

## Radial Lead Type

# OS-CON



Series : **SEF**

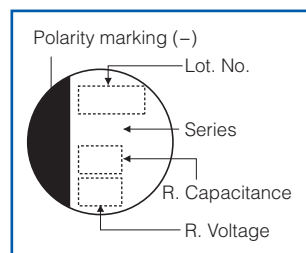
### Features

- High voltage (35 V.DC max.)
- Large capacitance (1000  $\mu$ F max.)
- RoHS compliance, Halogen free

### Specifications

| Size code                   | C6                                               | E7                                                  | E12             | F13               |
|-----------------------------|--------------------------------------------------|-----------------------------------------------------|-----------------|-------------------|
| Category temperature range  | -55 °C to +125 °C                                |                                                     |                 |                   |
| Rated voltage range         | 16 V.DC to 35 V.DC                               |                                                     |                 |                   |
| Rated capacitance range     | 22 μF to 180 μF                                  | 39 μF to 270 μF                                     | 82 μF to 560 μF | 120 μF to 1000 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                   | +125 °C, 1000 h, rated voltage applied           |                                                     |                 |                   |
|                             | Capacitance change                               | Within ±20 % of the initial value                   |                 |                   |
|                             | tan δ                                            | ≤ 200 % of the initial limit                        |                 |                   |
|                             | DC leakage current                               | Within the initial limit                            |                 |                   |
| Damp heat<br>(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 max. | F $\pm 0.5$ | $\phi d \pm 0.05$ |
| C6        | 6.3              | 6.0    | 2.5         | 0.5               |
| E7        | 8.0              | 7.0    | 3.5         | 0.5               |
| E12       | 8.0              | 12.0   | 3.5         | 0.6               |
| F13       | 10.0             | 13.0   | 5.0         | 0.6               |

### Characteristics list

| Series | Rated voltage (V.DC) | Rated capacitance ( $\mu$ F) | Case size (mm) |      |           | Specifications                |                                         |                          |                 |                  | Part number |
|--------|----------------------|------------------------------|----------------|------|-----------|-------------------------------|-----------------------------------------|--------------------------|-----------------|------------------|-------------|
|        |                      |                              | $\phi D$       | L    | Size code | Ripple current *1 (mA r.m.s.) | Allowable *1 ripple current (mA r.m.s.) | ESR *2 (m $\Omega$ max.) | tan $\delta$ *3 | LC *4 ( $\mu$ A) |             |
| SEF    | 16                   | 180                          | 6.3            | 6.0  | C6        | 1040                          | 3300                                    | 22                       | 0.12            | 576              | 16SEF180M   |
|        |                      | 270                          | 8.0            | 7.0  | E7        | 1040                          | 3300                                    | 22                       | 0.12            | 864              | 16SEF270M   |
|        |                      | 560                          | 8.0            | 12.0 | E12       | 1560                          | 4950                                    | 14                       | 0.12            | 1792             | 16SEF560M   |
|        |                      | 1000                         | 10.0           | 13.0 | F13       | 1700                          | 5400                                    | 12                       | 0.12            | 3200             | 16SEF1000M  |
|        | 20                   | 120                          | 6.3            | 6.0  | C6        | 1010                          | 3200                                    | 25                       | 0.12            | 480              | 20SEF120M   |
|        |                      | 180                          | 8.0            | 7.0  | E7        | 1010                          | 3200                                    | 25                       | 0.12            | 720              | 20SEF180M   |
|        |                      | 390                          | 8.0            | 12.0 | E12       | 1560                          | 4950                                    | 14                       | 0.12            | 1560             | 20SEF390M   |
|        |                      | 560                          | 10.0           | 13.0 | F13       | 1700                          | 5400                                    | 12                       | 0.12            | 2240             | 20SEF560M   |
|        | 25                   | 56                           | 6.3            | 6.0  | C6        | 880                           | 2800                                    | 30                       | 0.12            | 280              | 25SEF56M    |
|        |                      | 82                           | 8.0            | 7.0  | E7        | 940                           | 3000                                    | 28                       | 0.12            | 410              | 25SEF82M    |
|        |                      | 180                          | 8.0            | 12.0 | E12       | 1470                          | 4650                                    | 16                       | 0.12            | 900              | 25SEF180M   |
|        |                      | 330                          | 10.0           | 13.0 | F13       | 1580                          | 5000                                    | 14                       | 0.12            | 1650             | 25SEF330M   |
|        | 35                   | 22                           | 6.3            | 6.0  | C6        | 820                           | 2600                                    | 35                       | 0.12            | 154              | 35SEF22M    |
|        |                      | 39                           | 8.0            | 7.0  | E7        | 880                           | 2800                                    | 30                       | 0.12            | 273              | 35SEF39M    |
|        |                      | 82                           | 8.0            | 12.0 | E12       | 1260                          | 4000                                    | 20                       | 0.12            | 574              | 35SEF82M    |
|        |                      | 120                          | 10.0           | 13.0 | F13       | 1390                          | 4400                                    | 18                       | 0.12            | 840              | 35SEF120M   |

\*1 Ripple current (100 kHz/ +105 °C < T<sub>x</sub>  $\leq$  +125 °C) / Allowable ripple current (100 kHz/ T<sub>x</sub>  $\leq$  +105 °C), \*2 ESR (100 kHz to 300 kHz/+20 °C)

\*3 tan  $\delta$  (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 $\leq$ f < 1 kHz | 1 kHz $\leq$ f < 10 kHz | 10 kHz $\leq$ f < 100 kHz | 100 kHz $\leq$ 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.