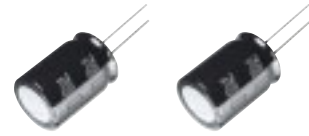


Radial Lead Type

Series: **ED** Type: **A**

*Propose EE series for New design



■ Features

- High ripple current (at high frequency)
- Endurance : 105 °C 8000 h to 10000 h
- Including low profile products (20 mm height)
- RoHS directive compliant

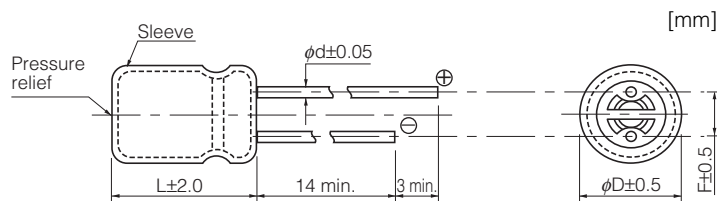
■ Specifications

| | | |
|-----------------------|---|------------------------------------|
| Category Temp. Range | -25 °C to +105 °C | |
| Rated W.V. Range | 160 V .DC to 450 V .DC | |
| Nominal Cap. Range | 10 μF to 330 μF | |
| Capacitance Tolerance | ±20 % (120 Hz/+20 °C) | |
| DC Leakage Current | $I \leq 0.06 CV + 10$ (μA) After 2 minutes application of rated working voltage at +20 °C | |
| tan δ | Please see the attached standard products list | |
| Endurance | After following life test with DC voltage and +105 °C±2 °C ripple current value applied (The sum of DC and ripple peak voltage shall not exceed the rated working voltage),when the capacitors are restored to 20 °C, the capacitors shall meet the limits specified below. Duration : φ10=8000 hours, φ12.5 to φ18=10000 hours | |
| | Capacitance change | ±20 % of initial measured value |
| | tan δ | ≤ 200 % of initial specified value |
| | DC leakage current | ≤ initial specified value |
| Shelf Life | After storage for 1000 hours at +105 °C±2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in Endurance. (With voltage treatment) | |

■ Ripple current Frequency Coefficient

| Frequency (Hz) | Cap. (μF) | | | | | |
|----------------|--------------|---------------|---------------|----------------|-----------------|------------------|
| | 50 ≤ f < 120 | 120 ≤ f < 300 | 300 ≤ f < 1 k | 1 k ≤ f < 10 k | 10 k ≤ f < 30 k | 30 k ≤ f ≤ 100 k |
| Cap. < 100 μF | 0.30 | 0.40 | 0.55 | 0.70 | 0.90 | 1.00 |
| 100 μF ≤ Cap. | 0.35 | 0.45 | 0.60 | 0.75 | 0.90 | 1.00 |

■ Dimensions in mm (not to scale)



(mm)

| | | | | |
|--------------|-----|------|-----|-----|
| Body Dia. φD | 10 | 12.5 | 16 | 18 |
| Lead Dia. φd | 0.6 | 0.6 | 0.8 | 0.8 |
| Lead space F | 5.0 | 5.0 | 7.5 | 7.5 |

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.

