

## RG Series

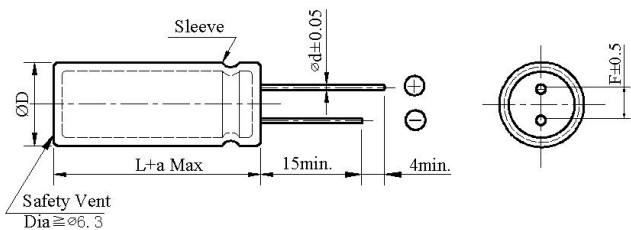
- Long life, better performance
- Load life 8,000~10,000 hours at 105℃; 2,000 hours at 130℃
- RoHS Compliant



## ◆ SPECIFICATIONS

| Item                                                    | Performance Characteristics                                                                                                                                                                                                               |      |      |                               |      |              |      |           |            |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-------------------------------|------|--------------|------|-----------|------------|
| Category Temperature Range                              | -40 ~ +105℃                                                                                                                                                                                                                               |      |      |                               |      | -25 ~ +105℃  |      |           |            |
| Working Voltage Range                                   | 160 ~ 450Vdc                                                                                                                                                                                                                              |      |      |                               |      | 500 ~ 550Vdc |      |           |            |
| Capacitance Range                                       | 1 ~ 330μF                                                                                                                                                                                                                                 |      |      |                               |      | 1.8 ~ 100μF  |      |           |            |
| Capacitance Tolerance                                   | ±20% (at 20℃ and 120Hz)                                                                                                                                                                                                                   |      |      |                               |      |              |      |           |            |
| Dissipation Factor<br>(tanδ)<br>(at 20℃, 120Hz)         | Rated Voltage (V)                                                                                                                                                                                                                         | 160  | 200  | 250                           | 350  | 400          | 450  | 500 ~ 550 |            |
|                                                         | tanδ(Max)                                                                                                                                                                                                                                 | 0.15 | 0.15 | 0.15                          | 0.20 | 0.20         | 0.20 | 0.24      |            |
| Leakage Current                                         | 160~400Vdc                                                                                                                                                                                                                                |      |      | 450~550Vdc                    |      |              |      |           |            |
|                                                         | I≤0.02CV+ 10μA (2minutes)                                                                                                                                                                                                                 |      |      | I≤0.03CV+ 10μA (2minutes)     |      |              |      |           |            |
|                                                         | I: Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V)                                                                                                                                                                  |      |      |                               |      |              |      |           |            |
| Low Temperature Characteristics<br>Impedance Ratio(MAX) | Rated Voltage (V)                                                                                                                                                                                                                         | 160  | 200  | 250                           | 350  | 400          | 450  | 500 ~ 550 | (at 120Hz) |
|                                                         | Z(-25℃)/Z(+20℃)                                                                                                                                                                                                                           | 3    | 3    | 3                             | 5    | 5            | 6    | 8         |            |
|                                                         | Z(-40℃)/Z(+20℃)                                                                                                                                                                                                                           | 6    | 6    | 6                             | 6    | 6            | 9    | -         |            |
| Endurance                                               | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 8,000 to 10,000 hours at 105℃ (For 2,000 hours at 130℃ 160WV to 450WV) |      |      |                               |      |              |      |           |            |
|                                                         | Capacitance change                                                                                                                                                                                                                        |      |      | ≒ ±20% of the initial value   |      |              |      |           |            |
|                                                         | Dissipation factor(tanδ)                                                                                                                                                                                                                  |      |      | ≒ 200% of the specified value |      |              |      |           |            |
|                                                         | Leakage current                                                                                                                                                                                                                           |      |      | ≒ specified value             |      |              |      |           |            |
| Shelf Life                                              | The following requirements shall be satisfied when the capacitor are restored to 20℃ after the rated voltage applied for 1,000 hours at 105℃ without voltage applied.                                                                     |      |      |                               |      |              |      |           |            |
|                                                         | Capacitance change                                                                                                                                                                                                                        |      |      | ≒ ±20% of the initial value   |      |              |      |           |            |
|                                                         | Dissipation factor(tanδ)                                                                                                                                                                                                                  |      |      | ≒ 200% of the specified value |      |              |      |           |            |
|                                                         | Leakage current                                                                                                                                                                                                                           |      |      | ≒ 200% of the specified value |      |              |      |           |            |

