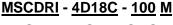
## SCOPE :

This specification applies to the Pb Free high current type SMD inductors for MSCDRI-4D18C-SERIES

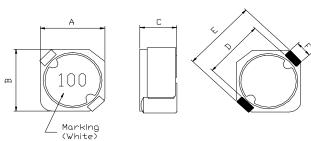
### PRODUCT INDENTIFICATION





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

# (1) SHAPES AND DIMENSIONS



A: 5.10 Max. mm B: 5.10 Max. mm C: 2.00 Max. mm D: 4.40 Typ. mm E: 6.20 Max. mm F: 1.40 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  $^\circ\!\! \mathbb C$  Max.
- (3)-2 Operate temperature range ......  $-40^{\circ}C \sim +125^{\circ}C$ (Including self temp. rise)
- (3)-3 Storage temperature range ......  $-40^{\circ}C \sim +125^{\circ}C$



### **TABLE 1**

MAGLAYERS	Inductance	Percent	Test	Resistance	Rated DC Current	Morking
PT/NO.	L(µH)	Tolerance	Frequency	RDC(Ω)Max.	IDC(A)	Marking
MSCDRI-4D18C-1R1	1.1	Ν	100kHz/0.25V	29m	2.40	1R1
MSCDRI-4D18C-1R2	1.2	Ν	100kHz/0.25V	29m	2.40	1R2
MSCDRI-4D18C-2R2	2.2	M,N	100kHz/0.25V	39m	1.70	2R2
MSCDRI-4D18C-3R0	3.0	Ν	100kHz/0.25V	61m	1.50	3R0
MSCDRI-4D18C-3R3	3.3	N	100kHz/0.25V	61m	1.50	3R3
MSCDRI-4D18C-4R7	4.7	M,N	100kHz/0.25V	0.110	1.15	4R7
MSCDRI-4D18C-6R8	6.8	N	100kHz/0.25V	0.125	1.05	6R8
MSCDRI-4D18C-100	10	M,N	100kHz/0.25V	0.156	0.83	100
MSCDRI-4D18C-150	15	M,N	100kHz/0.25V	0.194	0.70	150
MSCDRI-4D18C-220	22	M,N	100kHz/0.25V	0.323	0.60	220
MSCDRI-4D18C-330	33	M,N	100kHz/0.25V	0.550	0.46	330
MSCDRI-4D18C-470	47	M,N	100kHz/0.25V	0.783	0.41	470
MSCDRI-4D18C-680	68	M,N	100kHz/0.25V	1.16	0.305	680
MSCDRI-4D18C-101	100	M,N	100kHz/0.25V	1.51	0.250	101

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

**%IDC** : Based on inductance change (△L/Lo :  $\leq$  drop 35%) @ ambient Temperature : 25°C and

Based on temperature rise ( $\triangle T$  : 40°C TYP.)



# (4) RELIABILITY TEST METHOD

## MECHANICAL

TEST ITEM	SPECIFICATION	TEST DETAILS
Substrate bending	∆L/Lo≦±5%	The sample shall be soldered onto the printed circuit board
		in figure 1 and a load applied unitil the figure in the arrow
	There shall be	direction is made approximately 3mm.(keep time 30 seconds)
	no mechanical	PCB dimension shall the page 7/9
	damage or elec-	F(Pressurization)
	trical damege.	л
		R5 45±2 45±2
		PRESSURE ROD figure-1
Vibration	∆L/Lo≦±5%	The sample shall be soldered onto the printed circuit board
		and when a vibration having an amplitude of 1.52mm
	There shall be	and a frequency of from 10 to 55Hz/1 minute repeated should
	no mechanical	be applied to the 3 directions (X,Y,Z) for 2 hours each.
	damage.	(A total of 6 hours)
Solderability	New solder	Flux (rosin, isopropyl alcohol{JIS-K-1522}) shall be coated
	More than 90%	over the whole of the sample before hard, the sample shall
		then be preheated for about 2 minutes in a temperature of
		130 $\sim$ 150 $^\circ\!\!{ m C}$ and after it has been immersed to a depth 0.5mm
		below for $3\pm0.2$ seconds fully in molten solder M705 with
		a temperature of 245±5℃.
		More than 90% of the electrode sections shall be couered
		with new solder smoothly when the sample is taken out of
		the solder bath.



