

SCOPE :

This specification applies to the Pb Free high current type SMD inductors for
MSCDRI-6030LC-SERIES

PRODUCT IDENTIFICATION

MSCDRI - 6030LC - 100 M

① ② ③ ④

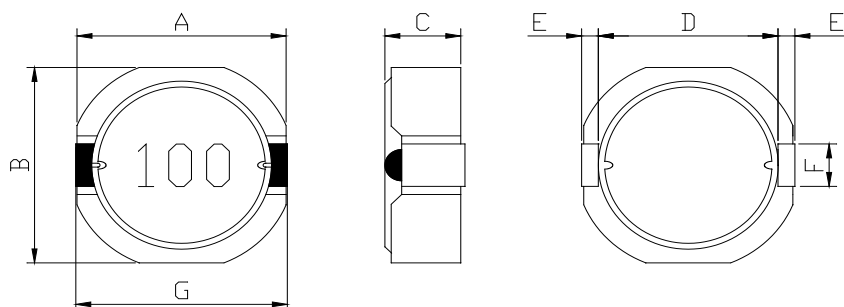
① Product Code

② Dimensions Code

③ Inductance Code

④ Tolerance Code

(1) SHAPES AND DIMENSIONS



A: 6.30 Max.	mm
B: 6.20 Max.	mm
C: 3.00 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 $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$



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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-6030LC-1R0□	1.0	N	100kHz/0.25V	14m	3.59	5.32	1R0
MSCDRI-6030LC-1R5□	1.5	N	100kHz/0.25V	16m	2.93	4.45	1R5
MSCDRI-6030LC-2R2□	2.2	N	100kHz/0.25V	20m	2.42	4.13	2R2
MSCDRI-6030LC-3R3□	3.3	N	100kHz/0.25V	26m	1.89	3.54	3R3
MSCDRI-6030LC-3R6□	3.6	N	100kHz/0.25V	26m	1.89	3.54	3R6
MSCDRI-6030LC-4R7□	4.7	N	100kHz/0.25V	33m	1.66	3.03	4R7
MSCDRI-6030LC-6R2□	6.2	N	100kHz/0.25V	39m	1.45	2.69	6R2
MSCDRI-6030LC-6R8□	6.8	M,N	100kHz/0.25V	41m	1.40	2.60	6R8
MSCDRI-6030LC-8R2□	8.2	M,N	100kHz/0.25V	49m	1.20	2.50	8R2
MSCDRI-6030LC-100□	10	M,N	100kHz/0.25V	59m	1.14	2.25	100
MSCDRI-6030LC-120□	12	M,N	100kHz/0.25V	63m	1.04	2.12	120
MSCDRI-6030LC-150□	15	M,N	100kHz/0.25V	75m	0.93	2.04	150
MSCDRI-6030LC-180□	18	M,N	100kHz/0.25V	89m	0.85	1.86	180
MSCDRI-6030LC-220□	22	M,N	100kHz/0.25V	0.115	0.77	1.58	220
MSCDRI-6030LC-270□	27	M,N	100kHz/0.25V	0.144	0.70	1.35	270
MSCDRI-6030LC-330□	33	M,N	100kHz/0.25V	0.168	0.63	1.19	330
MSCDRI-6030LC-390□	39	M,N	100kHz/0.25V	0.180	0.58	1.16	390
MSCDRI-6030LC-470□	47	M,N	100kHz/0.25V	0.225	0.53	1.05	470
MSCDRI-6030LC-560□	56	M,N	100kHz/0.25V	0.264	0.48	0.97	560
MSCDRI-6030LC-680□	68	M,N	100kHz/0.25V	0.324	0.44	0.87	680
MSCDRI-6030LC-820□	82	M,N	100kHz/0.25V	0.396	0.40	0.76	820
MSCDRI-6030LC-101□	100	M,N	100kHz/0.25V	0.498	0.36	0.69	101
MSCDRI-6030LC-151□	150	M,N	100kHz/0.25V	0.738	0.31	0.52	151
MSCDRI-6030LC-221□	220	M,N	100kHz/0.25V	1.400	0.28	0.45	221
MSCDRI-6030LC-331□	330	M,N	100kHz/0.25V	2.100	0.18	0.42	331

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

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

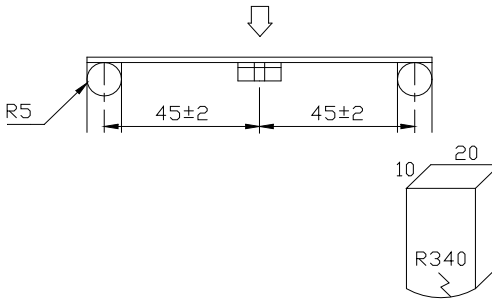
IDC2 : Based on temperature rise (ΔT : 40℃ TYP.)

