

## SCOPE :

This specification applies to the Pb Free high current type SMD inductors for  
MSCDRB-1507-SERIES

### PRODUCT IDENTIFICATION

MSCDRB - 1507 - 100 M

①      ②      ③      ④

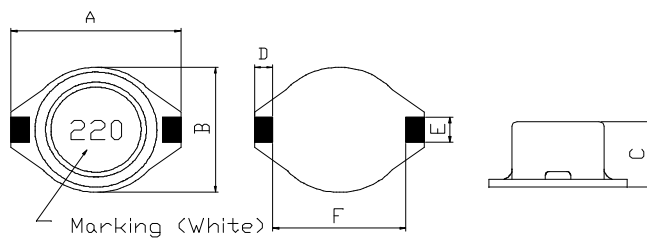
① Product Code

② Dimensions Code

③ Inductance Code

④ Tolerance Code

## (1) SHAPES AND DIMENSIONS



A: 18.80 Max.	mm
B: 15.50 Max.	mm
C: 7.50 Max.	mm
D: 2.54 Typ.	mm
E: 2.54 Typ.	mm
F: 13.0 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)-2 Ambient temperature ..... +60°C Max.

(3)-3 Operate temperature range ..... -40°C ~ +125°C

(Including self temp. rise)

(3)-4 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-1507-1R0□	1.0	M,N	100kHz/0.25V	16m	18.0	6.5	1R0
MSCDRB-1507-2R2□	2.2	M,N	100kHz/0.25V	23m	14.0	5.0	2R2
MSCDRB-1507-3R3□	3.3	M,N	100kHz/0.25V	26m	12.5	4.7	3R3
MSCDRB-1507-4R7□	4.7	M,N	100kHz/0.25V	28m	11.5	4.4	4R7
MSCDRB-1507-5R6□	5.6	M,N	100kHz/0.25V	30m	10.8	4.1	5R6
MSCDRB-1507-100□	10	M,N	100kHz/0.25V	40m	8.0	3.9	100
MSCDRB-1507-150□	15	M,N	100kHz/0.25V	48m	7.0	3.4	150
MSCDRB-1507-220□	22	M,N	100kHz/0.25V	59m	6.0	3.1	220
MSCDRB-1507-330□	33	M,N	100kHz/0.25V	75m	5.0	2.8	330
MSCDRB-1507-470□	47	M,N	100kHz/0.25V	97m	4.0	2.4	470
MSCDRB-1507-680□	68	M,N	100kHz/0.25V	0.138	3.0	2.0	680
MSCDRB-1507-101□	100	M,N	100kHz/0.25V	0.207	2.4	1.7	101
MSCDRB-1507-151□	150	M,N	100kHz/0.25V	0.293	2.1	1.3	151
MSCDRB-1507-221□	220	M,N	100kHz/0.25V	0.47	1.9	1.1	221
MSCDRB-1507-271□	270	M,N	100kHz/0.25V	0.64	1.4	0.95	271
MSCDRB-1507-331□	330	M,N	100kHz/0.25V	0.78	1.1	0.86	331
MSCDRB-1507-471□	470	M,N	100kHz/0.25V	1.08	1.1	0.73	471
MSCDRB-1507-681□	680	M,N	100kHz/0.25V	1.40	0.96	0.64	681
MSCDRB-1507-821□	820	M,N	100kHz/0.25V	1.70	0.88	0.58	821
MSCDRB-1507-102□	1000	M,N	100kHz/0.25V	2.01	0.80	0.53	102

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

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

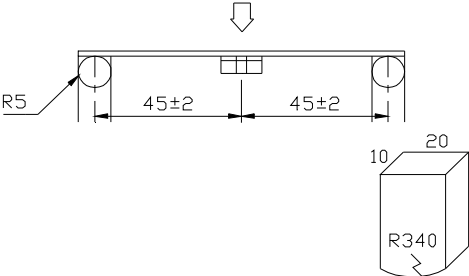
IDC2 : Based on temperature rise ( $\Delta T$  : 40℃ TYP.)

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℃ 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 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	$\Delta L/L20^{\circ}\text{C} \leq \pm 10\%$ $0 \sim 2000 \text{ ppm}/^{\circ}\text{C}$	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 $\Delta L/L20^{\circ}\text{C} \leq \pm 10\%$ .



## 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             <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><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> </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	$\Delta L/L_o \leq \pm 5\%$  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.																	



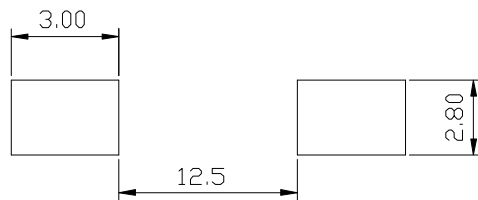
## (5) LAND DIMENSION (Ref.)

