

### Radial Lead Type

Series: **EB** Type: **A**

Country of Origin

Japan  
Malaysia  
China



#### ■ Features

- Endurance : +105 °C 5000 to 10000 h
- RoHS directive compliant

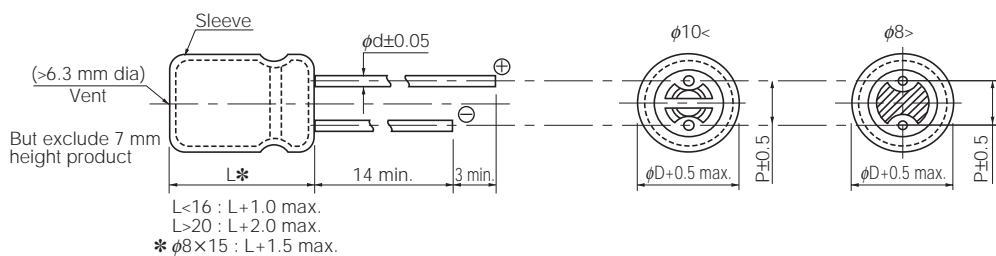
#### ■ Specifications

|                       |   |   |
|-----------------------|---|---|
| Category Temp. Range  | -40 to +105 °C  | -25 to +105 °C  |
| Rated W.V. Range      | 10 to 63 V.DC   | 160 to 450 V.DC   |
| Nominal Cap. Range    | 0.47 to 3300 μF   | 10 to 3300 μF   |
| Capacitance Tolerance | ±20 % (120 Hz/+20 °C)   | ±20 % (see E/D/EE series for high voltage products)                                       |
| DC Leakage Current    | $I < 0.01 CV$ or $3 (\mu A)$ after 2 minutes application of rated working voltage at +20 °C (Whichever is greater)  | $I < 0.01 CV + 10 (\mu A)$ application of rated working voltage at +20 °C after 2 minutes |
| tan δ                 | Please see the attached standard products list  |   |
| Endurance             | After following life test with DC voltage and +105±2 °C ripple current value applied (The sum of DC and ripple peak voltage shall not exceed the rated working voltage), the capacitors shall meet the limits specified below.<br>(10 to 63V.DC )<br>Duration : 5000 hours (φ5×11 to 8×11.5), 7000 hours (φ5×15 to φ6.3×15)<br>10000 hours (φ8×15 to 12.5×25) Post test requirement at +20 °C |   |
|                       | Capacitance change  | ±30 % of initial measured value   |
|                       | tan δ   | <300 % of initial specified value   |
|                       | DC leakage current  | <initial specified value  |
| Shelf Life            | After storage for 1000 hours at +105±2 °C with no voltage applied and then being stabilized at +20 °C, capacitor shall meet the limits specified in Endurance. (With voltage treatment)   |   |

#### ■ Frequency correction factor for ripple current (10 to 63 V.DC)

| Capacitance (μF) | Frequency (Hz) |     |      |      |       |
|------------------|----------------|-----|------|------|-------|
|                  | 60             | 120 | 1 k  | 10 k | 100 k |
| 0.47 to 10       | 0.75           | 1   | 1.40 | 1.55 | 1.65  |
| 22 to 470        | 0.85           | 1   | 1.20 | 1.25 | 1.30  |
| 1000 to 3300     | 0.95           | 1   | 1.05 | 1.10 | 1.15  |

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



(mm)

|              |     |     |     |     |      |
|--------------|-----|-----|-----|-----|------|
| Body Dia. φD | 5   | 6.3 | 8   | 10  | 12.5 |
| Lead Dia. φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6  |
| Lead space P | 2.0 | 2.5 | 3.5 | 5.0 | 5.0  |

