## **Panasonic**

### **Metallized Polyester Film Capacitor**

Series: ECQE(B)

Non-inductive construction using metallized polyester film with flame retardant epoxy resin coating

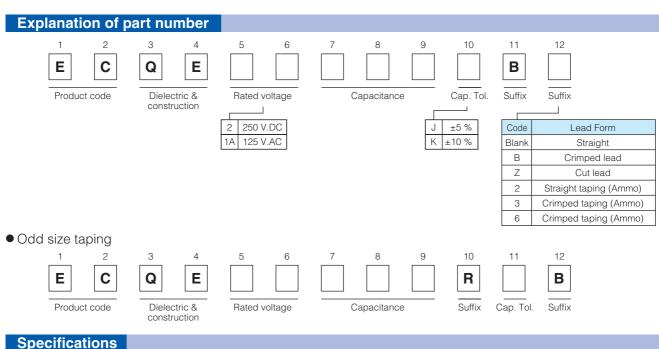


#### **Features**

- Self-healing property
- Small size
- Excellent electrical characteristics
- Flame retardant epoxy resin coating
- RoHS directive compliant

#### **Recommended applications**

- General purpose usage
  - \* Please contact us when applications are CDI, ignitor etc.

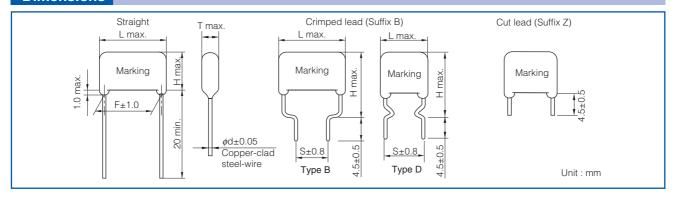


| Category temp. range                         | 250 V.DC  | − 40 °C to +105 °C  |  |  |  |  |  |  |  |
|--|---|---|--|--|--|--|--|--|--|
| (Including temperature-rise on unit surface) | 125 V.AC  | − 40 °C to +105 °C  |  |  |  |  |  |  |  |
| Rated voltage                                |   | 250 V.DC, 125 V.AC  |  |  |  |  |  |  |  |
|  | (250 V.   | (250 V.DC: Derating of rated voltage by 1.25 %/°C at more than 85 °C)         |  |  |  |  |  |  |  |
| Capacitance range                            | 250 V.DC  | 0.010 μF to 4.7 μF (E12)  |  |  |  |  |  |  |  |
| Capacitance range                            | 125 V.AC  | 0.010 μF to 4.7 μF (E12)  |  |  |  |  |  |  |  |
| Capacitance tolerance                        | ±5 %(J), ±10 %(K)                                 |   |  |  |  |  |  |  |  |
| Dissipation factor (tan $\delta$ )           | tan δ ≤ 1.0 % ( 20 °C, 1 kHz )                    |   |  |  |  |  |  |  |  |
|  | Rated volt. : 250 V.DC                            |   |  |  |  |  |  |  |  |
|  | Between terminals: Rated volt. (V.DC)×150 %, 60 s |   |  |  |  |  |  |  |  |
| Withstand voltage                            | Rated volt. : 125 V.AC                            |   |  |  |  |  |  |  |  |
|  | Between terminals: Rated volt. (V.AC)×230 %, 60 s |   |  |  |  |  |  |  |  |
|  | Between terminals to enclosure: 1500 V.AC, 60 s   |   |  |  |  |  |  |  |  |
|  | 250 V.DC  | $C \le 0.33 \mu\text{F} : IR \ge 9000 \text{M}\Omega$ (20 °C, 100 V.DC, 60 s) |  |  |  |  |  |  |  |
| Insulation resistance (IR)                   | 230 V.DC  | C > 0.33 μF : IR ≥ 3000 MΩ · μF (20 °C, 100 V.DC, 60 s)                       |  |  |  |  |  |  |  |
| modiation resistance (in)                    | 125 V.AC  | $C \le 0.47 \mu\text{F} : IR \ge 2000 \text{M}\Omega$ (20 °C, 500 V.DC, 60 s) |  |  |  |  |  |  |  |
|  | 120 V.AC  | C > 0.47 $\mu$ F : IR ≥ 3000 M $\Omega \cdot \mu$ F (20 °C, 100 V.DC, 60 s)   |  |  |  |  |  |  |  |

<sup>\*</sup> In case of applying voltage in alternating current (50 Hz or 60 Hz sine wave) to a capacitor with DC rated voltage, please refer to the page of "Permissible voltage (R.M.S) in alternating current corresponding to DC rated voltage".

