



FEATURES

- Doesn't spark with DC over voltage.
- Load life: 2,000 hours at 105°C.

SPECIFICATIONS

| Item | Performance Characteristics | | | | |
|---------------------------------|--|---|------|--|------|
| Operating Temperature Range | -25 to +105°C | | | | |
| Rated Working Voltage Range | 200 to 450V | | | | |
| Nominal Capacitance Range | 56 to 1200µF | | | | |
| Capacitance Tolerance | ±20% at 120Hz, +20°C | | | | |
| Leakage Current | $I \leq 3\sqrt{CV}$ (µA) after 5 minutes application of rated working voltage at +20°C | | | | |
| tan δ (120Hz, +20°C) | Working Voltage (V) | 200 | 250 | 400 | 450 |
| | tan δ (max.) | 0.15 | 0.15 | 0.20 | 0.20 |
| Low Temperature Characteristics | Impedance ratio max. at 120Hz | | | | |
| | Rated Voltage (V) | 200 | 250 | 400 | 450 |
| | Z-25°C / Z+20°C | 8 | 8 | 8 | 8 |
| High Temperature Loading | Test time | : 2,000 hours | | Post test requirements at +20°C | |
| | Test temperature | : +105°C | | Leakage current : ≤Initial specified value | |
| | Test conditions | : Rated DC working voltage with rated ripple current | | Cap. change : within ±20% of the initial measured value | |
| | | | | tan δ : ≤200% of the initial specified value | |
| Shelf Life | At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits | | | | |
| | Leakage current | : ≤Initial specified value | | | |
| | Cap. change | : within ±15% of the initial measured value | | | |
| | tan δ | : ≤150% of the initial specified value | | | |
| Industrial Standard | JIS C - 5101-4 (IEC 60384-4) | | | | |

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

| Coefficient Rated Voltage | Freq. (Hz) | 60 | 120 | 1k | 10k~50k |
|------------------------------|------------|----------|------|------|---------|
| | | 200~250V | 0.80 | 1.00 | 1.25 |
| 400~450V | 0.80 | 1.00 | 1.30 | 1.47 | |

PART NUMBER SYSTEM (EXAMPLE : 200V 220µF)

| 1 | 2 3 | 4 5 6 | 7 | 8 9 | 10 | 11 12 | 13 14 |
|---|-----|-------|---|-----|----|-------|-------|
| E | UP | 227 | M | 2D | N | 25 | SW |

Type (Terminal Code)
 Case Length (25mm)
 Diameter (22mm)
 Voltage (200V)
 Tolerance (±20%)
 Capacitance (220µF)
 Series
 E-CAP

STANDARD RATINGS

| Voltage (Code) | | 200V (2D) | | 250V (2E) | | 400V (2G) | | 450V (2W) | |
|----------------|------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| Cap. (μF) | Code | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current |
| 56 | 566 | | | | | 22 x 25 | 0.45 | | |
| 68 | 686 | | | | | 22 x 25 | 0.51 | | |
| 82 | 856 | | | | | 22 x 30 | 0.58 | | |
| 100 | 107 | | | | | 22 x 30 | 0.66 | | |
| 120 | 127 | | | 22 x 25 | 0.68 | 22 x 35 | 0.76 | | |
| | | | | | | 25 x 30 | 0.76 | | |
| 150 | 157 | | | | | 22 x 40 | 0.85 | | |
| | | | | | | 25 x 35 | 0.85 | | |
| | | | | | | 30 x 30 | 0.85 | | |
| 180 | 187 | 22 x 25 | 0.82 | 22 x 30 | 0.87 | 22 x 45 | 0.94 | 30 x 35 | 1.00 |
| | | | | 25 x 25 | 0.93 | 25 x 40 | 0.95 | | |
| | | | | | | 30 x 30 | 0.95 | | |
| 220 | 227 | 22 x 25 | 0.90 | 22 x 30 | 1.00 | 25 x 40 | 1.24 | 30 x 40 | 1.20 |
| | | | | | | 30 x 35 | 1.24 | | |
| | | | | | | 35 x 30 | 1.24 | | |
| 270 | 277 | 22 x 30 | 1.02 | 22 x 35 | 1.14 | 25 x 50 | 1.30 | | |
| | | | | 25 x 30 | 1.13 | 30 x 40 | 1.30 | | |
| | | | | 30 x 25 | 1.25 | 35 x 30 | 1.30 | | |
| 330 | 337 | 22 x 35 | 1.20 | 22 x 40 | 1.28 | 30 x 45 | 1.47 | | |
| | | 25 x 30 | 1.20 | 25 x 35 | 1.29 | 35 x 35 | 1.47 | | |
| 390 | 397 | 22 x 35 | 1.35 | 22 x 45 | 1.42 | | | 35 x 45 | 1.60 |
| | | 25 x 30 | 1.35 | 25 x 40 | 1.46 | | | | |
| | | | | 30 x 30 | 1.52 | | | | |
| 470 | 477 | 22 x 40 | 1.45 | 25 x 45 | 1.64 | | | | |
| | | 25 x 35 | 1.45 | | | | | | |
| | | 30 x 30 | 1.47 | 30 x 35 | 1.67 | | | | |
| 560 | 567 | 22 x 45 | 1.62 | 25 x 50 | 1.82 | | | | |
| | | 25 x 35 | 1.60 | 30 x 40 | 1.87 | | | | |
| | | 30 x 30 | 1.60 | 35 x 30 | 1.99 | | | | |
| | | 25 x 40 | 1.82 | 30 x 45 | 2.12 | | | | |
| 680 | 687 | 30 x 35 | 1.81 | 35 x 35 | 2.19 | | | | |
| | | 35 x 30 | 1.86 | | | | | | |
| 820 | 827 | 25 x 50 | 2.11 | 30 x 50 | 2.39 | | | | |
| | | 30 x 40 | 2.11 | | | | | | |
| | | 35 x 30 | 2.11 | 35 x 40 | 2.42 | | | | |
| 1000 | 108 | 30 x 45 | 2.40 | | | | | | |
| | | 35 x 35 | 2.40 | | | | | | |
| 1200 | 128 | 30 x 50 | 2.69 | | | | | | |
| | | 35 x 40 | 2.65 | | | | | | |

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

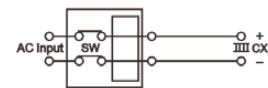
DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following test DC voltage is applied.

- Test DC voltage

| Rated voltage | Normal Capacitance | Current Limit | Test Voltage |
|---------------|--------------------|---------------|--------------|
| 200Vdc | <330 | 4A | 300/375Vdc |
| | 330μF ≤ C < 470μF | 5A | |
| | ≥470μF | 7A | |
| 250Vdc | <330μF | 4A | 350/450Vdc |
| | 330μF ≤ C < 470μF | 5A | |
| | <470μF | 7A | |
| 400Vdc | <100μF | 2A | 500/600Vdc |
| | 100μF ≤ C < 220μF | 4A | |
| | ≥220μF | 7A | |
| 450Vdc | <100μF | 2A | 550/675Vdc |
| | 100μF ≤ C < 220μF | 4A | |
| | ≥220μF | 7A | |

• Test circuit



Constant DC voltage/current power supply

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.