

## SCOPE :

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

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

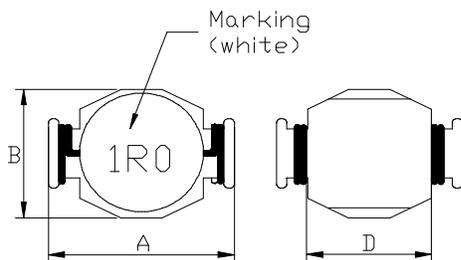
## PRODUCT IDENTIFICATION

MSCDB - 1305H - 1R0 M

①      ②      ③      ④

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

## (1) SHAPES AND DIMENSIONS



A: 13.20Max.      mm  
B: 9.95 Max.      mm  
C: 6.35 Max.      mm  
D: 9.60 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**

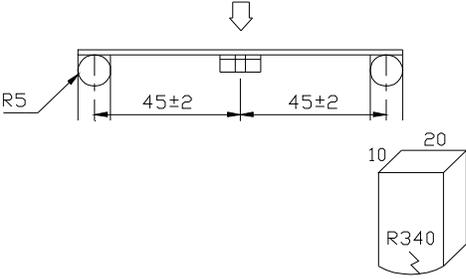
MAGLAYERS PT/NO.	Inductance L( $\mu$ H)	Percent Tolerance	Test Frequency	Resistance RDC( $\Omega$ )Max.	Rated DC Current IDC(A)	Marking
MSCDB-1305H-R33□	0.33	N	100kHz/0.25V	2m	16.0	R33
MSCDB-1305H-R47□	0.47	N	100kHz/0.25V	5m	10.6	R47
MSCDB-1305H-1R0□	1.0	M,N	100kHz/0.25V	6m	10.0	1R0
MSCDB-1305H-1R5□	1.5	M,N	100kHz/0.25V	8m	9.00	1R5
MSCDB-1305H-2R2□	2.2	M,N	100kHz/0.25V	11m	7.40	2R2
MSCDB-1305H-2R7□	2.7	M,N	100kHz/0.25V	12m	6.60	2R7
MSCDB-1305H-3R3□	3.3	M,N	100kHz/0.25V	14m	5.90	3R3
MSCDB-1305H-3R9□	3.9	M,N	100kHz/0.25V	15m	5.30	3R9
MSCDB-1305H-4R7□	4.7	M,N	100kHz/0.25V	18m	4.80	4R7
MSCDB-1305H-6R8□	6.8	M,N	100kHz/0.25V	23m	4.50	6R8
MSCDB-1305H-100□	10	M,N	100kHz/0.25V	30m	4.30	100
MSCDB-1305H-150□	15	M,N	100kHz/0.25V	45m	3.60	150
MSCDB-1305H-220□	22	M,N	100kHz/0.25V	64m	2.90	220
MSCDB-1305H-330□	33	M,N	100kHz/0.25V	99m	2.40	330
MSCDB-1305H-470□	47	M,N	100kHz/0.25V	0.146	1.90	470
MSCDB-1305H-680□	68	M,N	100kHz/0.25V	0.190	1.70	680
MSCDB-1305H-820□	82	M,N	100kHz/0.25V	0.268	1.50	820
MSCDB-1305H-101□	100	M,N	100kHz/0.25V	0.277	1.40	101
MSCDB-1305H-151□	150	M,N	100kHz/0.25V	0.424	1.10	151
MSCDB-1305H-221□	220	M,N	100kHz/0.25V	0.636	0.93	221
MSCDB-1305H-331□	330	M,N	100kHz/0.25V	0.977	0.76	331

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

※ IDC : Based on inductance change ( $\Delta$ L/Lo : drop 10% Max.) @ ambient temp. 25°C and  
Based on temperature rise ( $\Delta$ T : 40°C TYP.)



