

# SRG Series

- Low profile :  $\phi 10 \times 9\text{mm}$  to  $\phi 18 \times 25\text{mm}$
- Endurance : 2,000 hours at 85°C
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- RoHS2 Compliant

SRG

Downsized  
Low profile  
SMG

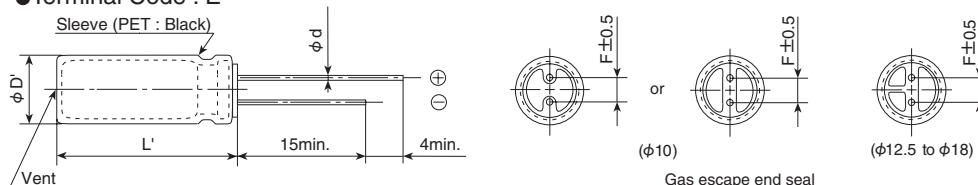


## SPECIFICATIONS

| Items                                                        | Characteristics                                                                                                                                                                                                                                                                      |                                      |      |      |      |      |      |                 |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------|------|------|------|------|-----------------|
| Category                                                     | -40 to +85℃                                                                                                                                                                                                                                                                          |                                      |      |      |      |      |      |                 |
| Temperature Range                                            |                                                                                                                                                                                                                                                                                      |                                      |      |      |      |      |      |                 |
| Rated Voltage Range                                          | 6.3 to 50V <sub>dc</sub>                                                                                                                                                                                                                                                             |                                      |      |      |      |      |      |                 |
| Capacitance Tolerance                                        | ± 20% (M) (at 20℃, 120Hz)                                                                                                                                                                                                                                                            |                                      |      |      |      |      |      |                 |
| Leakage Current                                              | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)                                                                                                                         |                                      |      |      |      |      |      |                 |
| Dissipation Factor<br>(tan δ)                                | Rated voltage (V <sub>dc</sub> )                                                                                                                                                                                                                                                     | 6.3V                                 | 10V  | 16V  | 25V  | 35V  | 50V  | (at 20℃, 120Hz) |
|                                                              | tan δ (Max.)                                                                                                                                                                                                                                                                         | 0.28                                 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 |                 |
|                                                              | When nominal capacitance exceeds 1,000μF, add 0.03 to the value above for each 1,000μF increase.                                                                                                                                                                                     |                                      |      |      |      |      |      |                 |
| Low Temperature<br>Characteristics<br>(Max. Impedance Ratio) | Rated voltage (V <sub>dc</sub> )                                                                                                                                                                                                                                                     | 6.3V                                 | 10V  | 16V  | 25V  | 35V  | 50V  | (at 120Hz)      |
|                                                              | Z(-25℃)/Z(+20℃)                                                                                                                                                                                                                                                                      | 5                                    | 4    | 3    | 2    | 2    | 2    |                 |
|                                                              | Z(-40℃)/Z(+20℃)                                                                                                                                                                                                                                                                      | 12                                   | 10   | 8    | 5    | 4    | 3    |                 |
| Endurance                                                    | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃.                                                                                                                                   |                                      |      |      |      |      |      |                 |
|                                                              | Capacitance change                                                                                                                                                                                                                                                                   | ≤ ±20% of the initial value          |      |      |      |      |      |                 |
|                                                              | D.F. (tan δ)                                                                                                                                                                                                                                                                         | ≤200% of the initial specified value |      |      |      |      |      |                 |
|                                                              | Leakage current                                                                                                                                                                                                                                                                      | ≤The initial specified value         |      |      |      |      |      |                 |
| Shelf Life                                                   | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. |                                      |      |      |      |      |      |                 |
|                                                              | Capacitance change                                                                                                                                                                                                                                                                   | ≤ ±20% of the initial value          |      |      |      |      |      |                 |
|                                                              | D.F. (tan δ)                                                                                                                                                                                                                                                                         | ≤200% of the initial specified value |      |      |      |      |      |                 |
|                                                              | Leakage current                                                                                                                                                                                                                                                                      | ≤The initial specified value         |      |      |      |      |      |                 |

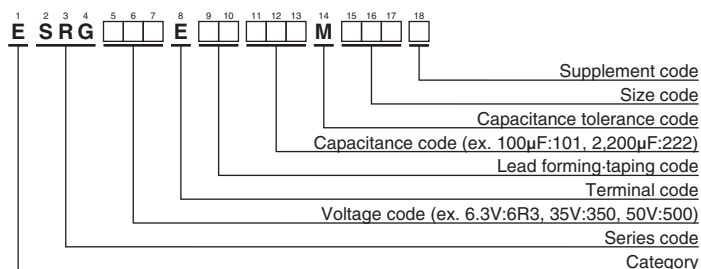
## DIMENSIONS [mm]

