

# SPECIFICATIONS

|                      |                                    |
|----------------------|------------------------------------|
| Customer             |                                    |
| Product Name         | Multi-layer Chip Ceramic Inductors |
| Sunlord Part Number  | MSDCL0603(with mark) Series        |
| Customer Part Number |                                    |

☒ New Released, ☐ Revised]

SPEC No.: MSDCL03190000

【 This SPEC is total 10 pages including specifications and appendix. 】  
【 ROHS, Halogen-Free and SVHC Compliant Parts 】

| Approved By | Checked By | Issued By |
|-------------|------------|-----------|
|             |            |           |

## Shenzhen Sunlord Electronics Co., Ltd.

Address: Sunlord Industrial Park, Dafuyuan Industrial Zone, Baoan, Shenzhen, China 518110  
Tel: 0086-755-82400574 Fax: 0086-755-82269029 E-Mail: sunlord@sunlordinc.com

### 【For Customer approval Only】

Date: \_\_\_\_\_

Qualification Status: ☐ Full ☐ Restricted ☐ Rejected

| Approved By | Verified By | Re-checked By | Checked By |
|-------------|-------------|---------------|------------|
|             |             |               |            |

Comments:

\_\_\_\_\_

## 【Version change history】

| Rev. | Effective Date | Changed Contents | Change reasons | Approved By    |
|------|----------------|------------------|----------------|----------------|
| 01   | /              | New release      | /              | Xiangdong Zeng |

**Caution**

All products listed in this specification are developed, designed and intended for use in general electronics equipment. The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require especially high reliability, or whose failure, malfunction or trouble might directly cause damage to society, person, or property. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below. Please contact us for more details if you intend to use our products in the following applications.

1. Aircraft equipment
2. Aerospace equipment
3. Undersea equipment
4. nuclear control equipment
5. military equipment
6. Power plant equipment
7. Medical equipment
8. Transportation equipment (automobiles, trains, ships, etc.)
9. Traffic signal equipment
10. Disaster prevention / crime prevention equipment
11. Data-processing equipment
12. Applications of similar complexity or with reliability requirements comparable to the applications listed in the above

## 1. Scope

This specification applies to MSDCL0603 (with mark) series of multi-layer ceramic chip inductors.

## 2. Product Description and Identification (Part Number)

- 1) Description  
MSDCL 0603 (with mark) series of multi-layer ceramic chip inductors.
- 2) Product Identification (Part Number)

MSDCL 0603 C XXX □ ◎ D F  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

| ①     | Type                  |
|-------|-----------------------|
| MSDCL | Ceramic Chip Inductor |

| ②           | External Dimensions (L X W) (mm) |
|-------------|----------------------------------|
| 0603 [0201] | 0.6 X 0.3                        |

| ③ | Material Code |
|---|---------------|
| C |               |

| ④       | Nominal Inductance |
|---------|--------------------|
| Example | Nominal Value      |
| 3N9     | 3.9nH              |
| 10N     | 10nH               |

| ⑤ | Inductance Tolerance |
|---|----------------------|
| B | ±0.1Nh               |
| C | ±0.2Nh               |
| S | ±0.3Nh               |
| H | ±3%                  |
| J | ±5%                  |
| K | ±10%                 |

| ⑥ | Packing              |
|---|----------------------|
| T | Tape Carrier Package |

| ⑦ | Internal Code |
|---|---------------|
| D |               |

| ⑧ | HSF Products                      |
|---|-----------------------------------|
|   | Hazardous Substance Free Products |

## 3. Electrical Characteristics

Please refer to **Appendix A** (Page 9).

- 1) Operating and storage temperature range (individual chip without packing): -55℃~ +125℃,
- 2) Storage temperature range (packaging conditions): -10℃~+40℃ and RH 70% (Max.)

## 4. Shape and Dimensions

- 1) Dimensions and recommended PCB pattern for reflow soldering: See **Fig.4-1**, **Fig.4-2** and **Table 4-1**.
- 2) Structure: See **Fig. 4-3** and **Fig. 4-4**.

