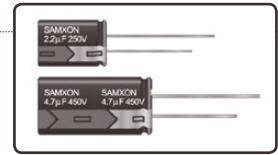


FEATURES

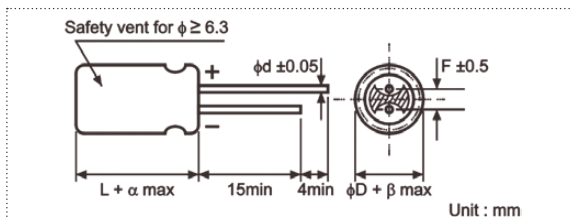
- High temperature, high ripple current at high frequency, load life of 1,000~4,000 hours at 130°C.
- Specially designed for electronic ballast and energy saving lamp.



SPECIFICATIONS

| Item | Performance Characteristics | | | | | | | | | | | | |
|---|--|--|--|--------|--------|--|--|--|--|--|--|--|--|
| Operating Temperature Range | -40 to +130°C | -25 to +130°C | | | | | | | | | | | |
| Rated Working Voltage Range | 10 to 100V | 200 to 450V | | | | | | | | | | | |
| Nominal Capacitance Range | 1 to 4700µF | | | | | | | | | | | | |
| Capacitance Tolerance | ±20% at 120Hz, +20°C | | | | | | | | | | | | |
| Leakage Current | I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C | I ≤ 0.02CV + 25 (µA) after 2 minutes application of rated working voltage at +20°C | | | | | | | | | | | |
| tan δ (120Hz, +20°C) | Working Voltage (V) | 10 16 25 35 50 63 100 200 250 350 400 450 | | | | | | | | | | | |
| | tan δ (max.) | 0.20 0.16 0.14 0.12 0.10 0.09 0.15 0.15 0.15 0.20 0.20 0.20 | | | | | | | | | | | |
| For capacitance > 1000µF, add 0.02 per another 1000µF | | | | | | | | | | | | | |
| Low Temperature Characteristics | Impedance ratio max. at 120Hz | | | | | | | | | | | | |
| | Working Voltage (V) | 10 16 25 35 50 63 100 200 250 350 400 450 | | | | | | | | | | | |
| | Z-25°C / Z+20°C | 3 2 2 2 2 2 2 3 3 5 6 6 | | | | | | | | | | | |
| | Z-40°C / Z+20°C | 6 4 3 3 3 3 3 - - - - - | | | | | | | | | | | |
| High Temperature Loading | Test time | ΦD | 6.3 | 8-10 | ≥12.5 | Post test requirements at +20°C | | | | | | | |
| | Load life | | 1,000h | 2,000h | 4,000h | Leakage current : ≤ Initial specified value | | | | | | | |
| | Test temperature | | +130°C | | | Cap. change : within ±30% of the initial measured value | | | | | | | |
| | Test conditions | | Rated DC working voltage with rated ripple current | | | tan δ : ≤ 300% of the initial specified value (200~450V within 200%) | | | | | | | |
| 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 ±30% of the initial measured value | | | | | | | | | | | |
| | tan δ | ≤ 300% of the initial specified value (200~450V within 200%) | | | | | | | | | | | |
| Industrial Standard | JIS C - 5101-4 (IEC 60384-4) | | | | | | | | | | | | |

CASE SIZE TABLE



| ΦD | 6.3 | 8(L<20) | 8(L≥20) | 10 | 12.5 | 16 | 18 |
|----|--------------|---------|---------|--------------|------|-----|-----|
| F | 2.5 | 3.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| Φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| α | (L < 20) 1.5 | | | (L ≥ 20) 2.0 | | | |
| β | (D < 20) 0.5 | | | (D ≥ 20) 1.0 | | | |

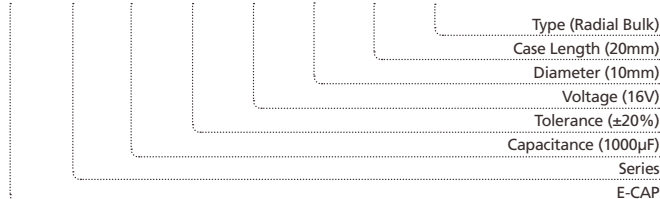
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

