

# GC Series

## Standard Chip Type Series 85°C

### Features

- Designed for surface mounting on high density PC board.
- Supplied with carrier taping for automatic mounting machine.
- Guarantees 1000Hours at 85°C.

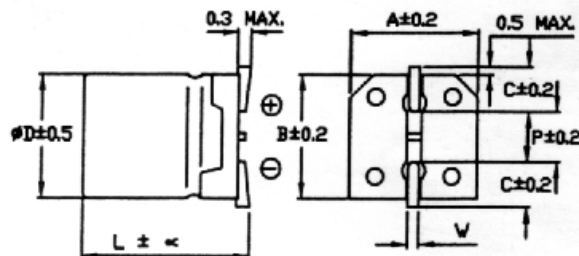
### Specifications

| Items                                                                        | Performance Characteristics                                                                                             |                                                                                     |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|
| Operating Temperature Rang                                                   | -40 to +85°C                                                                                                            |                                                                                     |      |      |      |      |      |      |      |      |
| Working Voltage Range                                                        | 4~100V                                                                                                                  |                                                                                     |      |      |      |      |      |      |      |      |
| Capacitance Range                                                            | 0.1~1500 $\mu$ F                                                                                                        |                                                                                     |      |      |      |      |      |      |      |      |
| Capacitance Tolerance                                                        | $\pm 20\%$ (120 Hz, 20°C)                                                                                               |                                                                                     |      |      |      |      |      |      |      |      |
| Leakage Current Max.                                                         | 1<0.01 CV or 3 ( $\mu$ A) whichever is greater (after 2 min.)                                                           |                                                                                     |      |      |      |      |      |      |      |      |
| Dissipation Factor (tan $\delta$ )<br><br>(120Hz, +20°C)                     | W.V.                                                                                                                    | 4                                                                                   | 6.3  | 10   | 16   | 25   | 35   | 50   | 63   | 100  |
|                                                                              | $\phi$ 3                                                                                                                | 0.40                                                                                | 0.30 | —    | 0.19 | 0.16 | 0.14 | 0.14 | —    | —    |
|                                                                              | $\phi$ 4~6.3                                                                                                            | 0.35                                                                                | 0.26 | 0.20 | 0.16 | 0.14 | 0.12 | 0.12 | 0.12 | 0.10 |
|                                                                              | $\phi$ 8~10                                                                                                             | —                                                                                   | 0.30 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.12 | 0.10 |
| Low Temp. Characteristics<br>(Impedance ratio at 120 Hz)                     | W.V.                                                                                                                    | 4                                                                                   | 6.3  | 10   | 16   | 25   | 35   | 50   | 63   | 100  |
|                                                                              | Z -25°C/ Z +25°C                                                                                                        | 7                                                                                   | 4    | 3    | 2    | 2    | 2    | 2    | 2    | 2    |
|                                                                              | Z -40°C/ Z +20°C                                                                                                        | 5                                                                                   | 8    | 8    | 4    | 4    | 3    | 3    | 3    | 3    |
| Load Life<br>(After application of the rated voltage for 1000 hours at 85°C) | Capacitance Change                                                                                                      | Within $\pm 25^{\circ}\text{C}$ of initial value. (4WV < $\pm 30^{\circ}\text{C}$ ) |      |      |      |      |      |      |      |      |
|                                                                              | tan $\delta$                                                                                                            | Less than 200% of initial specified value.                                          |      |      |      |      |      |      |      |      |
|                                                                              | Leakage Current                                                                                                         | Less than specified value.                                                          |      |      |      |      |      |      |      |      |
| Shelf Lif (at 85°C)                                                          | After 1000 hrs. no load fast, leakage current, capacitance change and tan $\delta$ are as same as load life value.      |                                                                                     |      |      |      |      |      |      |      |      |
| Soldering Heat Resistance                                                    | Place terminal side surface on 250°C hot plate for 30 seconds allow test samples to be cooled down to room temperature. |                                                                                     |      |      |      |      |      |      |      |      |
|                                                                              | Capacitance Change                                                                                                      | Withen $\pm 10^{\circ}\text{C}$ of initial value.                                   |      |      |      |      |      |      |      |      |
|                                                                              | tan $\delta$                                                                                                            | Less then initial specified value.                                                  |      |      |      |      |      |      |      |      |
|                                                                              | Leakage Current                                                                                                         | Less then initial specified value.                                                  |      |      |      |      |      |      |      |      |