02 Oct. 2010

Standard Products

| W.V. (V) | Cap. ($\pm 20\%$) (μF) | Case size | | Specification | | | Lead Length | | | Part No. | Min. Packaging Q'ty | | |
|-------------|---|--------------|----------------|---|---------------------------------------|----------------------|-------------------|------------------|----------------------|----------------|--------------------------|------------------|-----|
| | | Dia. (mm) | Length (mm) | Ripple Current (100 kHz) (+105 °C) (mA r.m.s.) | $\tan \delta$ (120 Hz) (+20 °C) | Endurance (hours) | Lead Dia. (mm) | Lead Space | | | Straight Leads (pcs.) | Taping (pcs.) | |
| | | | | | | | | Straight (mm) | Taping *B (mm) | | | | |
| 160 | 22 | 10 | 20 | 500 | 0.15 | 8000 | 0.6 | 5.0 | 5.0 | EEUED2C220() | 200 | 500 | |
| | 33 | 10 | 20 | 580 | 0.15 | 8000 | 0.6 | 5.0 | 5.0 | EEUED2C330() | 200 | 500 | |
| | 47 | 10 | 20 | 750 | 0.15 | 8000 | 0.6 | 5.0 | 5.0 | EEUED2C470() | 200 | 500 | |
| | 68 | 12.5 | 20 | 950 | 0.15 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2C680() | 200 | 500 | |
| | 82 | 12.5 | 25 | 1060 | 0.15 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2C820() | 200 | 500 | |
| | 100 | 100 | 12.5 | 25 | 1170 | 0.15 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2C101() | 200 | 500 |
| | | | 16 | 20 | 1280 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2C101S() | 100 | 250 |
| | 150 | 150 | 16 | 25 | 1400 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2C151() | 100 | 250 |
| | | | 18 | 20 | 1400 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2C151S() | 100 | 250 |
| | 220 | 220 | 16 | 31.5 | 1700 | 0.15 | 10000 | 0.8 | 7.5 | | EEUED2C221 | 100 | |
| 18 | | | 25 | 1500 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2C221S() | 100 | 250 | |
| 330 | 330 | 18 | 31.5 | 2000 | 0.15 | 10000 | 0.8 | 7.5 | | EEUED2C331 | 50 | | |
| 200 | 22 | 10 | 20 | 600 | 0.15 | 8000 | 0.6 | 5.0 | 5.0 | EEUED2D220() | 200 | 500 | |
| | 33 | 10 | 20 | 650 | 0.15 | 8000 | 0.6 | 5.0 | 5.0 | EEUED2D330() | 200 | 500 | |
| | 47 | 12.5 | 20 | 790 | 0.15 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2D470() | 200 | 500 | |
| | 68 | 68 | 12.5 | 25 | 950 | 0.15 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2D680() | 200 | 500 |
| | | | 16 | 20 | 1000 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2D680S() | 100 | 250 |
| | 82 | 16 | 20 | 1100 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2D820S() | 100 | 250 | |
| | 100 | 100 | 16 | 25 | 1300 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2D101() | 100 | 250 |
| | | | 18 | 20 | 1280 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2D101S() | 100 | 250 |
| | 150 | 150 | 16 | 25 | 1400 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2D151() | 100 | 250 |
| | 220 | 220 | 18 | 31.5 | 2000 | 0.15 | 10000 | 0.8 | 7.5 | | EEUED2D221 | 50 | |
| 330 | 330 | 18 | 40 | 2400 | 0.15 | 10000 | 0.8 | 7.5 | | EEUED2D331 | 50 | | |
| 250 | 22 | 10 | 20 | 560 | 0.15 | 8000 | 0.6 | 5.0 | 5.0 | EEUED2E220() | 200 | 500 | |
| | 33 | 12.5 | 20 | 710 | 0.15 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2E330() | 200 | 500 | |
| | 47 | 47 | 12.5 | 25 | 920 | 0.15 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2E470() | 200 | 500 |
| | | | 16 | 20 | 990 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2E470S() | 100 | 250 |
| | 68 | 16 | 20 | 1000 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2E680S() | 100 | 250 | |
| | 82 | 82 | 16 | 25 | 1200 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2E820() | 100 | 250 |
| | | | 18 | 20 | 1200 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2E820S() | 100 | 250 |
| | 100 | 100 | 16 | 31.5 | 1500 | 0.15 | 10000 | 0.8 | 7.5 | | EEUED2E101 | 100 | |
| | | | 18 | 25 | 1500 | 0.15 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2E101S() | 100 | 250 |
| | 150 | 150 | 18 | 31.5 | 1800 | 0.15 | 10000 | 0.8 | 7.5 | | EEUED2E151 | 50 | |
| 220 | 220 | 18 | 40 | 2100 | 0.15 | 10000 | 0.8 | 7.5 | | EEUED2E221 | 50 | | |
| 350 | 10 | 10 | 20 | 350 | 0.20 | 8000 | 0.6 | 5.0 | 5.0 | EEUED2V100() | 200 | 500 | |
| | 22 | 12.5 | 20 | 480 | 0.20 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2V220() | 200 | 500 | |
| | 33 | 16 | 20 | 640 | 0.20 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2V330S() | 100 | 250 | |
| | 47 | 47 | 16 | 25 | 800 | 0.20 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2V470() | 100 | 250 |
| | | | 18 | 20 | 800 | 0.20 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2V470S() | 100 | 250 |
| | 68 | 68 | 16 | 31.5 | 1100 | 0.20 | 10000 | 0.8 | 7.5 | | EEUED2V680 | 100 | |
| | | | 18 | 25 | 1000 | 0.20 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2V680S() | 100 | 250 |
| | 82 | 18 | 25 | 1100 | 0.20 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2V820S() | 100 | 250 | |
| | 100 | 18 | 31.5 | 1200 | 0.20 | 10000 | 0.8 | 7.5 | | EEUED2V101 | 50 | | |