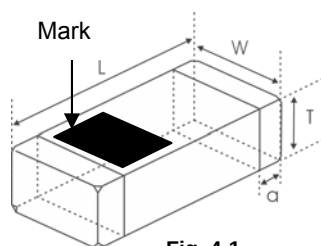
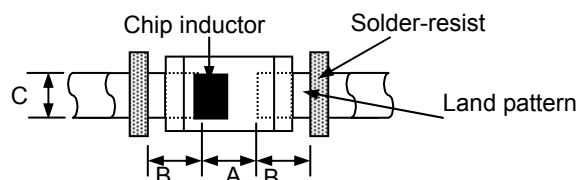


Fig. 4-1



[Table 4-1]

Unit: mm [inch]

| Type           | L                       | W                       | T                       | a                        | A       | B       | C        |
|----------------|-------------------------|-------------------------|-------------------------|--------------------------|---------|---------|----------|
| 0603<br>[0201] | 0.6±0.05<br>[.024±.002] | 0.3±0.05<br>[.012±.002] | 0.3±0.05<br>[.012±.002] | 0.15±0.05<br>[.006±.002] | 0.2~0.3 | 0.2~0.3 | 0.3~0.35 |

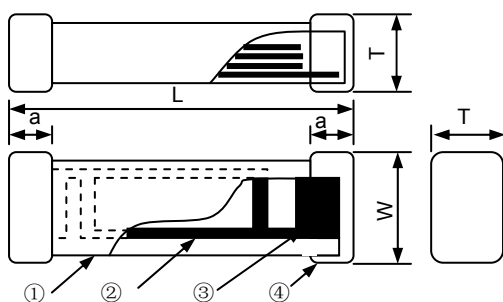


Fig. 4-3

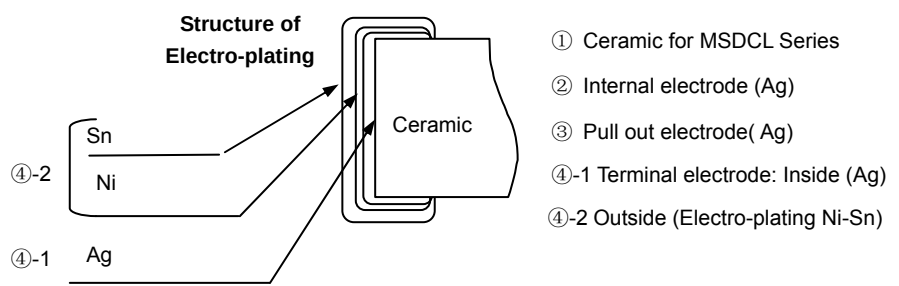


Fig. 4-4

## 3) Material Information: See Table 4-2

[Table 4-2]

| Code | Part Name                      | Material Name                  |
|------|--------------------------------|--------------------------------|
| ①    | Ceramic Body                   | Ceramic Powder                 |
| ②    | Inner Coils                    | Silver Paste                   |
| ③    | Pull-out Electrode (Ag)        | Silver Paste                   |
| ④-1  | Terminal Electrode: Inside Ag  | Termination Silver Composition |
| ④-2  | Electro-Plating: Ni/Sn plating | Plating Chemicals              |

- 4) The surface with the mark should be on the top side when soldering, but it is not necessary to identify the mark's direction towards left or right.

## 5. Test and Measurement Procedures

## 5.1 Test Conditions

Unless otherwise specified, the standard atmospheric conditions for measurement/test as:

- Ambient Temperature:  $20 \pm 15^{\circ}\text{C}$
- Relative Humidity:  $65 \pm 20\%$
- Air Pressure: 86 KPa to 106 KPa

If any doubt on the results, measurements/tests should be made within the following limits:

- Ambient Temperature:  $20 \pm 2^{\circ}\text{C}$
- Relative Humidity:  $65 \pm 5\%$
- Air Pressure: 86KPa to 106 KPa

## 5.2 Visual Examination

- Inspection Equipment: 20 X magnifier

## 5.3 Electrical Test

## 5.3.1 DC Resistance (DCR)

- Refer to **Appendix A**.
- Test equipment (Analyzer): High Accuracy Milliohmmeter-HP4338B or equivalent.

## 5.3.2 Inductance (L)

- Refer to **Appendix A**.
- Test equipment: High Accuracy RF Impedance /Material Analyzer-E4991A+16197A or equivalent.
- Test signal: -20dBm or 50mV
- Test frequency refers to Appendix A.
- Test compensation: product true value=test value+compensation value. for  $L < 5.6\text{nH}$ , compensation value is 0.43nH; for  $L \geq 5.6\text{nH}$ , compensation value is 0.17nH

## 5.3.3 Q Factor (Q)

- Refer to **Appendix A**.
- Test equipment: High Accuracy RF Impedance /Material Analyzer-E4991A+16197A or equivalent.
- Test signal: -20dBm or 50mV
- Test frequency refers to Appendix A.

