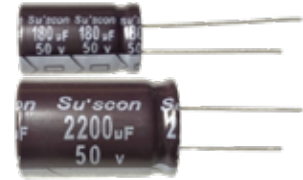


## SG series

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- High ripple current Very Low impedance at High frequency range.
- 2000~5000 hours Long life at 105°C .
- RoHS Compliance
- 高紋波電流、高頻超低阻抗。
- 105°C 2000~5000小時長壽命產品。



## 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 ~ +105°C                                                                                                                                                                                                                                                                        |      |                                         |      |      |      |      |       |      |
| Rated Voltage Range<br>額定電壓範圍                                          | 6.3 ~ 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)                                                                                                                                                                                                                                                                     | 6.3  | 10                                      | 16   | 25   | 35   | 50   | 63~80 | 100  |
|                                                                        | tan δ(Max)                                                                                                                                                                                                                                                                           | 0.22 | 0.19                                    | 0.16 | 0.14 | 0.12 | 0.10 | 0.09  | 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)                                                                                                                                                                                                                                                                     | 6.3  | 10                                      | 16   | 25   | 35   | 50   | 63~80 | 100  |
|                                                                        | Z(-25°C)/Z(20°C)                                                                                                                                                                                                                                                                     | 2    | 2                                       | 2    | 2    | 2    | 2    | 2     | 2    |
|                                                                        | Z(-40°C)/Z(20°C)                                                                                                                                                                                                                                                                     | 3    | 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 (ΦD≤6.3:2,000 hours;ΦD=8:3,000 hours;ΦD=10:4,000 hours) at 105°C.                                    |      |                                         |      |      |      |      |       |      |
|                                                                        | Capacitance Change                                                                                                                                                                                                                                                                   |      | within ±25% of Initial Value            |      |      |      |      |       |      |
|                                                                        | tan δ                                                                                                                                                                                                                                                                                |      | 200% 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 1,000hours 105°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 ± 20% of Initial Value           |      |      |      |      |       |      |
|                                                                        | tan δ                                                                                                                                                                                                                                                                                |      | 200% or less of Initial Specified Value |      |      |      |      |       |      |
|                                                                        | Leakage Current                                                                                                                                                                                                                                                                      |      | Initial Specified Value or less         |      |      |      |      |       |      |
| Standards 參照標準                                                         | IEC 60384-4(JIS C5101-4)                                                                                                                                                                                                                                                             |      |                                         |      |      |      |      |       |      |

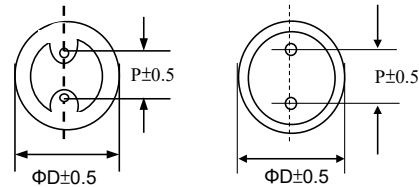
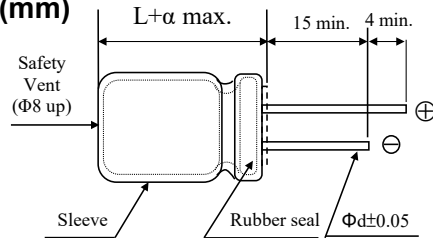
## Frequency Coefficient of Permissible Ripple Current

| Capacitance (µF) | Frequency (Hz) |      |      |      |      |
|------------------|----------------|------|------|------|------|
|                  | 50             | 120  | 1K   | 10K  | 100K |
| ≤ 33             | 0.35           | 0.40 | 0.75 | 0.90 | 1.00 |
| 47 ~ 330         | 0.45           | 0.50 | 0.85 | 0.95 | 1.00 |
| 470 ~ 1000       | 0.50           | 0.60 | 0.90 | 0.95 | 1.00 |
| 1200 ~ 6800      | 0.65           | 0.80 | 0.90 | 0.95 | 1.00 |

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## DIMENSIONS(mm)



| ΦD | 5   | 6.3 | 8   | 10  | 12.5 | 16  |
|----|-----|-----|-----|-----|------|-----|
| P  | 2.0 | 2.5 | 3.5 | 5.0 | 5.0  | 7.5 |
| Φd | 0.5 | 0.5 | 0.5 | 0.6 | 0.6  | 0.8 |

|          |              |
|----------|--------------|
| $\alpha$ | (L < 20) 1.5 |
|          | (L ≥ 20) 2.0 |

## STANDARD RATINGS

DxL(mm), R.C. : (mA rms) at 105°C 100kHz, IMP:(Ω max) at 20°C, 100kHz.

