

SCOPE :

This specification applies to the Pb Free high current type SMD inductors for
MSCDB-1305-SERIES

Warn : It is here not to use synchronous rectification circuit !

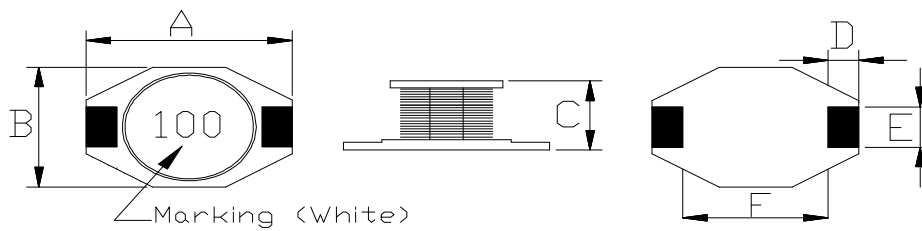
PRODUCT IDENTIFICATION

MSCDB - 1305 - 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:	5.50 Max.	mm
D:	2.54 Typ.	mm
E:	2.54 Typ.	mm
F:	7.62 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)



MAG.LAYERS

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-1305-1R0□	1.0	M,N	100kHz/0.25V	9m	9.00	6.80	1R0
MSCDB-1305-1R5□	1.5	M,N	100kHz/0.25V	10m	8.00	6.40	1R5
MSCDB-1305-2R2□	2.2	M,N	100kHz/0.25V	12m	7.00	6.10	2R2
MSCDB-1305-3R3□	3.3	M,N	100kHz/0.25V	15m	6.40	5.40	3R3
MSCDB-1305-4R7□	4.7	M,N	100kHz/0.25V	20m	5.40	4.80	4R7
MSCDB-1305-5R6□	5.6	M,N	100kHz/0.25V	25m	5.00	4.60	5R6
MSCDB-1305-6R8□	6.8	M,N	100kHz/0.25V	27m	4.60	4.40	6R8
MSCDB-1305-8R0□	8.0	M,N	100kHz/0.25V	31m	4.30	4.20	8R0
MSCDB-1305-100□	10	M,N	100kHz/0.25V	38m	3.80	3.90	100
MSCDB-1305-150□	15	M,N	100kHz/0.25V	50m	3.00	3.10	150
MSCDB-1305-220□	22	M,N	100kHz/0.25V	85m	2.6	2.70	220
MSCDB-1305-330□	33	M,N	100kHz/0.25V	0.10	2.00	2.10	330
MSCDB-1305-470□	47	M,N	100kHz/0.25V	0.14	1.60	1.80	470
MSCDB-1305-680□	68	M,N	100kHz/0.25V	0.20	1.40	1.50	680
MSCDB-1305-101□	100	K,M	100kHz/0.25V	0.28	1.20	1.30	101
MSCDB-1305-151□	150	K,M	100kHz/0.25V	0.40	1.00	1.00	151
MSCDB-1305-221□	220	K,M	100kHz/0.25V	0.61	0.70	0.80	221
MSCDB-1305-331□	330	K,M	100kHz/0.25V	1.02	0.60	0.60	331
MSCDB-1305-471□	470	K,M	100kHz/0.25V	1.40	0.50	0.50	471
MSCDB-1305-681□	680	K,M	100kHz/0.25V	2.02	0.40	0.40	681
MSCDB-1305-102□	1000	K,M	100kHz/0.25V	3.00	0.30	0.30	102
MSCDB-1305-152□	1500	K,M	100kHz/0.25V	4.49	0.29	0.27	152
MSCDB-1305-222□	2200	K,M	100kHz/0.25V	8.50	0.25	0.20	222
MSCDB-1305-332□	3300	K,M	100kHz/0.25V	11.20	0.19	0.17	332

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

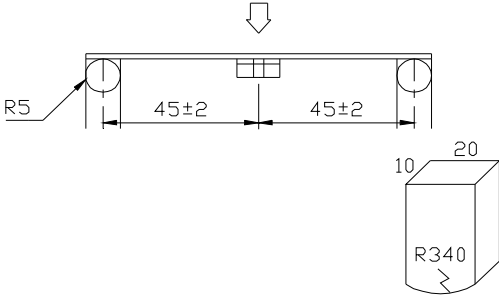
※ IDC1 : Based on inductance change (Δ L/Lo : drop 10% Max.)@ambient temperature 25°C

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 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	$\Delta L/L20^{\circ}\text{C} \leq \pm 10\%$ 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 $\Delta L/L20^{\circ}\text{C} \leq \pm 10\%$.

