

HLL

Low impedance, 105°C 7000~10000 hours Long Life.

低阻抗、长寿命7000~10000H

- Low impedance, 105°C 7000~10000 hours Long Life.
- Applicable to SMT process.
- RoHS Compliance.
- 105°C 低阻抗、7000~10000hours 長壽命產品。
- 适用于SMT制程。



**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                                  | -25°C ~ + 105°C   |   |      |      |      |      |                    |                                 |
| Rated Voltage Range<br>額定電壓範圍  | 6.3~50VDC   |   |      |      |      |      |                    |                                 |
| Capacitance Range<br>靜電容量範圍  | 10~1000µF   |   |      |      |      |      |                    |                                 |
| 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                 |                                 |
|  | tan δ(Max)  | 0.32                                    | 0.28 | 0.26 | 0.16 | 0.14 | 0.14               |                                 |
| 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                 |                                 |
|  | Z(-25°C)/Z(20°C)  | 4                                       | 3    | 2    | 2    | 2    | 2                  |                                 |
| Load Life 負荷壽命   | Φ≤6.3 : 7000hours, Φ≥8 : 10000 with application of rated voltage at 105°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 1000hours 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 ±30% of Initial Value            |      |      |      |      |                    |                                 |
|  | tan δ   | 300% or less of Initial Specified Value |      |      |      |      |                    |                                 |
|  | Leakage Current   | Initial Specified Value or less         |      |      |      |      |                    |                                 |
| Resistance to Soldering Heat<br>焊錫耐熱性                                  | The capacitors shall be kept on the hott plate maintained at 250°C for 30seconds.<br>After removing from the hot plate and restored at room temperature they meet the characteristics requirements listed at right.   |   |      |      |      |      | Capacitance Change | Within ± 10% of Initial Value   |
|  |   |   |      |      |      |      | tan δ              | 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**

| Frequency (Hz)   | 120 ≤ F < 1K | 1K ≤ F < 10K | 10K ≤ F < 100K | 100K ≤ F |
|------------------|--------------|--------------|----------------|----------|
| Capacitance (µF) |              |              |                |          |
| C ≤ 22           | 0.50         | 0.80         | 0.90           | 1.00     |
| 22 < C ≤ 150     | 0.65         | 0.85         | 0.92           | 1.00     |
| C > 150          | 0.70         | 0.85         | 0.95           | 1.00     |

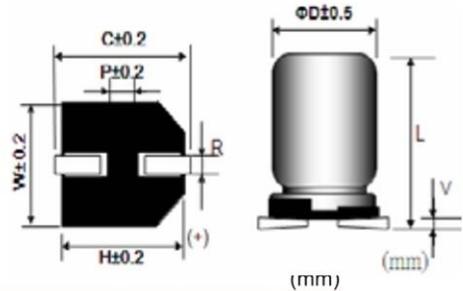
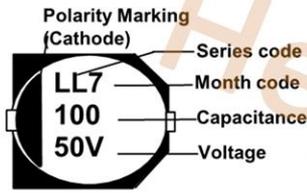
The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. when long life performance is required in actual use. The rms ripple current has to be reduced.

注：以上所提供的設計及特性參數僅供參考，任何修改不作預先通知，如有使用上任何疑問，請在採購前與我們聯繫，以便提供技術上的協助。

**DIMENSIONS(mm)**

Chip Type

Fig.1  $\Phi D=6.3\sim 10\text{mm}$



| Size    | $\Phi D$ | L       | W    | H    | C    | R       | P   | Vmax |
|---------|----------|---------|------|------|------|---------|-----|------|
| 4×7     | 4.0      | 7.0±0.3 | 4.3  | 4.3  | 5.1  | 0.5~0.8 | 1.0 | 0.3  |
| 5×7     | 5.0      | 7.0±0.3 | 5.3  | 5.3  | 5.9  | 0.5~0.8 | 1.4 | 0.3  |
| 6.3×7   | 6.3      | 7.0±0.3 | 6.6  | 6.6  | 7.2  | 0.5~0.8 | 2.1 | 0.3  |
| 6.3×8.4 | 6.3      | 8.4±0.3 | 6.6  | 6.6  | 7.2  | 0.5~0.8 | 2.1 | 0.3  |
| 8×10    | 8.0      | 10±0.5  | 8.4  | 8.4  | 9.0  | 0.7~1.1 | 3.2 | 0.3  |
| 10×10   | 10.0     | 10±0.5  | 10.4 | 10.4 | 11.0 | 0.7~1.3 | 4.5 | 0.3  |

**STANDARD RATINGS**

D×L(mm) ; R.C.(mA rms) at 105°C 100KHz, IMP( $\Omega$  max) at 20°C 100KHz.

| Cap (μF) | V       | 6.3   |      |     | 10      |      |         | 16      |       |         | 25      |      |         | 35      |      |         | 50    |      |      |
|----------|---------|-------|------|-----|---------|------|---------|---------|-------|---------|---------|------|---------|---------|------|---------|-------|------|------|
|          |         | D x L | R.C. | IMP | D x L   | R.C. | IMP     | D x L   | R.C.  | IMP     | D x L   | R.C. | IMP     | D x L   | R.C. | IMP     | D x L | R.C. | IMP  |
| 10       |         |       |      |     |         |      | 4x7.0   | 27      | 4.00  |         |         |      | 5x7.0   | 95      | 2.20 |         |       |      |      |
|          |         |       |      |     |         |      | 5x7.0   | 95      | 2.20  | 5x7.0   | 95      | 2.20 | 5x7.0   | 95      | 2.20 | 6.3x8.4 | 100   | 1.80 |      |
| 22       |         |       |      |     |         |      |         |         |       | 6.3x7.0 | 140     | 1.10 | 6.3x8.4 | 230     | 1.00 | 8x10    | 350   | 0.53 |      |
| 33       |         |       |      |     | 5x7.0   | 95   | 2.20    | 6.3x7.0 | 140   | 1.10    | 6.3x7.0 | 140  | 1.10    | 6.3x8.4 | 230  | 1.00    | 8x10  | 350  | 0.53 |
| 47       | 5x7.0   | 95    | 2.20 |     |         |      | 6.3x7.0 | 140     | 1.10  | 6.3x8.4 | 230     | 1.00 | 8x10    | 600     | 0.22 | 10x10   | 670   | 0.35 |      |
| 100      | 6.3x7.0 | 140   | 1.10 |     |         |      | 6.3x8.4 | 230     | 1.00  | 8x10    | 600     | 0.22 |         |         |      |         |       |      |      |
| 150      |         |       |      |     | 6.3x7.0 | 140  | 1.10    | 6.3x8.4 | 230   | 1.00    | 8x10    | 600  | 0.22    | 10x10   | 850  | 0.16    |       |      |      |
| 220      | 6.3x8.4 | 230   | 1.00 |     |         |      | 8x10    | 600     | 0.220 | 10x10   | 850     | 0.16 | 10x10   | 850     | 0.16 |         |       |      |      |
| 330      | 6.3x8.4 | 230   | 1.00 |     |         |      | 10x10   | 850     | 0.160 |         |         |      |         |         |      |         |       |      |      |
| 470      | 8x10    | 600   | 0.22 |     |         |      |         |         |       |         |         |      |         |         |      |         |       |      |      |
| 1000     | 10x10   | 850   | 0.16 |     |         |      |         |         |       |         |         |      |         |         |      |         |       |      |      |



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