

SCOPE :

This specification applies to the Pb Free high current type SMD inductors for
MSCDRB-0905-SERIES

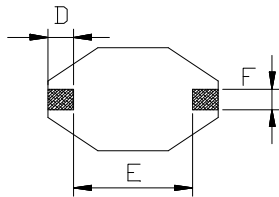
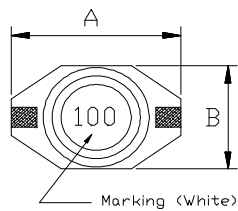
PRODUCT IDENTIFICATION

MSCDRB - 0905 - 100 M

① ② ③ ④

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

(1) SHAPES AND DIMENSIONS



A:	13.5	Max.	mm
B:	9.50	Max.	mm
C:	5.20	Max.	mm
D:	2.54	Typ.	mm
E:	7.80	Typ.	mm
F:	2.54	Typ.	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 Ambient temperature +60°C Max.
- (3)-2 Operate temperature range -40°C ~ +125°C
(Including self temp. rise)
- (3)-3 Storage temperature range -40°C ~ +125°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)	
MSCDRB-0905-R47□	0.47	M,N	100kHz/0.25V	10m	7.5	8.00	R47
MSCDRB-0905-1R0□	1.0	N	100kHz/0.25V	21m	5.6	5.00	1R0
MSCDRB-0905-1R5□	1.5	M,N	100kHz/0.25V	22m	5.2	4.95	1R5
MSCDRB-0905-2R2□	2.2	N	100kHz/0.25V	32m	5.0	4.70	2R2
MSCDRB-0905-3R3□	3.3	M,N	100kHz/0.25V	39m	3.9	3.50	3R3
MSCDRB-0905-4R7□	4.7	N	100kHz/0.25V	54m	3.2	2.80	4R7
MSCDRB-0905-6R8□	6.8	N	100kHz/0.25V	75m	2.8	2.40	6R8
MSCDRB-0905-100□	10	M,N	100kHz/0.25V	0.101	2.4	1.70	100
MSCDRB-0905-150□	15	M,N	100kHz/0.25V	0.150	2.0	1.35	150
MSCDRB-0905-220□	22	M,N	100kHz/0.25V	0.207	1.6	1.20	220
MSCDRB-0905-330□	33	M,N	100kHz/0.25V	0.334	1.4	1.00	330
MSCDRB-0905-470□	47	M,N	100kHz/0.25V	0.472	1.0	0.80	470
MSCDRB-0905-680□	68	M,N	100kHz/0.25V	0.66	0.9	0.70	680
MSCDRB-0905-101□	100	M,N	100kHz/0.25V	1.11	0.8	0.60	101
MSCDRB-0905-151□	150	M,N	100kHz/0.25V	1.55	0.6	0.45	151
MSCDRB-0905-221□	220	M,N	100kHz/0.25V	2.00	0.5	0.35	221

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

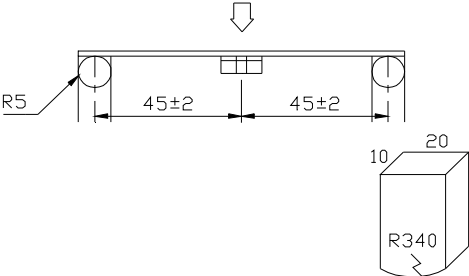
※ IDC1 : Based on inductance change ($\Delta L/L_0 : \leq \text{drop } 10\%$) @ ambient temperature 25℃

IDC2 : Based on temperature rise ($\Delta T : 40^\circ\text{C TYP.}$)

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>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	$\Delta L/Lo \leq \pm 5\%$ 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; margin-top: 10px;"> table 2 <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <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> </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.																	



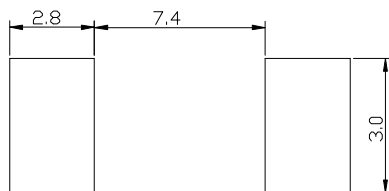
(5) LAND DIMENSION (Ref.)

PCB: GLASS EPOXY $t=1.6\text{mm}$

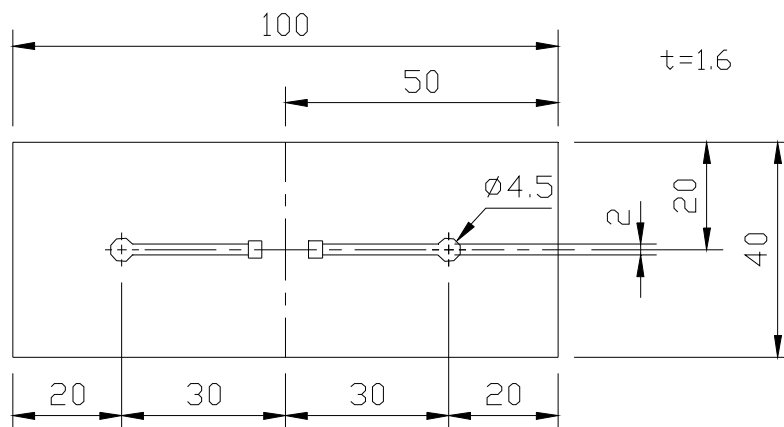
(5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN)