| Cap<br>(μF) | V<br>Item | 6.3     |      |       | 10      |      |       | 16      |      |       |
|-------------|-----------|---------|------|-------|---------|------|-------|---------|------|-------|
|             |           | D x L   | R.C. | IMP   | D x L   | R.C. | IMP   | D x L   | R.C. | IMP   |
| 33          |           |         |      |       |         |      |       | 5x7     | 210  | 0.450 |
| 56          |           |         |      |       | 5x7     | 210  | 0.440 | 5x11    | 250  | 0.300 |
| 68          |           | 5x7     | 310  | 0.430 |         |      |       |         | 300  | 0.240 |
| 100         |           |         |      |       | 5x11    | 250  | 0.300 |         |      |       |
| 120         |           |         |      |       |         | 300  | 0.230 | 6.3x11  | 405  | 0.130 |
|             |           |         |      |       |         |      |       | 8x7     | 380  | 0.150 |
| 150         |           | 5x11    | 250  | 0.300 |         |      |       |         |      |       |
|             |           | 6.3x7   | 300  | 0.230 |         |      |       |         |      |       |
| 180         |           |         |      |       | 8x7     | 380  | 0.150 |         |      |       |
| 220         |           | 8x7     | 380  | 0.150 | 6.3x11  | 405  | 0.130 |         |      |       |
| 330         |           | 6.3x11  | 405  | 0.130 | 8x11.5  | 600  | 0.085 | 8x11.5  | 760  | 0.072 |
| 470         |           |         |      |       | 8x11.5  | 760  | 0.072 | 8x15    | 995  | 0.056 |
|             |           |         |      |       |         |      |       | 10x12.5 | 1030 | 0.053 |
| 560         |           | 8x11.5  | 760  | 0.072 |         |      |       |         |      |       |
| 680         |           |         |      |       | 8x15    | 995  | 0.056 | 8x20    | 1250 | 0.041 |
|             |           |         |      |       |         |      |       | 10x16   | 1430 | 0.038 |
| 820         |           | 8x15    | 995  | 0.056 |         |      |       |         |      |       |
| 1000        |           | 10x12.5 | 1030 | 0.053 | 8x20    | 1250 | 0.041 | 10x20   | 1820 | 0.023 |
|             |           |         |      |       | 10x16   | 1430 | 0.038 |         |      |       |
| 1200        |           | 8x20    | 1250 | 0.041 | 10x20   | 1820 | 0.023 | 10x25   | 2150 | 0.022 |
|             |           | 10x16   | 1430 | 0.038 |         |      |       |         |      |       |
| 1500        |           | 10x20   | 1820 | 0.023 | 10x25   | 2150 | 0.022 | 12.5x20 | 2360 | 0.021 |
| 2200        |           | 10x25   | 2150 | 0.022 | 12.5x20 | 2360 | 0.021 | 12.5x25 | 2770 | 0.018 |
| 2700        |           |         |      |       |         |      |       | 12.5x30 | 3140 | 0.016 |
|             |           |         |      |       |         |      |       | 16x20   | 3290 | 0.018 |
| 3300        |           | 12.5x20 | 2360 | 0.021 | 12.5x25 | 2770 | 0.018 | 12.5x35 | 3400 | 0.015 |
| 3900        |           | 12.5x25 | 2770 | 0.018 | 12.5x30 | 3290 | 0.016 | 16x25   | 3460 | 0.016 |
|             |           |         |      |       | 16x20   | 3140 | 0.018 |         |      |       |
| 4700        |           | 12.5x30 | 3290 | 0.016 | 12.5x35 | 3400 | 0.015 |         |      |       |
| 5600        |           | 12.5x35 | 3350 | 0.015 | 16x25   | 3460 | 0.016 |         |      |       |
|             |           | 16x20   | 3400 | 0.018 |         |      |       |         |      |       |
| 6800        |           | 16x25   | 3460 | 0.016 |         |      |       |         |      |       |

