

## Surface Mount Type



Series : **SVP**



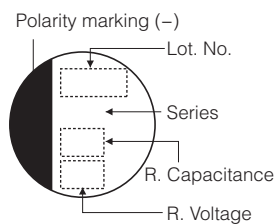
### Features

- Standard
- Wealth models
- RoHS compliance, Halogen free

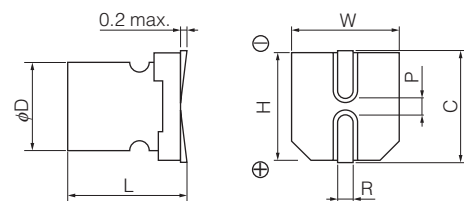
### Specifications

| Size code                  | A5   | B6  | C6                  | E7                | F8              | E12                 | F12               |
|----------------------------|--|---|---------------------|-------------------|-----------------|---------------------|-------------------|
| Category temperature range | -55 °C to +105 °C                                |   |                     |                   |                 |                     |                   |
| Rated voltage range        | 4 V.DC to 16 V.DC                                | 4 V.DC to 20 V.DC                                   | 2.5 V.DC to 20 V.DC | 4 V.DC to 20 V.DC |                 | 2.5 V.DC to 20 V.DC |                   |
| Rated capacitance range    | 3.3 μF to 33 μF                                  | 10 μF to 68 μF                                      | 22 μF to 220 μF     | 33 μF to 330 μF   | 56 μF to 680 μF | 100 μF to 680 μF    | 150 μF to 1500 μF |
| Capacitance tolerance      | ±20 % (120 Hz / + 20 °C)                         |   |                     |                   |                 |                     |                   |
| Leakage current            | Please see the attached characteristics list     |   |                     |                   |                 |                     |                   |
| Dissipation factor (tan δ) | Please see the attached characteristics list     |   |                     |                   |                 |                     |                   |
| Endurance                  | +105 °C, 2000 h, rated voltage applied           |   |                     |                   |                 |                     |                   |
|                            | Capacitance change                               | Within ±20 % of the initial value                   |                     |                   |                 |                     |                   |
|                            | tan δ  | ≤ 150 % of the initial limit                        |                     |                   |                 |                     |                   |
|                            | DC leakage current                               | Within the initial limit                            |                     |                   |                 |                     |                   |
| Damp heat (Steady State)   | +60 °C, 90 % to 95 %, 1000 h, No-applied voltage |   |                     |                   |                 |                     |                   |
|                            | Capacitance change                               | Within ±20 % of the initial value                   |                     |                   |                 |                     |                   |
|                            | tan δ  | ≤ 150 % of the initial limit                        |                     |                   |                 |                     |                   |
|                            | DC leakage current                               | Within the initial limit (after voltage processing) |                     |                   |                 |                     |                   |

### Marking



### Dimensions (not to scale)



Unit : mm

| Size code | $\phi D \pm 0.5$ | $L \begin{smallmatrix} +0.1 \\ -0.4 \end{smallmatrix}$ | $W \pm 0.2$ | $H \pm 0.2$ | $C \pm 0.2$ | R          | $P \pm 0.2$ |
|-----------|------------------|--|-------------|-------------|-------------|------------|-------------|
| 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         |
| E12       | 8.0              | 11.9   | 8.3         | 8.3         | 9.0         | 0.8 to 1.1 | 3.2         |
| F12       | 10.0             | 12.6   | 10.3        | 10.3        | 11.0        | 0.8 to 1.1 | 4.6         |

\* Externals of figure are the reference.

