | — — ○                 |          |             |                 |  |
| 22            |                              |              |             |                       | ECJ3YB1C226M | 1.6         | — — ○                 | ECJ3YB1A226M | 1.6         | — — ○                 | ECJDV50J226M | 0.85**      | — — ○                 |          |             |                 |  |

□ : Capacitance tolerance code : "□" for "K" or "M"

Dimensional tolerance of L, W, T: ±0.2 mm for no mark, L, W: ±0.15 mm / T: ±0.1 mm for "\*" mark, L, W: ±0.2 mm / T: ±0.1 mm for "\*\*" mark.

Standard packaging quantity of Packaging Style Code "V" (T = 0.85 mm) : 4,000 pcs./reel, "F" (T = 1.15 mm) : 3,000 pcs./reel, "Y" (T = 1.6 mm) : 2,000 pcs./reel

Avoid flow soldering.

◆ High Temperature Series : Temperature Characteristic Code : B, X (Temperature Characteristics : B, Y7R)

| Rated Voltage | DC 50 V                      |              |             |                   | DC 25 V      |             |                   |              | DC 16 V     |                   |              |             | DC 10 V           |          |             |                   |
|---------------|------------------------------|--------------|-------------|-------------------|--------------|-------------|-------------------|--------------|-------------|-------------------|--------------|-------------|-------------------|----------|-------------|-------------------|
|               | Capacitance Tolerance        | Part No.     | Dim. T (mm) | Temp. Char. B Y7R | Part No.     | Dim. T (mm) | Temp. Char. B Y7R | Part No.     | Dim. T (mm) | Temp. Char. B Y7R | Part No.     | Dim. T (mm) | Temp. Char. B Y7R | Part No. | Dim. T (mm) | Temp. Char. B Y7R |
| 1             | ±10 % (K)<br>or<br>±20 % (M) | ECJ3YX1H105□ | 1.6         | ○ ○               | ECJ3YB1E105□ | 1.6         | ○ ○               | ECJ3FB1C105□ | 1.15*       | ○ ○               |              |             |                   |          |             |                   |
| 2.2           |                              |              |             |                   |              |             |                   | ECJ3YB1C225□ | 1.6         | ○ ○               | ECJ3YB1A225□ | 1.6         | ○ ○               |          |             |                   |
| 4.7           |                              |              |             |                   |              |             |                   | ECJ3YX1C475□ | 1.6         | ○ ○               |              |             |                   |          |             |                   |
| 10            |                              |              |             |                   |              |             |                   | ECJ3YX1C106□ | 1.6         | ○ ○               |              |             |                   |          |             |                   |

□ : Capacitance tolerance code : "□" for "K" or "M"

Dimensional tolerance of L, W, T: ±0.2 mm for no mark, L, W: ±0.15 mm / T: ±0.1 mm for "\*" mark.

Standard packaging quantity of Packaging Style Code "F" (T = 1.15 mm) : 3,000 pcs./reel, "Y" (T = 1.6 mm) : 2,000 pcs./reel

Avoid flow soldering.

◆ Temperature Characteristic Code : F (Temperature Characteristics : F, Y5V)

| Rated Voltage | DC 50 V               |              |             |               | DC 25 V      |             |                   |              | DC 16 V     |                   |              |              | DC 10 V           |          |             |                   |
|---------------|-----------------------|--------------|-------------|---------------|--------------|-------------|-------------------|--------------|-------------|-------------------|--------------|--------------|-------------------|----------|-------------|-------------------|
|               | Capacitance Tolerance | Part No.     | Dim. T (mm) | Temp. Char. F | Part No.     | Dim. T (mm) | Temp. Char. F Y5V | Part No.     | Dim. T (mm) | Temp. Char. F Y5V | Part No.     | Dim. T (mm)  | Temp. Char. F Y5V | Part No. | Dim. T (mm) | Temp. Char. F Y5V |
| 1             | +80,<br>-20 % (Z)     | ECJ3FF1H105Z | 1.15*       | ○             | ECJ3FF1E105Z | 1.15*       | ○ ○               | ECJ3VF1C105Z | 0.85*       | ○ ○               |              |              |                   |          |             |                   |
| 2.2           |                       |              |             |               | ECJ3FF1E225Z | 1.15*       | ○ ○               | ECJ3VF1C225Z | 0.85*       | ○ ○               |              |              |                   |          |             |                   |
| 4.7           |                       |              |             |               | ECJ3FF1E475Z | 1.15*       | ○ —               | ECJ3FF1C475Z | 1.15*       | ○ ○               |              |              |                   |          |             |                   |
| 10            |                       |              |             |               | ECJ3YF1E106Z | 1.6         | ○ —               | ECJMFF1C106Z | 1.15**      | ○ ○               | ECJMFF1A106Z | 1.15**       | ○ ○               |          |             |                   |
| 22            |                       |              |             |               |              |             |                   |              |             |                   |              | ECJMFF1A226Z | 1.15**            | ○ ○      |             |                   |

Dimensional tolerance of L, W, T: ±0.2 mm for no mark, L, W: ±0.15 mm / T: ±0.1 mm for "\*" mark, L, W: ±0.2 mm / T: ±0.1 mm for "\*\*" mark.

Standard packaging quantity of Packaging Style Code "V" (T = 0.85 mm) : 4,000 pcs./reel, "F" (T = 1.15 mm) : 3,000 pcs./reel, "Y" (T = 1.6 mm) : 2,000 pcs./reel

Avoid flow soldering.

## Looking for pricing, stock, or lifecycle information?

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