### ■ Standard Products (Low Voltage)

| W.V.<br>(V) | Cap.<br>(±20 %)<br>(μF) | Case size    |                | Specification                                  |  |                      | Lead Length       |                  |                      |                      | Part No.       | Min. Packaging Q'ty      |                  |
|-------------|-------------------------|--------------|----------------|--|--|----------------------|-------------------|------------------|----------------------|----------------------|----------------|--------------------------|------------------|
|             |                         | Dia.<br>(mm) | Length<br>(mm) | Ripple Current<br>(120 Hz)<br>(+105°C)<br>(mA) | tan δ<br>(120 Hz)<br>(+20 °C)<br>(hours) | Endurance<br>(hours) | Lead Dia.<br>(mm) | Lead Space       |                      |                      |                | Straight Leads<br>(pcs.) | Taping<br>(pcs.) |
|             |                         |              |                |  |  |                      |                   | Straight<br>(mm) | Taping<br>*B<br>(mm) | Taping<br>*H<br>(mm) |                |                          |                  |
| 10          | 100                     | 5            | 15             | 105  | 0.30                                     | 7000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1A101( )  | 200                      | 2000             |
|             |                         | 5            | 11             | 66   | 0.30                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1A101S( ) | 200                      | 2000             |
|             | 220                     | 6.3          | 15             | 152  | 0.30                                     | 7000                 | 0.5               | 2.5              | 5.0                  | 2.5                  | EEUEB1A221( )  | 200                      | 2000             |
|             |                         | 6.3          | 11.2           | 100  | 0.30                                     | 5000                 | 0.5               | 2.5              | 5.0                  | 2.5                  | EEUEB1A221S( ) | 200                      | 2000             |
|             | 470                     | 8            | 15             | 278  | 0.30                                     | 10000                | 0.6               | 3.5              | 5.0                  |                      | EEUEB1A471( )  | 200                      | 1000             |
|             |                         | 8            | 11.5           | 180  | 0.30                                     | 5000                 | 0.6               | 3.5              | 5.0                  |                      | EEUEB1A471S( ) | 200                      | 1000             |
|             | 2200                    | 12.5         | 20             | 540  | 0.32                                     | 10000                | 0.6               | 5.0              | 5.0                  |                      | EEUEB1A222( )  | 200                      | 500              |
| 3300        | 12.5                    | 25           | 802            | 0.34   | 10000                                    | 0.6                  | 5.0               | 5.0              |                      | EEUEB1A332( )        | 200            | 500                      |                  |
| 16          | 1000                    | 10           | 20             | 430  | 0.25                                     | 10000                | 0.6               | 5.0              | 5.0                  |                      | EEUEB1C102( )  | 200                      | 500              |
|             | 2200                    | 12.5         | 25             | 706  | 0.27                                     | 10000                | 0.6               | 5.0              | 5.0                  |                      | EEUEB1C222( )  | 200                      | 500              |
| 25          | 47                      | 5            | 15             | 78   | 0.22                                     | 7000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1E470( )  | 200                      | 2000             |
|             |                         | 5            | 11             | 55   | 0.22                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1E470S( ) | 200                      | 2000             |
|             | 100                     | 6.3          | 15             | 135  | 0.22                                     | 7000                 | 0.5               | 2.5              | 5.0                  | 2.5                  | EEUEB1E101( )  | 200                      | 2000             |
|             |                         | 6.3          | 11.2           | 95   | 0.22                                     | 5000                 | 0.5               | 2.5              | 5.0                  | 2.5                  | EEUEB1E101S( ) | 200                      | 2000             |
|             | 220                     | 8            | 11.5           | 125  | 0.22                                     | 5000                 | 0.6               | 3.5              | 5.0                  |                      | EEUEB1E221S( ) | 200                      | 1000             |
|             | 330                     | 8            | 15             | 255  | 0.22                                     | 10000                | 0.6               | 3.5              | 5.0                  |                      | EEUEB1E331( )  | 200                      | 1000             |
|             | 470                     | 10           | 16             | 321  | 0.22                                     | 10000                | 0.6               | 5.0              | 5.0                  |                      | EEUEB1E471( )  | 200                      | 500              |
| 1000        | 12.5                    | 20           | 498            | 0.22   | 10000                                    | 0.6                  | 5.0               | 5.0              |                      | EEUEB1E102( )        | 200            | 500                      |                  |