### Terminal Code : E



| $\phi D$  | 10 & 12.5                 | 16 & 18 |
|-----------|---------------------------|---------|
| $\phi d$  | 0.6                       | 0.8     |
| F         | 5.0                       | 7.5     |
| $\phi D'$ | $\phi D + 0.5\text{max.}$ |         |
| L'        | $L + 1.5\text{max.}$      |         |

## PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆ STANDARD RATINGS

| WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Case code<br>φD×L(mm) | tan δ | Rated ripple<br>current<br>(mA <sub>rms</sub> /85°C, 120Hz) | Part No.           | WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Case code<br>φD×L(mm) | tan δ | Rated ripple<br>current<br>(mA <sub>rms</sub> /85°C, 120Hz) | Part No.           |
|--------------------------|-------------|-----------------------|-------|-------------------------------------------------------------|--------------------|--------------------------|-------------|-----------------------|-------|-------------------------------------------------------------|--------------------|
| 6.3                      | 1,000       | 10 × 9                | 0.28  | 505                                                         | ESRG6R3E□□102MJ09S | 25                       | 330         | 10 × 9                | 0.16  | 380                                                         | ESRG250E□□331MJ09S |
|                          | 4,700       | 16 × 15               | 0.37  | 1,410                                                       | ESRG6R3E□□472ML15S |                          | 470         | 10 × 12.5             | 0.16  | 525                                                         | ESRG250E□□471MJC5S |
|                          | 6,800       | 18 × 15               | 0.43  | 1,660                                                       | ESRG6R3E□□682MM15S |                          | 1,000       | 12.5 × 15             | 0.16  | 830                                                         | ESRG250E□□102MK15S |
|                          | 10,000      | 18 × 20               | 0.55  | 2,020                                                       | ESRG6R3E□□103MM20S |                          | 2,200       | 18 × 15               | 0.19  | 1,360                                                       | ESRG250E□□222MM15S |
| 10                       | 1,000       | 10 × 12.5             | 0.24  | 625                                                         | ESRG100E□□102MJC5S | 35                       | 3,300       | 18 × 20               | 0.22  | 1,720                                                       | ESRG250E□□332MM20S |
|                          | 2,200       | 12.5 × 15             | 0.27  | 970                                                         | ESRG100E□□222MK15S |                          | 4,700       | 18 × 25               | 0.25  | 2,070                                                       | ESRG250E□□472MM25S |
|                          | 3,300       | 16 × 15               | 0.30  | 1,310                                                       | ESRG100E□□332ML15S |                          | 220         | 10 × 9                | 0.14  | 335                                                         | ESRG350E□□221MJ09S |
|                          | 4,700       | 18 × 15               | 0.33  | 1,560                                                       | ESRG100E□□472MM15S |                          | 330         | 10 × 12.5             | 0.14  | 475                                                         | ESRG350E□□331MJC5S |
|                          | 6,800       | 18 × 20               | 0.39  | 1,870                                                       | ESRG100E□□682MM20S |                          | 470         | 12.5 × 13             | 0.14  | 585                                                         | ESRG350E□□471MK13S |
| 16                       | 10,000      | 18 × 25               | 0.51  | 2,370                                                       | ESRG100E□□103MM25S | 50                       | 1,000       | 16 × 15               | 0.14  | 1,010                                                       | ESRG350E□□102ML15S |
|                          | 470         | 10 × 9                | 0.20  | 410                                                         | ESRG160E□□471MJ09S |                          | 2,200       | 18 × 20               | 0.17  | 1,560                                                       | ESRG350E□□222MM20S |
|                          | 1,000       | 12.5 × 13             | 0.20  | 715                                                         | ESRG160E□□102MK13S |                          | 100         | 10 × 9                | 0.12  | 240                                                         | ESRG500E□□101MJ09S |
|                          | 2,200       | 16 × 15               | 0.23  | 1,160                                                       | ESRG160E□□222ML15S |                          | 220         | 10 × 12.5             | 0.12  | 415                                                         | ESRG500E□□221MJC5S |
|                          | 3,300       | 18 × 15               | 0.26  | 1,460                                                       | ESRG160E□□332MM15S |                          | 330         | 12.5 × 13             | 0.12  | 525                                                         | ESRG500E□□331MK13S |
|                          | 4,700       | 18 × 20               | 0.29  | 1,770                                                       | ESRG160E□□472MM20S |                          | 470         | 16 × 15               | 0.12  | 745                                                         | ESRG500E□□471ML15S |
|                          | 6,800       | 18 × 25               | 0.35  | 2,170                                                       | ESRG160E□□682MM25S |                          | 1,000       | 18 × 20               | 0.12  | 1,160                                                       | ESRG500E□□102MM20S |

□□ : Enter the appropriate lead forming or taping code.

◆ RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

| Capacitance(μF) \ Frequency(Hz) | 50   | 120  | 300  | 1k   | 10k  | 100k |
|---------------------------------|------|------|------|------|------|------|
| 100 to 1,000                    | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |
| 2,200 to                        | 0.85 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.