

# SVPS Series



Long life

The SVPS series has longer lifespan than the SVP series.  
They are a good choice to extend the life of flat panel television sets and others.  
Lead free-reflow is supported. ※2

SVP  
(Standard)

SVPS  
Long life

## Specifications

| Items                                                          | Condition                                                |        |                     | Specifications                                      |     |    |    |    |    |
|----------------------------------------------------------------|----------------------------------------------------------|--------|---------------------|-----------------------------------------------------|-----|----|----|----|----|
| Rated voltage (V)                                              | —                                                        |        |                     | 4.0                                                 | 6.3 | 10 | 16 | 20 | 25 |
| Surge voltage (V)                                              | Room temperature                                         |        |                     | 5.2                                                 | 8.2 | 12 | 18 | 23 | 25 |
| 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 <sub>20°C</sub> | 0.75 to 1.25                                        |     |    |    |    |    |
|                                                                |                                                          | +105°C | Z/Z <sub>20°C</sub> | 0.75 to 1.25                                        |     |    |    |    |    |
| Endurance                                                      | 105°C, 5,000h, Rated voltage applied (25V → 20V applied) | ΔC/C   |                     | Within ±20% of the initial value                    |     |    |    |    |    |
|                                                                |                                                          | DF     |                     | Within 1.5 times of the initial limit               |     |    |    |    |    |
|                                                                |                                                          | ESR    |                     | Within 1.5 times of the initial limit               |     |    |    |    |    |
|                                                                |                                                          | LC     |                     | Within the initial limit                            |     |    |    |    |    |
| Damp heat(Steady state)                                        | 60°C, 90 to 95% RH, 1,000h, No-applied voltage           | ΔC/C   |                     | Within ±20% of the initial value                    |     |    |    |    |    |
|                                                                |                                                          | 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) |     |    |    |    |    |
| Resistance to soldering heat※2                                 | VPS (230°C X 75s)                                        | ΔC/C   |                     | Within ±10% of the initial value                    |     |    |    |    |    |
|                                                                |                                                          | 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) |     |    |    |    |    |

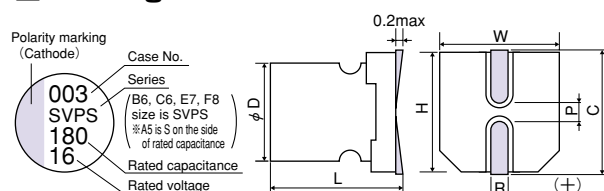
※1 When measured values are questionable, measure after voltage processing mentioned below.

Voltage processing: Apply voltage for 120 minutes at 105°C. The voltage to be applied is the rated voltage for 4.0-20V products, and 20V for 25V products.

※2 Please refer to page 12 for reflow soldering conditions.

## Marking and dimensions

(unit : mm)



| Size code | φD ±0.5 | L <sup>+0.1</sup> <sub>-0.4</sub> | W ±0.2 | H ±0.2 | C ±0.2 | R          | P ±0.2 |
|-----------|---------|-----------------------------------|--------|--------|--------|------------|--------|
| A5        | 4.0     | 5.4                               | 4.3    | 4.3    | 5.0    | 0.6 to 0.8 | 1.0    |
| B6        | 5.0     | 5.9                               | 5.3    | 5.3    | 6.0    | 0.6 to 0.8 | 1.4    |
| C6        | 6.3     | 5.9                               | 6.6    | 6.6    | 7.3    | 0.6 to 0.8 | 2.1    |
| E7        | 8.0     | 6.9                               | 8.3    | 8.3    | 9.0    | 0.6 to 0.8 | 3.2    |
| F8        | 10.0    | 7.9                               | 10.3   | 10.3   | 11.0   | 0.6 to 0.8 | 4.6    |

## Size list

RV : Rated voltage

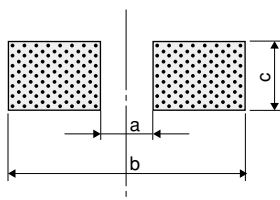
| μF \ RV | 4.0 | 6.3 | 10     | 16 | 20 | 25 |
|---------|-----|-----|--------|----|----|----|
| 10      |     |     | A5     |    |    | E7 |
| 15      |     |     | A5     |    |    |    |
| 22      |     | A5  |        | B6 | C6 |    |
| 33      | A5  |     | B6     |    |    |    |
| 39      |     |     |        | C6 |    |    |
| 47      |     | B6  |        |    | E7 |    |
| 68      | B6  |     | C6     |    |    |    |
| 82      |     |     |        | E7 |    |    |
| 100     |     |     |        | F8 |    |    |
| 120     |     | C6  |        |    |    |    |
| 150     | C6  |     | E7, F8 |    |    |    |
| 180     |     |     |        | F8 |    |    |
| 220     |     | E7  |        |    |    |    |
| 270     | E7  |     |        |    |    |    |
| 330     |     |     | F8     |    |    |    |
| 470     |     | F8  |        |    |    |    |
| 680     | F8  |     |        |    |    |    |