**(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.	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) PCB dimension shall the page 7/9 F(Pressurization)  PRESSURE ROD figure-1
Vibration	$\Delta L/L_0 \leq \pm 5\%$  There shall be no mechanical damage.	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)
Solderability	New solder More than 90%	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. More than 90% of the electrode sections shall be covered with new solder smoothly when the sample is taken out of the solder bath.

## MECHANICAL

TEST ITEM	SPECIFICATION	
Resistance to Soldering heat (reflow soldering)	There shall be no damage or problems.	<p style="text-align: center;"><b>Temperature profile of reflow soldering</b></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	$\Delta L/Lo \leq \pm 5\%$  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: 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
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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.																	

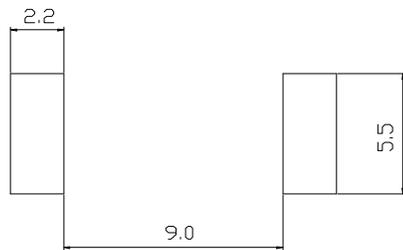
## (5) LAND DIMENSION (Ref.)

PCB: GLASS EPOXY t=1.6mm

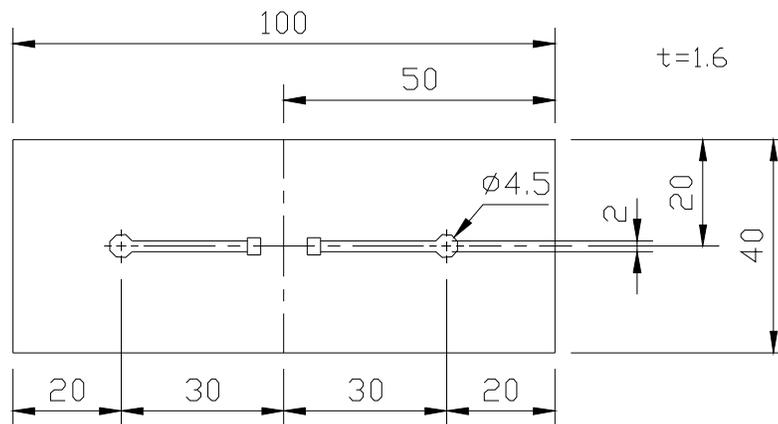
### (5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN)

unit : mm



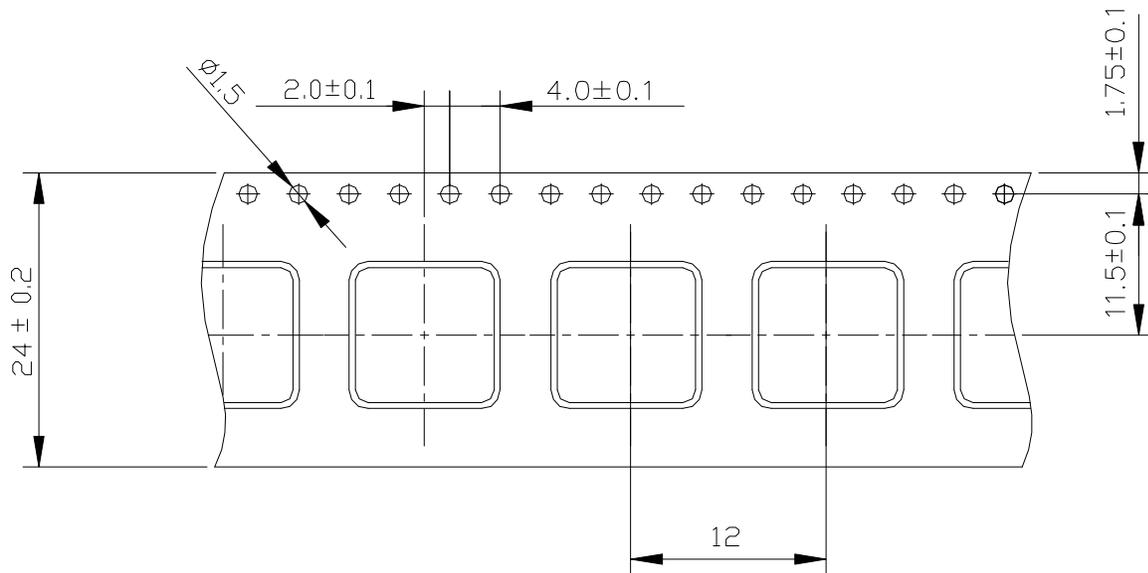
### (5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD