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



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(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>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.	<p>DC 100V voltage shall be applied across this sample of top surface and the terminal.</p> <p>The insulation resistance shall be more than $1 \times 10^8 \Omega$.</p>
Dielectric withstand voltage	There shall be no other damage or problems.	<p>AC 100V voltage shall be applied for 1 minute across the top surface and the terminal of this sample</p>
Temperature characteristics	$\Delta L/L20^\circ\text{C} \leq \pm 10\%$ $0 \sim 2000 \text{ ppm}/^\circ\text{C}$	<p>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 $\Delta L/L20^\circ\text{C} \leq \pm 10\%$.</p>



ENVIROMENT CHARACTERISTICS

TEST ITEM	SPECIFICATION																
High temperature storage	$\Delta L/L_0 \leq \pm 5\%$ 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	$\Delta L/L_0 \leq \pm 5\%$ 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	$\Delta L/L_0 \leq \pm 5\%$ There shall be no other damage of problems	The sample shall be subject to 5 continuos 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</div> <table border="1"> <thead> <tr> <th></th><th>Temperature</th><th>Duration</th></tr> </thead> <tbody> <tr> <td>1</td><td>$-25 \pm 3^\circ\text{C}$ (Thermostat No.1)</td><td>30 min.</td></tr> <tr> <td>2</td><td>Standard atmospheric</td><td>No.1→No.2</td></tr> <tr> <td>3</td><td>$85 \pm 2^\circ\text{C}$ (Thermostat No.2)</td><td>30 min.</td></tr> <tr> <td>4</td><td>Standard atmospheric</td><td>No.2→No.1</td></tr> </tbody> </table>		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	$\Delta L/L_0 \leq \pm 5\%$ 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.																	

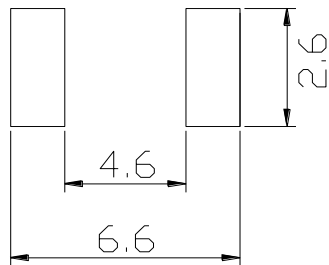


(5) LAND DIMENSION (Ref.)

