

SCOPE :

This specification applies to the Pb Free high current type SMD inductors for
MSCDB-1807-SERIES

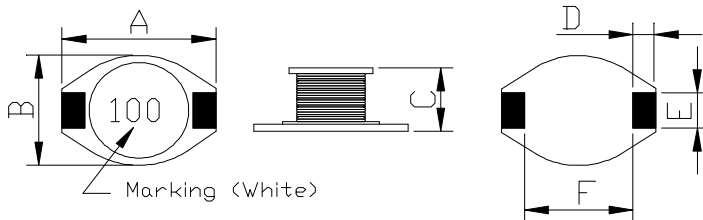
PRODUCT IDENTIFICATION

MSCDB - 1807 - 100 M

① ② ③ ④

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

(1) SHAPES AND DIMENSIONS



A: 18.50 Max.	mm
B: 15.50 Max.	mm
C: 7.50 Max.	mm
D: 2.54 Typ.	mm
E: 2.54 Typ.	mm
F: 12.95 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



TABLE 1

MAGLAYERS PT/NO.	Inductance L(μ H)	Percent Tolerance	Test Frequency	Resistance RDC(Ω)Max.	Rated DC Current		Marking
					IDC1(A)	IDC2(A)	
MSCDB-1807-1R0□	1.0	M,N	100kHz/0.25V	11m	20	8.6	1R0
MSCDB-1807-1R5□	1.5	M,N	100kHz/0.25V	13m	18	7.9	1R5
MSCDB-1807-2R2□	2.2	N	100kHz/0.25V	14m	16	7.1	2R2
MSCDB-1807-3R3□	3.3	N	100kHz/0.25V	16m	14	6.2	3R3
MSCDB-1807-4R7□	4.7	M,N	100kHz/0.25V	18m	13	5.7	4R7
MSCDB-1807-5R6□	5.6	N	100kHz/0.25V	22m	12	5.3	5R6
MSCDB-1807-6R8□	6.8	M,N	100kHz/0.25V	27m	11.5	5.0	6R8
MSCDB-1807-8R0□	8.0	M,N	100kHz/0.25V	29m	11.0	4.7	8R0
MSCDB-1807-100□	10	M,N	100kHz/0.25V	32m	10.0	4.3	100
MSCDB-1807-150□	15	M,N	100kHz/0.25V	36m	8.0	4.0	150
MSCDB-1807-220□	22	M,N	100kHz/0.25V	47m	7.0	3.5	220
MSCDB-1807-330□	33	M,N	100kHz/0.25V	66m	5.5	3.0	330
MSCDB-1807-470□	47	M,N	100kHz/0.25V	87m	4.5	2.6	470
MSCDB-1807-680□	68	M,N	100kHz/0.25V	0.13	3.5	2.3	680
MSCDB-1807-101□	100	K,M	100kHz/0.25V	0.19	3.0	1.8	101
MSCDB-1807-151□	150	K,M	100kHz/0.25V	0.25	2.6	1.5	151
MSCDB-1807-221□	220	K,M	100kHz/0.25V	0.38	2.4	1.2	221
MSCDB-1807-331□	330	K,M	100kHz/0.25V	0.56	1.9	1.0	331
MSCDB-1807-391□	390	K,M	100kHz/0.25V	0.75	1.6	0.90	391
MSCDB-1807-471□	470	K,M	100kHz/0.25V	0.85	1.4	0.82	471
MSCDB-1807-681□	680	K,M	100kHz/0.25V	1.20	1.2	0.72	681
MSCDB-1807-102□	1000	K,M	100kHz/0.25V	1.80	1.0	0.56	102
MSCDB-1807-332□	3300	K,M	100kHz/0.25V	7.00	0.5	0.25	102

※ □ specify the inductance tolerance, K(\pm 10%), M(\pm 20%), N(\pm 30%)

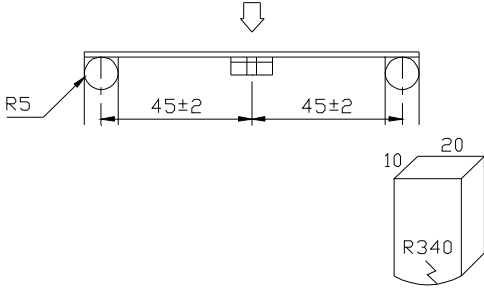
※ IDC1 : Based on inductance change (Δ L/Lo : \leq drop 10%) @ ambient temp. 25°C

