

SEPC is designed to have even lower ESR than the SEP series.

Suitable for use on computer and peripheral products such as motherboards, servers and VGAs. Lead free-flow is supported.\*2



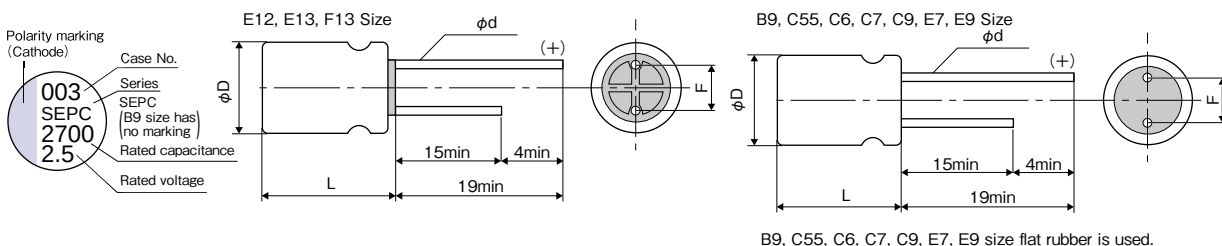
## Specifications

| Items                                                          |                                        | Condition        |                                              | Specifications                                      |     |     |    |    |
|----------------------------------------------------------------|----------------------------------------|------------------|----------------------------------------------|-----------------------------------------------------|-----|-----|----|----|
| Rated voltage                                                  | (V)                                    | —                |                                              | 2.5                                                 | 4.0 | 6.3 | 10 | 16 |
| Surge voltage                                                  | (V)                                    | Room temperature |                                              | 3.3                                                 | 5.2 | 8.2 | 12 | 18 |
| Category temperature range                                     | (℃)                                    | —                |                                              | -55 to +105                                         |     |     |    |    |
| Capacitance tolerance                                          | (%)                                    | 120Hz/20℃        |                                              | M : ±20                                             |     |     |    |    |
| Dissipation Factor (DF)                                        | 120Hz/20℃                              |                  | 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℃                   |                  | Please see the attached characteristics list |                                                     |     |     |    |    |
| Characteristics of impedance ratio at high temp. and low temp. | Based the value at 100kHz, +20℃        | -55℃             | Z/Z <sub>20℃</sub>                           | 0.75 to 1.25                                        |     |     |    |    |
|                                                                |                                        | +105℃            | Z/Z <sub>20℃</sub>                           | 0.75 to 1.25                                        |     |     |    |    |
| Endurance                                                      | 105℃, 5,000h, Rated voltage 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℃, 90%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                                 | Flow method (260±5℃ X 10s)             | ΔC/C             |                                              | Within ±5% of the initial value                     |     |     |    |    |
|                                                                |                                        | DF               |                                              | Within the initial limit                            |     |     |    |    |
|                                                                |                                        | ESR              |                                              | Within the initial limit                            |     |     |    |    |
|                                                                |                                        | LC               |                                              | Within the initial limit (after voltage processing) |     |     |    |    |

\*1 In case of some problems for measured values, measure after applying rated voltage for 120 minutes at 105°C.

\*2 Please refer to page 26 for flow soldering conditions.

## Marking and dimensions



## Size list

RV : Rated voltage

(unit : mm)

| RV    | 2.5             | 4.0         | 6.3             | 10 | 16      |
|-------|-----------------|-------------|-----------------|----|---------|
| 100   | B9              |             |                 |    | C6, C9  |
| 150   |                 |             |                 |    | E7      |
| 180   |                 |             |                 |    | E9, E12 |
| 220   |                 |             | C55             |    | E7      |
| 270   |                 |             |                 | E7 | E9, E12 |
| 330   | B9, C9          |             |                 |    |         |
| 390   | C6              |             |                 |    |         |
| 470   | B9              |             | C7, C9, E9, E13 |    | F13     |
| 560   | B9, C6, C9, E9  | C9, E9, E13 | C9, E9          |    |         |
| 680   |                 | E13         | F13             |    |         |
| 820   | C9, E7, E9, E13 | F13         |                 |    |         |
| 1,000 | E9              |             |                 |    |         |
| 1,500 |                 |             | F13             |    |         |
| 2,700 | F13             |             |                 |    |         |

| Size code | φD ±0.5 | L max | F       | φd ±0.05 |
|-----------|---------|-------|---------|----------|
| B9        | 5.0     | 9.0   | 2.0±0.5 | 0.6      |
| C55       | 6.3     | 5.5   | 2.5±0.5 | 0.45     |
| C6        | 6.3     | 6.0   | 2.5±0.5 | 0.45*3   |
| C7        | 6.3     | 7.0   | 2.5±0.5 | 0.6      |
| C9        | 6.3     | 9.0   | 2.5±0.5 | 0.6*4    |
| E7        | 8.0     | 7.0   | 3.5±0.5 | 0.6      |
| E9        | 8.0     | 9.0   | 3.5±0.5 | 0.6      |
| E12       | 8.0     | 12.0  | 3.5±0.5 | 0.6      |
| E13       | 8.0     | 13.0  | 3.5±0.5 | 0.6      |
| F13       | 10.0    | 13.0  | 5.0±0.5 | 0.6      |