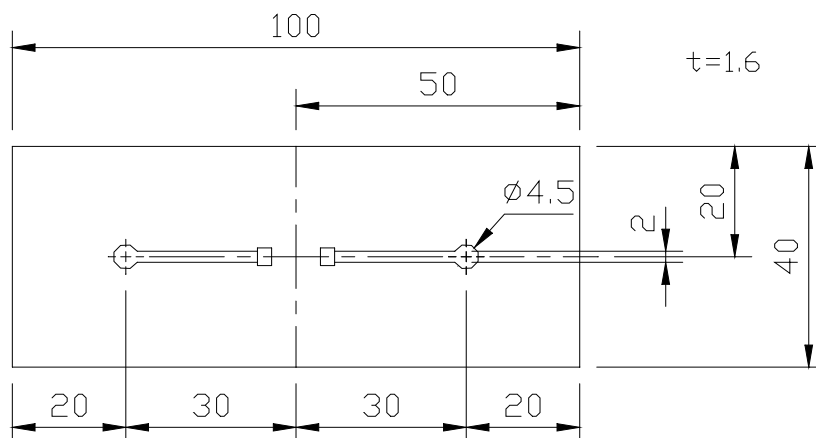
PCB: GLASS EPOXY t=1.6mm

(5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN) Unit : mm

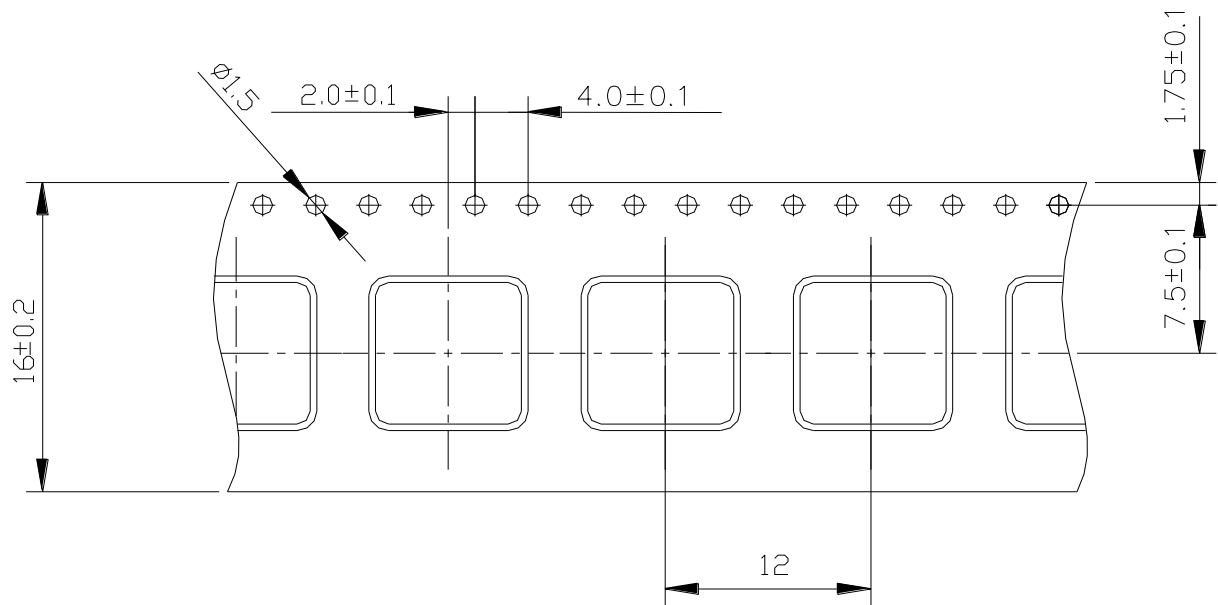


(5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD

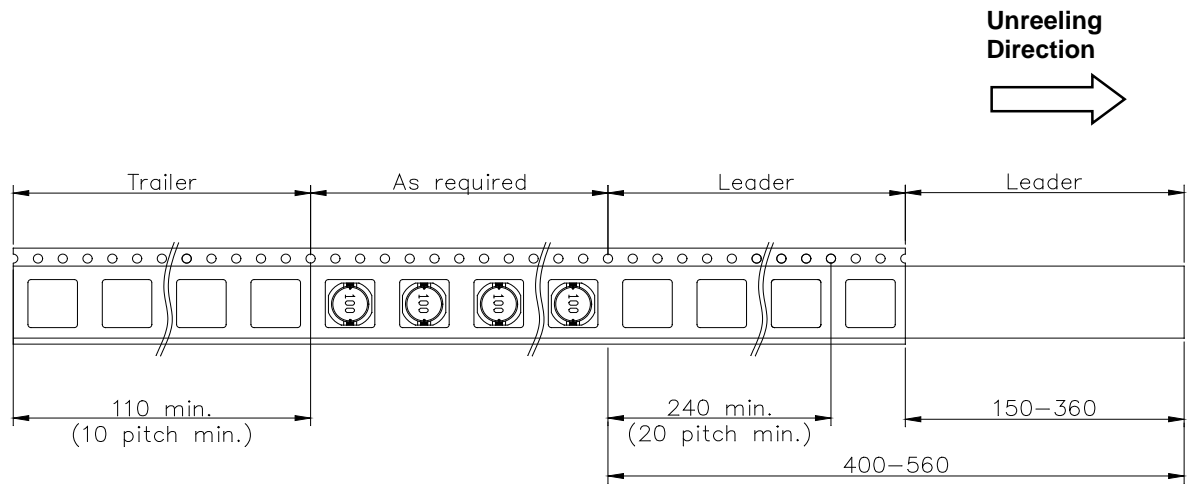


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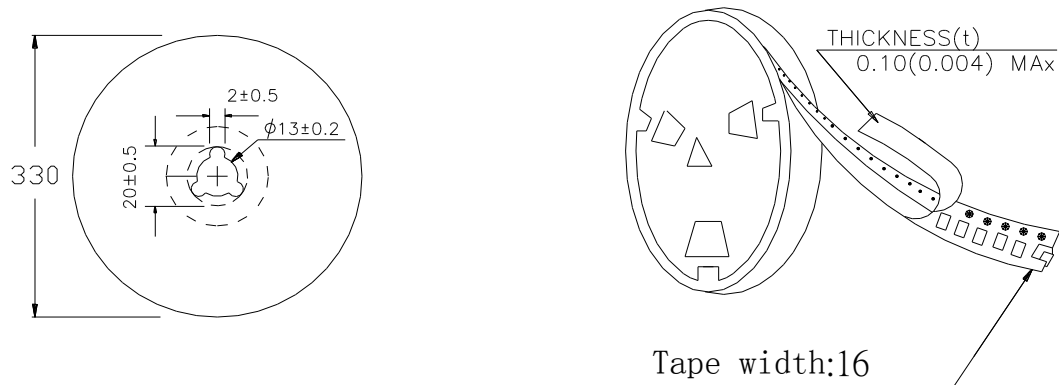
(6) PACKAGING
(6)-1 CARRIER TAPE DIMENSIONS (mm)



(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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