

APPROVAL SHEET

(RoHS)

CUSTOMER : _____

CUSTOMER'S PART NO : _____

DESCRIPTION : Wire Wound

PART NO. : MSCDB-1305-seriesCS-RT

DATE : 2012/01/17

AUTHORIZED BY : *ATA*

	FULLY APPROVED	PARTIALLY APPROVED	REJECTED
SIGN			
SUGGESTION			

美磊科技股份有限公司

MAG. LAYERS SCIENTIFIC-TECHNICS CO., LTD

HEAD OFFICE / HSINCHU PLANT

No 18, Tz-Chiang Road, Hsin-Chu Industrial Park, Hsin-Chu, Taiwan

TEL: +886-3-5972488 FAX: +886-3-5972477

<http://www.maglayers.com.tw>

E-mail : info@maglayers.com.tw



MAG.LAYERS

REVISIONS

[illegible]

MAG.LAYERS

I . SCOPE :

This specification applies to the Pb Free high current type SMD inductors for

MSCDB-1305-SERIES CS- ☐☐

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

PRODUCT INDENTIFICATION

MSCDB - 1305 - 100 ☐ CS-☐☐

① ② ③ ④ ⑤

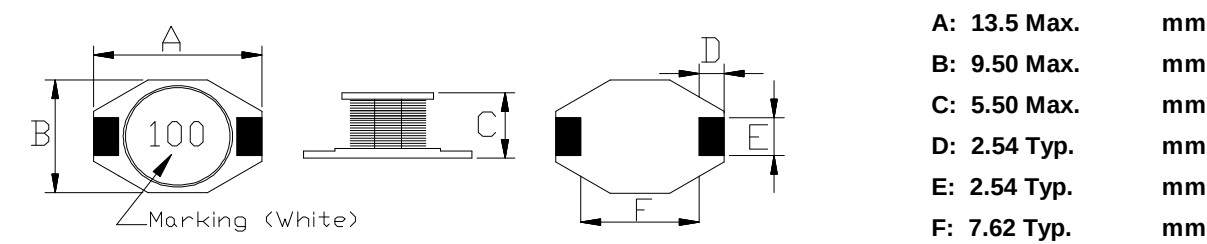
- ① Product Code
- ② Dimensions Code
- ③ Inductance Code
- ④ Tolerance Code
- ⑤ Inner Control Code

II . INDEX :

LISTED ITEM	ATTACHEMENT & TABLES	PAGE
1. SHAPES AND DIMENSIONS	Please see (1)	2/9
2. MATERIALS	Please see (3)	2/9
3. ELECTRICAL SPECIFICATIONS	Please see (2)	2/9 , 3/9
4. CHARACTERISTICS	Please see (3)	2/9 , 3/9
5. RELIABILITY TEST METHOD	Please see (4)	4/9 , 5/9 , 6/9
6. LAND DIMENSION (Ref.)	Please see (5)	7/9
7. PACKAGING	Please see (6)	8/9 , 9/9
8.STANDARD TEST CONDITIONS Unless otherwise specified, test condition should be Temp.=20±5℃, Humidity=35~85% But if needed, then test condition should be Temp.=20±2℃, Humidity=65±5%		
9.SHELF LIFE Storage Condition:The temperature should be within-40℃ ~105℃ and humidity should be less than 75%RH. The product should be used within 12 months from the time of delivery. In addition, suggest to use product within 6 months from the time of delivery.		



