

Surface mount type

SVPF Series



RoHS directive/Halogen-free compliant
High voltage (50V)
Large capacitance (1,000 μF)
Endurance: 105°C 5,000h

Specifications

| Items | Condition | Specifications | | | | |
|--|---|--|---|--------------|----|----|
| Rated voltage (V) | — | 16 | 20 | 25 | 35 | 50 |
| Surge voltage (V) | Room temperature | 18 | 23 | 29 | 40 | 57 |
| Category temperature range (°C) | — | -55 to +105 | | | | |
| Capacitance tolerance (%) | 120Hz/20°C | M : ±20 | | | | |
| Dissipation Factor (DF) | 120Hz/20°C | Please see the attached characteristics list | | | | |
| Leakage current*1 | Rated voltage applied, after 2 minutes | Please see the attached characteristics list | | | | |
| Equivalent series resistance (ESR) | 100kHz to 300kHz/20°C | Please see the attached characteristics list | | | | |
| Characteristics of impedance ratio at high temp. and low temp. | Based the value at 100kHz, +20°C | -55°C | Z/Z _{20°C} | 0.75 to 1.25 | | |
| | | +105°C | Z/Z _{20°C} | 0.75 to 1.25 | | |
| | | ΔC/C | Within ±20% of the initial value | | | |
| Endurance | 105°C, 5,000h, Rated voltage applied | DF | Within 1.5 times of the initial limit | | | |
| | | ESR | Within 1.5 times of the initial limit | | | |
| | | LC | Within the initial limit | | | |
| | | ΔC/C | Within ±20% of the initial value | | | |
| Damp heat (Steady state) | 60°C, 90 to 95%RH, 1,000h, No-applied voltage | DF | Within 1.5 times of the initial limit | | | |
| | | ESR | Within 1.5 times of the initial limit | | | |
| | | LC | Within the initial limit (after voltage processing) | | | |
| | | ΔC/C | Within ±10% of the initial value | | | |
| Resistance to soldering heat*2 | VPS (230°C X 75s) | DF | Within 1.3 times of the initial limit | | | |
| | | ESR | Within 1.3 times of the initial limit | | | |
| | | LC | Within the initial limit (after voltage processing) | | | |
| | | ΔC/C | Within ±10% of the initial value | | | |

*1 When measured values are questionable, measure after voltage processing mentioned below.

Voltage processing: Apply voltage for 120 minutes at 105°C.

*2 Please refer to page 25 for reflow soldering conditions.

Marking and dimensions

(unit : mm)

| Size code | φD ±0.5 | L ^{+0.1} _{-0.4} | W ±0.2 | H ±0.2 | C ±0.2 | R | P ±0.2 |
|-----------|---------|-----------------------------------|--------|--------|--------|---------|--------|
| B6 | 5.0 | 5.9 | 5.3 | 5.3 | 6.0 | 0.6~0.8 | 1.4 |
| C6 | 6.3 | 5.9 | 6.6 | 6.6 | 7.3 | 0.6~0.8 | 2.1 |
| E7 | 8.0 | 6.9 | 8.3 | 8.3 | 9.0 | 0.6~0.8 | 3.2 |
| E12 | 8.0 | 11.9 | 8.3 | 8.3 | 9.0 | 0.8~1.1 | 3.2 |
| F12 | 10.0 | 12.6 | 10.3 | 10.3 | 11.0 | 0.8~1.1 | 4.6 |

