

## SCOPE :

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

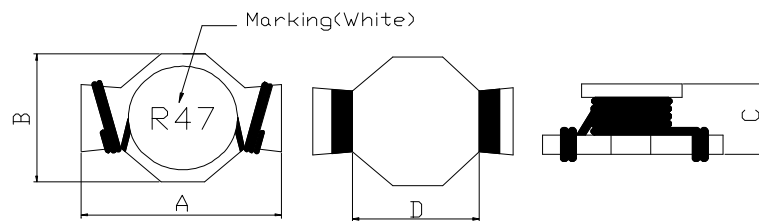
## PRODUCT IDENTIFICATION

MSCDB - 0905H - R47 M

① ② ③ ④

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

## (1) SHAPES AND DIMENSIONS



A: 9.00 Max.	mm
B: 6.10 Max.	mm
C: 5.20 Max.	mm
D: 5.84 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



MAG.LAYERS

**TABLE 1**

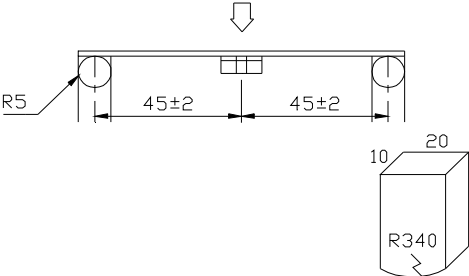
MAGLAYERS PT/NO.	Inductance L( $\mu$ H)	Percent Tolerance	Test Frequency	Resistance RDC( $\Omega$ )Max.	Rated DC Current IDC(A)	Marking
MSCDB-0905H-R18□	0.18	N	100kHz/0.25V	5.0m	9.0	R18
MSCDB-0905H-R33□	0.33	N	100kHz/0.25V	9.0m	7.0	R33
MSCDB-0905H-R47□	0.47	M,N	100kHz/0.25V	10.0m	6.0	R47
MSCDB-0905H-R56□	0.56	M,N	100kHz/0.25V	13.8m	5.2	R56
MSCDB-0905H-1R0□	1.0	M	100kHz/0.25V	18.0m	4.4	1R0
MSCDB-0905H-1R2□	1.2	M	100kHz/0.25V	19.0m	4.3	1R2
MSCDB-0905H-1R5□	1.5	M	100kHz/0.25V	20.0m	4.2	1R5
MSCDB-0905H-2R2□	2.2	M	100kHz/0.25V	35.0m	3.1	2R2
MSCDB-0905H-3R3□	3.3	M	100kHz/0.25V	43.0m	2.9	3R3
MSCDB-0905H-4R7□	4.7	M	100kHz/0.25V	54.0m	2.2	4R7
MSCDB-0905H-6R8□	6.8	M	100kHz/0.25V	90.0m	1.7	6R8
MSCDB-0905H-100□	10	M	100kHz/0.25V	0.111	1.5	100
MSCDB-0905H-150□	15	M	100kHz/0.25V	0.175	1.2	150
MSCDB-0905H-220□	22	M	100kHz/0.25V	0.255	1.0	220
MSCDB-0905H-330□	33	M	100kHz/0.25V	0.370	0.82	330
MSCDB-0905H-470□	47	M	100kHz/0.25V	0.474	0.72	470
MSCDB-0905H-680□	68	M	100kHz/0.25V	0.750	0.58	680
MSCDB-0905H-101□	100	M	100kHz/0.25V	1.110	0.47	101