(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℃ Max.
- (3)-2 Operate temperature range -40℃ ~ +125℃
- (Including self temp. rise)
- (3)-3 Storage temperature range -40℃ ~ +125℃

MATERIALS

NO.	ITEM	DESCRIPTION & TYPE	UL NO.	MANUFACTURER
1	CORE	FERRITE		ENCORE ELECTRONICS TECHNOLOGY CO.,LTD. RUYUAN DONGYANGGUANG MAGNETIC MATERIALS CO.,LTD.
2	WIRE	POLYURETHANE ENAMELLED COPPER WIRE	E258243 E84081	ELEKTRISOLA CO., LTD. PACIFIC ELECTRICAL WIRE & CABLE CO., LTD.
3	SOLDER	Sn99.3%/Cu0.7%		SHENMAO TECHNOLOGY INC. OR EQUIV.
4	ADHESIVE	EPOXY RESIN (FOR CORE & BASE ASSEMBLY)		SHAW HUOW ENTERPRISE CO., LTD. OR EQUIV.
5	ADHESIVE	EPOXY RESIN (FOR SOLDERING OVERLAY)		SHAW HUOW ENTERPRISE CO., LTD. OR EQUIV.
6	BASE	L.C.P		LIAN CHENG METEL & ELETRONIC FACTORY. OR EQUIV.
7	INK	BON MARQUE INK		T&K TOKA. OR EQUIV.

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□CS-□□	1.0	M,N	100kHz/0.25V	9m	9.00	6.80	1R0
MSCDB-1305-1R5□CS-□□	1.5	M,N	100kHz/0.25V	10m	8.00	6.40	1R5
MSCDB-1305-2R2□CS-□□	2.2	M,N	100kHz/0.25V	12m	7.00	6.10	2R2
MSCDB-1305-3R3□CS-□□	3.3	M,N	100kHz/0.25V	15m	6.40	5.40	3R3
MSCDB-1305-4R7□CS-□□	4.7	M,N	100kHz/0.25V	20m	5.40	4.80	4R7
MSCDB-1305-5R6□CS-□□	5.6	M,N	100kHz/0.25V	25m	5.00	4.60	5R6
MSCDB-1305-6R8□CS-□□	6.8	M,N	100kHz/0.25V	27m	4.60	4.40	6R8
MSCDB-1305-8R0□CS-□□	8.0	M,N	100kHz/0.25V	31m	4.30	4.20	8R0
MSCDB-1305-100□CS-□□	10	M,N	100kHz/0.25V	38m	3.80	3.90	100
MSCDB-1305-150□CS-□□	15	M,N	100kHz/0.25V	50m	3.00	3.10	150
MSCDB-1305-220□CS-□□	22	M,N	100kHz/0.25V	85m	2.6	2.70	220
MSCDB-1305-330□CS-□□	33	M,N	100kHz/0.25V	0.10	2.00	2.10	330
MSCDB-1305-470□CS-□□	47	M,N	100kHz/0.25V	0.14	1.60	1.80	470
MSCDB-1305-680□CS-□□	68	M,N	100kHz/0.25V	0.20	1.40	1.50	680
MSCDB-1305-101□CS-□□	100	K,M	100kHz/0.25V	0.28	1.20	1.30	101
MSCDB-1305-151□CS-□□	150	K,M	100kHz/0.25V	0.40	1.00	1.00	151
MSCDB-1305-221□CS-□□	220	K,M	100kHz/0.25V	0.61	0.7	0.80	221
MSCDB-1305-331□CS-□□	330	K,M	100kHz/0.25V	1.02	0.60	0.60	331
MSCDB-1305-471□CS-□□	470	K,M	100kHz/0.25V	1.40	0.50	0.50	471
MSCDB-1305-681□CS-□□	680	K,M	100kHz/0.25V	2.02	0.40	0.40	681
MSCDB-1305-102□CS-□□	1000	K,M	100kHz/0.25V	3.00	0.30	0.30	102
MSCDB-1305-152□CS-□□	1500	K,M	100kHz/0.25V	4.49	0.29	0.27	152

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

※ IDC1 : Based on inductance change ($\Delta L/L_0$: drop 10% Max.)@ambient temperature 25°C

IDC2 : Based on temperature rise (ΔT : 40°C TYP.)

Rated DC Current : The less value which is IDC1 or IDC2.



