

SCOPE :

This specification applies to the Pb Free high current type SMD inductors for
MSCDRI-6025LC-SERIES

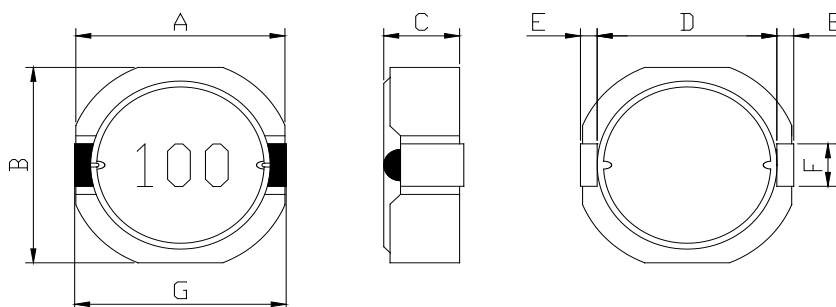
PRODUCT IDENTIFICATION

MSCDRI - 6025LC - 100 M

① ② ③ ④

- ① Product Code
- ② Dimensions Code
- ③ Inductance Code
- ④ Tolerance Code

(1) SHAPES AND DIMENSIONS



| | |
|--------------|----|
| A: 6.30 Max. | mm |
| B: 6.20 Max. | mm |
| C: 2.50 Max. | mm |
| D: 4.80 Ref. | mm |
| E: 0.60 Ref. | mm |
| F: 2.00 Ref. | mm |
| G: 6.40 Max. | mm |

(2) ELECTRICAL SPECIFICATIONS

SEE TABLE 1

TEST INSTRUMENTS

L : HP 4284A PRECISION LCR METER (or equivalent)

RDC : CHROMA MODEL 16502 MILLIOHMMETER (or equivalent)

(3) CHARACTERISTICS

(3)-1 Operate temperature range $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$

(Including self temp. rise)

(3)-2 Storage temperature range $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$



MAG.LAYERS

TABLE 1

| MAGLAYERS PT/NO. | Inductance L(μH) | Percent Tolerance | Test Frequency | Resistance RDC(Ω) Max. | Rated DC Current | | Marking |
|---------------------|---------------------|----------------------|-------------------|---------------------------|------------------|---------|---------|
| | | | | | IDC1(A) | IDC2(A) | |
| MSCDRI-6025LC-1R0□ | 1.0 | M,N | 100kHz/0.25V | 14m | 3.48 | 5.07 | 1R0 |
| MSCDRI-6025LC-1R5□ | 1.5 | M,N | 100kHz/0.25V | 17m | 2.83 | 4.33 | 1R5 |
| MSCDRI-6025LC-2R0□ | 2.0 | M,N | 100kHz/0.25V | 21m | 2.44 | 4.17 | 2R0 |
| MSCDRI-6025LC-2R2□ | 2.2 | M,N | 100kHz/0.25V | 21m | 2.44 | 4.17 | 2R2 |
| MSCDRI-6025LC-3R3□ | 3.3 | M,N | 100kHz/0.25V | 29m | 1.89 | 3.22 | 3R3 |
| MSCDRI-6025LC-4R3□ | 4.3 | M,N | 100kHz/0.25V | 37m | 1.65 | 2.90 | 4R3 |
| MSCDRI-6025LC-4R7□ | 4.7 | M,N | 100kHz/0.25V | 44m | 1.60 | 2.80 | 4R7 |
| MSCDRI-6025LC-6R2□ | 6.2 | M | 100kHz/0.25V | 52m | 1.37 | 2.18 | 6R2 |
| MSCDRI-6025LC-100□ | 10 | M | 100kHz/0.25V | 77m | 1.07 | 1.83 | 100 |
| MSCDRI-6025LC-120□ | 12 | M | 100kHz/0.25V | 90m | 0.97 | 1.62 | 120 |
| MSCDRI-6025LC-150□ | 15 | M | 100kHz/0.25V | 0.105 | 0.87 | 1.47 | 150 |
| MSCDRI-6025LC-180□ | 18 | M | 100kHz/0.25V | 0.129 | 0.79 | 1.37 | 180 |
| MSCDRI-6025LC-220□ | 22 | M | 100kHz/0.25V | 0.154 | 0.71 | 1.19 | 220 |
| MSCDRI-6025LC-270□ | 27 | M | 100kHz/0.25V | 0.204 | 0.64 | 1.11 | 270 |
| MSCDRI-6025LC-330□ | 33 | M | 100kHz/0.25V | 0.229 | 0.58 | 0.99 | 330 |
| MSCDRI-6025LC-390□ | 39 | M | 100kHz/0.25V | 0.294 | 0.53 | 0.87 | 390 |
| MSCDRI-6025LC-470□ | 47 | M | 100kHz/0.25V | 0.348 | 0.48 | 0.80 | 470 |
| MSCDRI-6025LC-560□ | 56 | M | 100kHz/0.25V | 0.413 | 0.44 | 0.74 | 560 |
| MSCDRI-6025LC-680□ | 68 | M | 100kHz/0.25V | 0.475 | 0.40 | 0.69 | 680 |
| MSCDRI-6025LC-820□ | 82 | M | 100kHz/0.25V | 0.558 | 0.36 | 0.66 | 820 |
| MSCDRI-6025LC-101□ | 100 | M | 100kHz/0.25V | 0.800 | 0.33 | 0.60 | 101 |