IDC2 : Based on temperature rise (Δ T : 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>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 style="text-align: center;">Temperature profile of reflow soldering</p> <p>The graph shows the soldering temperature profile. The y-axis is 'Soldering temperature (°C)' ranging from 50 to 300. The x-axis represents time. The profile starts with a 2-minute pre-heating phase at 150 ~ 180°C. This is followed by a 10-second soldering phase where the temperature reaches a peak of 260±3°C. A 30-minute minimum dwell is maintained at 230±0°C. The final phase is slow cooling, where the specimen is stored at room temperature for 2 minutes or more.</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
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	$\Delta L/L20^{\circ}C \leq \pm 10\%$ 0 ~ 2000 ppm/°C	The test shall be performed after the sample has stabilized in an ambient temperature of -20 to +85°C, and the value calculated based on the value applicable in a normal temperature and normal humidity shall be $\Delta L/L20^{\circ}C \leq \pm 10\%$.

ENVIROMENT CHARACTERISTICS

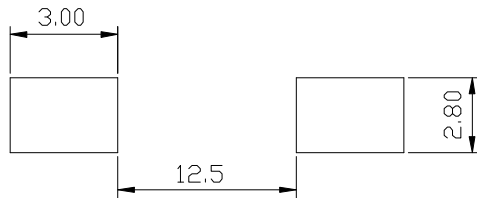
TEST ITEM	SPECIFICATION																
High temperature storage	$\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage.	The sample shall be left for 96±4 hours in an atmosphere with a temperature of 85±2°C and a normal humidity. Upon completion of the measurement shall be made after the sample 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±3°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-left: auto; margin-right: 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±3°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±2°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±3°C (Thermostat No.1)	30 min.	2	Standard atmospheric	No.1→No.2	3	85±2°C (Thermostat No.2)	30 min.	4	Standard atmospheric	No.2→No.1
	Temperature	Duration															
1	- 25±3°C (Thermostat No.1)	30 min.															
2	Standard atmospheric	No.1→No.2															
3	85±2°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±2°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.)

