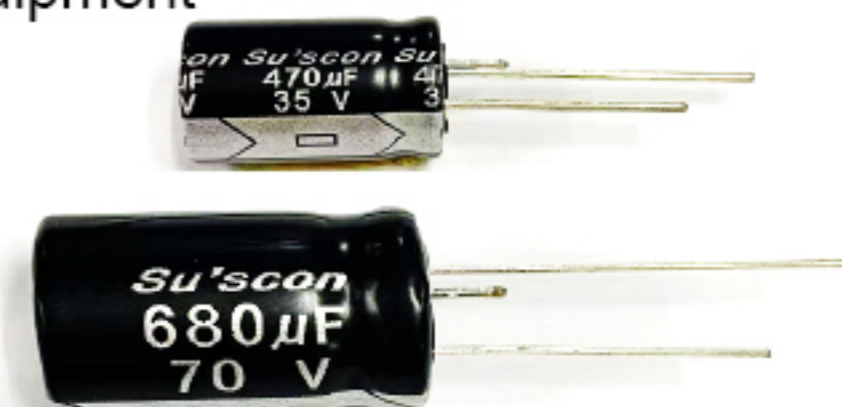


# SHG series

- 125°C, 5000 hours long life product. (4000 hours: 63V to 100V)
- Best-suited to smoothing circuits and control circuits for industrial equipment power supplies of which long life and high reliability are required.
- NC terminal added items are lineup for vibration resistance. (30G guaranteed: 20mm L or less)
- RoHS Compliance
- 125°C 5000 小时 (4000 小时: 63V to 100V) 產品
- 適用於要求長壽命和高可靠性的工業設備電源的平滑電路和控制電路
- NC端子增加的項目為抗振系列。(保證30G: 20mm L 以下)



## SPECIFICATIONS

| Items 項目  | Characteristics 特性  |   |      |      |      |      |      |      |      |
|---|---|---|------|------|------|------|------|------|------|
| Capacitance Tolerance<br>靜電容量誤差   | ± 20% (120Hz, 20°C)   |   |      |      |      |      |      |      |      |
| Operating Temperature Range<br>適用溫度範圍   | - 40 ~ +125°C   |   |      |      |      |      |      |      |      |
| Rated Voltage Range<br>額定電壓範圍   | 10~100VDC   |   |      |      |      |      |      |      |      |
| Leakage Current<br>洩漏電流   | I ≤ 0.01CV or 3 (µA) which is greater. (After 2 minutes application of DC rated voltage, at 20 °C)  |   |      |      |      |      |      |      |      |
| Dissipation Factor<br>散逸因素 (tan δ)  | Measurement Frequency: 120Hz. Temperature: 20°C   |   |      |      |      |      |      |      |      |
|   | Rated Voltage(V)  | 10                                      | 16   | 25   | 35   | 50   | 63   | 80   | 100  |
|   | tan δ (Max)   | 0.20                                    | 0.16 | 0.14 | 0.12 | 0.10 | 0.10 | 0.08 | 0.08 |
| When nominal capacitance over 1000µF, tanδ shall be added 0.02 to the listed value with increase of every 1000µF. |   |   |      |      |      |      |      |      |      |
| Low Temperature Stability<br>低溫特性<br>Impedance Ratio(Max)<br>阻抗比率(最大值)  | Measurement Frequency: 120Hz.   |   |      |      |      |      |      |      |      |
|   | Rated Voltage(V)  | 10                                      | 16   | 25   | 35   | 50   | 63   | 80   | 100  |
|   | Z(-40°C) / Z(20°C)  | 4                                       | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
| Load Life 負荷壽命  | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied for 5,000 hours (63~100V, 4000 hours) at 125°C.   |   |      |      |      |      |      |      |      |
|   | Capacitance Change  | within ±30% of Initial Value            |      |      |      |      |      |      |      |
|   | tan δ   | 300% or less of Initial Specified Value |      |      |      |      |      |      |      |
|   | Leakage Current   | Initial Specified Value or less         |      |      |      |      |      |      |      |
| Shelf Life 放置壽命   | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours 125°C without voltage applied. Before the measurement. The Capacitance shall be preconditioned by applying voltage according to them 4.1 of JIS C5101-4. |   |      |      |      |      |      |      |      |
|   | Capacitance Change  | within ±30% of Initial Value            |      |      |      |      |      |      |      |
|   | tan δ   | 300% or less of Initial Specified Value |      |      |      |      |      |      |      |
|   | Leakage Current   | Initial Specified Value or less         |      |      |      |      |      |      |      |
| Standards 參照標準  | JIS C 5101-4-1 (IEC 60384)  |   |      |      |      |      |      |      |      |