## 5.3.4 Self-Resonant Frequency (SRF)

- Refer to **Appendix A**.
- Test equipment: Agilent 8719ES or equivalent.
- Test signal: -20 dBm or 50 mV

## 5.3.5 Rated Current

- Refer to **Appendix A**.
- Test equipment (see Fig. 5.3.5-1): Electric Power, Electric current meter, Thermometer.
- Measurement method (see Fig. 5.3.5-1):
  - Set test current to be 0 mA.
  - Measure initial temperature of chip surface.
  - Gradually increase voltage and measure chip temperature for corresponding current.
- Definition of Rated Current(Ir): Ir is direct electric current as chip surface temperature rose just  $20^{\circ}\text{C}$  against chip initial surface temperature( $T_a$ ) (see Fig. 5.3.5-2).

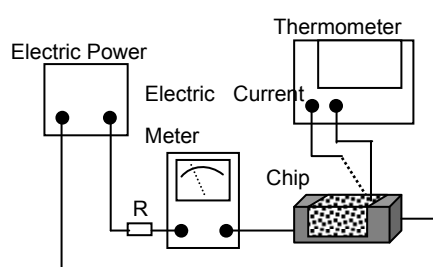


Fig. 5.3.5-1

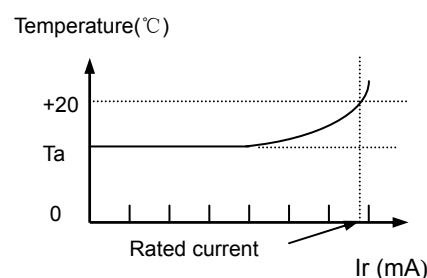
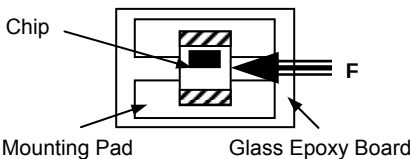
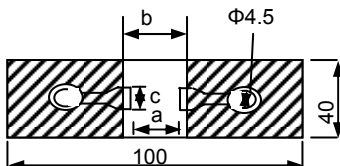
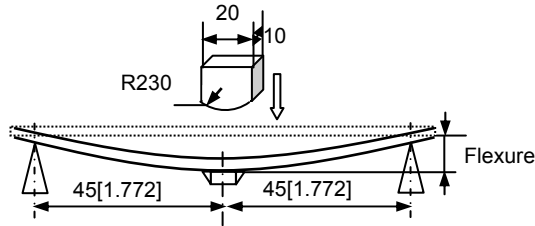
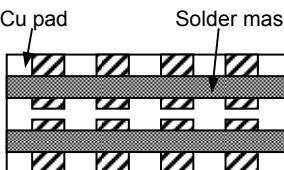
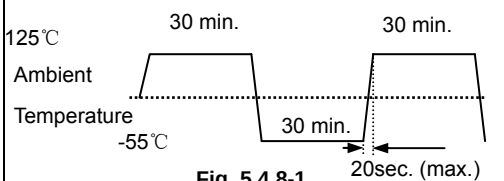