| Rated Voltage | Coefficient | Freq. (Hz) | 120 | 1k | 10k | 100k |
|---------------|-------------|------------|------|------|------|------|
| | Cap (µF) | | | | | |
| 10~100V | 4.7 | | 0.42 | 0.60 | 0.80 | 1.00 |
| | 10~33 | | 0.55 | 0.75 | 0.90 | 1.00 |
| | 47~330 | | 0.70 | 0.85 | 0.95 | 1.00 |
| | 470~1500 | | 0.75 | 0.90 | 0.98 | 1.00 |
| | 2200~4700 | | 0.80 | 0.95 | 1.00 | 1.00 |
| 200~450V | 1~5.6 | | 0.20 | 0.40 | 0.80 | 1.00 |
| | 6.8~15 | | 0.30 | 0.60 | 0.90 | 1.00 |
| | 22~33 | | 0.50 | 0.80 | 0.90 | 1.00 |

PART NUMBER SYSTEM (EXAMPLE : 16V 1000µF)

| | | | | | | | |
|---|----|-----|---|----|----|-------|-------|
| 1 | 23 | 456 | 7 | 89 | 10 | 11 12 | 13 14 |
| E | RA | 108 | M | 1C | G | 20 | RR |



STANDARD RATINGS

| Voltage (Code) | | 10V (1A) | | | 16V (1C) | | |
|----------------|------|-----------|-----------|----------------|-----------|-----------|----------------|
| Cap. (μF) | Code | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current |
| 330 | 337 | 8 x 12 | 0.220 | 360 | 8 x 12 | 0.220 | 360 |
| 470 | 477 | 10 x 12.5 | 0.150 | 620 | 10 x 12.5 | 0.150 | 620 |
| 1000 | 108 | 10 x 20 | 0.073 | 960 | 10 x 20 | 0.073 | 960 |
| 2200 | 228 | 12.5 x 25 | 0.040 | 1430 | 12.5 x 25 | 0.040 | 1430 |
| 3300 | 338 | 16 x 25 | 0.038 | 1900 | 16 x 30 | 0.034 | 2300 |
| 4700 | 478 | 16 x 30 | 0.034 | 2300 | 16 x 35 | 0.031 | 2550 |

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz

Case Size ΦD x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

| Voltage (Code) | | 25V (1E) | | | 35V (1V) | | |
|----------------|------|-----------|-----------|----------------|-----------|-----------|----------------|
| Cap. (μF) | Code | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current |
| 100 | 107 | | | | 8 x 12 | 0.220 | 360 |
| 220 | 227 | 8 x 12 | 0.220 | 360 | 10 x 12.5 | 0.150 | 620 |
| 330 | 337 | 10 x 12.5 | 0.150 | 620 | 10 x 16 | 0.100 | 800 |
| 470 | 477 | 10 x 16 | 0.100 | 800 | 10 x 20 | 0.073 | 960 |
| 1000 | 108 | 12.5 x 20 | 0.055 | 1100 | 12.5 x 25 | 0.040 | 1430 |
| 2200 | 228 | 16 x 30 | 0.034 | 2300 | 16 x 35 | 0.031 | 2550 |
| 3300 | 338 | 16 x 35 | 0.031 | 2550 | 18 x 35 | 0.028 | 2800 |

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz

Case Size ΦD x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

| Voltage (Code) | | 50V (1H) | | | 63V (1J) | | | 100V (2A) | | |
|----------------|------|-----------|-----------|----------------|-----------|-----------|----------------|-----------|-----------|----------------|
| Cap. (μF) | Code | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current |
| 4.7 | 475 | 8 x 12 | 0.850 | 100 | | | | 8 x 12 | 1.300 | 100 |
| 10 | 106 | 8 x 12 | 0.600 | 200 | | | | 8 x 12 | 1.000 | 200 |
| 22 | 226 | 8 x 12 | 0.350 | 260 | | | | 8 x 12 | 0.670 | 220 |
| 33 | 336 | 8 x 12 | 0.280 | 300 | 8 x 12 | 0.400 | 250 | 10 x 12.5 | 0.450 | 260 |
| 47 | 476 | 8 x 12 | 0.280 | 300 | 10 x 12.5 | 0.270 | 400 | 10 x 16 | 0.330 | 330 |
| 100 | 107 | 10 x 12.5 | 0.180 | 520 | 10 x 16 | 0.200 | 450 | 12.5 x 20 | 0.170 | 670 |
| 220 | 227 | 10 x 20 | 0.082 | 890 | 12.5 x 20 | 0.100 | 820 | 16 x 25 | 0.130 | 1100 |
| 330 | 337 | 12.5 x 20 | 0.065 | 1000 | 12.5 x 25 | 0.072 | 1000 | 16 x 30 | 0.100 | 1300 |
| 470 | 477 | 12.5 x 25 | 0.051 | 1200 | 16 x 25 | 0.069 | 1500 | 18 x 30 | 0.092 | 1600 |
| 1000 | 108 | 16 x 30 | 0.037 | 2180 | 16 x 30 | 0.056 | 1850 | | | |
| 1500 | 158 | | | | 18 x 40 | 0.043 | 2350 | | | |
| 2200 | 228 | 18 x 40 | 0.029 | 2800 | | | | | | |

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz

Case Size ΦD x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

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.