Endurance : 105 °C $\phi 10=8000$ h, $\phi 12.5$ to $\phi 18=10000$ h

When requesting taped product, please put the letter "B" between the "()". Lead wire pitch B=5 mm, 7.5 mm.

The taping dimensions are explained on p.178 of our Catalog. Please use it as a reference guide.

■ Standard Products

| W.V. (V) | Cap. (±20 %) (μF) | Case size | | Specification | | | Lead Length | | | Part No. | Min. Packaging Q'ty | |
|-------------|-------------------------|--------------|----------------|---|-------------------------------|---------------------------|----------------------|------------------|----------------------|----------------|-----------------------------|------------------|
| | | Dia. (mm) | Length (mm) | Ripple Current (100 kHz) (+105 °C) (mA r.m.s.) | tan δ (120 Hz) (+20 °C) | Endur- ance (hours) | Lead Dia. (mm) | Lead Space | | | Straight Leads (pcs.) | Taping (pcs.) |
| | | | | | | | | Straight (mm) | Taping *B (mm) | | | |
| 400 | 10 | 10 | 20 | 300 | 0.24 | 8000 | 0.6 | 5.0 | 5.0 | EEUED2G100() | 200 | 500 |
| | 15 | 12.5 | 20 | 410 | 0.24 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2G150() | 200 | 500 |
| | 22 | 12.5 | 25 | 500 | 0.24 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2G220() | 200 | 500 |
| | | 16 | 20 | 600 | 0.24 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2G220S() | 100 | 250 |
| | 33 | 16 | 20 | 730 | 0.24 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2G330S() | 100 | 250 |
| | 47 | 16 | 25 | 840 | 0.24 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2G470() | 100 | 250 |
| | | 18 | 20 | 840 | 0.24 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2G470S() | 100 | 250 |
| | 68 | 18 | 31.5 | 1200 | 0.24 | 10000 | 0.8 | 7.5 | | EEUED2G680 | 50 | |
| 82 | 18 | 40 | 1500 | 0.24 | 10000 | 0.8 | 7.5 | | EEUED2G820 | 50 | | |
| 450 | 10 | 12.5 | 20 | 350 | 0.24 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2W100() | 200 | 500 |
| | 15 | 12.5 | 25 | 560 | 0.24 | 10000 | 0.6 | 5.0 | 5.0 | EEUED2W150() | 200 | 500 |
| | 22 | 16 | 20 | 680 | 0.24 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2W220S() | 100 | 250 |
| | 33 | 16 | 31.5 | 850 | 0.24 | 10000 | 0.8 | 7.5 | | EEUED2W330 | 100 | |
| | | 18 | 25 | 850 | 0.24 | 10000 | 0.8 | 7.5 | 7.5 | EEUED2W330S() | 100 | 250 |
| | 47 | 18 | 31.5 | 1000 | 0.24 | 10000 | 0.8 | 7.5 | | EEUED2W470 | 50 | |
| | 68 | 18 | 40 | 1300 | 0.24 | 10000 | 0.8 | 7.5 | | EEUED2W680 | 50 | |

Endurance : 105 °C φ10=8000 h, φ12.5 to φ18=10000 h

When requesting taped product, please put the letter "B" between the "()". Lead wire pitch B=5 mm, 7.5 mm.

The taping dimensions are explained on p.178 of our Catalog. Please use it as a reference guide.