\* Voltage to be applied to ECQE1A (B) is only sine wave (50 Hz or 60 Hz).

#### Dimensions

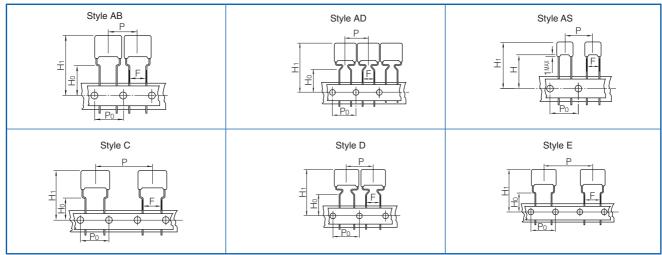


#### Packaging specifications for bulk package

Packing quantity: 100 pcs./bag

#### Taping specifications for automatic insertion

#### Taping style



<sup>\*</sup> Refer to the page of taping specifications.

#### Packaging specifications

| Series Rated |          | Capacitance range |    | ٦  | Гарі | ng s | style | Э | Packing | suffix  |        |  |
|--------------|----------|-------------------|----|----|------|------|-------|---|---------|---------|--------|--|
| Series       | voltage  | (µF)              | AD | AS | AB   | В    | С     | D | Е       | racking | Julix  |  |
|              |          | 0.010 to 0.15     |    | 0  |      |      |       |   |         | Ammo    | ( ) B2 |  |
|              |          | 0.010 to 0.68     | 0  |    |      |      |       |   |         | Ammo    | ( ) B3 |  |
|              | 250 V.DC | 0.82 to 1.5       |    |    |      |      | 0     |   |         | Ammo    | ( ) B3 |  |
|              |          | 0.18 to 0.68      |    |    |      |      |       | 0 |         | Ammo    | R( )B  |  |
| ECQE(B)      |          | 0.82 to 4.7       |    |    |      |      |       |   | 0       | Ammo    | R( )B  |  |
| LUQL(B)      |          | 0.010 to 0.068    |    | 0  |      |      |       |   |         | Ammo    | ( ) B2 |  |
|              |          | 0.082 to 0.22     |    |    | 0    |      |       |   |         | Ammo    | ( ) B6 |  |
|              | 125 V.AC | 0.27 to 2.7       |    |    |      |      | 0     |   |         | Ammo    | ( ) B3 |  |
|              |          | 0.082 to 0.68     |    |    |      |      |       | 0 |         | Ammo    | R( )B  |  |
|              |          | 0.82 to 2.7       |    |    |      |      |       |   | 0       | Ammo    | R( )B  |  |

#### Lead spacing

| Style | Lead spacing |
|-------|--------------|
| AD    | 5.0 mm       |
| AS    | 5.0 mm       |
| AB    | 5.0 mm       |
| С     | 5.0 mm       |
| D     | 7.5 mm       |
| Е     | 7.5 mm       |

<sup>\*</sup> See the column "Rating • Dimensions • Quantity" for packing quantity



#### Rating · Dimensions · Quantity

• Rated voltage: 250 V.DC, Capacitance tolerance: ± 5 %(J), ±10 %(K)