\*3 2SEPC390M : 0.5±0.05

\*4 16SEPC150MD, 10SEPC270MD : 0.45±0.05

## SEPC series characteristics list

| Size code | Part number | Rated voltage (V) | Rated capacitance (μF) | ESR (mΩ) (max)<br>100kHz to 300kHz/20°C | Rated ripple current<br>100kHz (mA <sub>rms</sub> ) at 105°C | DF (% max) | Leakage current (μA)(max)<br>After 2 minutes |
|-----------|-------------|-------------------|------------------------|-----------------------------------------|--------------------------------------------------------------|------------|----------------------------------------------|
| B9        | 2SEPC100MZ  | 2.5               | 100                    | 7                                       | 4180                                                         | 10         | 500                                          |
|           | 2SEPC330MZ  | 2.5               | 330                    | 7                                       | 4180                                                         | 10         | 500                                          |
|           | 2SEPC470MZ  | 2.5               | 470                    | 7                                       | 4180                                                         | 10         | 500                                          |
|           | 2SEPC560MZ  | 2.5               | 560                    | 7                                       | 4180                                                         | 10         | 500                                          |
| C55       | 6SEPC220M   | 6.3               | 220                    | 18                                      | 2980                                                         | 12         | 280                                          |
| C6        | 16SEPC100M  | 16                | 100                    | 24                                      | 2490                                                         | 10         | 320                                          |
|           | 2SEPC390M   | 2.5               | 390                    | 10                                      | 3900                                                         | 12         | 500                                          |
|           | 2SEPC560M   | 2.5               | 560                    | 10                                      | 3900                                                         | 12         | 500                                          |
| C7        | 6SEPC470ME  | 6.3               | 470                    | 20                                      | 2970                                                         | 10         | 592                                          |
| C9        | 16SEPC100MW | 16                | 100                    | 10                                      | 4680                                                         | 10         | 500                                          |
|           | 6SEPC470MW  | 6.3               | 470                    | 7                                       | 5600                                                         | 10         | 592                                          |
|           | 6SEPC560MW  | 6.3               | 560                    | 7                                       | 5600                                                         | 10         | 705                                          |
|           | 4SEPC560MW  | 4.0               | 560                    | 7                                       | 5600                                                         | 10         | 500                                          |
|           | 2SEPC330MW  | 2.5               | 330                    | 7                                       | 5600                                                         | 10         | 500                                          |
|           | 2SEPC560MW  | 2.5               | 560                    | 7                                       | 5600                                                         | 10         | 500                                          |
|           | 2SEPC820MW  | 2.5               | 820                    | 7                                       | 5600                                                         | 10         | 500                                          |
| E7        | 16SEPC150MD | 16                | 150                    | 22                                      | 3220                                                         | 12         | 500                                          |
|           | 16SEPC220MD | 16                | 220                    | 13                                      | 4150                                                         | 10         | 500                                          |
|           | 10SEPC270MD | 10                | 270                    | 22                                      | 3220                                                         | 12         | 500                                          |
|           | 2SEPC820MD  | 2.5               | 820                    | 8                                       | 5300                                                         | 10         | 500                                          |
| E9        | 16SEPC180MX | 16                | 180                    | 10                                      | 5000                                                         | 10         | 576                                          |
|           | 16SEPC270MX | 16                | 270                    | 10                                      | 5000                                                         | 10         | 864                                          |
|           | 6SEPC470MX  | 6.3               | 470                    | 8                                       | 5700                                                         | 10         | 592                                          |
|           | 6SEPC560MX  | 6.3               | 560                    | 7                                       | 6100                                                         | 10         | 705                                          |
|           | 4SEPC560MX  | 4.0               | 560                    | 7                                       | 6100                                                         | 10         | 500                                          |
|           | 2SEPC560MX  | 2.5               | 560                    | 8                                       | 4700                                                         | 10         | 280                                          |
|           | 2SEPC820MX  | 2.5               | 820                    | 7                                       | 6100                                                         | 10         | 500                                          |
|           | 2SEPC820MY  | 2.5               | 820                    | 5                                       | 7200                                                         | 10         | 500                                          |
|           | 2SEPC1000MX | 2.5               | 1000                   | 7                                       | 6100                                                         | 10         | 500                                          |
| E12       | 16SEPC180M  | 16                | 180                    | 16                                      | 4360                                                         | 10         | 576                                          |
|           | 16SEPC270M  | 16                | 270                    | 11                                      | 5000                                                         | 10         | 864                                          |
| E13       | 6SEPC470M   | 6.3               | 470                    | 8                                       | 5700                                                         | 10         | 592                                          |
|           | 4SEPC560M   | 4.0               | 560                    | 7                                       | 6100                                                         | 10         | 500                                          |
|           | 4SEPC680M   | 4.0               | 680                    | 7                                       | 6100                                                         | 10         | 544                                          |
|           | 2R5SEPC820M | 2.5               | 820                    | 7                                       | 6100                                                         | 10         | 500                                          |
| F13       | 16SEPC470M  | 16                | 470                    | 10                                      | 6100                                                         | 10         | 1504                                         |
|           | 6SEPC680M   | 6.3               | 680                    | 7                                       | 6640                                                         | 10         | 857                                          |
|           | 6SEPC1500M  | 6.3               | 1500                   | 10                                      | 5560                                                         | 10         | 1890                                         |
|           | 4SEPC820M   | 4.0               | 820                    | 7                                       | 6640                                                         | 10         | 656                                          |
|           | 2SEPC2700M  | 2.5               | 2700                   | 10                                      | 5560                                                         | 10         | 1350                                         |

## 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                   |

※ Red letters : New models

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