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 125°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 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	$\Delta L/L_0 \leq \pm 5\%$ 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.																	

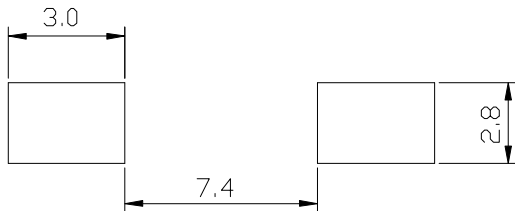
(5) LAND DIMENSION (Ref.)

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

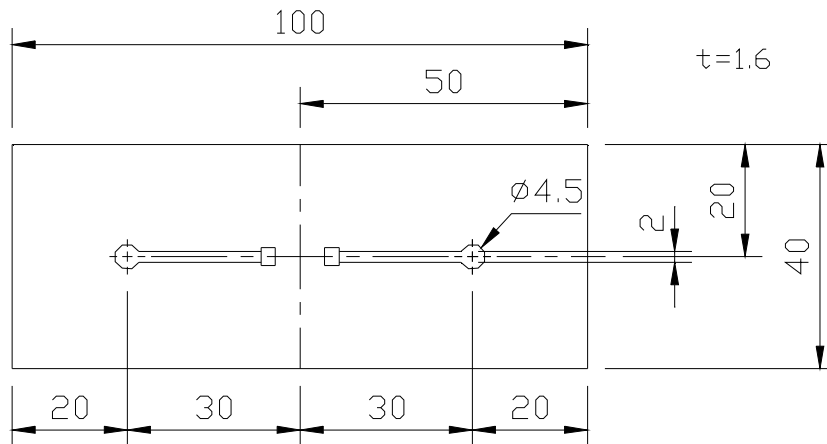
(5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN)

Unit:mm



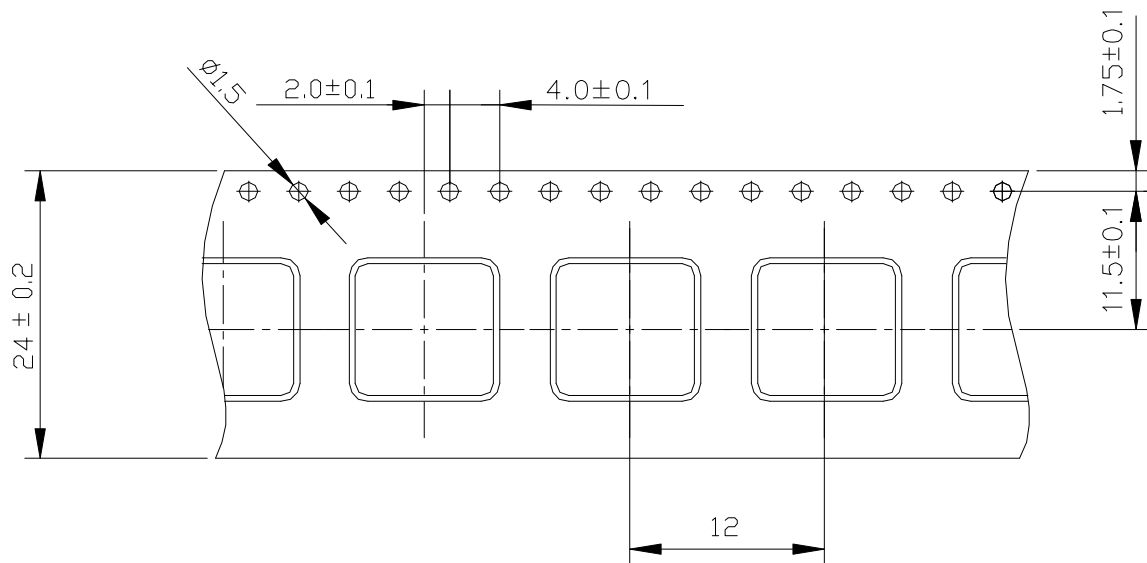
(5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD



