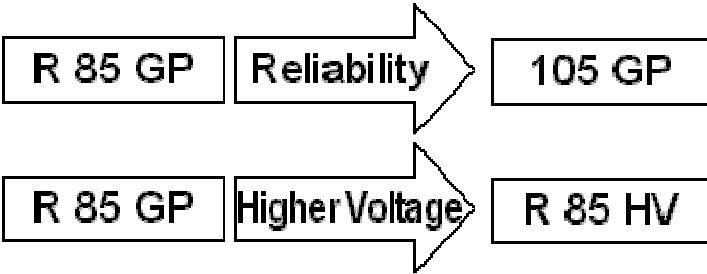


# R 85 GP 85°C General Purpose

## Features

- Standard low voltage used for general purpose
- Low impedance characteristics
- Safety vent construction for case diameter  $\geq 8\text{mm}$

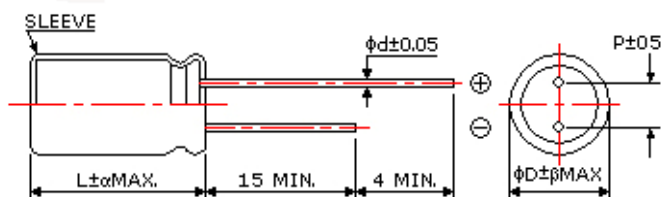


## Specifications

| Item  | Electrical Characteristics  |                                   |      |      |      |                                    |      |      |      |     |
|---|---|-----------------------------------|------|------|------|------------------------------------|------|------|------|-----|
|   | R 85 GP   |                                   |      |      |      |                                    |      |      |      |     |
| Life  | 2000 Hours at 85°C  |                                   |      |      |      |                                    |      |      |      |     |
| Operating Temp. Range                         | -40°C to +85°C  |                                   |      |      |      |                                    |      |      |      |     |
| Capacitance Tolerance                         | ±10% (K)      ± 20% (M)      (at 20°C, 120Hz)   |                                   |      |      |      |                                    |      |      |      |     |
| Leakage Current<br>(µA Max. at 20°C)          | I = 0.01 CV or 3µA whichever is greater (for $\phi D \leq 18\text{mm}$ )<br>(After 2 minutes application of rated DC working voltage at 20°C)<br>I = $3\sqrt{CV}$ (for $\phi D > 18\text{mm}$ )<br>(After 5 minutes application of rated W.V. at 20°C)<br>I=Leakage Current (µA)    C=Rated Capacitance (µF)    V=Rated Voltage (V) |                                   |      |      |      |                                    |      |      |      |     |
| Dissipation Factor<br>(tan δ, at 20°C, 120Hz) | Rated Voltage   | 6.3                               | 10   | 16   | 25   | 35                                 | 50   | 63   | 100  |     |
|   | Tan δ(Max.)   | 0.24                              | 0.20 | 0.17 | 0.15 | 0.12                               | 0.10 | 0.09 | 0.08 |     |
|   | For capacitors with capacitance exceed 1000µF, the specification of tan δ is increased by 0.02 for each additional 1000µF   |                                   |      |      |      |                                    |      |      |      |     |
| Temperature Characteristics<br>(at 120Hz)     | Rated Voltage   |                                   | 6.3  | 10   | 16   | 25                                 | 35   | 50   | 63   | 100 |
|   | Impedance Z(-25°C) / Z(+20°C)   |                                   | 6    | 4    | 3    | 2                                  | 2    | 2    | 2    | 2   |
| Life Test                                     | Test Time   | 2000 Hrs                          |      |      |      | 1000 Hrs                           |      |      |      |     |
| 1. Load Life                                  | Test Item   | Load Life                         |      |      |      | Shelf Life                         |      |      |      |     |
| (after applying rated voltage at 85°C)        | Leakage Current   | within the specified value        |      |      |      | not exceed 200% of specified value |      |      |      |     |
| 2. Shelf Life                                 | Dissipation Factor  | less than 200% of specified value |      |      |      |                                    |      |      |      |     |
| (no voltage applied at 85°C 1000 hours)       | Capacitance   | within ±20% of the initial value  |      |      |      |                                    |      |      |      |     |

|   |  |             |        |      |      |      |      |      |
|---|--|-------------|--------|------|------|------|------|------|
| <b>Ripple Current Multiplier of Frequency Coefficient</b>   | Frequency (Hz)                                     |             | 60(50) | 120  | 300  | 1K   | 10K  | 100K |
|   | Capacitance (μF)                                   | <100        | 0.75   | 1.00 | 1.35 | 1.57 | 2.00 | 2.50 |
|   |  | 100 to 1000 | 0.80   | 1.00 | 1.23 | 1.34 | 1.50 | 1.50 |
| <b>Ripple Current Multiplier of Temperature Coefficient</b> | Temperature (°C)                                   |             | 45     |      | 70   |      | 85   |      |
|   | Multiplier   |             | 1.78   |      | 1.30 |      | 1.00 |      |
| <b>Reference Standard</b>                                   | Characteristics W of JIS C - 5141 and JIS C - 5102 |             |        |      |      |      |      |      |

### Diagram of Dimensions



### Lead Spacing and Diameter

| $\phi D$ | 5   | 6   | 8   | 10  | 13 | 16  | 18  | 22   |
|----------|-----|-----|-----|-----|----|-----|-----|------|
| P        | 2.0 | 2.5 | 3.5 | 5.0 |    | 7.5 |     | 10.5 |
| $\phi d$ |     | 0.5 |     | 0.6 |    |     | 0.8 |      |
| $\alpha$ |     |     | 1.5 |     |    |     | 2.0 |      |
| $\beta$  |     |     | 0.5 |     |    |     | 1.0 |      |