|                           |         |        |        | Dime     | ensions (    |          | Min. order Q'ty |            |                                |                  |                    |                            |
|---------------------------|---------|--------|--------|----------|--------------|----------|-----------------|------------|--------------------------------|------------------|--------------------|----------------------------|
| Part No.                  | Cap.    |        |        | Нm       | nax.         | F        | S               |            |                                | Taping           |                    | Bulk                       |
| r artivo.                 | (µF)    | L max. | T max. | Straight | Crimped lead | Straight | Crimped lead    | <i>φ</i> d | Standard<br>5 mm               | Odd size<br>5 mm | Odd size<br>7.5 mm | Straight ·<br>Crimped lead |
| ECQE2103□B( )             | 0.010   | 7.9    | 4.2    | 7.1      | 12.1         | 5.0      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2123□B( )             | 0.012   | 7.9    | 4.2    | 7.1      | 12.1         | 5.0      | 5.0             | 0.5        | 2000                           |                  |                    |                            |
| ECQE2153□B( )             | 0.015   | 7.9    | 4.2    | 7.1      | 12.1         | 5.0      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2183□B( )             | 0.018   | 7.9    | 4.3    | 7.2      | 12.2         | 5.0      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2223□B( )             | 0.022   | 7.9    | 4.3    | 7.2      | 12.2         | 5.0      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2273□B( )             | 0.027   | 7.9    | 4.3    | 7.2      | 12.2         | 5.0      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2333□B( )             | 0.033   | 7.9    | 4.3    | 7.2      | 12.2         | 5.0      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2393□B( )             | 0.039   | 7.9    | 4.5    | 7.4      | 12.4         | 5.0      | 5.0             | 0.5        |                                |                  | _                  |                            |
| ECQE2473□B( )             | 0.047   | 7.9    | 4.5    | 7.4      | 12.4         | 5.0      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2563□B( )             | 0.056   | 7.9    | 4.7    | 7.7      | 12.7         | 5.0      | 5.0             | 0.5        | 1500                           |                  |                    |                            |
| ECQE2683□B( )             | 0.068   | 7.9    | 5.1    | 8.0      | 13.0         | 5.0      | 5.0             | 0.5        | 1                              |                  |                    |                            |
| ECQE2823□B( )             | 0.082   | 7.9    | 5.4    | 8.6      | 13.6         | 5.0      | 5.0             | 0.5        |                                | _                |                    |                            |
| ECQE2104□B( )             | 0.10    | 7.9    | 5.9    | 9.0      | 14.0         | 5.0      | 5.0             | 0.5        | 1000<br>1500<br>1000<br>- 1500 | 1                |                    | 500                        |
| ECQE2124□B( )             | 0.12    | 7.9    | 5.7    | 10.6     | 15.6         | 5.0      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2154□B( )             | 0.15    | 7.9    | 6.3    | 11.2     | 16.2         | 5.0      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2184□B( )             | 0.18    | 10.3   | 5.0    | 9.7      | 14.7         | 7.5      | 5.0             | 0.5        |                                |                  | 1500               |                            |
| ECQE2224□B( )             | 0.22    | 10.3   | 5.4    | 10.1     | 15.1         | 7.5      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2274□B( )             | 0.27    | 10.3   | 5.9    | 10.8     | 15.8         | 7.5      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2334□B()              | 0.33    | 10.3   | 6.4    | 11.3     | 16.3         | 7.5      | 5.0             | 0.5        |                                |                  |                    |                            |
| ECQE2394□B( )             | 0.39    | 12.3   | 5.7    | 10.9     | 15.9         | 10.0     | 5.0             | 0.6        | 1000                           |                  |                    |                            |
| ECQE2474□B( )             | 0.47    | 12.3   | 6.2    | 11.4     | 16.4         | 10.0     | 5.0             | 0.6        | 1000                           |                  |                    |                            |
| ECQE2564□B( )             | 0.56    | 12.3   | 6.7    | 11.9     | 16.9         | 10.0     | 5.0             | 0.6        |                                |                  |                    |                            |
| ECQE2684□B( )             | 0.68    | 12.3   | 7.3    | 12.7     | 17.7         | 10.0     | 5.0             | 0.6        |                                |                  | 900                |                            |
| ECQE2824□B( )             | 0.82    | 15.3   | 6.3    | 13.3     | 18.3         | 12.5     | 5.0             | 0.6        |                                | 600              | 500                |                            |
| ECQE2105□B( )             | 1.0     | 15.3   | 7.0    | 14.0     | 19.0         | 12.5     | 5.0             | 0.6        |                                | 500              | 400                | -                          |
| ECQE2125□B( )             | 1.2     | 15.3   | 7.6    | 14.6     | 19.6         | 12.5     | 5.0             | 0.6        |                                | 500              | 400                |                            |
| ECQE2155□B( )             | 1.5     | 15.3   | 8.6    | 15.7     | 20.7         | 12.5     | 5.0             | 0.6        |                                | 400              | 300                |                            |
| ECQE2185□B( )             | 1.8     | 20.8   | 7.6    | 14.6     | 19.6         | 17.5     | 10.0            | 0.8        | 1                              |                  | 400                |                            |
| ECQE2225□B( )             | 2.2     | 20.8   | 8.4    | 15.6     | 20.6         | 17.5     | 10.0            | 0.8        | _                              |                  |                    |                            |
| ECQE2275□B( )             | 2.7     | 20.8   | 9.3    | 16.7     | 21.7         | 17.5     | 10.0            | 0.8        | ]                              |                  |                    |                            |
| ECQE2335□B( )             | 3.3     | 20.8   | 10.5   | 17.9     | 22.9         | 17.5     | 10.0            | 0.8        | -                              |                  | 300                |                            |
| ECQE2395□B( )             | 3.9     | 20.8   | 10.8   | 19.8     | 24.8         | 17.5     | 10.0            | 0.8        | 1                              |                  |                    |                            |
| ECQE2475□B( )             | 4.7     | 20.8   | 11.9   | 21.0     | 26.0         | 17.5     | 10.0            | 0.8        |                                |                  | 200                |                            |
| * □ · Canacitance toleran | oo oodo |        |        |          |              |          |                 | Type D · C | . 0.10 E to 0                  | 60 UE            |                    |                            |