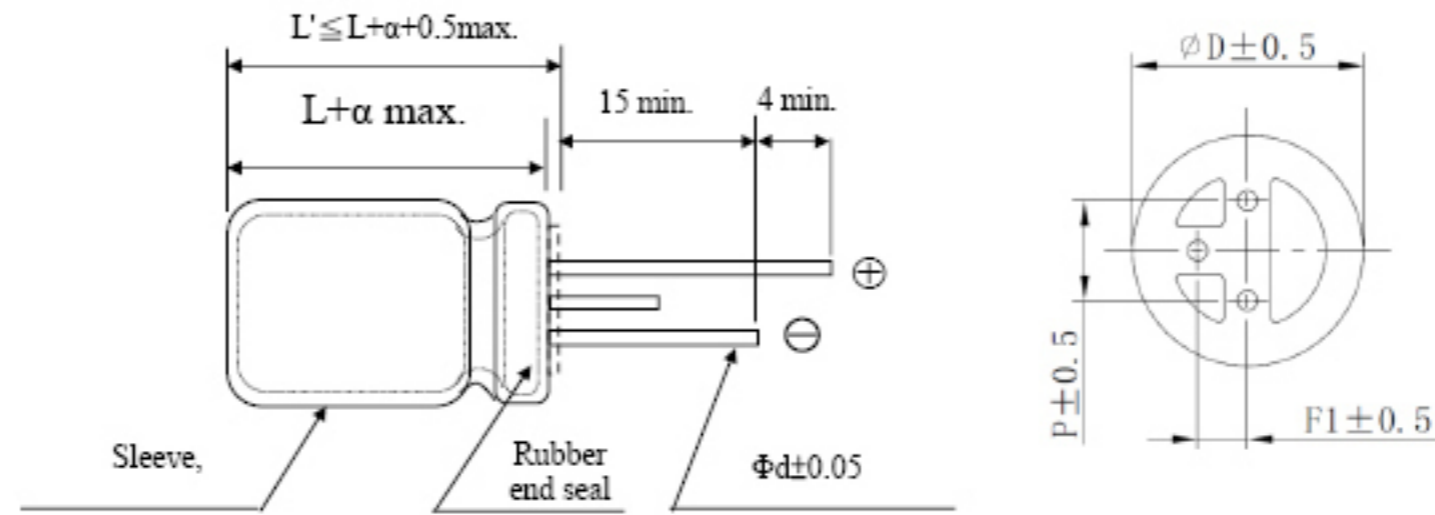
## Frequency Coefficient of Permissible Ripple Current

| Capacitance (µF) | Frequency (Hz) |      |      |          |
|------------------|----------------|------|------|----------|
|                  | 50~60          | 120  | 1K   | 10K~100K |
| 220~330          | 0.55           | 0.65 | 0.85 | 1.00     |
| 390~1000         | 0.70           | 0.75 | 0.90 | 1.00     |
| 1200~8200        | 0.80           | 0.85 | 0.95 | 1.00     |

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.