Unit: mm

### Dimension & Permissible Ripple Current

Dimension:  $\phi D \times L$  (mm)

Ripple current (mA/rms) at 85°C, 120Hz

| Cap. Code | W.V.      | 6.3               |      | 10                |      | 16                |      | 25                |      |
|-----------|-----------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|
|           | V. Code   | (006)             |      | (010)             |      | (016)             |      | (025)             |      |
|           | μF / Dim. | $\phi D \times L$ | mA   | $\phi D \times L$ | mA   | $\phi D \times L$ | mA   | $\phi D \times L$ | mA   |
| 106       | 10        |                   |      |                   |      | 5x11              | 44   | 5x11              | 54   |
| 226       | 22        |                   |      |                   |      | 5x11              | 79   | 5x11              | 96   |
| 336       | 33        |                   |      | 5x11              | 84   | 5x11              | 92   | 5x11              | 110  |
| 476       | 47        |                   |      | 5x11              | 100  | 5x11              | 110  | 5x11              | 130  |
| 107       | 100       |                   |      | 5x11              | 170  | 6x11              | 180  | 6x11              | 185  |
| 227       | 220       | 5x11              | 240  | 6x11              | 270  | 6x11              | 305  | 8x12              | 330  |
| 337       | 330       | 6x11              | 300  | 6x11              | 330  | 8x12              | 375  | 10x13             | 470  |
| 477       | 470       | 6x11              | 380  | 8x12              | 430  | 8x12              | 470  | 10x13             | 540  |
| 108       | 1000      | 8x12              | 580  | 10x13             | 630  | 10x16             | 790  | 10x21             | 950  |
| 228       | 2200      | 10x21             | 1050 | 10x21             | 1100 | 13x21             | 1350 | 13x26             | 1550 |
| 338       | 3300      | 13x21             | 1250 | 13x21             | 1400 | 13x26             | 1700 | 16x25             | 1950 |
| 478       | 4700      | 13x26             | 1700 | 13x26             | 1800 | 16x25             | 2100 | 16x32             | 2360 |
| 688       | 6800      | 13x26             | 1900 | 16x25             | 2150 | 16x36             | 2500 | 18x36             | 2550 |
| 109       | 10000     | 16x32             | 2320 | 18x36             | 2650 | 18x36             | 2700 | 22x40             | 2850 |
| 129       | 12000     | 16x36             | 2450 | 18x36             | 2860 | 22x40             | 2980 | 22x40             | 3100 |
| 159       | 15000     | 18x36             | 2880 | 18x36             | 2900 | 22x40             | 3150 | 22x40             | 3250 |
| 189       | 18000     | 18x36             | 3060 | 18x40             | 3120 | 22x40             | 3450 |                   |      |
| 229       | 22000     | 18x40             | 3650 | 22x40             | 3700 | 22x40             | 3800 |                   |      |

| Cap.<br>Code | W.V.       | 35    |      | 50    |      | 63    |      | 100   |      |
|--------------|------------|-------|------|-------|------|-------|------|-------|------|
|              | V. Code    | (035) |      | (050) |      | (063) |      | (100) |      |
|              | μF<br>Dim. | φDxL  | mA   | φDxL  | mA   | φDxL  | mA   | φDxL  | mA   |
| 104          | 0.1        |       |      | 5x11  | 1.3  |       |      | 5x11  | 2.6  |
| 224          | 0.22       |       |      | 5x11  | 2.9  |       |      | 5x11  | 5.8  |
| 334          | 0.33       |       |      | 5x11  | 4.4  |       |      | 5x11  | 8.8  |
| 474          | 0.47       |       |      | 5x11  | 7    |       |      | 5x11  | 12   |
| 105          | 1          |       |      | 5x11  | 13   |       |      | 5x11  | 22   |
| 225          | 2.2        |       |      | 5x11  | 29   |       |      | 5x11  | 33   |
| 335          | 3.3        |       |      | 5x11  | 35   |       |      | 5x11  | 42   |
| 475          | 4.7        |       |      | 5x11  | 42   | 5x11  | 48   | 6x11  | 53   |
| 106          | 10         | 5x11  | 60   | 5x11  | 69   | 5x11  | 74   | 6x11  | 80   |
| 226          | 22         | 5x11  | 100  | 5x11  | 105  | 6x11  | 115  | 8x12  | 135  |
| 336          | 33         | 5x11  | 115  | 6x11  | 125  | 6x11  | 140  | 10x13 | 180  |
| 476          | 47         | 5x11  | 140  | 6x11  | 150  | 8x12  | 190  | 10x16 | 240  |
| 107          | 100        | 8x12  | 240  | 8x12  | 250  | 10x13 | 320  | 10x21 | 400  |
| 227          | 220        | 10x13 | 420  | 10x16 | 460  | 10x16 | 490  | 13x26 | 710  |
| 337          | 330        | 10x13 | 490  | 10x16 | 585  | 10x21 | 680  | 16x25 | 900  |
| 477          | 470        | 10x21 | 740  | 13x21 | 860  | 13x26 | 950  | 16x32 | 1250 |
| 108          | 1000       | 13x21 | 1100 | 13x26 | 1350 | 16x25 | 1550 | 18x40 | 1750 |
| 228          | 2200       | 16x25 | 1800 | 16x36 | 2090 | 18x40 | 2200 | 22x40 | 2300 |
| 338          | 3300       | 16x36 | 2220 | 18x40 | 2400 | 22x40 | 2560 |       |      |
| 478          | 4700       | 18x36 | 2400 | 22x40 | 2800 |       |      |       |      |
| 688          | 6800       | 22x40 | 2800 |       |      |       |      |       |      |