STANDARD RATINGS

| Voltage (Code) | | 200V (2D) | | 250V (2E) | |
|----------------|------|-----------|----------------|-----------|----------------|
| Cap. (μF) | Code | Case Size | Ripple Current | Case Size | Ripple Current |
| 4.7 | 475 | 6.3 x 11 | 100 | 8 x 12 | 120 |
| | | 8 x 12 | 120 | | |
| 5.6 | 565 | 8 x 12 | 130 | 8 x 16 | 180 |
| | | 8 x 16 | 180 | | |
| 6.8 | 685 | 8 x 12 | 130 | 8 x 16 | 180 |
| | | 8 x 16 | 180 | | |
| 8.2 | 825 | 10 x 16 | 200 | 10 x 16 | 200 |
| 10 | 106 | 8 x 16 | 200 | 8 x 20 | 240 |
| | | 8 x 20 | 240 | | |
| 15 | 156 | 8 x 16 | 200 | 10 x 16 | 240 |
| | | 8 x 20 | 240 | | |
| 22 | 226 | 8 x 20 | 300 | 10 x 20 | 260 |
| | | 10 x 16 | 240 | | |
| 33 | 336 | 10 x 20 | 320 | 12.5 x 20 | 350 |

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz

Case Size ΦD x L (mm)

| Voltage (Code) | | 350V (2V) | | 400V (2G) | | 450V (2W) | |
|----------------|------|-----------|----------------|-----------|----------------|-----------|----------------|
| Cap. (μF) | Code | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current |
| 1 | 105 | 6.3 x 11 | 60 | 6.3 x 11 | 60 | 8 x 12 | 59 |
| | | 8 x 12 | 65 | 8 x 12 | 65 | | |
| 1.5 | 155 | 8 x 12 | 75 | 8 x 12 | 75 | 8 x 12 | 68 |
| | | 8 x 16 | 80 | 8 x 16 | 80 | | |
| 1.8 | 185 | 8 x 12 | 75 | 8 x 12 | 75 | 8 x 12 | 68 |
| | | 8 x 16 | 85 | 8 x 16 | 85 | | |
| 2.2 | 225 | 8 x 12 | 75 | 8 x 12 | 75 | 8 x 12 | 68 |
| | | 8 x 16 | 90 | 8 x 16 | 90 | | |
| 2.7 | 275 | 8 x 20 | 110 | 8 x 20 | 110 | 8 x 16 | 88 |
| | | 8 x 16 | 95 | 8 x 16 | 95 | | |
| 3.3 | 335 | 8 x 16 | 100 | 8 x 16 | 100 | 8 x 16 | 90 |
| | | 8 x 20 | 120 | 8 x 20 | 120 | | |
| 4.7 | 475 | 8 x 20 | 120 | 8 x 20 | 120 | 10 x 16 | 112 |
| | | 10 x 16 | 125 | 10 x 16 | 125 | | |
| 5.6 | 565 | 10 x 16 | 130 | 10 x 16 | 130 | 10 x 16 | 115 |
| | | 10 x 20 | 145 | 10 x 20 | 145 | | |
| 6.8 | 685 | 10 x 20 | 150 | 10 x 20 | 150 | 10 x 20 | 135 |
| 8.2 | 825 | 10 x 20 | 168 | 10 x 20 | 168 | 10 x 20 | 150 |
| 10 | 106 | 12.5 x 20 | 186 | 12.5 x 20 | 186 | 12.5 x 20 | 170 |
| 15 | 156 | 12.5 x 25 | 226 | 12.5 x 25 | 226 | 12.5 x 25 | 200 |
| 22 | 226 | 16 x 25 | 283 | 16 x 25 | 283 | | |
| 33 | 336 | 16 x 30 | 375 | 16 x 30 | 375 | | |

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz

Case Size ΦD x L (mm)

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