| 35          | 33                      | 5            | 15             | 66   | 0.18                                     | 7000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1V330( )  | 200                      | 2000             |
|             |                         | 5            | 11             | 46   | 0.18                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1V330S( ) | 200                      | 2000             |
|             | 220                     | 8            | 15             | 197  | 0.18                                     | 10000                | 0.6               | 3.5              | 5.0                  |                      | EEUEB1V221( )  | 200                      | 1000             |
|             | 330                     | 10           | 16             | 278  | 0.18                                     | 10000                | 0.6               | 5.0              | 5.0                  |                      | EEUEB1V331( )  | 200                      | 500              |
|             | 470                     | 10           | 20             | 349  | 0.18                                     | 10000                | 0.6               | 5.0              | 5.0                  |                      | EEUEB1V471( )  | 200                      | 500              |
| 1000        | 12.5                    | 25           | 586            | 0.18   | 10000                                    | 0.6                  | 5.0               | 5.0              |                      | EEUEB1V102( )        | 200            | 500                      |                  |
| 50          | 0.47                    | 5            | 11             | 4  | 0.15                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1HR47S( ) | 200                      | 2000             |
|             | 1                       | 5            | 11             | 8  | 0.15                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1H1R0S( ) | 200                      | 2000             |
|             | 2.2                     | 5            | 11             | 15   | 0.15                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1H2R2S( ) | 200                      | 2000             |
|             | 3.3                     | 5            | 11             | 18   | 0.15                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1H3R3S( ) | 200                      | 2000             |
|             | 4.7                     | 5            | 11             | 18   | 0.15                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1H4R7S( ) | 200                      | 2000             |
|             | 10                      | 5            | 11             | 27   | 0.15                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1H100S( ) | 200                      | 2000             |
|             | 22                      | 5            | 15             | 55   | 0.15                                     | 7000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1H220( )  | 200                      | 2000             |
|             |                         | 5            | 11             | 39   | 0.15                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1H220S( ) | 200                      | 2000             |
|             | 47                      | 6.3          | 15             | 87   | 0.15                                     | 7000                 | 0.5               | 2.5              | 5.0                  | 2.5                  | EEUEB1H470( )  | 200                      | 2000             |
|             |                         | 6.3          | 11.2           | 61   | 0.15                                     | 5000                 | 0.5               | 2.5              | 5.0                  | 2.5                  | EEUEB1H470S( ) | 200                      | 2000             |
|             | 100                     | 8            | 11.5           | 99   | 0.15                                     | 5000                 | 0.6               | 3.5              | 5.0                  |                      | EEUEB1H101S( ) | 200                      | 1000             |
|             | 220                     | 10           | 16             | 234  | 0.15                                     | 10000                | 0.6               | 5.0              | 5.0                  |                      | EEUEB1H221( )  | 200                      | 500              |
|             | 330                     | 10           | 20             | 293  | 0.15                                     | 10000                | 0.6               | 5.0              | 5.0                  |                      | EEUEB1H331( )  | 200                      | 500              |
| 470         | 12.5                    | 20           | 370            | 0.15   | 10000                                    | 0.6                  | 5.0               | 5.0              |                      | EEUEB1H471( )        | 200            | 500                      |                  |
| 63          | 0.47                    | 5            | 15             | 6  | 0.12                                     | 7000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1JR47( )  | 200                      | 2000             |
|             |                         | 5            | 11             | 4.5  | 0.12                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1JR47S( ) | 200                      | 2000             |
|             | 1                       | 5            | 15             | 12   | 0.12                                     | 7000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1J1R0( )  | 200                      | 2000             |
|             |                         | 5            | 11             | 9  | 0.12                                     | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1J1R0S( ) | 200                      | 2000             |