# SHG series

## DIMENSIONS(mm)



|          |      |      |      |     |
|----------|------|------|------|-----|
| $\phi D$ | 12.5 | 16   | 18   | 20  |
| P        | 5.0  | 7.5  | 7.5  | 10  |
| F1       | 2.5  | 3.75 | 3.75 | 5   |
| $\alpha$ | 2.0  | 2.0  | 2.0  | 2.0 |
| $\phi d$ | 0.8  | 0.8  | 0.8  | 1.0 |

## STANDARD RATINGS

DxL(mm), R.C.(mA rms) at 125°C 100 KHz.IMP:( $\Omega$  max) at 20°C,100KHz.

| Cap<br>( $\mu F$ ) | V<br>(Code)<br>Item | 10    |       |         | 16    |       |         | 25    |       |         | 35      |       |         |      |       |         |      |       |
|--------------------|---------------------|-------|-------|---------|-------|-------|---------|-------|-------|---------|---------|-------|---------|------|-------|---------|------|-------|
|                    |                     | D x L | R.C.  | IMP     | D x L | R.C.  | IMP     | D x L | R.C.  | IMP     | D x L   | R.C.  | IMP     |      |       |         |      |       |
| 470                | -                   | -     | -     | -       | -     | -     | -       | -     | -     | -       | 12.5x20 | 1830  | 0.055   |      |       |         |      |       |
| 1000               | 12.5x15             | 1390  | 0.077 | 12.5x20 | 1830  | 0.052 | 12.5x20 | 1830  | 0.052 | 12.5x25 | 2410    | 0.042 |         |      |       |         |      |       |
|                    |                     |       |       | 16x16   | 1940  | 0.057 | 12.5x25 | 2410  | 0.042 | 12.5x25 | 3100    | 0.031 |         |      |       |         |      |       |
| 1200               | -                   | -     | -     | -       | -     | -     | 12.5x20 | 1830  | 0.052 | 16x16   | 1940    | 0.057 | 16x16   | 2490 | 0.038 |         |      |       |
|                    |                     |       |       |         |       |       |         |       |       | 12.5x30 | 2570    | 0.038 | 16x20   | 2290 | 0.042 |         |      |       |
| 1500               | -                   | -     | -     | -       | -     | -     | -       | -     | -     | 12.5x35 | 2980    | 0.030 | 12.5x35 | 2980 | 0.030 |         |      |       |
|                    |                     |       |       |         |       |       |         |       |       | 16x31.5 | 3160    | 0.026 | 16x31.5 | 3160 | 0.026 |         |      |       |
|                    |                     |       |       |         |       |       |         |       |       | 18x25   | 3200    | 0.029 | 18x25   | 3200 | 0.029 |         |      |       |
| 1800               | -                   | -     | -     | -       | -     | -     | 12.5x25 | 2410  | 0.042 | 12.5x25 | 2410    | 0.042 | 12.5x25 | 2410 | 0.042 |         |      |       |
|                    |                     |       |       |         |       |       | 16x20   | 2290  | 0.042 | 16x20   | 2290    | 0.042 | 12.5x30 | 2570 | 0.038 | 12.5x30 | 2570 | 0.038 |
| 2200               | 12.5x25             | 2410  | 0.042 | 12.5x25 | 2410  | 0.042 | 12.5x30 | 2570  | 0.038 | 16x25   | 3100    | 0.031 | 16x25   | 3100 | 0.031 |         |      |       |
|                    |                     |       |       |         |       |       |         |       |       | 16x20   | 2280    | 0.042 | 16x25   | 3100 | 0.031 | 16x25   | 3100 | 0.031 |
|                    |                     |       |       |         |       |       |         |       |       | 18x16   | 2170    | 0.053 | 18x20   | 2490 | 0.038 | 16x25   | 3100 | 0.031 |
| 2700               | -                   | -     | -     | -       | -     | -     | 12.5x35 | 2980  | 0.030 | 12.5x35 | 2980    | 0.030 | 16x35.5 | 3590 | 0.025 |         |      |       |
|                    |                     |       |       |         |       |       | 16x25   | 3100  | 0.031 | 16x25   | 3100    | 0.031 | 18x31.5 | 3410 | 0.023 |         |      |       |
|                    |                     |       |       |         |       |       | 18x20   | 2490  | 0.038 | 18x20   | 2490    | 0.038 | 20x25   | 3500 | 0.029 |         |      |       |
| 3300               | 16x25               | 3100  | 0.031 | 16x31.5 | 3160  | 0.026 | 12.5x40 | 3600  | 0.026 | 16x40   | 4300    | 0.022 | 16x40   | 4300 | 0.022 |         |      |       |
|                    |                     |       |       |         |       |       |         |       |       | 18x20   | 2490    | 0.038 | 18x25   | 3200 | 0.029 | 18x35.5 | 4000 | 0.022 |
|                    |                     |       |       |         |       |       |         |       |       | 16x31.5 | 3160    | 0.026 | 16x31.5 | 3160 | 0.026 | 20x30   | 4000 | 0.025 |
| 3900               | -                   | -     | -     | -       | -     | -     | 16x35.5 | 3590  | 0.025 | 16x35.5 | 3590    | 0.025 | -       | -    | -     |         |      |       |
|                    |                     |       |       |         |       |       | 18x25   | 3200  | 0.029 | 18x25   | 3200    | 0.029 | -       | -    | -     |         |      |       |
| 4700               | 16x31.5             | 3160  | 0.026 | 16x35.5 | 3590  | 0.025 | 18x35.5 | 4200  | 0.022 | 18x40   | 4600    | 0.021 | 18x40   | 4600 | 0.021 |         |      |       |
|                    |                     |       |       |         |       |       |         |       |       | 18x25   | 3200    | 0.029 | 18x31.5 | 3410 | 0.023 | 20x25   | 3500 | 0.029 |
| 5600               | -                   | -     | -     | -       | -     | -     | 16x40   | 4300  | 0.022 | 16x40   | 4300    | 0.022 | 20x40   | 5100 | 0.020 |         |      |       |
|                    |                     |       |       |         |       |       | 18x35.5 | 4200  | 0.022 | 18x35.5 | 4200    | 0.022 |         |      |       |         |      |       |
|                    |                     |       |       |         |       |       | 20x30   | 4000  | 0.025 | 20x30   | 4000    | 0.025 |         |      |       |         |      |       |
| 6800               | -                   | -     | -     | -       | -     | -     | 18x40   | 4600  | 0.021 | 18x40   | 4600    | 0.021 | -       | -    | -     |         |      |       |
|                    |                     |       |       |         |       |       | 20x35.5 | 4700  | 0.021 | 20x35.5 | 4700    | 0.021 | -       | -    | -     |         |      |       |
| 8200               | -                   | -     | -     | -       | -     | -     | 20x40   | 5100  | 0.020 | 20x40   | 5100    | 0.020 | -       | -    | -     |         |      |       |