◆ **DIMENSIONS (mm)**



|    |             |     |         |     |      |     |     |
|----|-------------|-----|---------|-----|------|-----|-----|
| ΦD | 5           | 6.3 | 8       | 10  | 12.5 | 16  | 18  |
| ΦD | ΦD +0.5 Max |     |         |     |      |     |     |
| Φd | 0.5         | 0.5 | 0.5/0.6 | 0.6 | 0.6  | 0.8 | 0.8 |
| F  | 2.0         | 2.5 | 3.5     | 5.0 | 5.0  | 7.5 | 7.5 |
| a  | L+2.0 Max   |     |         |     |      |     |     |

◆ **PART NUMBER SYSTEM( Example : 400V 4.7μF )**

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | R | G | 2 | G | 4 | R | 7 | M | 0 | 8 | 1 | 2 | 0 | 0 | Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Sleeve code(Yellow)

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Lead length code

Lead forming Type code

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Size code(0812 : 8×12)Capacitance tolerance code(M:  $\pm 20\%$ )

Capacitance code (4.7μF)

Voltage code(400V)

Series code(RG)

Category code(E)

# RG Series

◆ Case size & Permissible rated ripple current: (mArms) at 100KHz

| Vdc<br>μF | 160     |             |             | 200     |             |             | 250     |             |             | 350     |             |             |
|-----------|---------|-------------|-------------|---------|-------------|-------------|---------|-------------|-------------|---------|-------------|-------------|
|           | ΦD × L  | RC<br>105°C | RC<br>130°C | ΦD × L  | RC<br>105°C | RC<br>130°C | ΦD × L  | RC<br>105°C | RC<br>130°C | ΦD × L  | RC<br>105°C | RC<br>130°C |
| 1.0       | 6.3×9   | 45          | 30          | 6.3×9   | 52          | 40          | 6.3×9   | 52          | 40          | 6.3×9   | 55          | 41          |
| 1.5       | 6.3×9   | 50          | 34          | 6.3×9   | 56          | 42          | 6.3×9   | 56          | 42          | 6.3×9   | 65          | 49          |
| 1.8       | 6.3×9   | 55          | 36          | 6.3×9   | 59          | 46          | 6.3×9   | 68          | 54          | 6.3×9   | 72          | 52          |
| 2.2       | 6.3×9   | 64          | 42          | 6.3×9   | 74          | 55          | 6.3×9   | 86          | 67          | 6.3×12  | 78          | 60          |
| 2.8       | 6.3×9   | 68          | 44          | 6.3×9   | 84          | 64          | 6.3×9   | 94          | 74          | 8×9     | 88          | 66          |
| 3.3       | 6.3×9   | 72          | 47          | 6.3×12  | 96          | 72          | 6.3×12  | 105         | 83          | 8×9     | 95          | 71          |
| 4.7       | 6.3×9   | 76          | 49          | 6.3×12  | 128         | 102         | 8×12    | 154         | 122         | 8×12    | 135         | 108         |
| 5.6       | 8×9     | 88          | 58          | 8×9     | 150         | 120         | 8×12    | 165         | 132         | 8×12    | 140         | 109         |
| 6.8       | 8×9     | 100         | 65          | 8×9     | 158         | 125         | 8×12    | 216         | 162         | 8×16    | 170         | 123         |
| 8.2       | 8×9     | 140         | 95          | 8×12    | 195         | 150         | 8×12    | 245         | 180         | 8×20    | 250         | 164         |
| 10        | 8×9     | 170         | 110         | 8×12    | 240         | 168         | 8×16    | 294         | 205         | 10×16   | 275         | 178         |
| 15        | 8×9     | 230         | 150         | 8×16    | 338         | 235         | 8×16    | 340         | 221         | 10×20   | 380         | 247         |
| 22        | 8×12    | 340         | 221         | 10×16   | 446         | 290         | 10×16   | 462         | 300         | 12.5×20 | 476         | 309         |
| 33        | 10×16   | 520         | 340         | 10×20   | 570         | 370         | 12.5×16 | 585         | 386         | 12.5×20 | 600         | 390         |
| 47        | 10×16   | 570         | 371         | 12.5×20 | 628         | 408         | 12.5×20 | 648         | 420         | 16×20   | 740         | 480         |
| 68        | 12.5×16 | 680         | 442         | 12.5×25 | 760         | 494         | 16×20   | 830         | 540         | 18×25   | 880         | 572         |
| 100       | 12.5×20 | 1100        | 715         | 16×20   | 1060        | 690         | 16×25   | 1030        | 668         | 18×25   | 950         | 620         |
| 150       | 16×20   | 1200        | 780         | 16×25   | 1150        | 885         | 18×25   | 1330        | 865         |         |             |             |
| 220       | 16×25   | 1400        | 910         | 16×30   | 1320        | 1000        |         |             |             |         |             |             |
| 330       | 18×30   | 1655        | 1075        |         |             |             |         |             |             |         |             |             |