When requesting taped product, please put the letter "B" between the "( )". Lead wire pitch B=5 mm, 2.5 mm. The taping dimensions are explained on p.196 of our Catalog. Please use it as a reference guide.

### ■ Standard Products (Low Voltage)

| W.V.<br>(V) | Cap.<br>(±20 %)<br>(μF) | Case size    |                | Specification                                  |                               |                      | Lead Length       |                  |                      |                      | Part No.       | Min. Packaging Q'ty      |                  |
|-------------|-------------------------|--------------|----------------|--|-------------------------------|----------------------|-------------------|------------------|----------------------|----------------------|----------------|--------------------------|------------------|
|             |                         | Dia.<br>(mm) | Length<br>(mm) | Ripple Current<br>(120 Hz)<br>(+105°C)<br>(mA) | tan δ<br>(120 Hz)<br>(+20 °C) | Endurance<br>(hours) | Lead Dia.<br>(mm) | Lead Space       |                      |                      |                | Straight Leads<br>(pcs.) | Taping<br>(pcs.) |
|             |                         |              |                |  |                               |                      |                   | Straight<br>(mm) | Taping<br>*B<br>(mm) | Taping<br>*H<br>(mm) |                |                          |                  |
| 63          | 2.2                     | 5            | 15             | 22   | 0.12                          | 7000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1J2R2( )  | 200                      | 2000             |
|             |                         | 5            | 11             | 16.5   | 0.12                          | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1J2R2S( ) | 200                      | 2000             |
|             | 3.3                     | 5            | 15             | 30   | 0.12                          | 7000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1J3R3( )  | 200                      | 2000             |
|             |                         | 5            | 11             | 20   | 0.12                          | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1J3R3S( ) | 200                      | 2000             |
|             | 4.7                     | 5            | 15             | 30   | 0.12                          | 7000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1J4R7( )  | 200                      | 2000             |
|             |                         | 5            | 11             | 23   | 0.12                          | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1J4R7S( ) | 200                      | 2000             |
|             | 10                      | 5            | 15             | 46   | 0.12                          | 7000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1J100( )  | 200                      | 2000             |
|             |                         | 5            | 11             | 30   | 0.12                          | 5000                 | 0.5               | 2.0              | 5.0                  | 2.5                  | EEUEB1J100S( ) | 200                      | 2000             |
|             | 22                      | 6.3          | 15             | 55   | 0.12                          | 7000                 | 0.5               | 2.5              | 5.0                  | 2.5                  | EEUEB1J220( )  | 200                      | 2000             |
|             |                         | 6.3          | 11.2           | 40   | 0.12                          | 5000                 | 0.5               | 2.5              | 5.0                  | 2.5                  | EEUEB1J220S( ) | 200                      | 2000             |
|             | 33                      | 6.3          | 15             | 71   | 0.12                          | 7000                 | 0.5               | 2.5              | 5.0                  | 2.5                  | EEUEB1J330( )  | 200                      | 2000             |
|             |                         | 6.3          | 11.2           | 50   | 0.12                          | 5000                 | 0.5               | 2.5              | 5.0                  | 2.5                  | EEUEB1J330S( ) | 200                      | 2000             |
|             | 47                      | 8            | 15             | 94   | 0.12                          | 10000                | 0.6               | 3.5              | 5.0                  |                      | EEUEB1J470( )  | 200                      | 1000             |
|             |                         | 8            | 11.5           | 80   | 0.12                          | 5000                 | 0.6               | 3.5              | 5.0                  |                      | EEUEB1J470S( ) | 200                      | 1000             |
|             | 100                     | 8            | 15             | 180  | 0.12                          | 10000                | 0.6               | 3.5              | 5.0                  |                      | EEUEB1J101( )  | 200                      | 1000             |
|             | 220                     | 10           | 20             | 292  | 0.12                          | 10000                | 0.6               | 5.0              | 5.0                  |                      | EEUEB1J221( )  | 200                      | 500              |
| 330         | 12.5                    | 20           | 381            | 0.12   | 10000                         | 0.6                  | 5.0               | 5.0              |                      | EEUEB1J331( )        | 200            | 500                      |                  |
| 470         | 12.5                    | 25           | 454            | 0.12   | 10000                         | 0.6                  | 5.0               | 5.0              |                      | EEUEB1J471( )        | 200            | 500                      |                  |

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