

# SRG Series

- Low profile :  $\phi 4 \times 7\text{mm}$  to  $\phi 18 \times 25\text{mm}$
- Endurance : 1,000 to 2,000 hours at 85°C
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- RoHS2 Compliant

SRG

Downsized  
Low profile  
SMG

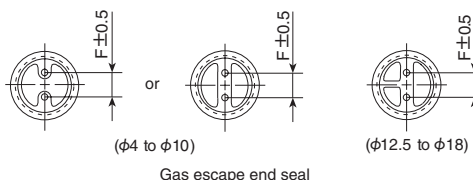
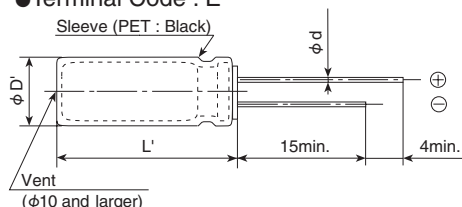


## SPECIFICATIONS

| 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  |
|                                                              | 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. (at 20℃, 120Hz)                                                                                                                                                                     |                                      |      |      |      |      |      |
| Low Temperature<br>Characteristics<br>(Max. Impedance Ratio) | Rated voltage (V <sub>dc</sub> )                                                                                                                                                                                                                                                     | 6.3V                                 | 10V  | 16V  | 25V  | 35V  | 50V  |
|                                                              | 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 (1,000 hours for ϕ6.3 and smaller) 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         |      |      |      |      |      |

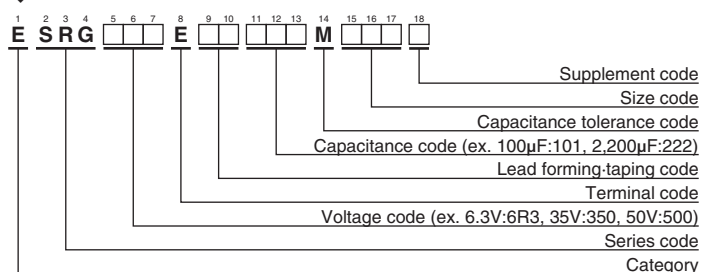
## DIMENSIONS [mm]

### Terminal Code : E



| φD  | 4                          | 5    | 6.3  | 10 & 12.5 | 16 & 18 |
|-----|----------------------------|------|------|-----------|---------|
| φd  | 0.45                       | 0.45 | 0.45 | 0.6       | 0.8     |
| F   | 1.5                        | 2.0  | 2.5  | 5.0       | 7.5     |
| φD' | φD+0.5max.                 |      |      |           |         |
| L'  | L+1.5max. (7L : L+1.0max.) |      |      |           |         |