 $<sup>\</sup>textcolor{red}{\bigstar} \; \square : \text{Capacitance tolerance code}$ 

Type D : 0.010 µF to 0.68 µF Type B : 0.82 µF to 4.7 µF

<sup>():</sup> Suffix for lead crimped or taped type



#### **Rating · Dimensions · Quantity**

• Rated voltage: 125 V.AC, Capacitance tolerance: ± 5 %(J), ±10 %(K)

|                |         |        | Dimensions (mm) |          |              |          |              |              |                  | Min. order Q'ty  |                    |                            |  |  |
|----------------|---------|--------|-----------------|----------|--------------|----------|--------------|--------------|------------------|------------------|--------------------|----------------------------|--|--|
| Part No.       | Cap.    |        |                 | Hm       | nax.         | F        | S            |              |                  | Taping           |                    | Bulk                       |  |  |
| r artivo.      | (µF)    | L max. | T max.          | Straight | Crimped lead | Straight | Crimped lead | <i>φ</i> d   | Standard<br>5 mm | Odd size<br>5 mm | Odd size<br>7.5 mm | Straight ·<br>Crimped lead |  |  |
| ECQE1A103□B()  | 0.010   | 7.9    | 4.2             | 7.1      |              | 5.0      |              | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A123□B()  | 0.012   | 7.9    | 4.2             | 7.1      |              | 5.0      |              | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A153□B()  | 0.015   | 7.9    | 4.2             | 7.1      |              | 5.0      |              | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A183□B()  | 0.018   | 7.9    | 4.3             | 7.2      |              | 5.0      |              | 0.5          | 2000             |                  |                    |                            |  |  |
| ECQE1A223□B( ) | 0.022   | 7.9    | 4.3             | 7.2      |              | 5.0      |              | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A273□B()  | 0.027   | 7.9    | 4.3             | 7.2      | _            | 5.0      | _            | 0.5          |                  |                  | _                  |                            |  |  |
| ECQE1A333□B()  | 0.033   | 7.9    | 4.3             | 7.2      |              | 5.0      |              | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A393□B()  | 0.039   | 7.9    | 4.5             | 7.4      |              | 5.0      |              | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A473□B()  | 0.047   | 7.9    | 4.8             | 7.7      |              | 5.0      |              | 0.5          |                  | _                |                    |                            |  |  |
| ECQE1A563□B()  | 0.056   | 7.9    | 5.1             | 8.0      |              | 5.0      |              | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A683□B()  | 0.068   | 7.9    | 5.4             | 8.6      |              | 5.0      |              | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A823□B( ) | 0.082   | 10.3   | 4.6             | 7.6      | 12.6         | 7.5      | 7.5          | 0.5          | 1500             |                  | 1500               |                            |  |  |
| ECQE1A104□B( ) | 0.10    | 10.3   | 5.1             | 7.7      | 12.7         | 7.5      | 7.5          | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A124□B( ) | 0.12    | 10.3   | 5.3             | 8.4      | 13.4         | 7.5      | 7.5          | 0.5          |                  |                  | 1000               |                            |  |  |
| ECQE1A154□B( ) | 0.15    | 10.3   | 5.7             | 8.9      | 13.9         | 7.5      | 7.5          | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A184□B( ) | 0.18    | 10.3   | 5.6             | 10.3     | 15.3         | 7.5      | 7.5          | 0.5          |                  |                  |                    |                            |  |  |
| ECQE1A224□B( ) | 0.22    | 10.3   | 6.1             | 11.0     | 16.0         | 7.5      | 7.5          | 0.5          | 1000             |                  | 1000               | 500                        |  |  |
| ECQE1A274□B( ) | 0.27    | 12.3   | 5.4             | 10.7     | 15.7         | 10.0     | 7.5          | 0.6          |                  | 800              |                    |                            |  |  |
