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## Radial Lead Type

# OS-CON



Series : **SEP**

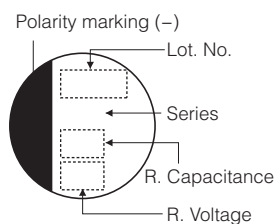
### Features

- Standard
- 105 °C 3000 h
- RoHS compliance, Halogen free

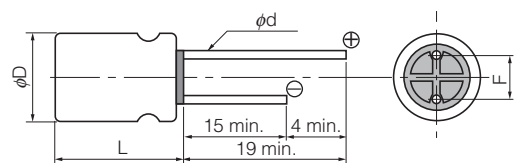
### Specifications

| Size code                  | C6   | E7  | F8              | E12                 | F13               |
|----------------------------|--|---|-----------------|---------------------|-------------------|
| Category temperature range | -55 °C to +105 °C  |   |                 |                     |                   |
| Rated voltage range        | 4 V.DC to 20 V.DC  |   |                 | 2.5 V.DC to 20 V.DC |                   |
| Rated capacitance range    | 22 μF to 150 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, 3000 h, rated voltage applied (2.5 V.DC 2000 h 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 | φD±0.5 | L max. | F±0.5 | φd±0.05 |
|-----------|--------|--------|-------|---------|
| C6        | 6.3    | 6.0    | 2.5   | 0.45    |
| E7        | 8.0    | 7.0    | 3.5   | 0.45    |
| F8        | 10.0   | 8.0    | 5.0   | 0.50    |
| E12       | 8.0    | 12.0   | 3.5   | 0.60    |
| F13       | 10.0   | 13.0   | 3.5   | 0.60    |

\* Externals of figure are the reference.

## Characteristics list

| Series | Rated voltage (V.DC) | Rated capacitance (μF) | Case size (mm) |      | Size code | Specifications                           |                             |                     |                       | Part number |
|--------|----------------------|------------------------|----------------|------|-----------|--|-----------------------------|---------------------|-----------------------|-------------|
|        |                      |                        | φD             | L    |           | Ripple* <sup>1</sup> current (mA r.m.s.) | ESR* <sup>2</sup> (mΩ max.) | tan δ* <sup>3</sup> | LC* <sup>4</sup> (μA) |             |
| SEP    | 2.5                  | 680                    | 8.0            | 12.0 | E12       | 4520                                     | 13                          | 0.15                | 340                   | 2R5SEP680M  |
|        |                      | 1500                   | 10.0           | 13.0 | F13       | 5440                                     | 12                          | 0.18                | 750                   | 2R5SEP1500M |
|        | 4.0                  | 100                    | 6.3            | 6.0  | C6        | 1810                                     | 40                          | 0.12                | 200                   | 4SEP100M    |
|        |                      | 150                    | 6.3            | 6.0  |           | 1810                                     | 40                          | 0.12                | 300                   | 4SEP150M    |
|        |                      | 220                    | 8.0            | 7.0  | E7        | 2560                                     | 35                          | 0.12                | 440                   | 4SEP220M    |
|        |                      | 330                    | 8.0            | 7.0  |           | 2560                                     | 35                          | 0.12                | 660                   | 4SEP330M    |
|        |                      | 470                    | 10.0           | 8.0  | F8        | 3700                                     | 25                          | 0.12                | 376                   | 4SEP470M    |
|        |                      | 560                    | 8.0            | 12.0 | E12       | 4520                                     | 13                          | 0.15                | 448                   | 4SEP560M    |
|        |                      | 680                    | 10.0           | 8.0  | F8        | 3700                                     | 25                          | 0.12                | 544                   | 4SEP680M    |
|        |                      | 1200                   | 10.0           | 13.0 | F13       | 5440                                     | 12                          | 0.18                | 960                   | 4SEP1200M   |
|        | 6.3                  | 82                     | 6.3            | 6.0  | C6        | 1700                                     | 45                          | 0.12                | 258                   | 6SEP82M     |
|        |                      | 150                    | 8.0            | 7.0  | E7        | 2560                                     | 35                          | 0.12                | 472                   | 6SEP150M    |
|        |                      | 330                    | 10.0           | 8.0  | F8        | 3700                                     | 25                          | 0.12                | 416                   | 6SEP330M    |
|        |                      | 470                    | 8.0            | 12.0 | E12       | 4210                                     | 15                          | 0.15                | 592                   | 6SEP470M    |
|        |                      | 820                    | 10.0           | 13.0 | F13       | 5440                                     | 12                          | 0.15                | 775                   | 6SEP820M    |
|        | 10                   | 56                     | 6.3            | 6.0  | C6        | 1700                                     | 45                          | 0.12                | 280                   | 10SEP56M    |
|        |                      | 120                    | 8.0            | 7.0  | E7        | 2560                                     | 35                          | 0.12                | 600                   | 10SEP120M   |
|        |                      | 270                    | 10.0           | 8.0  | F8        | 3700                                     | 25                          | 0.12                | 540                   | 10SEP270M   |
|        |                      | 330                    | 8.0            | 12.0 | E12       | 3950                                     | 17                          | 0.15                | 660                   | 10SEP330M   |
|        |                      | 560                    | 10.0           | 13.0 | F13       | 5230                                     | 13                          | 0.15                | 840                   | 10SEP560M   |
|        | 16                   | 39                     | 6.3            | 6.0  | C6        | 1620                                     | 50                          | 0.10                | 312                   | 16SEP39M    |
|        |                      | 82                     | 8.0            | 7.0  | E7        | 2120                                     | 40                          | 0.12                | 656                   | 16SEP82M    |
|        |                      | 150                    | 10.0           | 8.0  | F8        | 3020                                     | 30                          | 0.12                | 480                   | 16SEP150M   |
|        |                      | 180                    | 8.0            | 12.0 | E12       | 3640                                     | 20                          | 0.15                | 576                   | 16SEP180M   |
|        |                      | 330                    | 10.0           | 13.0 | F13       | 4720                                     | 16                          | 0.15                | 792                   | 16SEP330M   |
|        | 20                   | 22                     | 6.3            | 6.0  | C6        | 1450                                     | 60                          | 0.10                | 220                   | 20SEP22M    |
|        |                      | 33                     | 8.0            | 7.0  | E7        | 1890                                     | 45                          | 0.12                | 330                   | 20SEP33M    |
|        |                      | 47                     | 8.0            | 7.0  |           | 1890                                     | 45                          | 0.12                | 470                   | 20SEP47M    |
|        |                      | 56                     | 10.0           | 8.0  | F8        | 2400                                     | 40                          | 0.12                | 224                   | 20SEP56M    |
|        |                      | 68                     | 10.0           | 8.0  |           | 2400                                     | 40                          | 0.12                | 272                   | 20SEP68M    |
| 100    |                      | 10.0                   | 8.0            | 2570 |           | 35                                       | 0.12                        | 400                 | 20SEP100MX            |             |
|        |                      | 8.0                    | 12.0           | E12  | 3320      | 24                                       | 0.15                        | 400                 | 20SEP100M             |             |
| 150    |                      | 10.0                   | 13.0           | F13  | 4320      | 20                                       | 0.15                        | 600                 | 20SEP150M             |             |

\*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 "Flow 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                     |

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