## PART NUMBERING SYSTEM



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

### ◆STANDARD RATINGS

| WV (V <sub>dc</sub> ) | Cap (μF) | Case code<br>φD×L(mm) | tan δ | Rated ripple current<br>(mA <sub>rms</sub> /85°C, 120Hz) | Part No.           | WV (V <sub>dc</sub> ) | Cap (μF) | Case code<br>φD×L(mm) | tan δ | Rated ripple current<br>(mA <sub>rms</sub> /85°C, 120Hz) | Part No.           |
|-----------------------|----------|-----------------------|-------|----------------------------------------------------------|--------------------|-----------------------|----------|-----------------------|-------|----------------------------------------------------------|--------------------|
| 6.3                   | 47       | 4 × 7                 | 0.28  | 50                                                       | ESRG6R3E□□470MD07D | 25                    | 330      | 10 × 9                | 0.16  | 380                                                      | ESRG250E□□331MJ09S |
|                       | 100      | 5 × 7                 | 0.28  | 87                                                       | ESRG6R3E□□101ME07D |                       | 470      | 10 × 12.5             | 0.16  | 525                                                      | ESRG250E□□471MJC5S |
|                       | 220      | 6.3 × 7               | 0.28  | 133                                                      | ESRG6R3E□□221MF07D |                       | 1,000    | 12.5 × 15             | 0.16  | 830                                                      | ESRG250E□□102MK15S |
|                       | 1,000    | 10 × 9                | 0.28  | 505                                                      | ESRG6R3E□□102MJ09S |                       | 2,200    | 18 × 15               | 0.19  | 1,360                                                    | ESRG250E□□222MM15S |
|                       | 4,700    | 16 × 15               | 0.37  | 1,410                                                    | ESRG6R3E□□472ML15S |                       | 3,300    | 18 × 20               | 0.22  | 1,720                                                    | ESRG250E□□332MM20S |
|                       | 6,800    | 18 × 15               | 0.43  | 1,660                                                    | ESRG6R3E□□682MM15S |                       | 4,700    | 18 × 25               | 0.25  | 2,070                                                    | ESRG250E□□472MM25S |
| 10                    | 10,000   | 18 × 20               | 0.55  | 2,020                                                    | ESRG6R3E□□103MM20S | 35                    | 10       | 4 × 7                 | 0.14  | 32                                                       | ESRG350E□□100MD07D |
|                       | 33       | 4 × 7                 | 0.24  | 46                                                       | ESRG100E□□330MD07D |                       | 22       | 5 × 7                 | 0.14  | 57                                                       | ESRG350E□□220ME07D |
|                       | 1,000    | 10 × 12.5             | 0.24  | 625                                                      | ESRG100E□□102MJC5S |                       | 33       | 6.3 × 7               | 0.14  | 73                                                       | ESRG350E□□330MF07D |
|                       | 2,200    | 12.5 × 15             | 0.27  | 970                                                      | ESRG100E□□222MK15S |                       | 220      | 10 × 9                | 0.14  | 335                                                      | ESRG350E□□221MJ09S |
|                       | 3,300    | 16 × 15               | 0.30  | 1,310                                                    | ESRG100E□□332ML15S |                       | 330      | 10 × 12.5             | 0.14  | 475                                                      | ESRG350E□□331MJC5S |
|                       | 4,700    | 18 × 15               | 0.33  | 1,560                                                    | ESRG100E□□472MM15S |                       | 470      | 12.5 × 13             | 0.14  | 585                                                      | ESRG350E□□471MK13S |
| 16                    | 6,800    | 18 × 20               | 0.39  | 1,870                                                    | ESRG100E□□682MM20S | 50                    | 1,000    | 16 × 15               | 0.14  | 1,010                                                    | ESRG350E□□102ML15S |
|                       | 10,000   | 18 × 25               | 0.51  | 2,370                                                    | ESRG100E□□103MM25S |                       | 2,200    | 18 × 20               | 0.17  | 1,560                                                    | ESRG350E□□222MM20S |
|                       | 22       | 4 × 7                 | 0.20  | 42                                                       | ESRG160E□□220MD07D |                       | 1.0      | 4 × 7                 | 0.12  | 10                                                       | ESRG500E□□1R0MD07D |
|                       | 47       | 5 × 7                 | 0.20  | 73                                                       | ESRG160E□□470ME07D |                       | 2.2      | 4 × 7                 | 0.12  | 15                                                       | ESRG500E□□2R2MD07D |
|                       | 100      | 6.3 × 7               | 0.20  | 110                                                      | ESRG160E□□101MF07D |                       | 3.3      | 4 × 7                 | 0.12  | 19                                                       | ESRG500E□□3R3MD07D |
|                       | 470      | 10 × 9                | 0.20  | 410                                                      | ESRG160E□□471MJ09S |                       | 4.7      | 4 × 7                 | 0.12  | 24                                                       | ESRG500E□□4R7MD07D |
| 25                    | 1,000    | 12.5 × 13             | 0.20  | 715                                                      | ESRG160E□□102MK13S | 100                   | 10       | 5 × 7                 | 0.12  | 42                                                       | ESRG500E□□100ME07D |
|                       | 2,200    | 16 × 15               | 0.23  | 1,160                                                    | ESRG160E□□222ML15S |                       | 22       | 6.3 × 7               | 0.12  | 64                                                       | ESRG500E□□220MF07D |
|                       | 3,300    | 18 × 15               | 0.26  | 1,460                                                    | ESRG160E□□332MM15S |                       | 100      | 10 × 9                | 0.12  | 240                                                      | ESRG500E□□101MJ09S |
|                       | 4,700    | 18 × 20               | 0.29  | 1,770                                                    | ESRG160E□□472MM20S |                       | 220      | 10 × 12.5             | 0.12  | 415                                                      | ESRG500E□□221MJC5S |
|                       | 6,800    | 18 × 25               | 0.35  | 2,170                                                    | ESRG160E□□682MM25S |                       | 330      | 12.5 × 13             | 0.12  | 525                                                      | ESRG500E□□331MK13S |
|                       | 33       | 5 × 7                 | 0.16  | 66                                                       | ESRG250E□□330ME07D |                       | 470      | 16 × 15               | 0.12  | 745                                                      | ESRG500E□□471ML15S |
|                       | 47       | 6.3 × 7               | 0.16  | 80                                                       | ESRG250E□□470MF07D |                       | 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 |
|-----------------|---------------|------|------|------|------|------|------|
| to 4.7          |               | 0.65 | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 |
| 10 to 47        |               | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 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.

# Mouser Electronics

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