## SVPS series characteristics list

| Size code | Part number | Rated voltage (V) | Rated capacitance ( $\mu$ F) | ESR(m $\Omega$ ) (max) 100kHz to 300kHz / 20°C | Allowable ripple current 100kHz(mArms) <sup>※1</sup> | DF (% max) | Leakage current ( $\mu$ A)(max) After 2 minutes |
|-----------|-------------|-------------------|------------------------------|------------------------------------------------|------------------------------------------------------|------------|-------------------------------------------------|
| A5        | 10SVPS10M   | 10                | 10                           | 220                                            | 700                                                  | 10         | 50                                              |
|           | 10SVPS15M   | 10                | 15                           | 200                                            | 740                                                  | 10         | 75                                              |
|           | 6SVPS22M    | 6.3               | 22                           | 200                                            | 740                                                  | 12         | 69.3                                            |
|           | 4SVPS33M    | 4.0               | 33                           | 200                                            | 740                                                  | 15         | 66                                              |
| B6        | 16SVPS22M   | 16                | 22                           | 90                                             | 1060                                                 | 10         | 176                                             |
|           | 10SVPS33M   | 10                | 33                           | 70                                             | 1100                                                 | 12         | 165                                             |
|           | 6SVPS47M    | 6.3               | 47                           | 30                                             | 1970                                                 | 12         | 300                                             |
|           | 4SVPS68M    | 4.0               | 68                           | 30                                             | 1970                                                 | 12         | 300                                             |
| C6        | 20SVPS22M   | 20                | 22                           | 60                                             | 1450                                                 | 10         | 88                                              |
|           | 16SVPS39M   | 16                | 39                           | 24                                             | 2460                                                 | 12         | 300                                             |
|           | 10SVPS68M   | 10                | 68                           | 30                                             | 2200                                                 | 12         | 300                                             |
|           | 6SVPS120M   | 6.3               | 120                          | 22                                             | 2570                                                 | 12         | 300                                             |
|           | 4SVPS150M   | 4.0               | 150                          | 22                                             | 2570                                                 | 12         | 300                                             |
| E7        | 25SVPS10M   | 25                | 10                           | 60                                             | 1500                                                 | 10         | 125                                             |
|           | 20SVPS47M   | 20                | 47                           | 45                                             | 1890                                                 | 12         | 188                                             |
|           | 16SVPS82M   | 16                | 82                           | 30                                             | 2760                                                 | 12         | 262                                             |
|           | 10SVPS150MX | 10                | 150                          | 30                                             | 2760                                                 | 12         | 500                                             |
|           | 6SVPS220M   | 6.3               | 220                          | 22                                             | 3220                                                 | 12         | 500                                             |
|           | 4SVPS270M   | 4.0               | 270                          | 22                                             | 3220                                                 | 12         | 500                                             |
| F8        | 16SVPS100M  | 16                | 100                          | 35                                             | 2670                                                 | 12         | 320                                             |
|           | 16SVPS180M  | 16                | 180                          | 29                                             | 3430                                                 | 12         | 576                                             |
|           | 10SVPS150M  | 10                | 150                          | 30                                             | 3020                                                 | 12         | 300                                             |
|           | 10SVPS330M  | 10                | 330                          | 24                                             | 3770                                                 | 12         | 660                                             |
|           | 6SVPS470M   | 6.3               | 470                          | 20                                             | 4130                                                 | 12         | 592                                             |
|           | 4SVPS680M   | 4.0               | 680                          | 20                                             | 4130                                                 | 12         | 544                                             |

※1 The surface temperature of aluminum case top must not exceed 105°C. A rise in temperature due to self-heating by ripple current should be factored in.

## Recommended land pattern dimension of PWB



(unit : mm)

| Size code | a   | b    | c   |
|-----------|-----|------|-----|
| A5        | 1.0 | 6.2  | 1.6 |
| B6        | 1.4 | 7.4  | 1.6 |
| C6        | 2.1 | 9.1  | 1.6 |
| E7        | 2.8 | 11.1 | 1.9 |
| F8        | 4.3 | 13.1 | 1.9 |

## 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                   |