| Vdc<br>μF | 400     |             |             | 450     |             |             | 500     |             |             | 550     |             |             |
|-----------|---------|-------------|-------------|---------|-------------|-------------|---------|-------------|-------------|---------|-------------|-------------|
|           | ΦD × L  | RC<br>105°C | RC<br>130°C | ΦD × L  | RC<br>105°C | RC<br>130°C | ΦD × L  | RC<br>105°C | RC<br>130°C | ΦD × L  | RC<br>105°C | RC<br>130°C |
| 1.0       | 6.3×9   | 65          | 59          | 6.3×9   | 68          | 60          |         |             |             |         |             |             |
| 1.5       | 6.3×12  | 75          | 68          | 8×12    | 84          | 74          |         |             |             |         |             |             |
| 1.8       | 8×9     | 78          | 70          | 8×12    | 85          | 75          | 8×16    | 88          | /           |         |             |             |
| 2.2       | 8×9     | 85          | 71          | 8×12    | 88          | 77          | 8×16    | 95          | /           |         |             |             |
| 2.8       | 8×9     | 95          | 75          | 8×16    | 100         | 80          | 8×20    | 110         | /           |         |             |             |
| 3.3       | 8×12    | 120         | 96          | 8×16    | 125         | 100         | 8×20    | 140         | /           |         |             |             |
| 4.7       | 8×12    | 148         | 110         | 8×20    | 155         | 125         | 10×16   | 170         | /           |         |             |             |
| 5.6       | 8×20    | 155         | 117         | 10×16   | 170         | 135         | 10×20   | 180         | /           |         |             |             |
| 6.8       | 10×16   | 200         | 148         | 10×16   | 210         | 140         | 10×20   | 220         | /           |         |             |             |
| 8.2       | 10×16   | 235         | 164         | 10×16   | 242         | 153         | 10×20   | 250         | /           | 12.5×20 | 255         | /           |
| 10        | 10×16   | 288         | 187         | 10×25   | 300         | 192         | 12.5×20 | 310         | /           | 12.5×25 | 338         | /           |
| 15        | 12.5×16 | 400         | 260         | 12.5×20 | 410         | 270         | 12.5×25 | 426         | /           | 12.5×30 | 470         | /           |
| 22        | 12.5×20 | 490         | 318         | 12.5×25 | 500         | 325         | 16×20   | 520         | /           | 18×20   | 550         | /           |
| 33        | 16×20   | 560         | 364         | 16×25   | 600         | 447         | 18×20   | 628         | /           | 18×25   | 645         | /           |
| 47        | 16×25   | 700         | 455         | 16×30   | 780         | 532         | 18×25   | 810         | /           | 18×30   | 830         | /           |
| 56        | 18×20   | 775         | 506         | 18×25   | 820         | 535         | 18×30   | 850         | /           | 18×35   | 880         | /           |
| 68        | 18×25   | 835         | 543         | 18×30   | 890         | 585         | 18×35   | 910         | /           | 18×40   | 935         | /           |
| 82        | 18×25   | 930         | 608         | 18×35   | 1060        | 696         | 18×40   | 1120        | /           | 18×45   | 1160        | /           |
| 100       | 18×30   | 1090        | 708         | 18×35   | 1150        | 722         | 18×45   | 1230        | /           | 18×50   | 1380        | /           |

## ◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

| Vdc       | Frequency (Hz) |      |      |      |      |
|-----------|----------------|------|------|------|------|
|           | 50             | 120  | 1K   | 10K  | 100K |
| 160 ~ 550 | 0.45           | 0.50 | 0.80 | 0.90 | 1.00 |