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

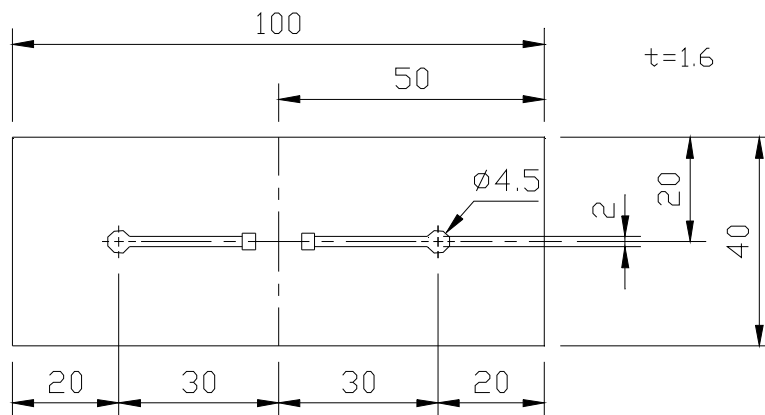
### (5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN)

Unit:mm



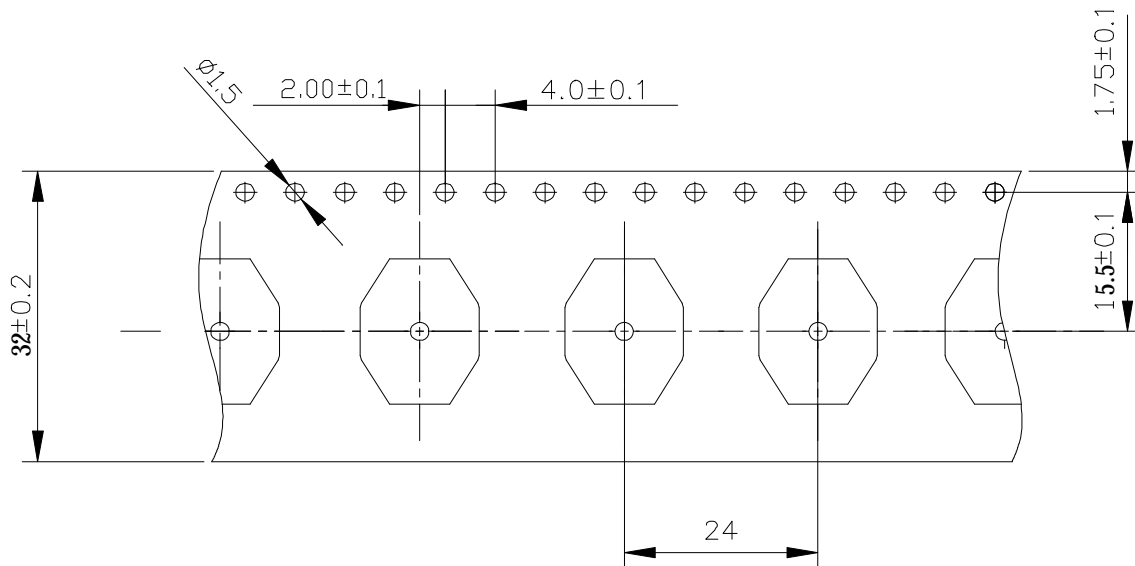
### (5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD



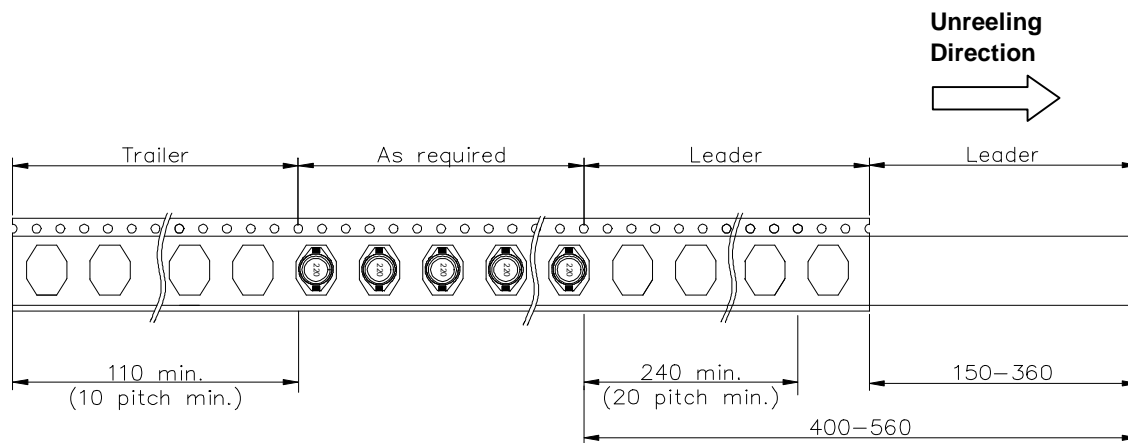
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## (6) PACKAGING

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

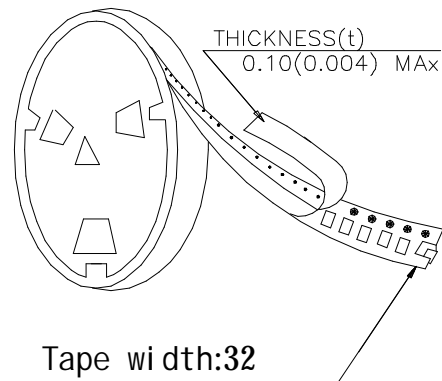
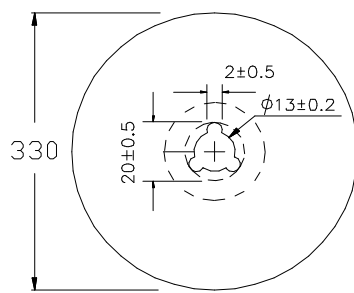


### (6)-2 TAPING DIMENSIONS (mm)



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



### (6)-4 QUANTITY

300pcs/Reel

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



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