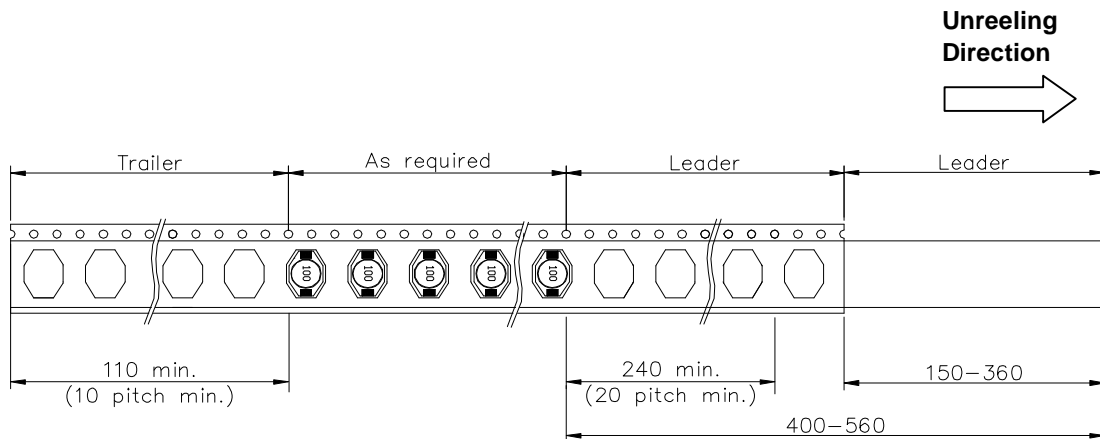
MAG.LAYERS

(6) PACKAGING

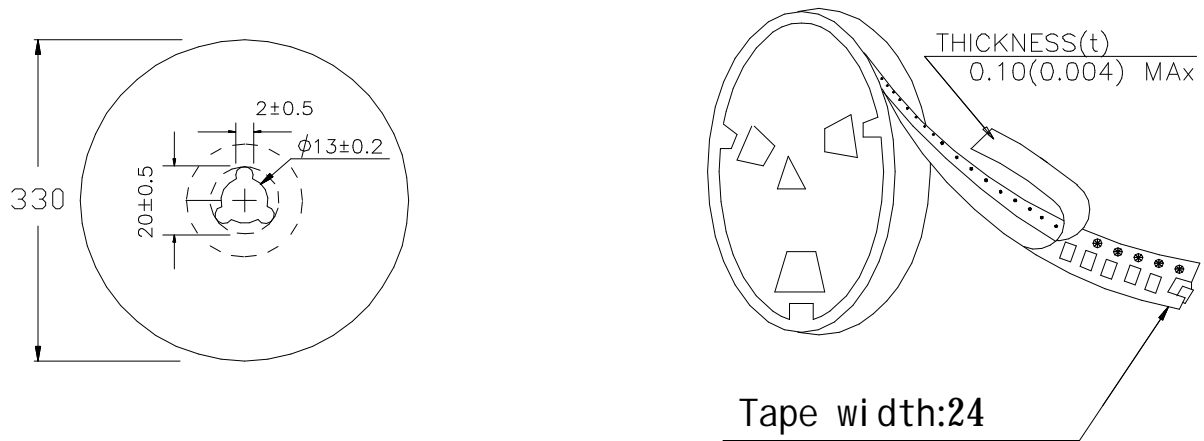
(6)-1 CARRIER TAPE DIMENSIONS (mm)



(6)-2 TAPING DIMENSIONS (mm)



(6)-3 REEL DIMENSIONS (mm)



(6)-4 QUANTITY

1000 pcs/Reel

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