Fig. 5.3.5-2

## 5.4 Reliability Test

| Items                              | Requirements                                                                                                                                                                                                                                                                                                                                          | Test Methods and Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |   |   |            |      |     |     |                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---|---|------------|------|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.4.1<br>Terminal Strength         | <p>No removal or split of the termination or other defects shall occur.</p> <div><p>Chip<br/>Mounting Pad<br/>Glass Epoxy Board</p><p><b>Fig.5.4.1-1</b></p></div>                                                                                                   | <p>① Solder the inductor to the testing jig (glass epoxy board shown in <b>Fig. 5.4.1-1</b>) using leadfree solder. Then apply a force in the direction of the arrow.</p> <p>② 2N force for MSDCL0603 (with mark) series.</p> <p>③ Keep time: 10±1s</p> <p>④ Speed: 1.0mm/s.</p>                                                                                                                                                                                                                                                                        |     |   |   |            |      |     |     |                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.4.2<br>Resistance to Flexure     | <p>No visible mechanical damage.</p> <p>Unit: mm [inch]</p> <table><thead><tr><th>Type</th><th>a</th><th>b</th><th>c</th></tr></thead><tbody><tr><td>0603[0201]</td><td>0.25</td><td>0.8</td><td>0.3</td></tr></tbody></table> <div><p><b>Fig. 5.4.2-1</b></p></div> | Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | a   | b | c | 0603[0201] | 0.25 | 0.8 | 0.3 | <p>① Solder the inductor to the test jig (glass epoxy board shown in <b>Fig. 5.4.2-1</b>) Using a leadfree solder. Then apply a force in the direction shown <b>Fig. 5.4.2-2</b>.</p> <p>② Flexure: 2mm.</p> <p>③ Pressurizing Speed: 0.5mm/sec.</p> <p>④ Keep time: 30 sec.</p> <div><p><b>Fig. 5.4.2-2</b></p></div> |
| Type                               | a                                                                                                                                                                                                                                                                                                                                                     | b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | c   |   |   |            |      |     |     |                                                                                                                                                                                                                                                                                                                                                                                                          |
| 0603[0201]                         | 0.25                                                                                                                                                                                                                                                                                                                                                  | 0.8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.3 |   |   |            |      |     |     |                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.4.3<br>Vibration                 | <p>① No visible mechanical damage.</p> <p>② Inductance change: Within ±10%.</p> <p>③ Q factor change: Within ±20%.</p> <div><p>Cu pad<br/>Solder mask<br/>Glass Epoxy Board</p><p><b>Fig. 5.4.3-1</b></p></div>                                                    | <p>① Solder the inductor to the testing jig (glass epoxy board shown in <b>Fig. 5.4.3-1</b>) using leadfree solder.</p> <p>② The inductor shall be subjected to a simple harmonic motion having total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz.</p> <p>③ The frequency range from 10 to 55 Hz and return to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours).</p> |     |   |   |            |      |     |     |                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.4.4 Dropping                     | <p>① No visible mechanical damage.</p> <p>② Inductance change: Within ±10%.</p> <p>③ Q factor change: Within ±20%.</p>                                                                                                                                                                                                                                | Drop chip inductor 10 times on a concrete floor from a height of 100 cm.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |   |   |            |      |     |     |                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.4.5 Temperature                  | Inductance change should be within ±10% of initial value measuring at 20℃.                                                                                                                                                                                                                                                                            | Temperature range: MSDCL0603(with mark): -55℃ to +125℃, Reference temperature: +20℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |   |   |            |      |     |     |                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.4.6 Solderability                | <p>① No visible mechanical damage.</p> <p>② Wetting shall exceed 75% coverage.</p>                                                                                                                                                                                                                                                                    | <p>① Solder temperture:240±2℃</p> <p>② Duration: 3 sec.</p> <p>③ Solder: Sn/3.0Ag/0.5Cu.</p> <p>④ Flux: 25% Resin and 75% ethanol in weight.</p>                                                                                                                                                                                                                                                                                                                                                                                                        |     |   |   |            |      |     |     |                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.4.7 Resistance to Soldering Heat | <p>① No visible mechanical damage.</p> <p>② Wetting shall exceed 75% coverage.</p> <p>③ Inductance change: Within ±10%.</p> <p>④ Q factor change: Within ±20%.</p>                                                                                                                                                                                    | <p>① Solder temperature: 260±3℃</p> <p>② Duration: 5 sec.</p> <p>③ Solder: Sn/3.0Ag/0.5Cu.</p> <p>④ Flux: 25% Resin and 75% ethanol in weight.</p> <p>⑤ The chip shall be stabilized at normal condition for 1~2 hours before measuring.</p>                                                                                                                                                                                                                                                                                                            |     |   |   |            |      |     |     |                                                                                                                                                                                                                                                                                                                                                                                                          |

