

SCOPE :

This specification applies to the Pb Free high current type SMD inductors for
MSCD-43-SERIES

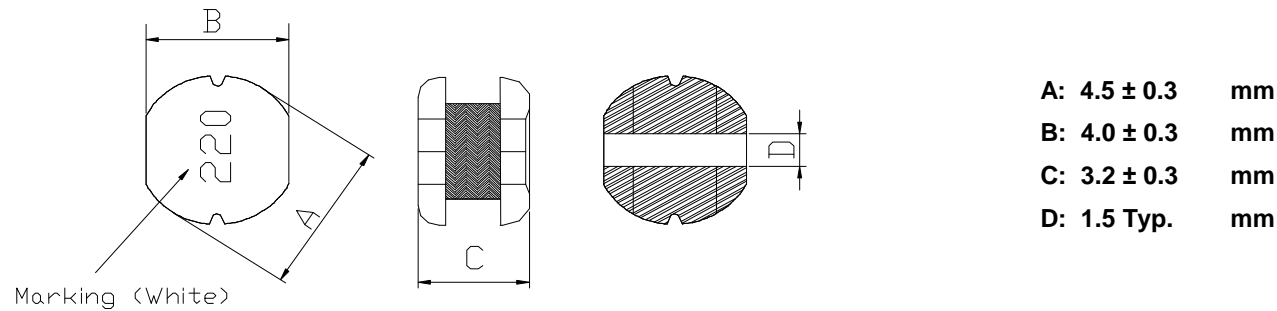
PRODUCT IDENTIFICATION

MSCD- 43 - 100 K

① ② ③ ④

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

(1) SHAPES AND DIMENSIONS



(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 $+60^{\circ}\text{C}$ Max.
- (3)-2 Operate temperature range $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
(Including self temp. rise)
- (3)-3 Storage temperature range $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$

TABLE 1

MAGLAYERS PT/NO.	Inductance L(μH)	Percent Tolerance	Test Frequency	Resistance RDC(Ω)Max.	Rated DC Current IDC(A)	Marking	Wire Tuns(Ref.)
MSCD-43-1R0□	1.0	M	100kHz/0.25V	48.7m	2.70	1R0	—
MSCD-43-1R2□	1.2	M	100kHz/0.25V	52.4m	2.60	1R2	—
MSCD-43-1R4□	1.4	M	100kHz/0.25V	56.2m	2.50	1R4	—
MSCD-43-1R5□	1.5	M	100kHz/0.25V	56.2m	2.50	1R5	—
MSCD-43-1R8□	1.8	M	100kHz/0.25V	63.7m	2.33	1R8	—
MSCD-43-2R2□	2.2	K,M	100kHz/0.25V	71.2m	2.25	2R2	—
MSCD-43-2R7□	2.7	K,M	100kHz/0.25V	78.7m	2.16	2R7	—
MSCD-43-3R3□	3.3	M	100kHz/0.25V	86.2m	2.00	3R3	φ0.25 12.5Ts
MSCD-43-3R9□	3.9	M	100kHz/0.25V	93.7m	1.84	3R9	—
MSCD-43-4R7□	4.7	M	100kHz/0.25V	0.1087	1.62	4R7	—
MSCD-43-5R6□	5.6	M	100kHz/0.25V	0.1257	1.48	5R6	—
MSCD-43-6R8□	6.8	M	100kHz/0.25V	0.1312	1.43	6R8	—
MSCD-43-8R2□	8.2	M	100kHz/0.25V	0.1462	1.37	8R2	—
MSCD-43-100□	10	K,M	100kHz/0.25V	0.182	1.04	100	—
MSCD-43-120□	12	M	100kHz/0.25V	0.210	0.97	120	—
MSCD-43-150□	15	M	100kHz/0.25V	0.235	0.85	150	—
MSCD-43-180□	18	M	100kHz/0.25V	0.338	0.74	180	—
MSCD-43-220□	22	K,M	100kHz/0.25V	0.378	0.68	220	—
MSCD-43-270□	27	M	100kHz/0.25V	0.522	0.62	270	—
MSCD-43-330□	33	K,M	100kHz/0.25V	0.540	0.56	330	—
MSCD-43-390□	39	K,M	100kHz/0.25V	0.587	0.52	390	—
MSCD-43-470□	47	K,M	100kHz/0.25V	0.844	0.44	470	—
MSCD-43-560□	56	K,M	100kHz/0.25V	0.937	0.42	560	—
MSCD-43-680□	68	K,M	100kHz/0.25V	1.117	0.37	680	—
MSCD-43-820□	82	K,M	100kHz/0.25V	1.200	0.30	820	—
MSCD-43-101□	100	K	100kHz/0.25V	1.440	0.28	101	—
MSCD-43-121□	120	K	100kHz/0.25V	1.60	0.24	121	—
MSCD-43-151□	150	K	100kHz/0.25V	1.80	0.22	151	—
MSCD-43-181□	180	K	100kHz/0.25V	2.18	0.21	181	—
MSCD-43-221□	220	K	100kHz/0.25V	2.57	0.20	221	—
MSCD-43-271□	270	K	100kHz/0.25V	3.52	0.18	271	—
MSCD-43-331□	330	K	100kHz/0.25V	5.00	0.12	331	—
MSCD-43-391□	390	K	100kHz/0.25V	6.00	0.115	391	—
MSCD-43-471□	470	K	100kHz/0.25V	7.00	0.11	471	—