※ □ specify the inductance tolerance , M(±20%) , N(±30%)

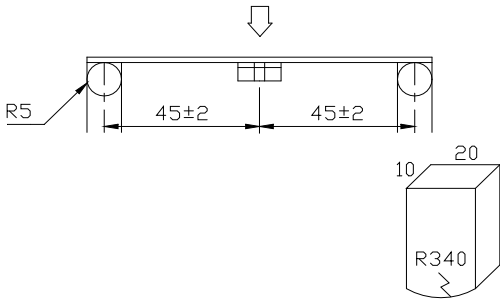
※ IDC1 : Based on inductance change (ΔL/Lo : drop 30% Max.)@ambient temperature 25°C

IDC2 : Based on temperature rise (ΔT : 40°C TYP.)

Rated DC Current : The less value which is IDC1 or IDC2.



(4) RELIABILITY TEST METHOD MECHANICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|-------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Substrate bending | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage or electrical damage. | <p>The sample shall be soldered onto the printed circuit board in figure 1 and a load applied until the figure in the arrow direction is made approximately 3mm.(keep time 30 seconds)</p> <p>PCB dimension shall the page 7/9</p> <p>F(Pressurization)</p>  <p>10 20 R340</p> <p>PRESSURE ROD figure-1</p> |
| Vibration | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage. | <p>The sample shall be soldered onto the printed circuit board and when a vibration having an amplitude of 1.52mm and a frequency of from 10 to 55Hz/1 minute repeated should be applied to the 3 directions (X,Y,Z) for 2 hours each. (A total of 6 hours)</p> |
| Solderability | New solder More than 90% | <p>Flux (rosin, isopropyl alcohol{JIS-K-1522}) shall be coated over the whole of the sample before hard, the sample shall then be preheated for about 2 minutes in a temperature of 130~150°C and after it has been immersed to a depth 0.5mm below for 3±0.2 seconds fully in molten solder M705 with a temperature of 245±5°C.</p> <p>More than 90% of the electrode sections shall be covered with new solder smoothly when the sample is taken out of the solder bath.</p> |

MECHANICAL

| TEST ITEM | SPECIFICATION | |
|-------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resistance to Soldering heat (reflow soldering) | There shall be no damage or problems. | <p>Temperature profile of reflow soldering</p> <p>The specimen shall be passed through the reflow oven with the condition shown in the above profile for 1 time.</p> <p>The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.</p> |

ELECTRICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Insulation resistance | There shall be no other damage or problems. | DC 100V voltage shall be applied across this sample of top surface and the terminal. The insulation resistance shall be more than $1 \times 10^8 \Omega$. |
| Dielectric withstand voltage | There shall be no other damage or problems. | AC 100V voltage shall be applied for 1 minute across the top surface and the terminal of this sample |
| Temperature characteristics | $\Delta L/L20^\circ\text{C} \leq \pm 10\%$ $0 \sim 2000 \text{ ppm}/^\circ\text{C}$ | The test shall be performed after the sample has stabilized in an ambient temperature of -20 to $+85^\circ\text{C}$, and the value calculated based on the value applicable in a normal temperature and normal humidity shall be $\Delta L/L20^\circ\text{C} \leq \pm 10\%$. |