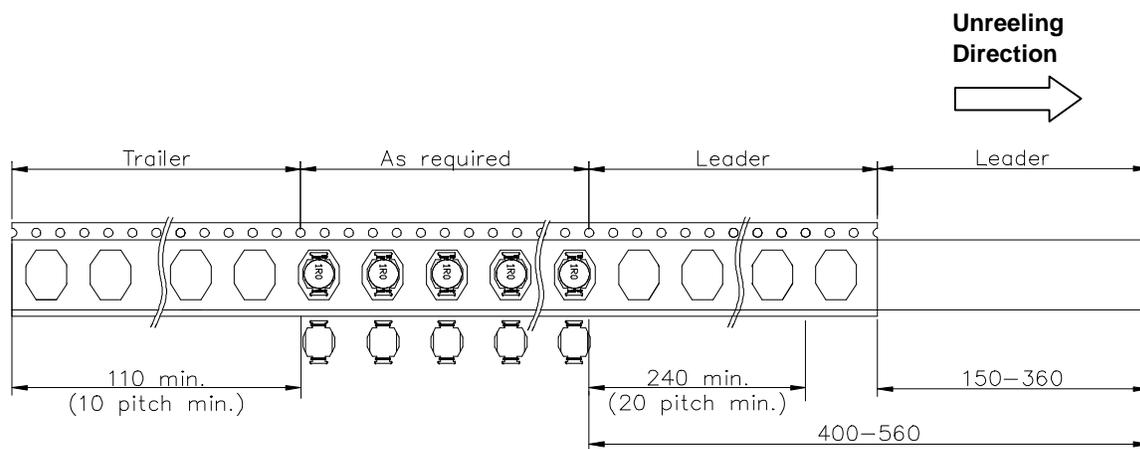
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## (6) PACKAGING

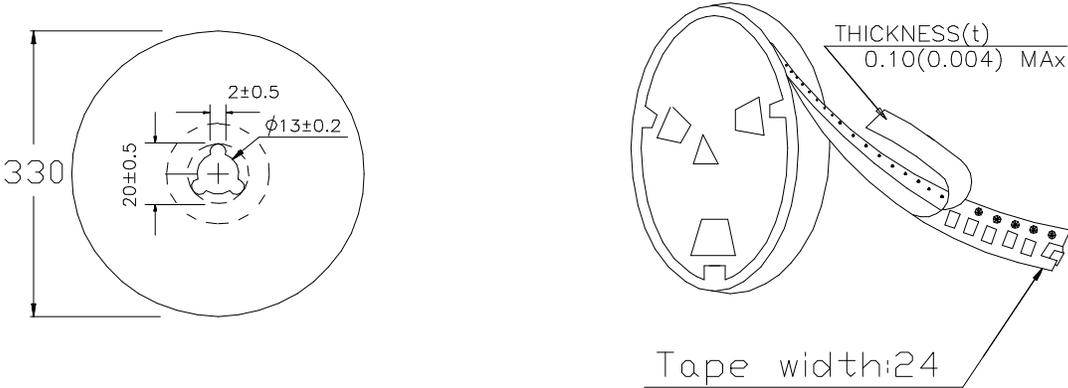
### (6)-1 CARRIER TAPE DIMENSIONS (mm)



### (6)-2 TAPING DIMENSIONS (mm)



**(6)-3 REEL DIMENSIONS (mm)**



**(6)-4 QUANTITY**

700pcs/Reel

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