※ □ specify the inductance tolerance, K(±10%), M(±20%)

※ IDC: Based on inductance change ($\Delta L/L_0$: drop 10% Max.) @ ambient temp. 25℃

Based on temperature rise (ΔT : 40℃ 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°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>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
Insulation resistance	There shall be no other damage or problems.	<p>DC 100V voltage shall be applied across this sample of top surface and the terminal.</p> <p>The insulation resistance shall be more than $1 \times 10^8 \Omega$.</p>
Dielectric withstand voltage	There shall be no other damage or problems.	<p>AC 100V voltage shall be applied for 1 minute across the top surface and the terminal of this sample</p>
Temperature characteristics	$\Delta L/L20^\circ\text{C} \leq \pm 10\%$ $0 \sim 2000 \text{ ppm}/^\circ\text{C}$	<p>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 $\Delta L/L20^\circ\text{C} \leq \pm 10\%$.</p>



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 ± 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 ± 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 continuos 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</div> <table border="1"> <thead> <tr> <th></th><th>Temperature</th><th>Duration</th></tr> </thead> <tbody> <tr> <td>1</td><td>$-25 \pm 3^\circ\text{C}$ (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>$85 \pm 2^\circ\text{C}$ (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 ± 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.																	

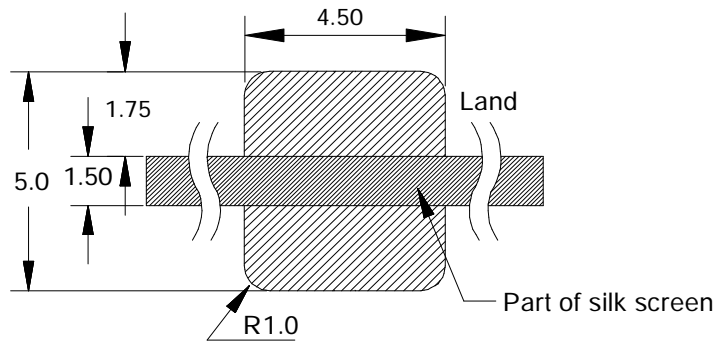


(5) LAND DIMENSION (Ref.)