ENVIROMENT CHARACTERISTICS

| TEST ITEM | SPECIFICATION | | | | | | | | | | | | | | | | |
|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------|----------|---|------------------------------------------------|---------|---|----------------------|-----------|---|-----------------------------------------------|---------|---|----------------------|-----------|
| High temperature storage | $\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be left for 96 ± 4 hours in an atmosphere with a temperature of $85 \pm 2^\circ\text{C}$ and a normal humidity. Upon completion of the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour. | | | | | | | | | | | | | | | |
| Low temperature storage | $\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be left for 96 ± 4 hours in an atmosphere with a temperature of $-25 \pm 3^\circ\text{C}$. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour. | | | | | | | | | | | | | | | |
| Change of temperature | $\Delta L/Lo \leq \pm 5\%$ There shall be no other damage of problems | The sample shall be subject to 5 continuous cycles, such as shown in the table 2 below and then it shall be subjected to standard atmospheric conditions for 1 hour, after which measurement shall be made. <div style="text-align: center;"> table 2 <table border="1" style="margin: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">Temperature</th> <th style="text-align: center;">Duration</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">$-25 \pm 3^\circ\text{C}$ (Thermostat No.1)</td> <td style="text-align: center;">30 min.</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">Standard atmospheric</td> <td style="text-align: center;">No.1→No.2</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">$85 \pm 2^\circ\text{C}$ (Thermostat No.2)</td> <td style="text-align: center;">30 min.</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">Standard atmospheric</td> <td style="text-align: center;">No.2→No.1</td> </tr> </tbody> </table> </div> | | Temperature | Duration | 1 | $-25 \pm 3^\circ\text{C}$ (Thermostat No.1) | 30 min. | 2 | Standard atmospheric | No.1→No.2 | 3 | $85 \pm 2^\circ\text{C}$ (Thermostat No.2) | 30 min. | 4 | Standard atmospheric | No.2→No.1 |
| | Temperature | Duration | | | | | | | | | | | | | | | |
| 1 | $-25 \pm 3^\circ\text{C}$ (Thermostat No.1) | 30 min. | | | | | | | | | | | | | | | |
| 2 | Standard atmospheric | No.1→No.2 | | | | | | | | | | | | | | | |
| 3 | $85 \pm 2^\circ\text{C}$ (Thermostat No.2) | 30 min. | | | | | | | | | | | | | | | |
| 4 | Standard atmospheric | No.2→No.1 | | | | | | | | | | | | | | | |
| Moisture storage | $\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be left for 96 ± 4 hours in a temperature of $40 \pm 2^\circ\text{C}$ and a humidity(RH) of 90~95%. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity more than 1 hour. | | | | | | | | | | | | | | | |
| Test conditions : The sample shall be reflow soldered onto the printed circuit board in every test. | | | | | | | | | | | | | | | | | |

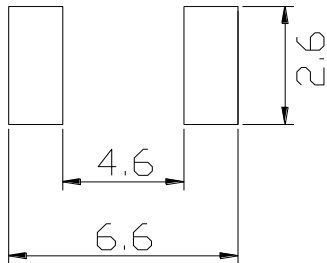
(5) LAND DIMENSION (Ref.)

PCB: GLASS EPOXY t=1.6mm

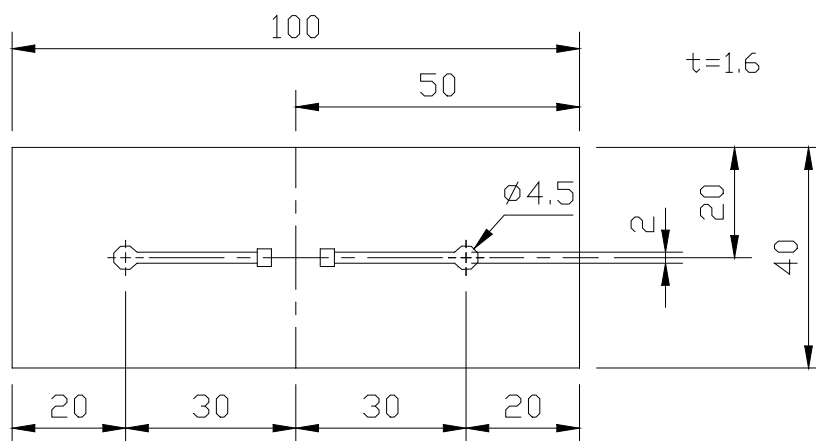
(5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN)