| Cap<br>(μF) | V<br>Item | 25     |      |       | 35      |      |       | 50      |      |       |
|-------------|-----------|--------|------|-------|---------|------|-------|---------|------|-------|
|             |           | D x L  | R.C. | IMP   | D x L   | R.C. | IMP   | D x L   | R.C. | IMP   |
| 10          |           |        |      |       |         |      |       | 5x7     | 210  | 1.5   |
| 22          |           |        |      |       |         |      |       | 5x11    | 238  | 0.34  |
|             |           |        |      |       |         |      |       | 6.3x7   | 300  | 0.26  |
| 27          |           | 5x7    | 210  | 0.460 | 5x7     | 210  | 0.470 |         | 238  | 0.34  |
| 33          |           |        |      |       | 5x11    | 250  | 0.300 | 8x7     | 380  | 0.17  |
| 39          |           |        |      |       | 6.3x7   | 300  | 0.250 |         |      |       |
| 47          |           | 5x11   | 250  | 0.300 |         |      |       |         |      |       |
| 56          |           | 6.3x7  | 300  | 0.240 | 6.3x11  | 405  | 0.130 | 6.3x11  | 385  | 0.14  |
|             |           |        |      |       | 8x7     | 380  | 0.150 |         |      |       |
| 100         |           | 6.3x11 | 405  | 0.130 |         |      |       | 8x11.5  | 724  | 0.074 |
|             |           | 8x7    | 380  | 0.150 |         |      |       |         |      |       |
| 120         |           |        |      |       | 8x11.5  | 760  | 0.072 | 8x15    | 950  | 0.061 |
| 150         |           |        |      |       |         |      |       | 10x12.5 | 979  | 0.061 |
| 180         |           |        |      |       |         |      |       | 8x20    | 1190 | 0.046 |
| 220         |           | 8x11.5 | 760  | 0.072 | 8x15    | 995  | 0.056 | 10x16   | 1370 | 0.042 |
|             |           |        |      |       | 10x12.5 | 1030 | 0.053 |         |      |       |

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## STANDARD RATINGS

DxL(mm), R.C : (mA rms) at 105°C 100kHz, IMP:(Ω max) at 20°C,100kHz.

| Cap<br>(μF) | V<br>Item | 25      |      |       | 35      |      |       | 50      |      |       |
|-------------|-----------|---------|------|-------|---------|------|-------|---------|------|-------|
|             |           | D x L   | R.C. | IMP   | D x L   | R.C. | IMP   | D x L   | R.C. | IMP   |
| 270         |           |         |      |       | 8x20    | 1250 | 0.041 | 10x20   | 1580 | 0.030 |
| 330         |           | 8x15    | 995  | 0.056 | 10x16   | 1430 | 0.038 | 10x25   | 1870 | 0.028 |
|             |           | 10x12.5 | 1030 | 0.053 |         |      |       |         |      |       |
| 470         |           | 8x20    | 1250 | 0.041 | 10x20   | 1820 | 0.023 | 12.5x20 | 2050 | 0.027 |
|             |           | 10x16   | 1430 | 0.038 |         |      |       |         |      |       |
| 560         |           |         |      |       |         | 2150 | 0.022 | 12.5x25 | 2410 | 0.023 |
| 680         |           | 10x20   | 1820 | 0.023 | 12.5x20 | 2360 | 0.021 | 12.5x30 | 2860 | 0.021 |
| 820         |           | 10x25   | 2150 | 0.022 | 12.5x20 | 2450 | 0.02  | 12.5x35 | 2960 | 0.025 |
|             |           |         |      |       |         |      |       | 16x20   | 2730 | 0.023 |
| 1000        |           | 12.5x20 | 2360 | 0.021 | 12.5x25 | 2770 | 0.018 | 16x25   | 3010 | 0.021 |
| 1200        |           | 12.5x20 | 2360 | 0.021 | 12.5x30 | 3140 | 0.016 |         |      |       |
|             |           |         |      |       | 16x20   | 3290 | 0.018 |         |      |       |
| 1500        |           | 12.5x25 | 2770 | 0.018 | 12.5x35 | 3400 | 0.015 |         |      |       |
| 1800        |           | 12.5x30 | 3140 | 0.016 | 16x25   | 3460 | 0.016 |         |      |       |
|             |           | 16x20   | 3290 | 0.018 |         |      |       |         |      |       |
| 2200        |           | 12.5x35 | 3400 | 0.015 |         |      |       |         |      |       |
| 2700        |           | 16x25   | 3460 | 0.016 |         |      |       |         |      |       |