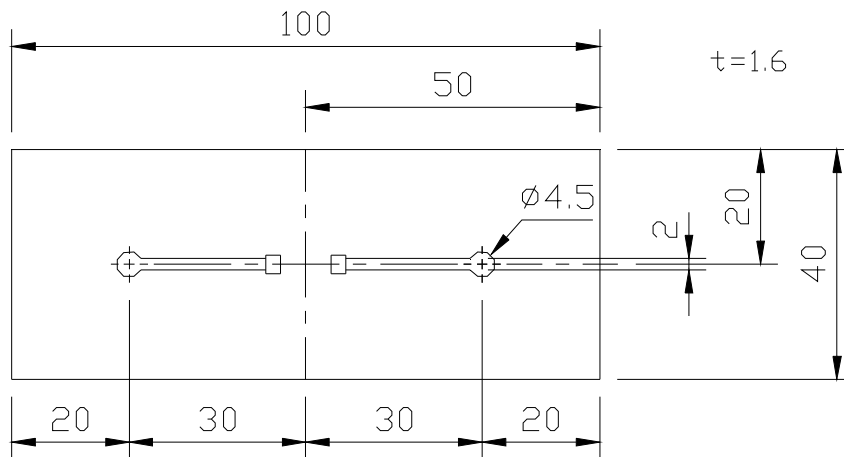
PCB: GLASS EPOXY $t=1.6\text{mm}$

(5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN) Unit:mm

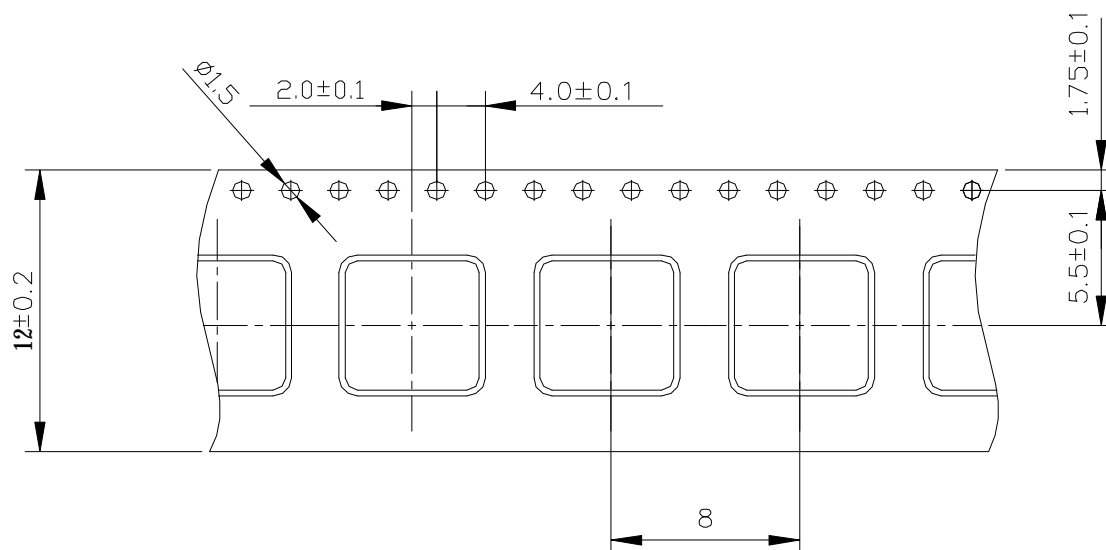


(5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD



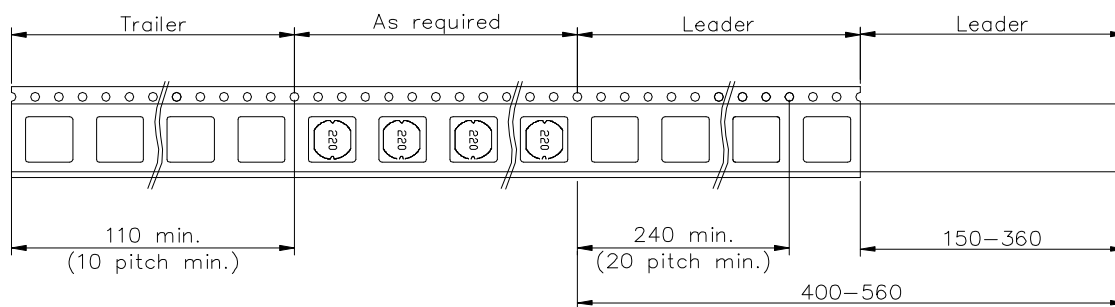
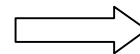
(6) PACKAGING

(6)-1 CARRIER TAPE DIMENSIONS (mm)



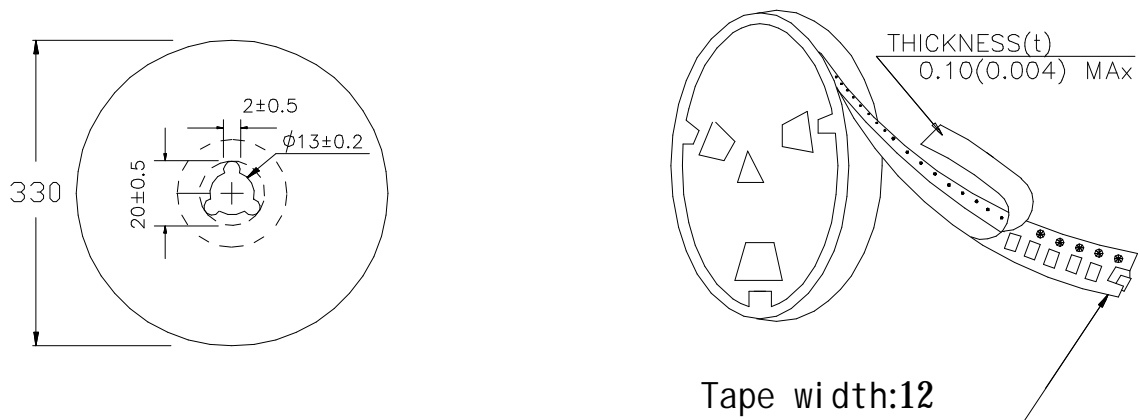
(6)-2 TAPING DIMENSIONS (mm)

Unreeling
Direction



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(6)-3 REEL DIMENSIONS (mm)



(6)-4 QUANTITY

1500 pcs/Reel

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



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