|                                                |                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.4.8<br>Thermal Shock                         | ① No mechanical damage.<br>② Inductance change: Within $\pm 10\%$ .<br>③ Q factor change: Within $\pm 20\%$ .<br><br><b>Fig. 5.4.8-1</b> | ① Temperature, Time: (See <b>Fig. 5.4.8-1</b> )<br>MSDCL0603(with mark): $-55^{\circ}\text{C}$ for $30\pm 3$ min $\rightarrow 125^{\circ}\text{C}$ for $30\pm 3$ min,<br>② Transforming interval: Max. 20 sec.<br>③ Tested cycle: 100 cycles.<br>④ The chip shall be stabilized at normal condition for 1~2 hours before measuring. |
| 5.4.9 Resistance to Low Temperature            | ① No mechanical damage.<br>② Inductance change: Within $\pm 10\%$ .<br>③ Q factor change: Within $\pm 20\%$ .                                                                                                             | ① Temperature: $-55\pm 2^{\circ}\text{C}$ ,<br>② Duration: $1000^{+24}$ hours.<br>③ The chip shall be stabilized at normal condition for 1~2 hours before measuring.                                                                                                                                                                |
| 5.4.10 Resistance to High Temperature          | ① No mechanical damage.<br>② Inductance change: Within $\pm 10\%$ .<br>③ Q factor change: Within $\pm 20\%$ .                                                                                                             | ① Temperature: $125\pm 2^{\circ}\text{C}$ ,<br>② Duration: $1000^{+24}$ hours.<br>③ The chip shall be stabilized at normal condition for 1~2 hours before measuring.                                                                                                                                                                |
| 5.4.11 Damp Heat (Steady States)               | ① No visible mechanical damage.<br>② Inductance change: Within $\pm 10\%$ .<br>③ Q factor change: Within $\pm 20\%$ .                                                                                                     | ① Temperature: $60\pm 2^{\circ}\text{C}$<br>② Humidity: 90% to 95% RH.<br>③ Duration: $1000^{+24}$ hours.<br>④ The chip shall be stabilized at normal condition for 1~2 hours before measuring.                                                                                                                                     |
| 5.4.12 Loading Under Damp Heat                 | ① No visible mechanical damage.<br>② Inductance change: Within $\pm 10\%$ .<br>③ Q factor change: Within $\pm 20\%$ .                                                                                                     | ① Temperature: $60\pm 2^{\circ}\text{C}$<br>② Humidity: 90% to 95% RH.<br>③ Duration: $1000^{+24}$ hours.<br>④ Applied current: Rated current.<br>⑤ The chip shall be stabilized at normal condition for 1~2 hours before measuring.                                                                                                |
| 5.4.13 Loading at High Temperature (Life Test) | ① No visible mechanical damage.<br>② Inductance change: Within $\pm 10\%$ .<br>③ Q factor change: Within $\pm 20\%$ .                                                                                                     | ① Temperature: $125\pm 2^{\circ}\text{C}$ ,<br>② Duration: $1000^{+24}$ hours.<br>③ Applied current: Rated current.<br>④ The chip shall be stabilized at normal condition for 1~2 hours before measuring.                                                                                                                           |

## 6. Packaging and Storage

### 6.1 Packaging

There are two types of packaging for the chip inductors. Please specify the packing code when ordering.

#### 6.1.1 Tape Carrier Packaging:

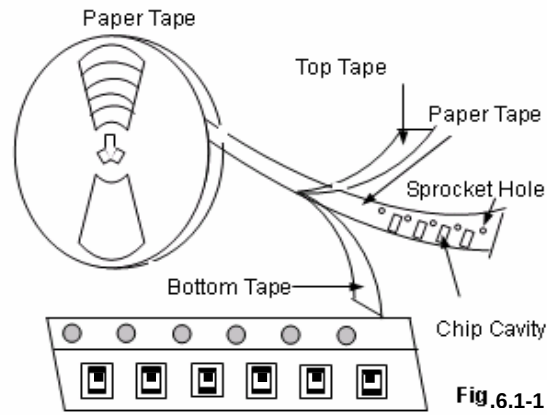
Packaging code: T

a. Tape carrier packaging are specified in attached figure **Fig.6.1-1~3**

b. Tape carrier packaging quantity please see the following table:

|                |               |
|----------------|---------------|
| Type           | 0603[0201]    |
| Thickness (mm) | $0.3\pm 0.05$ |
| Tape           | Paper Tape    |
| Quantity       | 15K           |