| Cap<br>( $\mu F$ ) | V<br>(Code)<br>Item | 50    |       |         | 63    |       |         | 80    |       |         | 100   |       |       |
|--------------------|---------------------|-------|-------|---------|-------|-------|---------|-------|-------|---------|-------|-------|-------|
|                    |                     | D x L | R.C.  | IMP     | D x L | R.C.  | IMP     | D x L | R.C.  | IMP     | D x L | R.C.  | IMP   |
| 220                | -                   | -     | -     | -       | -     | -     | -       | -     | -     | -       | 16x20 | 1110  | 0.286 |
| 330                | -                   | -     | -     | -       | -     | -     | -       | -     | -     | -       | 16x25 | 1460  | 0.165 |
| 470                | 12.5x20             | 1500  | 0.091 | -       | -     | -     | 16x25   | 1500  | 0.151 | 16x35.5 | 2000  | 0.100 |       |
| 560                | -                   | -     | -     | -       | -     | -     | 18x25   | 1600  | 0.13  | 16x40   | 2200  | 0.090 |       |
| 820                | 12.5x30             | 2150  | 0.049 | 16x31.5 | 1910  | 0.104 | 18x35.5 | 2180  | 0.081 | 18x40   | 2330  | 0.077 |       |
| 1000               | 16x25               | 2620  | 0.04  | 16x35.5 | 2110  | 0.086 | 18x40   | 2470  | 0.066 | -       | -     | -     |       |
| 1800               | 18x31.5             | 3140  | 0.033 | -       | -     | -     | -       | -     | -     | -       | -     | -     |       |
| 2200               | 18x35.5             | 3510  | 0.029 | -       | -     | -     | -       | -     | -     | -       | -     | -     |       |

※ 13mm may be replaced by 12.5mm upon customer's request.

SHG