## Characteristics list

| Series | Rated voltage (V.DC) | Rated capacitance (μF) | Case size (mm) |      | Size code | Specifications                          |                             |                     |                       | Standard (Reel size : φ380) |                          |      |
|--------|----------------------|------------------------|----------------|------|-----------|---|-----------------------------|---------------------|-----------------------|-----------------------------|--------------------------|------|
|        |                      |                        | φD             | L    |           | Ripple current* <sup>1</sup> (mAr.m.s.) | ESR* <sup>2</sup> (mΩ max.) | tan δ* <sup>3</sup> | LC* <sup>4</sup> (μA) | Part number                 | Min. Packaging Qty (pcs) |      |
| SVP    | 2.5                  | 220                    | 6.3            | 5.9  | C6        | 2390                                    | 23                          | 0.12                | 110                   | 2R5SVP220M                  | 1000                     |      |
|        |                      | 680                    | 8.0            | 11.9 | E12       | 4520                                    | 13                          | 0.15                | 340                   | 2R5SVP680M                  | 400                      |      |
|        |                      | 1500                   | 10.0           | 12.6 | F12       | 5440                                    | 12                          | 0.18                | 750                   | 2R5SVP1500M                 | 400                      |      |
|        | 4.0                  | 33                     | 4.0            | 5.4  | A5        | 740                                     | 200                         | 0.15                | 66                    | 4SVP33M                     | 2000                     |      |
|        |                      | 39                     | 5.0            | 5.9  | B6        | 1100                                    | 70                          | 0.12                | 78                    | 4SVP39M                     | 1500                     |      |
|        |                      | 68                     | 5.0            | 5.9  |           | 1400                                    | 60                          | 0.12                | 136                   | 4SVP68M                     | 1500                     |      |
|        |                      | 150                    | 6.3            | 5.9  | C6        | 1810                                    | 40                          | 0.12                | 120                   | 4SVP150MX                   | 1000                     |      |
|        |                      | 330                    | 8.0            | 6.9  | E7        | 2560                                    | 35                          | 0.12                | 264                   | 4SVP330M                    | 1000                     |      |
|        |                      | 560                    | 8.0            | 11.9 | E12       | 4520                                    | 13                          | 0.15                | 448                   | 4SVP560M                    | 400                      |      |
|        |                      | 680                    | 10.0           | 7.9  | F8        | 3700                                    | 25                          | 0.12                | 544                   | 4SVP680M                    | 500                      |      |
|        |                      | 1200                   | 10.0           | 12.6 | F12       | 5440                                    | 12                          | 0.18                | 960                   | 4SVP1200M                   | 400                      |      |
|        |                      | 6.3                    | 22             | 4.0  | 5.4       | A5                                      | 740                         | 200                 | 0.12                  | 69.3                        | 6SVP22M                  | 2000 |
|        | 47                   |                        | 5.0            | 5.9  | B6        | 1100                                    | 70                          | 0.12                | 148                   | 6SVP47M                     | 1500                     |      |
|        | 82                   |                        | 6.3            | 5.9  | C6        | 1700                                    | 45                          | 0.12                | 103                   | 6SVP82M                     | 1000                     |      |
|        | 100                  |                        | 6.3            | 5.9  |           | 1810                                    | 40                          | 0.12                | 126                   | 6SVP100M                    | 1000                     |      |
|        | 120                  |                        | 6.3            | 5.9  |           | 2780                                    | 17                          | 0.12                | 151                   | 6SVP120MV                   | 1000                     |      |
|        | 220                  |                        | 8.0            | 6.9  | E7        | 2560                                    | 35                          | 0.12                | 277                   | 6SVP220MX                   | 1000                     |      |
|        | 330                  |                        | 10.0           | 7.9  | F8        | 3700                                    | 25                          | 0.12                | 277                   | 6SVP220M                    | 500                      |      |
|        |                      |                        | 3700           | 25   |           | 0.12                                    | 416                         | 6SVP330M            | 500                   |                             |                          |      |
|        |                      |                        | 3700           | 25   |           | 0.12                                    | 592                         | 6SVP470MX           | 500                   |                             |                          |      |
|        | 470                  |                        | 8.0            | 11.9 | E12       | 4210                                    | 15                          | 0.15                | 592                   | 6SVP470M                    | 400                      |      |
|        | 820                  |                        | 10.0           | 12.6 | F12       | 5440                                    | 12                          | 0.15                | 775                   | 6SVP820M                    | 400                      |      |
|        | 10                   |                        | 4.7            | 4.0  | 5.4       | A5                                      | 670                         | 240                 | 0.08                  | 23.5                        | 10SVP4R7M                | 2000 |
|        |                      |                        | 6.8            | 4.0  | 5.4       |   | 670                         | 240                 | 0.09                  | 34                          | 10SVP6R8M                | 2000 |
|        |                      |                        | 10             | 4.0  | 5.4       |   | 700                         | 220                 | 0.10                  | 50                          | 10SVP10M                 | 2000 |
|        |                      |                        | 15             | 4.0  | 5.4       |   | 740                         | 200                 | 0.10                  | 75                          | 10SVP15M                 | 2000 |
|        |                      | 33                     | 5.0            | 5.9  | B6        | 1100                                    | 70                          | 0.12                | 165                   | 10SVP33M                    | 1500                     |      |
|        |                      | 47                     | 6.3            | 5.9  | C6        | 1620                                    | 50                          | 0.12                | 94                    | 10SVP47M                    | 1000                     |      |