| Cap<br>(μF) | V<br>Item | 63      |      |       | 80      |      |       | 100     |      |       |
|-------------|-----------|---------|------|-------|---------|------|-------|---------|------|-------|
|             |           | D x L   | R.C. | IMP   | D x L   | R.C. | IMP   | D x L   | R.C. | IMP   |
| 6.8         |           |         |      |       |         |      |       | 5x11    | 125  | 1.400 |
| 15          |           | 5x11    | 165  | 0.880 |         |      |       | 6.3x11  | 205  | 0.570 |
| 27          |           |         |      |       |         |      |       | 8x11.5  | 355  | 0.360 |
| 33          |           | 6.3x11  | 265  | 0.350 |         |      |       |         |      |       |
| 39          |           |         |      |       |         |      |       | 8x15    | 450  | 0.250 |
| 47          |           |         |      |       |         |      |       | 10x12.5 | 480  | 0.170 |
| 56          |           | 8x11.5  | 500  | 0.220 |         |      |       | 8x20    | 565  | 0.190 |
| 68          |           |         |      |       | 10x12.5 | 480  | 0.170 | 10x16   | 600  | 0.110 |
| 82          |           | 8x15    | 665  | 0.160 |         |      |       | 10x20   | 800  | 0.084 |
|             |           | 10x12.5 | 690  | 0.110 |         |      |       |         |      |       |
| 100         |           |         |      |       | 10x16   | 600  | 0.110 | 12.5x16 | 750  | 0.110 |
| 120         |           | 8x20    | 820  | 0.120 | 10x20   | 800  | 0.084 | 10x25   | 900  | 0.069 |
|             |           | 10x16   | 950  | 0.076 |         |      |       |         |      |       |
| 150         |           |         |      |       | 10x25   | 900  | 0.069 | 12.5x20 | 1100 | 0.062 |
|             |           |         |      |       | 12.5x16 | 750  | 0.110 |         |      |       |
| 180         |           | 10x20   | 1150 | 0.056 |         |      |       |         |      |       |
|             |           | 12.5x16 | 1150 | 0.072 |         |      |       |         |      |       |
| 220         |           | 10x25   | 1350 | 0.046 | 12.5x20 | 1100 | 0.062 | 12.5x25 | 1250 | 0.047 |
|             |           |         |      |       |         |      |       | 16x20   | 1350 | 0.048 |
| 270         |           | 12.5x20 | 1500 | 0.041 |         |      |       |         |      |       |
| 330         |           |         |      |       | 12.5x25 | 1250 | 0.047 | 12.5x30 | 1500 | 0.042 |
|             |           |         |      |       | 16x20   | 1350 | 0.048 | 12.5x35 | 1650 | 0.036 |
|             |           |         |      |       |         |      |       | 18x20   | 1500 | 0.045 |
| 390         |           | 12.5x25 | 1900 | 0.031 | 12.5x30 | 1500 | 0.042 | 12.5x40 | 1700 | 0.032 |
| 470         |           | 12.5x30 | 2300 | 0.028 | 12.5x35 | 1650 | 0.036 | 16x31.5 | 1850 | 0.032 |
|             |           | 16x20   | 2000 | 0.032 | 16x25   | 1700 | 0.038 | 18x25   | 1750 | 0.036 |
|             |           |         |      |       | 18x20   | 1500 | 0.045 |         |      |       |
| 560         |           | 12.5x35 | 2500 | 0.024 | 12.5x40 | 1800 | 0.032 | 16x35.5 | 2000 | 0.029 |
|             |           |         |      |       |         |      |       | 18x31.5 | 1900 | 0.030 |
| 680         |           | 12.5x40 | 2800 | 0.021 | 16x31.5 | 1850 | 0.032 | 16x40   | 2200 | 0.027 |
|             |           | 16x25   | 2600 | 0.025 | 18x25   | 1750 | 0.036 | 18x35.5 | 2200 | 0.027 |
|             |           | 18x20   | 2500 | 0.030 |         |      |       |         |      |       |
| 820         |           | 16x31.5 | 2850 | 0.021 | 16x35.5 | 2000 | 0.029 | 18x40   | 2700 | 0.026 |
|             |           | 18x20   | 2800 | 0.024 | 18x31.5 | 1900 | 0.030 |         |      |       |
| 1000        |           | 16x35.5 | 2900 | 0.019 | 16x40   | 2200 | 0.027 |         |      |       |
|             |           |         |      |       | 18x35.5 | 2200 | 0.027 |         |      |       |
| 1200        |           | 16x40   | 3400 | 0.018 | 18x40   | 2700 | 0.026 |         |      |       |
|             |           | 18x31.5 | 3300 | 0.020 |         |      |       |         |      |       |
| 1500        |           | 18x35.5 | 3400 | 0.018 |         |      |       |         |      |       |
| 1800        |           | 18x40   | 3400 | 0.017 |         |      |       |         |      |       |