

EC series

- Low ESR at high frequency range.
- Rated voltage : 2.5~16V
- Endurance : 2,000 hours at 105°C
- Applications : LCD Monitor, LCD-TV, D/A Inverter, SPS, D/D Converter, etc.
- RoHS Compliance.
- Halogen Free compliant



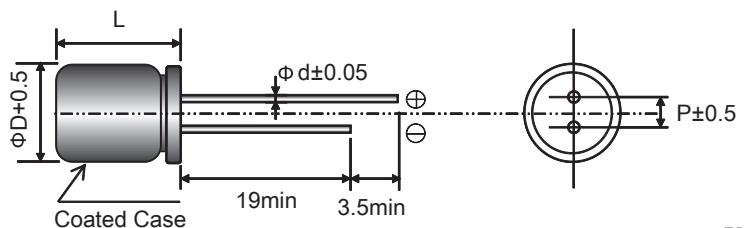
EC

SPECIFICATIONS

| Items | Conditions | Characteristics |
|---|---|--|
| Category Temperature Range | — | -55 to +105°C |
| Rated Voltage Range | — | 2.5 ~ 16V |
| Capacitance Tolerance | at 20°C, 120 Hz | ±20% (M) |
| Surge Voltage | at 105°C | Rated voltage x 1.15v |
| Leakage Current | at 20°C after 2 minutes | $I \leq 0.2CV$ or $300(\mu A)$ Whichever is greater measured,after 2minutes application of rated working voltage at +20°C. Please see the attached characteristics list |
| Dissipation Factor (tan δ) | at 20°C, 120 Hz | Please see the attached characteristics list |
| Characteristics of Impedance at low, high temperature | at -55°C,100kHz | $Z(-55^{\circ}C) / Z(+20^{\circ}C) \leq 1.25$ |
| | at -25°C,100kHz | $Z(-25^{\circ}C) / Z(+20^{\circ}C) \leq 1.15$ |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 105°C. | Appearance NO significant damage. |
| | | Capacitance change $\leq \pm 20\%$ of the initial value. |
| | | DF (tan δ) $\leq 150\%$ of the initial specified value. |
| | | ESR $\leq 150\%$ of the initial specified value. |
| Damp Heag (Steady State) | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to store 60°C, 90 to 95% RH for 1,000 hours, without DC applied. | Appearance NO significant damage. |
| | | Capacitance change $\leq \pm 20\%$ of the initial value. |
| | | DF (tan δ) $\leq 150\%$ of the initial specified value. |
| | | ESR $\leq 150\%$ of the initial specified value. |
| Surge Voltage | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltages specified at 105°C for 30 seconds through a protective resistor (R = 1kΩ) and discharge for 5 minutes 30 seconds. | Appearance NO significant damage. |
| | | Capacitance change $\leq \pm 20\%$ of the initial value. |
| | | DF (tan δ) $\leq 150\%$ of the initial specified value. |
| | | ESR $\leq 150\%$ of the initial specified value. |
| | | Leakage current \leq The initial specified value. |

※ Note : If any doubt arises, measure the leakage current after following voltage treatment.
Voltage treatment : DC rated voltage are applied to the capacitors for 120 minutes at 105°C.

MARKING AND DIMENSIONS



(Unit:mm)

| Size | 5x6、8 | 6.3x6 | 6.3x8 | 6.3x11 | 8x8 | 8x12 | 8x16 | 8x20 | 10x12 | 10x16、20 |
|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| φD | 5 | 6.3 | 6.3 | 6.3 | 8 | 8 | 8 | 8 | 10 | 10 |
| L | L+1.0 max | L+1.0 max | L+1.5 max | L+1.0 max | L+1.5 max | L+1.0 max | L+1.0 max | L+1.5 max | L+1.0 max | L+1.5 max |
| φd | 0.45 | 0.45 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| P | 2 | 2.5 | 2.5 | 2.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 |