Unit = mm

| $\phi D \pm 0.5 \text{Max.}$ | L    | a   | A $\pm 0.2$ | B $\pm 0.2$ | C $\pm 0.2$ | W         | P $\pm 0.2$ |
|------------------------------|------|-----|-------------|-------------|-------------|-----------|-------------|
| 3                            | 5.7  | 0.3 | 3.3         | 3.3         | 1.5         | 0.45~0.75 | 0.6         |
| 4                            | 5.2  | 0.3 | 4.3         | 4.3         | 1.8         | 0.5~0.8   | 1.0         |
| 4                            | 6.0  | 0.3 | 4.3         | 4.3         | 1.8         | 0.5~0.8   | 1.0         |
| 5                            | 5.2  | 0.3 | 5.3         | 5.3         | 2.1         | 0.5~0.8   | 1.4         |
| 6.3                          | 5.2  | 0.3 | 6.6         | 6.6         | 2.4         | 0.5~0.8   | 2.2         |
| 6.3                          | 6.0  | 0.3 | 6.6         | 6.6         | 2.4         | 0.5~0.8   | 2.2         |
| 6.3                          | 7.7  | 0.3 | 6.6         | 6.6         | 2.4         | 0.5~0.8   | 2.2         |
| 8                            | 10.5 | 0.5 | 8.3         | 8.3         | 2.9         | 0.7~1.0   | 3.2         |
| 10                           | 10.5 | 0.5 | 10.3        | 10.3        | 3.2         | 0.7~1.0   | 4.6         |

Diagram of Dimensions



Dimensions & Maximum Permissible Ripple Current mA (rms) at 120Hz, 85°C

| W.V.<br>$\mu$ F | 4           | 6.3         | 10           | 16          | 25           | 35          | 50           | 63          | 100         |
|-----------------|-------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|-------------|
| 0.1             |             |             |              |             |              |             | 4×5.2 1.0    | 4×5.2 1.0   |             |
| 0.22            |             |             |              |             |              |             | 4×5.2 2.0    | 4×5.2 2.3   |             |
| 0.33            |             |             |              |             |              |             | 4×5.2 2.8    | 4×5.2 3.5   |             |
| 0.47            |             |             |              |             |              |             | 4×5.2 4.0    | 4×5.2 5.0   |             |
| 1               |             |             |              |             |              |             | 4×5.2 8(8.0) | 4×5.2 10    | 4×6.0 10    |
| 2.2             |             |             |              |             |              | *           | 4×5.2 13(10) | 4×5.2 15    | 6.3×6.0 20  |
| 3.3             |             |             |              |             |              | *           | 4×5.2 17     | 5×5.2 20    | 6.3×6.0 28  |
| 4.7             |             |             |              |             | 4×5.2 16(12) | 4×5.2 18    | 5×5.2 20     | 5×5.2 23    | 6.3×6.0 35  |
| 10              |             |             |              | 25(19)      | 5×5.2 27     | 5×5.2 29    | 6.3×5.2 33   | 6.3×5.2 34  | 6.3×7.7 50  |
| 22              | *           | (19)        | 4×5.2 31(19) | 5×5.2 33    | 4×5.2 37     | 6.3×5.2 42  | 6.3×5.2 46   | 6.3×6.0 45  | 6.3×7.7 70  |
| 33              | 4×5.2 28    | 5×5.2 37    | 5×5.2 41     | 5×5.2 49    | 6.3×5.2 52   | 6.3×5.2 60  | 6.3×7.7 85   | 8×10.5 160  | 10×10.5 190 |
| 47              | 4×5.2 33    | 5×5.2 45    | 6.3×5.2 52   | 6.3×5.2 58  | 6.3×6.0 68   | 6.3×6.0 82  | 6.3×7.7 90   | 8×10.5 170  |             |
| 56              | 5×5.2 42    | 5×5.2 54    | 6.3×5.2 68   | 6.3×5.2 74  | 6.3×6.0 82   | 6.3×6.0 80  | 6.3×7.7 110  | 8×10.5 200  |             |
| 68              | 5×5.2 45    | 6.3×5.2 62  | 6.3×5.2 72   | 6.3×5.2 80  | 6.3×6.0 94   | 6.3×6.0 110 | 8×10.5 170   | 10×10.5 230 |             |
| 100             | 5×5.2 56    | 6.3×5.2 70  | 6.3×5.2 76   | 6.3×5.2 86  | 6.3×7.7 130  | 6.3×7.7 120 | 8×10.5 200   | 10×10.5 280 |             |
| 150             | 6.3×5.2 74  | 6.3×5.2 78  | 6.3×6.0 88   | 6.3×7.5 135 | 8×10.5 200   | 8×10.5 220  | 10×10.5 240  |             |             |
| 220             | 6.3×5.2 82  | 6.3×6.0 95  | 6.3×7.7 150  | 6.3×7.7 150 | 8×10.5 250   | 8×10.5 270  | 10×10.5 320  |             |             |
| 330             | 6.3×6.0 102 | 6.3×7.7 150 | 8×10.5 250   | 8×10.5 280  | 8×10.5 310   | 10×10.5 340 |              |             |             |
| 470             | 6.3×7.7 150 | 8×10.5 270  | 8×10.5 300   | 8×10.5 330  | 10×10.5 430  |             |              |             |             |
| 680             |             | 8×10.5 320  | 10×10.5 380  | 10×10.5 390 |              |             |              |             |             |
| 1,000           |             | 8×10.5 330  | 10×10.5 450  |             |              |             |              |             |             |
| 1,500           |             | 10×10.5 450 |              |             |              |             |              |             |             |