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

※ IDC : Based on inductance change ( $\Delta L/L_0$  : 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.	<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℃ 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℃.</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><b>Temperature profile of reflow soldering</b></p> <p>The graph shows a temperature profile for reflow soldering. The y-axis is 'Soldering temperature (°C)' ranging from 50 to 300. The x-axis represents time. The profile starts at 50°C, rises to a pre-heating stage at 150 ~ 180°C for 2 min. It then rises to a peak temperature of 260±3°C for 10 sec. The peak is labeled 'soldering (Peak temperature 260±3°C 10 sec)'. The temperature then drops to 230°C for 30 sec Min, labeled '30 sec Min (230°C)'. Finally, it shows 'Slow cooling (Stored at room temperature)'.</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	$\Delta L/L_o \leq \pm 5\%$  There shall be no mechanical damage.	The sample shall be left for $96 \pm 4$ 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	$\Delta L/L_o \leq \pm 5\%$  There shall be no mechanical damage.	The sample shall be left for $96 \pm 4$ 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	$\Delta L/L_o \leq \pm 5\%$  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           </div> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th><th>Temperature</th><th>Duration</th></tr> </thead> <tbody> <tr> <td>1</td><td><math>-25 \pm 3^\circ\text{C}</math> (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><math>85 \pm 2^\circ\text{C}</math> (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	$\Delta L/L_o \leq \pm 5\%$  There shall be no mechanical damage.	The sample shall be left for $96 \pm 4$ 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.																	



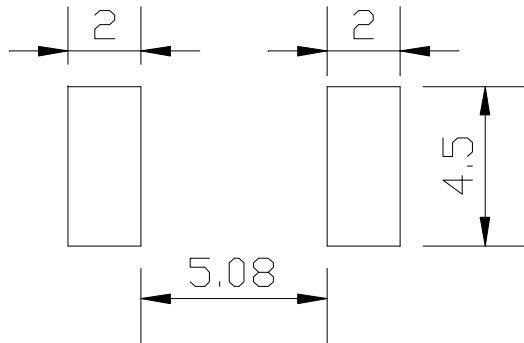
## (5) LAND DIMENSION (Ref.)

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

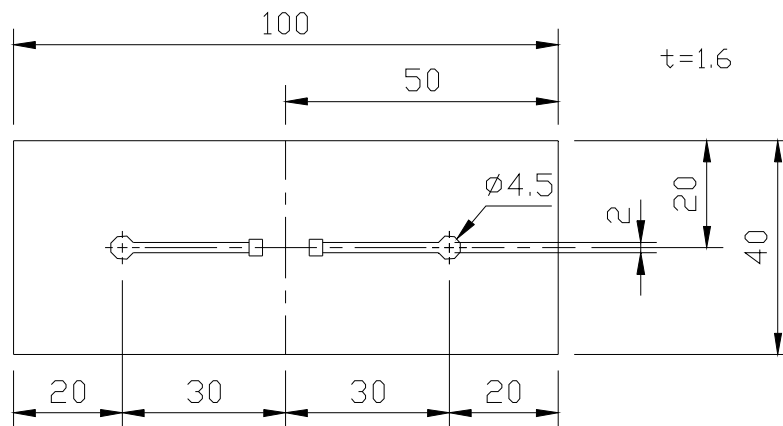
### (5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN)

unit : mm



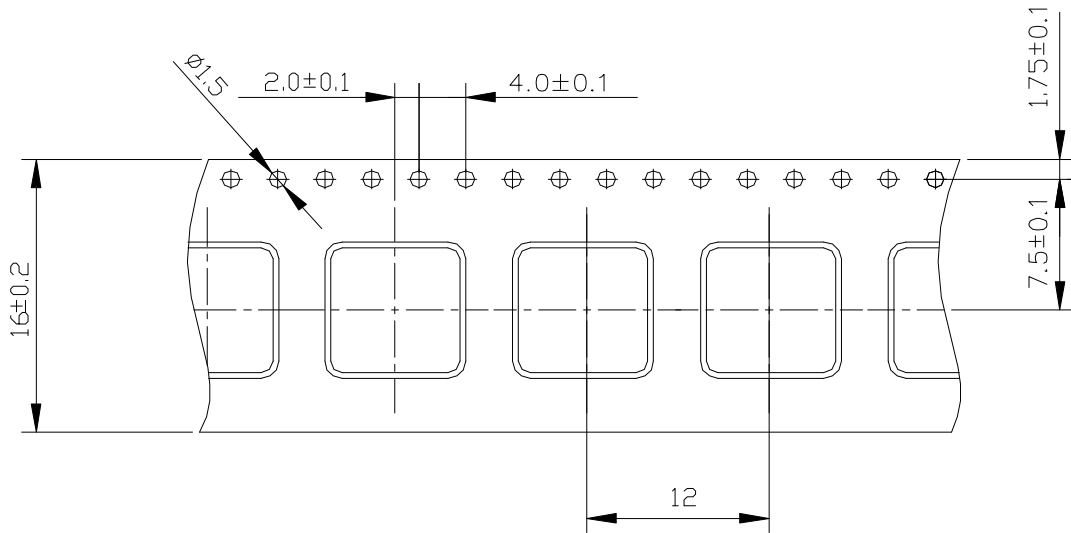
### (5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD



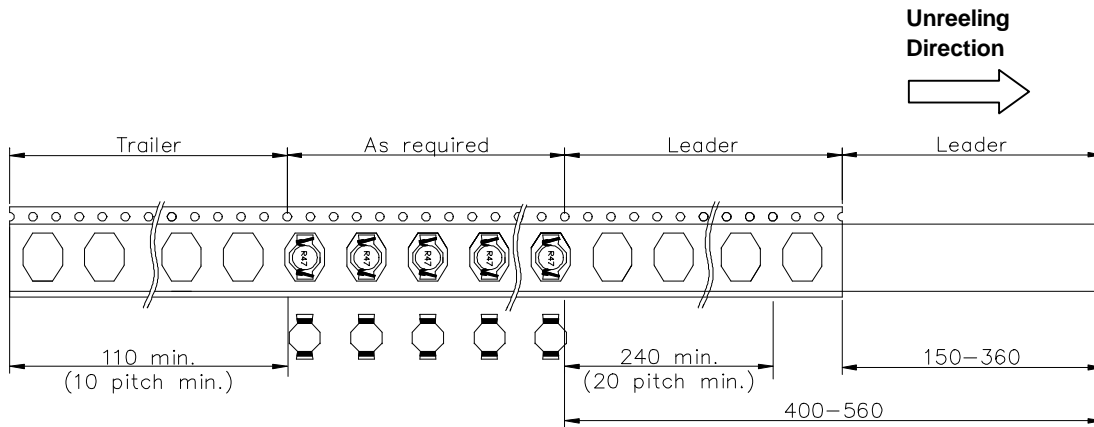
MAG.LAYERS

## (6) PACKAGING

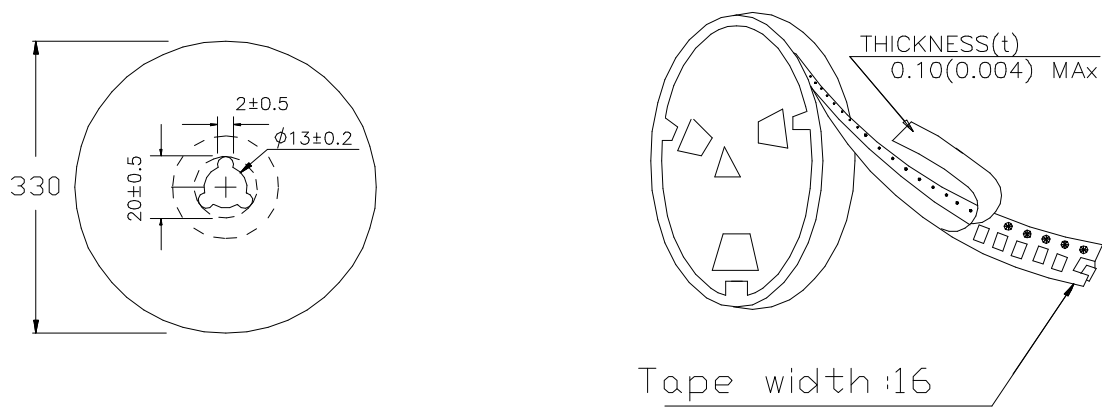
### (6)-1 CARRIER TAPE DIMENSIONS (mm)



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



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



### (6)-4 QUANTITY

1000pcs/Reel

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



**MAG.LAYERS**