EC SERIES STANRD CHARACTERISITICS LIST

| Rated Voltage (S.V.) | Cap (μF) | Size DxL | Leakage current (μA) max. ※2 | ESR (mΩ) max. 100k to 300kHz / 20°C | Rated Ripple Current (mA rms) 100kHz / 105°C | D.F. (tanδ) max. 120Hz / 20°C |
|----------------------|----------|----------|------------------------------|-------------------------------------|--|-------------------------------|
| 2.5 (2.9) | 560 | 6.3×8 | 300 | 8 | 5,080 | 0.12 |
| | 560 | 8×8 | 300 | 7 | 5,820 | 0.12 |
| | 820 | 6.3×8 | 410 | 8 | 5,080 | 0.12 |
| | 1,200 | 8×8 | 600 | 7 | 5,580 | 0.12 |
| | 1,500 | 8×12 | 750 | 7 | 5,820 | 0.12 |
| | 2,700 | 10×12 | 1,350 | 7 | 6,100 | 0.12 |
| 4 (4.6) | 560 | 6.3×8 | 448 | 8 | 5,080 | 0.12 |
| | 560 | 8×8 | 448 | 7 | 5,580 | 0.12 |
| | 680 | 8×8 | 544 | 7 | 5,580 | 0.12 |
| | 820 | 8×12 | 656 | 7 | 5,820 | 0.12 |
| | 2200 | 10×12 | 1,760 | 7 | 6,100 | 0.12 |
| 6.3 (7.2) | 100 | 5×6 | 300 | 13 | 1,500 | 0.12 |
| | 270 | 5×8 | 340 | 12 | 2,400 | 0.12 |
| | 470 | 6.3×8 | 592 | 10 | 4,500 | 0.12 |
| | 560 | 6.3×8 | 706 | 10 | 5,080 | 0.12 |
| | 560 | 8×8 | 706 | 10 | 5,580 | 0.12 |
| | 1,000 | 8×12 | 1,260 | 7 | 5,820 | 0.12 |
| | 1,000 | 10×12 | 1,260 | 7 | 6,200 | 0.12 |
| | 2,200 | 10×12 | 2,772 | 7 | 6,200 | 0.12 |
| 10 (11.5) | 220 | 6.3×8 | 440 | 10 | 2,820 | 0.12 |
| | 270 | 6.3×8 | 540 | 10 | 3,580 | 0.12 |
| | 560 | 8×8 | 1,120 | 8 | 5,580 | 0.12 |
| | 680 | 8×8 | 1,360 | 9 | 5,580 | 0.12 |
| | 820 | 8×12 | 1,640 | 9 | 5,820 | 0.12 |
| | 1,000 | 10×12 | 2,000 | 9 | 6,100 | 0.12 |
| | 1,500 | 10×12 | 3,000 | 9 | 6,100 | 0.12 |

※ 1. Capacitance tolerance : ±20% (M)

※ 2. After 2 minutes



EC SERIES STANRD CHARACTERISITICS LIST

| Rated Voltage (S.V.) | Cap (μF) | Size DxL | Leakage current (μA) max. ※2 | ESR (mΩ) max. 100k to 300kHz / 20°C | Rated Ripple Current (mA rms) 100kHz / 105°C | D.F. (tanδ) max. 120Hz / 20°C |
|----------------------|----------|----------|------------------------------|-------------------------------------|--|-------------------------------|
| 16 (18.4) | 82 | 6.3×6 | 300 | 30 | 2,200 | 0.12 |
| | 100 | 6.3×6 | 320 | 30 | 2,200 | 0.12 |
| | 220 | 6.3×8 | 704 | 15 | 3,500 | 0.12 |
| | 270 | 6.3×8 | 864 | 15 | 3,500 | 0.12 |
| | 330 | 6.3×11 | 1,056 | 15 | 3,500 | 0.12 |
| | 470 | 8×8 | 1,504 | 13 | 4,500 | 0.12 |
| | 470 | 8×12 | 1,504 | 13 | 5,400 | 0.12 |
| | 470 | 10×12 | 1,504 | 13 | 6,100 | 0.12 |
| | 560 | 8×12 | 1,792 | 16 | 5,400 | 0.12 |
| | 680 | 10×12 | 2,176 | 16 | 6,100 | 0.12 |
| | 820 | 10×12 | 2,624 | 10 | 6,100 | 0.12 |
| | 1000 | 8×16 | 3,200 | 10 | 6,100 | 0.10 |
| | 1000 | 10×12 | 3,200 | 10 | 6,100 | 0.10 |
| | 1500 | 8x20 | 4,800 | 8 | 6,100 | 0.10 |
| | 1500 | 10x16 | 4,800 | 8 | 6,500 | 0.10 |
| | 1800 | 10x20 | 5,760 | 8 | 6,800 | 0.10 |
| 2200 | 10×20 | 7,040 | 8 | 6,800 | 0.10 | |

※ 1. Capacitance tolerance : ±20% (M)

※ 2. After 2 minutes

FREQUENCY COEFFICIENT FOR RIPPLE CURRENT

| Frequency | 120Hz ≤ f < 1kHz | 1kHz ≤ f < 10kHz | 10kHz ≤ f < 100kHz | 100kHz ≤ f < 500kHz |
|-------------|------------------|------------------|--------------------|---------------------|
| Coefficient | 0.05 | 0.3 | 0.7 | 1 |

EC