## (1) Taping Drawings (Unit: mm)



**Remark:** The sprocket holes are to the right as the tape is pulled toward the user.

## (2) Taping Dimensions (Unit: mm)

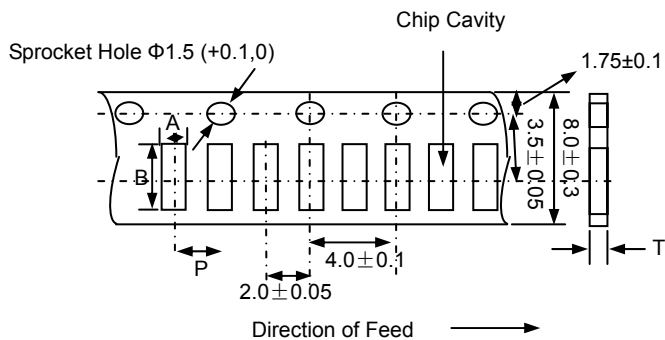
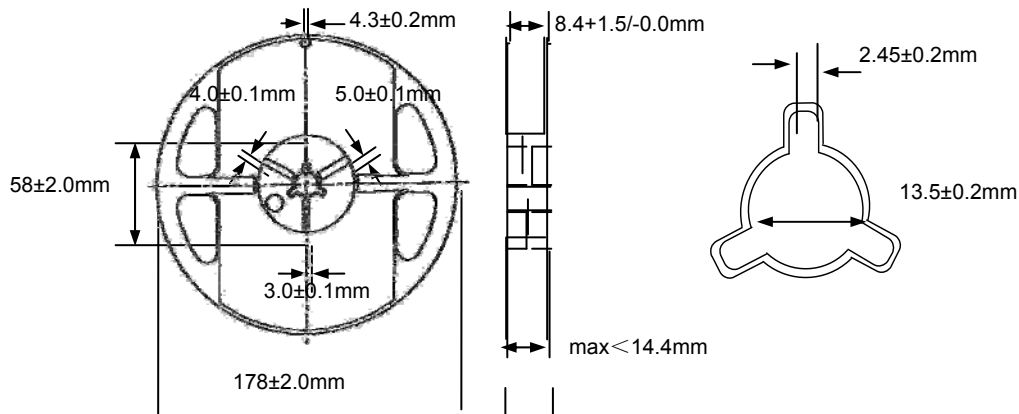


Fig. 6.1-2

## Paper Tape

| Type       | A             | B             | P              | T max |
|------------|---------------|---------------|----------------|-------|
| 0603[0201] | $0.4 \pm 0.1$ | $0.7 \pm 0.1$ | $2.0 \pm 0.05$ | 0.55  |

## (2) Reel Dimensions (Unit: mm)



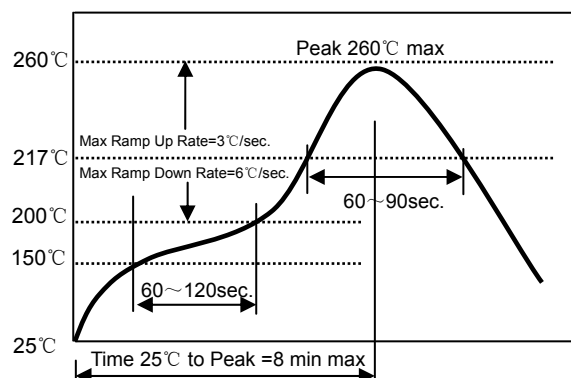
## 6.2 Storage

- The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to high humidity. Package must be stored at  $40^\circ\text{C}$  or less and 70% RH or less.
- The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to dust or harmful gas (e.g. HCl, sulfurous gas of  $\text{H}_2\text{S}$ ).
- Packaging material may be deformed if package are stored where they are exposed to heat of direct sunlight.
- Solderability specified in **Clause 5.4.7** shall be guaranteed for 12 months from the date of delivery on condition that they are stored at the environment specified in **Clause 3**. For those parts, which passed more than 12 months shall be checked solder-ability before use.

## 7. Recommended Soldering Technologies

## 7.1 Re-flowing Profile:

- △ Preheat condition:  $150 \sim 200^\circ\text{C} / 60 \sim 120 \text{ sec}$ .
- △ Allowed time above  $217^\circ\text{C}$ :  $60 \sim 90 \text{ sec}$ .
- △ Max temp:  $260^\circ\text{C}$
- △ Max time at max temp: 10sec.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Allowed Reflow time: 2x max

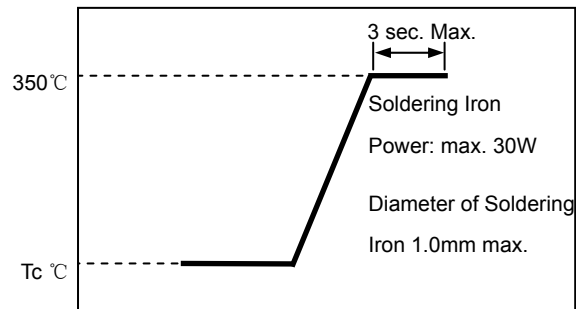


[Note: The reflow profile in the above table is only for qualification and is not meant to specify board assembly profiles. Actual board assembly profiles must be based on the customer's specific board design, solder paste and process, and should not exceed the parameters as the Reflow profile shows.]

### 7.2 Iron Soldering Profile.

- △ Iron soldering power: Max.30W.
- △ Pre-heating: 150 °C / 60 sec.
- △ Soldering Tip temperature: 350°C Max.
- △ Soldering time: 3 sec Max.
- △ Solder paste: Sn/3.0Ag/0.5Cu.
- △ Max.1 times for iron soldering.