Unit:mm

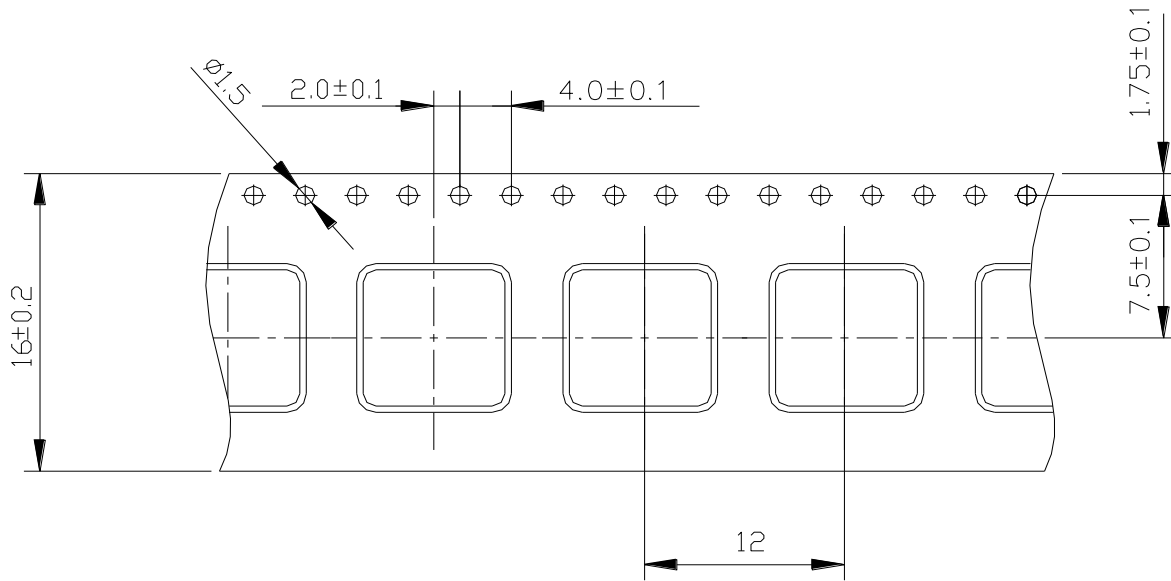


(5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD

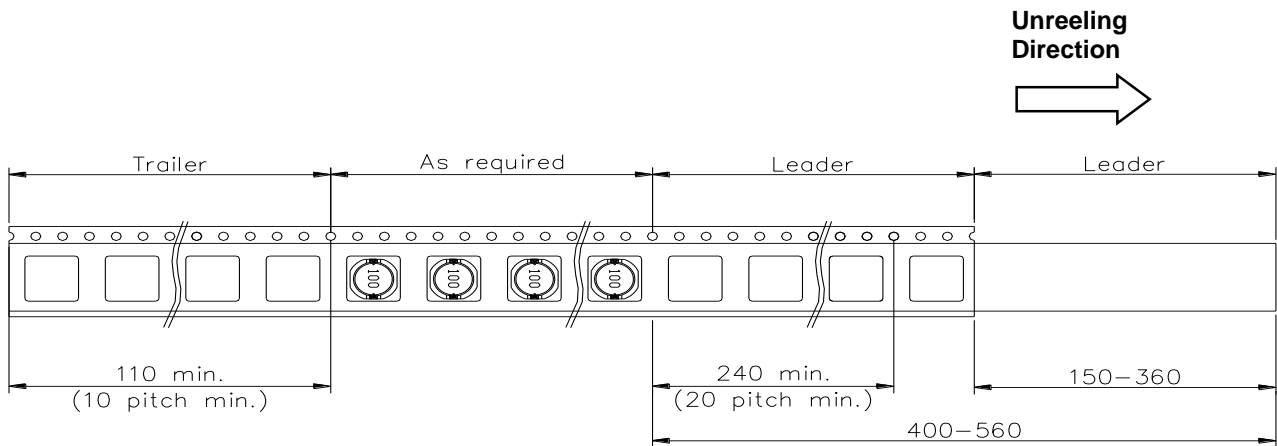


(6) PACKAGING

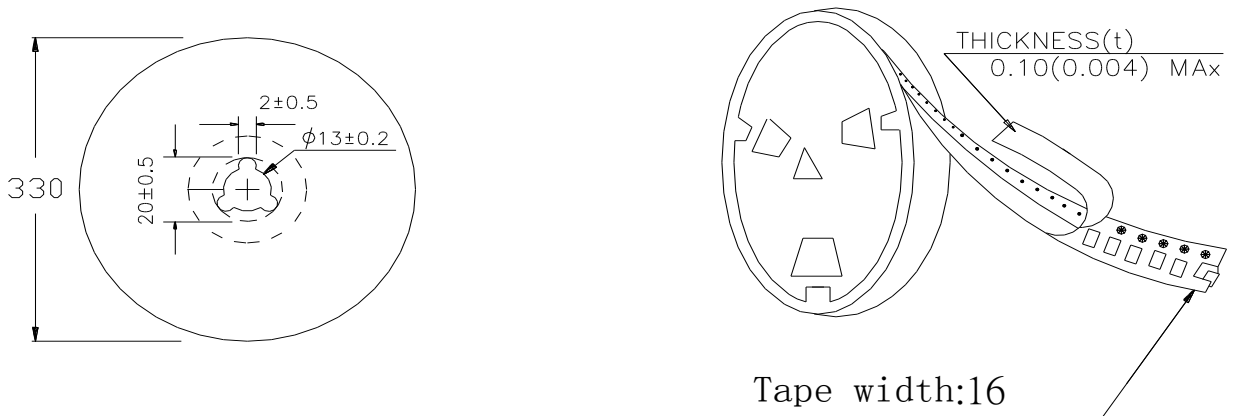
(6)-1 CARRIER TAPE DIMENSIONS (mm)



(6)-2 TAPING DIMENSIONS (mm)



(6)-3 REEL DIMENSIONS (mm)



(6)-4 QUANTITY

1500pcs/Reel

The products are packaged so that no damage will be sustained.



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