| ECQE1A334□B( ) | 0.33    | 12.3   | 5.9             | 11.2     | 16.2         | 10.0     | 7.5          | 0.6          |                  | 700              |                    |                            |  |  |
| ECQE1A394□B()  | 0.39    | 12.3   | 6.4             | 11.6     | 16.6         | 10.0     | 7.5          | 0.6          |                  | 600              |                    |                            |  |  |
| ECQE1A474□B( ) | 0.47    | 12.3   | 7.0             | 12.2     | 17.2         | 10.0     | 7.5          | 0.6          |                  | 500              | 900                |                            |  |  |
| ECQE1A564□B( ) | 0.56    | 12.3   | 6.7             | 11.9     | 16.9         | 10.0     | 7.5          | 0.6          |                  | 600              | 1000               |                            |  |  |
| ECQE1A684□B( ) | 0.68    | 12.3   | 7.3             | 12.7     | 17.7         | 10.0     | 7.5          | 0.6          |                  | 500              | 900                |                            |  |  |
| ECQE1A824□B( ) | 0.82    | 15.3   | 6.3             | 13.3     | 18.3         | 12.5     | 7.5          | 0.6          |                  | 600              | 500                |                            |  |  |
| ECQE1A105□B()  | 1.0     | 15.3   | 7.0             | 14.0     | 19.0         | 12.5     | 7.5          | 0.6          |                  | 500              | 400                |                            |  |  |
| ECQE1A125□B()  | 1.2     | 20.8   | 7.1             | 14.1     | 19.1         | 17.5     | 10.0         | 0.8          |                  | 500              |                    |                            |  |  |
| ECQE1A155□B()  | 1.5     | 20.8   | 8.0             | 15.1     | 20.1         | 17.5     | 10.0         | 0.8          |                  | 300              | 400                |                            |  |  |
| ECQE1A185□B()  | 1.8     | 20.8   | 8.7             | 15.9     | 20.9         | 17.5     | 10.0         | 0.8          |                  | 400              |                    |                            |  |  |
| ECQE1A225□B()  | 2.2     | 20.8   | 9.7             | 17.1     | 22.1         | 17.5     | 10.0         | 0.8          |                  | 400              | 300                |                            |  |  |
| ECQE1A275□B()  | 2.7     | 20.8   | 10.9            | 18.2     | 23.2         | 17.5     | 10.0         | 0.8          |                  | 300              | 300                |                            |  |  |
| ECQE1A335□B()  | 3.3     | 25.8   | 9.6             | 18.7     | 23.7         | 22.5     | 15.0         | 0.8          |                  |                  |                    |                            |  |  |
| ECQE1A395□B()  | 3.9     | 25.8   | 10.6            | 19.7     | 24.7         | 22.5     | 15.0         | 8.0          |                  | _                | _                  |                            |  |  |
| ECQE1A475□B()  | 4.7     | 25.8   | 11.8            | 20.8     | 25.8         | 22.5     | 15.0         | 0.8          |                  |                  |                    |                            |  |  |
|                | oo oodo |        |                 |          |              |          |              | T. 120 D . C | 082 uE to 0      | COE              |                    |                            |  |  |

<sup>\*</sup>  $\square$  : Capacitance tolerance code

Type D : 0.082  $\mu$ F to 0.68  $\mu$ F Type B : 0.82  $\mu$ F to 4.7  $\mu$ F

#### Notice for AC rated

AC rated capacitors complying with clause 1 of "Electrical Appliance and Material Safety Law". As for clause 2 of "Electrical Appliance and Material Safety Law", please use ECQUA type or ECQUL type.

When using these capacitors as a across-the-line capacitor, it shall be required to follow either item 1. or item 2. condition.

- 1. Capacitor shall be connected in parallel with varistor (Specified varistor voltage in table 1.)
- 2. Voltage applied for capacitor shall not exceed other than specified in table 1, when using these capacitors.

Table 1

| Capacitor rated voltage | Varistor voltage | Pulse voltage        |
|-------------------------|------------------|----------------------|
| 125 V.AC                | 250 V            | 250 V <sub>0-P</sub> |

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.

<sup>( ):</sup> Suffix for lead crimped or taped type



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