[Note: Take care not to apply the tip of the soldering iron to the terminal electrodes.]



## 8. Supplier Information

- a) Supplier:  
**Shenzhen Sunlord Electronics Co., Ltd.**
- b) Manufacturer:  
**Shenzhen Sunlord Electronics Co., Ltd.**
- c) Manufacturing Address:  
**Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110**

## Appendix A: Electrical Characteristics (MSDCL 0603 (with mark) Series of Inductors)

## MSDCL0603 (with mark)Series of Inductor

| Part Number       | L (nH) | Q<br>Min. | L, Q<br>Test.<br>Freq<br>(MHz) | Q (Typ.) Freq. (MHz) |     |     |     |      |      | S.R.F<br>(MHz)<br>Min | DCR<br>(Ω)<br>Max. | Ir (mA)<br>Max. | Thickness<br>(mm)<br>[inch] |
|-------------------|--------|-----------|--------------------------------|----------------------|-----|-----|-----|------|------|-----------------------|--------------------|-----------------|-----------------------------|
|                   |        |           |                                | 100                  | 300 | 500 | 800 | 1000 | 1800 |                       |                    |                 |                             |
| MSDCL0603C1N0□TDF | 1.0    | 3         | 100                            | 4                    | 8   | 11  | 14  | 16   | 21   | >6000                 | 0.1                | 600             | 0.3±0.05<br>[.012±.002]     |
| MSDCL0603C1N1□TDF | 1.1    | 3         | 100                            | 4                    | 8   | 11  | 15  | 17   | 22   | >6000                 | 0.12               | 600             |                             |
| MSDCL0603C1N2□TDF | 1.2    | 3         | 100                            | 4                    | 9   | 12  | 16  | 18   | 22   | >6000                 | 0.13               | 550             |                             |
| MSDCL0603C1N3□TDF | 1.3    | 3         | 100                            | 4                    | 9   | 12  | 16  | 18   | 23   | >6000                 | 0.14               | 550             |                             |
| MSDCL0603C1N5□TDF | 1.5    | 4         | 100                            | 5                    | 9   | 13  | 17  | 19   | 24   | >6000                 | 0.15               | 550             |                             |
| MSDCL0603C1N6□TDF | 1.6    | 4         | 100                            | 5                    | 9   | 12  | 16  | 18   | 23   | >6000                 | 0.16               | 550             |                             |
| MSDCL0603C1N8□TDF | 1.8    | 4         | 100                            | 5                    | 9   | 12  | 15  | 17   | 22   | >6000                 | 0.16               | 550             |                             |
| MSDCL0603C2N0□TDF | 2.0    | 4.5       | 100                            | 5                    | 9   | 12  | 15  | 17   | 21   | >6000                 | 0.2                | 500             |                             |
| MSDCL0603C2N2□TDF | 2.2    | 4.5       | 100                            | 5                    | 9   | 12  | 15  | 17   | 21   | >6000                 | 0.22               | 440             |                             |
| MSDCL0603C2N4□TDF | 2.4    | 4.5       | 100                            | 5                    | 10  | 12  | 16  | 18   | 22   | >6000                 | 0.25               | 420             |                             |
| MSDCL0603C2N7□TDF | 2.7    | 4.5       | 100                            | 5                    | 10  | 13  | 17  | 19   | 23   | >6000                 | 0.25               | 400             |                             |
| MSDCL0603C3N0□TDF | 3.0    | 4.5       | 100                            | 5                    | 10  | 13  | 17  | 19   | 23   | >6000                 | 0.28               | 350             |                             |
| MSDCL0603C3N3□TDF | 3.3    | 4.5       | 100                            | 5                    | 10  | 13  | 17  | 19   | 23   | >6000                 | 0.3                | 300             |                             |
| MSDCL0603C3N6□TDF | 3.6    | 4.5       | 100                            | 5                    | 10  | 13  | 17  | 19   | 23   | 6000                  | 0.35               | 300             |                             |
| MSDCL0603C3N9□TDF | 3.9    | 4.5       | 100                            | 5                    | 11  | 14  | 18  | 20   | 24   | 6000                  | 0.35               | 300             |                             |
| MSDCL0603C4N3□TDF | 4.3    | 4.5       | 100                            | 5                    | 9   | 12  | 15  | 17   | 20   | 5500                  | 0.4                | 280             |                             |
| MSDCL0603C4N7□TDF | 4.7    | 4.5       | 100                            | 5                    | 9   | 12  | 15  | 17   | 20   | 5300                  | 0.4                | 280             |                             |