unit : mm



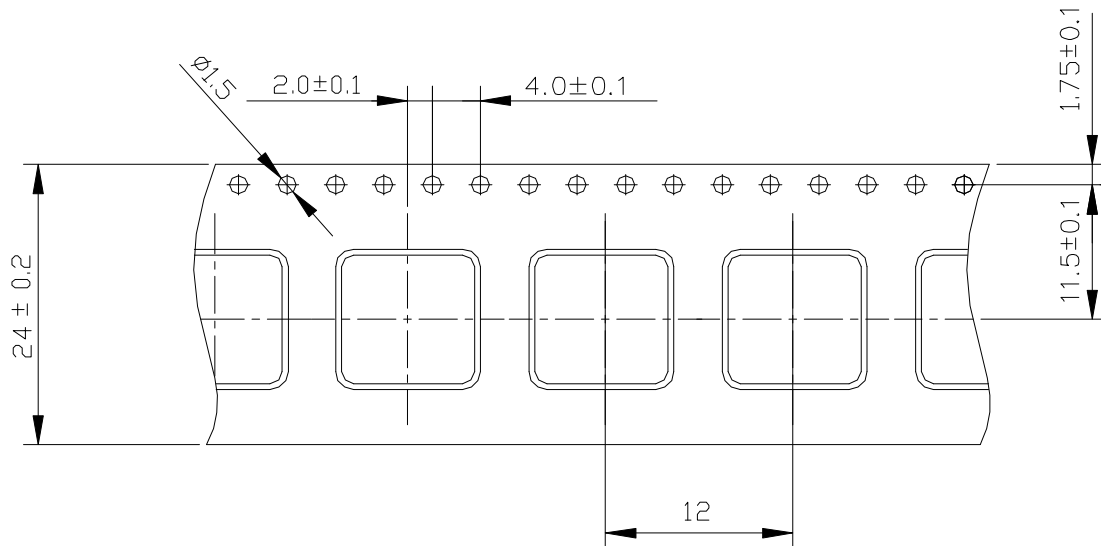
(5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD



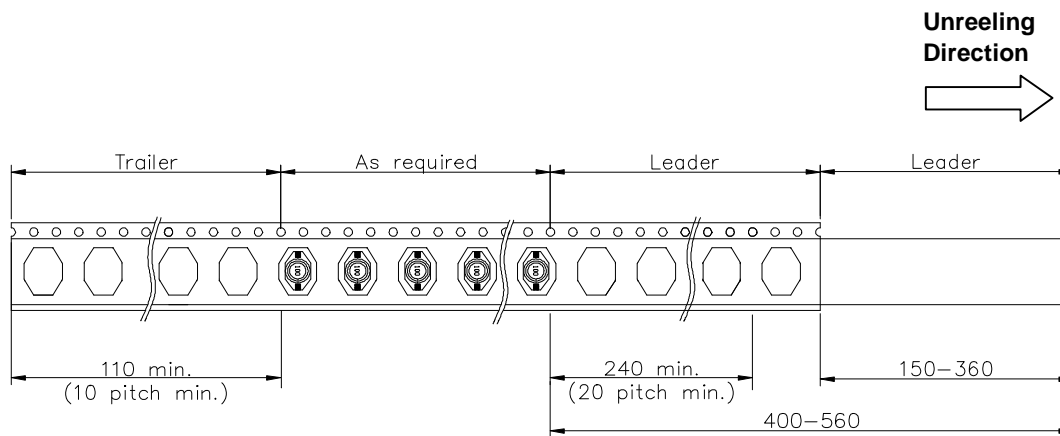
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(6) PACKAGING

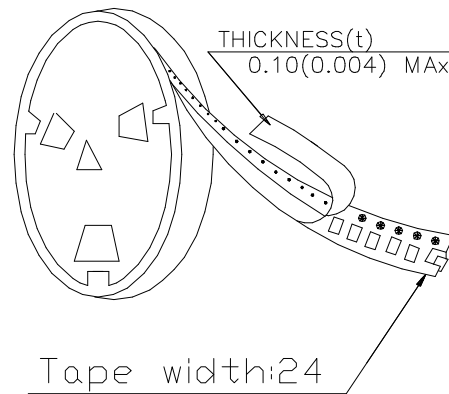
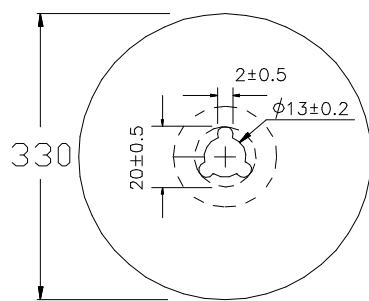
(6)-1 CARRIER TAPE DIMENSIONS (mm)



(6)-2 TAPING DIMENSIONS (mm)



(6)-3 REEL DIMENSIONS (mm)



(6)-4 QUANTITY

1000pcs/Reel

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



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