Size list

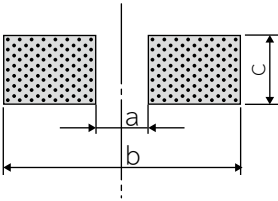
RV : Rated voltage

| μF | RV | 16 | 20 | 25 | 35 | 50 |
|------|-----|-----|----|-----|-----|-----|
| 10 | | | | | | C6 |
| 18 | | | | | | E7 |
| 22 | | | | | C6 | |
| 27 | | | | B6 | | |
| 39 | | | | | E7 | E12 |
| 47 | | | | C6 | | |
| 56 | | B6 | | C6 | | |
| 68 | | | | | | F12 |
| 82 | B6 | | | E7 | E12 | |
| 100 | | | | E7 | | |
| 120 | | C6 | | | F12 | |
| 180 | C6 | E7 | | E12 | | |
| 270 | E7 | | | | | |
| 330 | | | | F12 | | |
| 390 | | E12 | | | | |
| 560 | E12 | F12 | | | | |
| 1000 | F12 | | | | | |

SVPF series characteristics list

| Size code | Part number | Rated voltage (V) | Rated capacitance (μ F) | ESR($m\Omega$) (max) 100kHz to 300kHz/20°C | Rated ripple current 100kHz (mA _{rms}) at 105°C | DF (% max) | Leakage current (μ A) (max) After 2 minutes |
|-----------|-------------|-------------------|------------------------------|--|---|------------|--|
| B6 | 25SVPF27MX | 25 | 27 | 40 | 2450 | 12 | 135 |
| | 20SVPF56MX | 20 | 56 | 30 | 2800 | 12 | 224 |
| | 16SVPF82M | 16 | 82 | 27 | 3000 | 12 | 262 |
| C6 | 50SVPF10M | 50 | 10 | 40 | 2500 | 12 | 100 |
| | 35SVPF22M | 35 | 22 | 35 | 2600 | 12 | 154 |
| | 25SVPF47M | 25 | 47 | 30 | 2800 | 12 | 235 |
| | 25SVPF56M | 25 | 56 | 30 | 2800 | 12 | 280 |
| | 20SVPF120M | 20 | 120 | 25 | 3200 | 12 | 480 |
| | 16SVPF180M | 16 | 180 | 22 | 3300 | 12 | 576 |
| E7 | 50SVPF18M | 50 | 18 | 35 | 2700 | 12 | 180 |
| | 35SVPF39M | 35 | 39 | 30 | 2800 | 12 | 273 |
| | 25SVPF82M | 25 | 82 | 28 | 3000 | 12 | 410 |
| | 25SVPF100M | 25 | 100 | 24 | 3200 | 12 | 500 |
| | 20SVPF180M | 20 | 180 | 25 | 3200 | 12 | 720 |
| | 16SVPF270M | 16 | 270 | 22 | 3300 | 12 | 864 |
| E12 | 50SVPF39M | 50 | 39 | 25 | 3800 | 12 | 390 |
| | 35SVPF82M | 35 | 82 | 20 | 4000 | 12 | 574 |
| | 25SVPF180M | 25 | 180 | 16 | 4650 | 12 | 900 |
| | 20SVPF390M | 20 | 390 | 14 | 4950 | 12 | 1560 |
| | 16SVPF560M | 16 | 560 | 14 | 4950 | 12 | 1792 |
| F12 | 50SVPF68M | 50 | 68 | 20 | 4300 | 12 | 680 |
| | 35SVPF120M | 35 | 120 | 18 | 4400 | 12 | 840 |
| | 25SVPF330M | 25 | 330 | 14 | 5000 | 12 | 1650 |
| | 20SVPF560M | 20 | 560 | 12 | 5400 | 12 | 2240 |
| | 16SVPF1000M | 16 | 1000 | 12 | 5400 | 12 | 3200 |

Recommended land pattern dimension of PWB



| (unit : mm) | | | |
|-------------|-----|------|-----|
| Size code | a | b | c |
| B6 | 1.4 | 7.4 | 1.6 |
| C6 | 2.1 | 9.1 | 1.6 |
| E7 | 2.8 | 11.1 | 1.9 |
| E12 | 2.8 | 11.1 | 1.9 |
| F12 | 4.3 | 13.1 | 1.9 |

Frequency coefficient for ripple current

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