| MSDCL0603C5N1□TDF | 5.1    | 4.5       | 100                            | 5                    | 10  | 13  | 16  | 18   | 22   | 4800                  | 0.45               | 250             |                             |
| MSDCL0603C5N6□TDF | 5.6    | 5         | 100                            | 6                    | 11  | 14  | 18  | 20   | 23   | 4600                  | 0.45               | 250             |                             |
| MSDCL0603C6N2□TDF | 6.2    | 5         | 100                            | 6                    | 11  | 14  | 18  | 20   | 21   | 4200                  | 0.5                | 250             |                             |
| MSDCL0603C6N8□TDF | 6.8    | 5         | 100                            | 6                    | 11  | 13  | 17  | 19   | 21   | 3900                  | 0.5                | 250             |                             |
| MSDCL0603C7N5□TDF | 7.5    | 5         | 100                            | 6                    | 11  | 13  | 17  | 19   | 21   | 3600                  | 0.6                | 230             |                             |
| MSDCL0603C8N2□TDF | 8.2    | 5         | 100                            | 6                    | 11  | 13  | 17  | 19   | 21   | 3400                  | 0.6                | 230             |                             |
| MSDCL0603C9N1□TDF | 9.1    | 5         | 100                            | 6                    | 11  | 14  | 17  | 19   | 20   | 3300                  | 0.7                | 200             |                             |
| MSDCL0603C10N□TDF | 10     | 5         | 100                            | 6                    | 11  | 14  | 17  | 19   | 20   | 3200                  | 0.7                | 200             |                             |
| MSDCL0603C12N□TDF | 12     | 5         | 100                            | 6                    | 11  | 14  | 17  | 19   | 19   | 2800                  | 0.85               | 180             |                             |
| MSDCL0603C15N□TDF | 15     | 5         | 100                            | 6                    | 13  | 16  | 20  | 22   | 19   | 2300                  | 1.0                | 180             |                             |
| MSDCL0603C18N□TDF | 18     | 6         | 100                            | 7                    | 14  | 16  | 20  | 21   | 18   | 2200                  | 1.3                | 160             |                             |
| MSDCL0603C22N□TDF | 22     | 6         | 100                            | 7                    | 14  | 16  | 20  | 21   | 16   | 2000                  | 1.4                | 150             |                             |
| MSDCL0603C27N□TDF | 27     | 6         | 100                            | 7                    | 14  | 16  | 20  | 21   | 14   | 1800                  | 1.5                | 140             |                             |
| MSDCL0603C33N□TDF | 33     | 6         | 100                            | 7                    | 11  | 13  | 15  | 16   | 10   | 1600                  | 1.8                | 100             |                             |
| MSDCL0603C39N□TDF | 39     | 6         | 100                            | 7                    | 11  | 13  | 15  | 15   | 8    | 1500                  | 2                  | 80              |                             |
| MSDCL0603C47N□TDF | 47     | 6         | 100                            | 7                    | 11  | 13  | 14  | 14   | 5    | 1400                  | 2.2                | 80              |                             |
| MSDCL0603C56N□TDF | 56     | 6         | 100                            | 7                    | 11  | 13  | 13  | 12   | —    | 1200                  | 2.4                | 80              |                             |
| MSDCL0603C68N□TDF | 68     | 6         | 100                            | 7                    | 11  | 13  | 12  | 10   | —    | 1200                  | 2.8                | 80              |                             |
| MSDCL0603C82N□TDF | 82     | 6         | 100                            | 7                    | 11  | 13  | 12  | 10   | —    | 1000                  | 3.3                | 50              |                             |
| MSDCL0603CR10□TDF | 100    | 6         | 100                            | 7                    | 11  | 12  | 10  | 6    | —    | 1000                  | 3.8                | 50              |                             |
| MSDCL0603CR12□TDF | 120    | 6         | 100                            | 8                    | 12  | 12  | 10  | 5    | —    | 1000                  | 5.0                | 50              |                             |

Note: □: Please specify the inductance tolerance. For  $L \leq 4.2\text{nH}$ , choose  $B = \pm 0.1\text{nH}$ ,  $C = \pm 0.2\text{nH}$  or  $S = \pm 0.3\text{nH}$ ; For  $4.2\text{nH} < L < 5.6\text{nH}$ , choose  $H = \pm 3\%$ ,  $J = \pm 5\%$  or  $S = \pm 0.3\text{nH}$ ; For  $L \geq 5.6\text{nH}$ , choose  $H = \pm 3\%$ ,  $J = \pm 5\%$ .