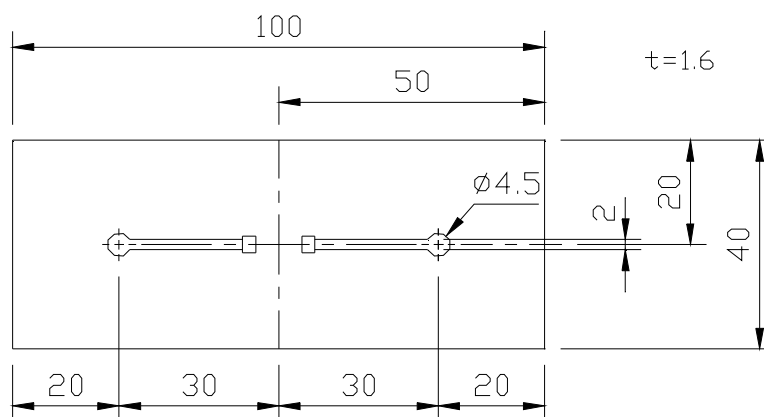
PCB: GLASS EPOXY $t=1.6\text{mm}$

(5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN) unit : mm

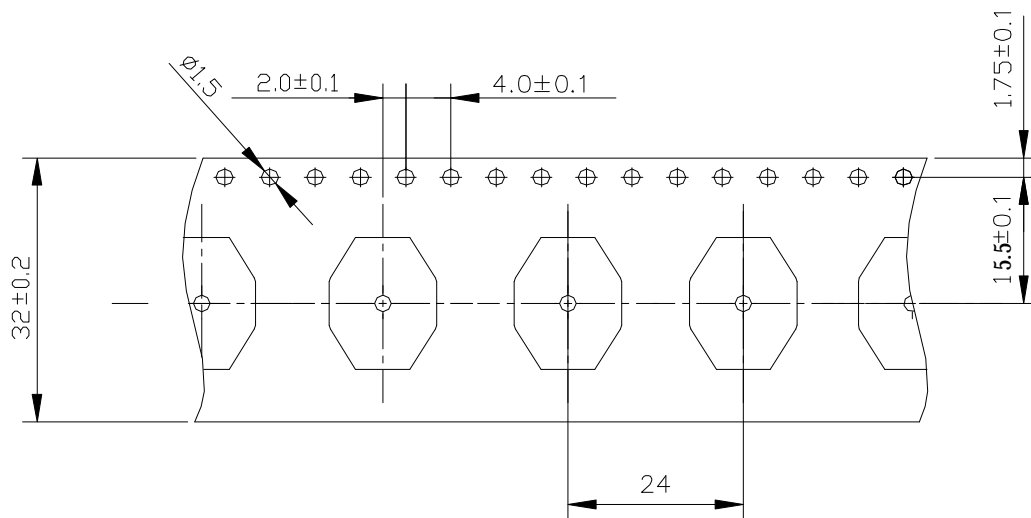


(5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD

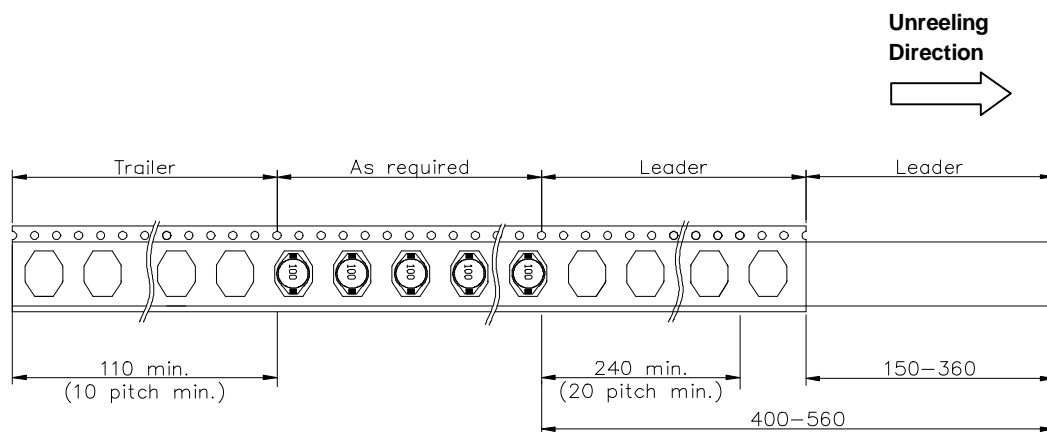


(6) PACKAGING

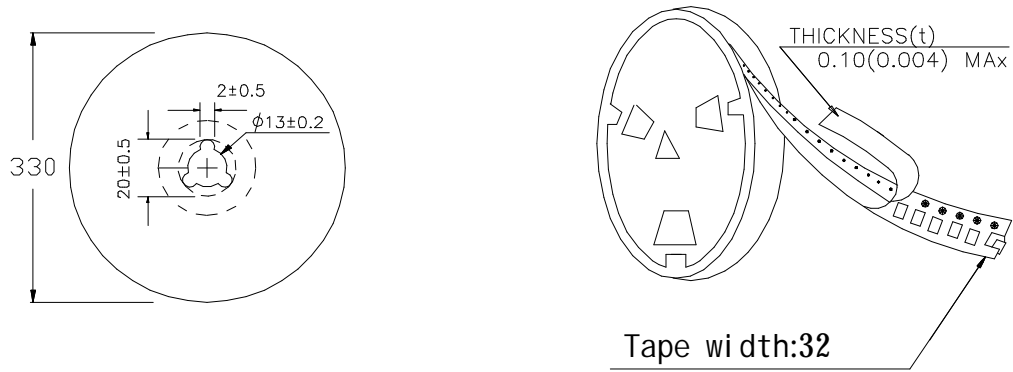
(6)-1 CARRIER TAPE DIMENSIONS (mm)



(6)-2 TAPING DIMENSIONS (mm)



(6)-3 REEL DIMENSIONS (mm)



(6)-4 QUANTITY

300pcs/Reel

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