MAG.LAYERS

(4) RELIABILITY TEST METHOD MECHANICAL

TEST ITEM	SPECIFICATION	TEST DETAILS
Substrate bending	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.	Temperature profile of reflow soldering The specimen shall be passed through the reflow oven with the condition shown in the above profile for 1 time. The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.

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 ± 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	$\Delta L/L_o \leq \pm 5\%$ 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. table 2 <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.																	



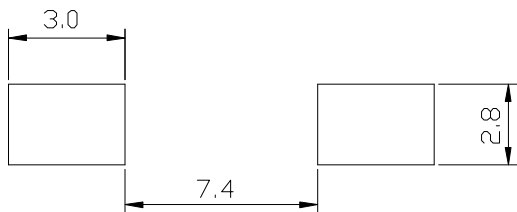
(5) LAND DIMENSION (Ref.)

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

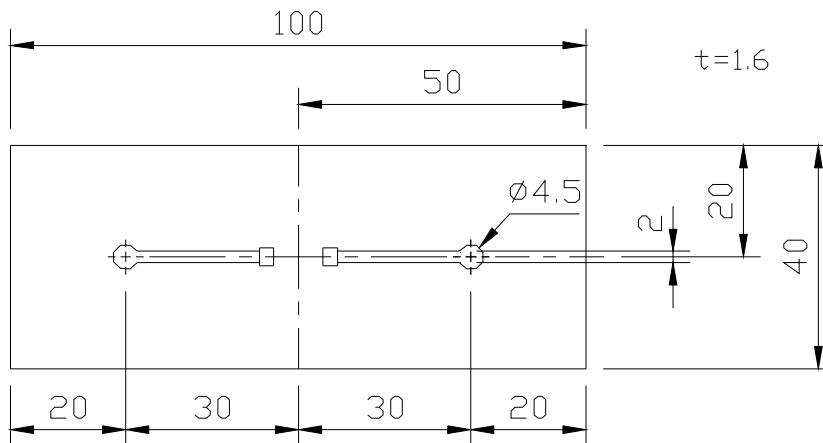
(5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN)

Unit:mm



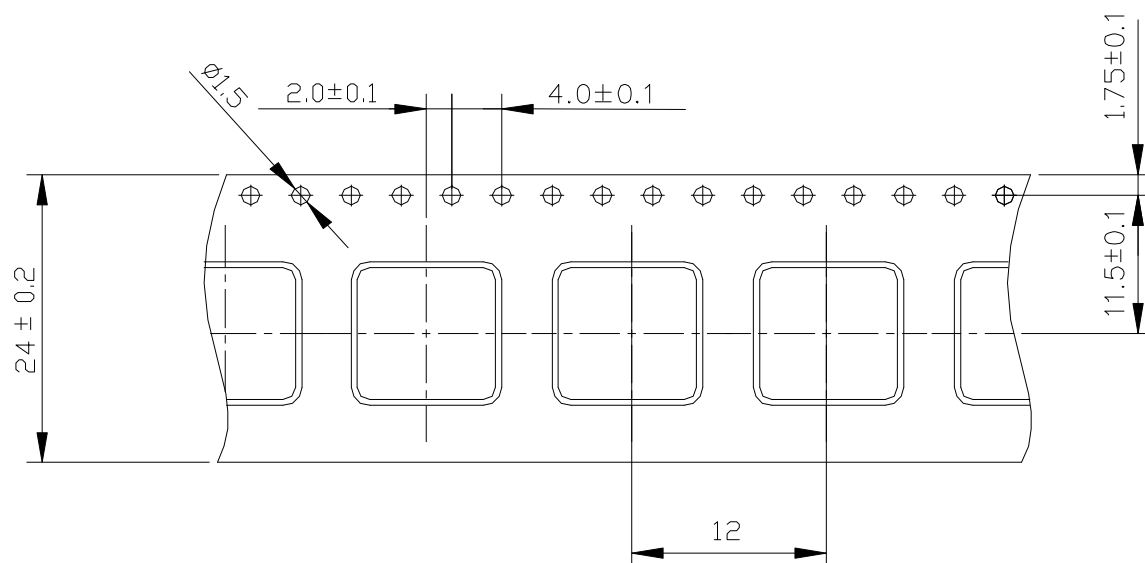
(5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD



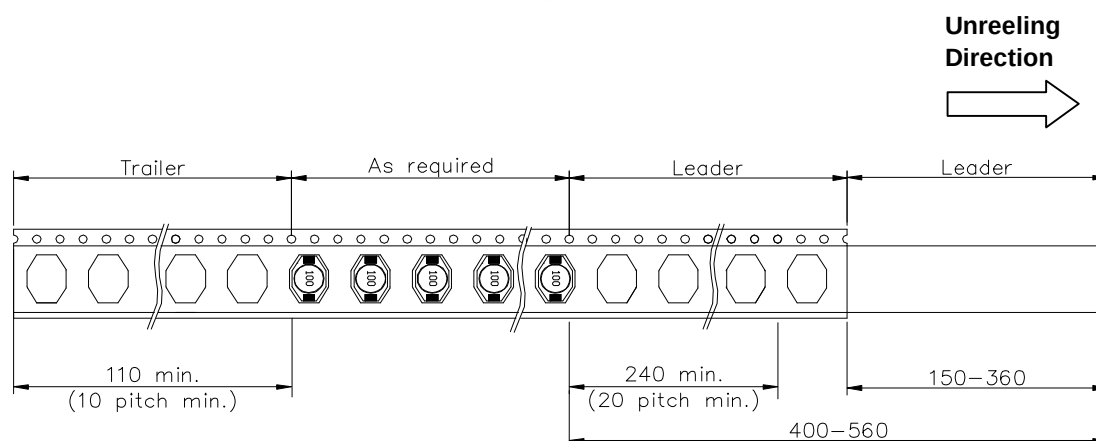
MAG.LAYERS

(6) PACKAGING

(6)-1 CARRIER TAPE DIMENSIONS (mm)

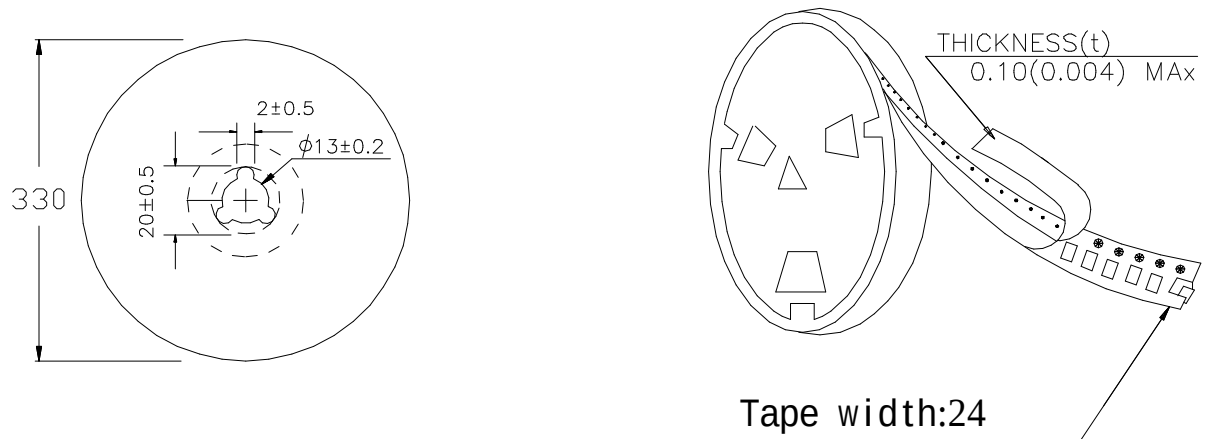


(6)-2 TAPING DIMENSIONS (mm)



MAG.LAYERS

(6)-3 REEL DIMENSIONS (mm)



(6)-4 QUANTITY

1000 pcs/Reel

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



MAG.LAYERS