|        |                      | 56                     | 6.3            | 5.9  |           | 1700                                    | 45                          | 0.12                | 112                   | 10SVP56M                    | 1000                     |      |
|        |                      | 120                    | 8.0            | 6.9  | E7        | 2560                                    | 35                          | 0.12                | 240                   | 10SVP120M                   | 1000                     |      |
|        |                      | 150                    | 8.0            | 6.9  | F8        | 2560                                    | 35                          | 0.12                | 300                   | 10SVP150MX                  | 1000                     |      |
|        |                      |                        | 10.0           | 7.9  |           | 3020                                    | 30                          | 0.12                | 300                   | 10SVP150M                   | 500                      |      |
|        |                      | 270                    | 10.0           | 7.9  | F8        | 3700                                    | 25                          | 0.12                | 540                   | 10SVP270M                   | 500                      |      |
|        |                      | 330                    | 10.0           | 7.9  |           | 3700                                    | 25                          | 0.12                | 660                   | 10SVP330MX                  | 500                      |      |
|        |                      |                        | 8.0            | 11.9 | E12       | 3950                                    | 17                          | 0.15                | 660                   | 10SVP330M                   | 400                      |      |
|        |                      | 560                    | 10.0           | 12.6 | F12       | 5230                                    | 13                          | 0.15                | 840                   | 10SVP560M                   | 400                      |      |
|        |                      | 16                     | 3.3            | 4.0  | 5.4       | A5                                      | 660                         | 260                 | 0.07                  | 26.4                        | 16SVP3R3M                | 2000 |
|        | 15                   |                        | 5.0            | 5.9  | B6        | 1020                                    | 120                         | 0.10                | 120                   | 16SVP15M                    | 1500                     |      |
|        | 22                   |                        | 5.0            | 5.9  |           | 1060                                    | 90                          | 0.10                | 176                   | 16SVP22M                    | 1500                     |      |
|        | 39                   |                        | 6.3            | 5.9  | C6        | 1620                                    | 50                          | 0.10                | 125                   | 16SVP39M                    | 1000                     |      |
|        | 56                   |                        | 8.0            | 6.9  | E7        | 1890                                    | 45                          | 0.12                | 179                   | 16SVP56M                    | 1000                     |      |
|        | 82                   |                        | 8.0            | 6.9  |           | 2120                                    | 40                          | 0.12                | 262                   | 16SVP82M                    | 1000                     |      |
| 100    | 10.0                 |                        | 7.9            | F8   | 2670      | 35                                      | 0.12                        | 320                 | 16SVP100M             | 500                         |                          |      |
| 150    | 10.0                 |                        | 7.9            |      | 3020      | 30                                      | 0.12                        | 480                 | 16SVP150M             | 500                         |                          |      |
| 180    | 10.0                 |                        | 7.9            |      | 3020      | 30                                      | 0.12                        | 576                 | 16SVP180MX            | 500                         |                          |      |
|        | 8.0                  |                        | 11.9           | E12  | 3640      | 20                                      | 0.15                        | 576                 | 16SVP180M             | 400                         |                          |      |
| 330    | 10.0                 |                        | 12.6           | F12  | 4720      | 16                                      | 0.15                        | 792                 | 16SVP330M             | 400                         |                          |      |
| 20     | 10                   |                        | 5.0            | 5.9  | B6        | 1020                                    | 120                         | 0.10                | 100                   | 20SVP10M                    | 1500                     |      |
|        | 22                   | 6.3                    | 5.9            | C6   | 1450      | 60                                      | 0.10                        | 88                  | 20SVP22M              | 1000                        |                          |      |
|        | 27                   | 6.3                    | 5.9            |      | 1450      | 60                                      | 0.10                        | 108                 | 20SVP27M              | 1000                        |                          |      |
|        | 33                   | 8.0                    | 6.9            | E7   | 1890      | 45                                      | 0.12                        | 132                 | 20SVP33M              | 1000                        |                          |      |
|        | 47                   | 8.0                    | 6.9            |      | 1890      | 45                                      | 0.12                        | 188                 | 20SVP47M              | 1000                        |                          |      |
|        | 56                   | 10.0                   | 7.9            | F8   | 2400      | 40                                      | 0.12                        | 224                 | 20SVP56M              | 500                         |                          |      |
|        | 68                   | 10.0                   | 7.9            |      | 2400      | 40                                      | 0.12                        | 272                 | 20SVP68M              | 500                         |                          |      |
|        | 100                  | 8.0                    | 11.9           |      | E12       | 3320                                    | 24                          | 0.15                | 400                   | 20SVP100M                   | 400                      |      |
|        | 150                  | 10.0                   | 12.6           | F12  | 4320      | 20                                      | 0.15                        | 600                 | 20SVP150M             | 400                         |                          |      |

\*1 Ripple current (100 kHz/ +105 °C) \*2 ESR (100 kHz to 300 kHz/+20 °C) \*3 tan δ (120 Hz/+20 °C) \*4 After 2 minutes  
 ◆ Please refer to each page in this catalog for "Reflow conditions" and "Taping specifications".

## Frequency correction factor for ripple current

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

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.  
 Should a safety concern arise regarding this product, please be sure to contact us immediately.