#### MECHANICAL

TEST ITEM		SPECIFICATION
TEST ITEM Resistance to Soldering heat (reflow soldering)	There shall be no damage or problems.	Temperature profile of reflow soldering soldering (Peak temperature 200:3°C 10 sec 200 200 150 Pre-heating (Stored at room temperature) 50 2 min 2 min 100 2 min 100 100 100 100 100 100 100 10
		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
Insulation	There shall be	DC 100V voltage shall be applied across this sample of top
resistance	no other	surface and the terminal.
	damage or	The insulation resistance shall be more than $1 \times 10^8 \Omega$ .
	problems.	
Dielectric	There shall be	AC 100V voltage shall be applied for 1 minute acrosset the top
withstand	no other	surface and the terminal of this sample
voltage	damage or	
	problems.	
Temperature	∆L/L20℃ ≦±10%	The test shall be performed after the sample has stabilized in
characteristics	0~2000 ppm/℃	an ambient temperature of -20 to +85 $^\circ\!\mathrm{C}$ ,and the value
		calculated based on the value applicable in a normal
		temperature and narmal humidity shall be $\triangle L/L20^{\circ}C \leq \pm 10\%$ .



## **ENVIROMENT CHARACTERISTICS**

High temperature storage $\triangle L/Lo \le \pm 5\%$ The sample shall be left for 96±4 hours in an atmospere with a temperature of $85\pm2\%$ 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 $\triangle L/Lo \le \pm 5\%$ The sample shall be left for 96±4 hours in an atmosphere with a temperature of $-25\pm3\%$ . Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and no mechanical damage.Low temperature storage $\triangle L/Lo \le \pm 5\%$ The sample shall be left for 96±4 hours in an atmosphere with a temperature of $-25\pm3\%$ . Upon completion of the test, the measurement shall be made no mechanical damage.Change of temperature $\triangle L/Lo \le \pm 5\%$ 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.Change of temperature $\Box L/Lo \le \pm 5\%$ 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. $U = 0$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = 0$ $U = -25\pm3\%$ $U = 0$ $U = $
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Low temperature storage $\triangle L/Lo \le \pm 5\%$ 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 $\triangle L/Lo \le \pm 5\%$ 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.Change of temperature $\triangle L/Lo \le \pm 5\%$ 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 $\boxed{1  -25\pm 3°C  30 \text{ min.}}$ table 2 $\boxed{2  \text{Standard}  No.1 \rightarrow No.2}$ 3  85\pm 2°C  30 \text{ min.}3  85\pm 2°C  30 \text{ min.}
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Change of temperature $\triangle L/Lo \le \pm 5\%$ 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.There shall be no other dama- ge of problemsThe 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 2TemperatureDuration1 $-25\pm 3^\circ$ C (Themostat No.1)30 min.2Standard atmosphericNo.1 $\rightarrow$ No.23 $85\pm 2^\circ$ C (Themostat No.2)30 min.
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There shall be no other dama- ge of problems $\frac{table 2}{table 2}$
no other dama- ge of problems shall be made. $\begin{array}{c c} \text{shall be made.} \\ \hline table 2 \\ \hline \hline Temperature & Duration \\ 1 & -25 \pm 3^{\circ}\mathbb{C} & 30 \text{ min.} \\ \hline 1 & (\text{Themostat No.1}) \\ \hline 2 & \text{Standard} & \\ \hline 3 & 85 \pm 2^{\circ}\mathbb{C} & 30 \text{ min.} \\ \hline 3 & 85 \pm 2^{\circ}\mathbb{C} & 30 \text{ min.} \\ \hline \end{array}$
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$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
2Standard atmosphericNo.1→No.2385±2°C (Themostat No.2)30 min.
$ \begin{array}{c c} 2 \\ atmospheric \end{array} \\ \hline 3 \\ \hline 85\pm2^{\circ}C \\ \hline 30 \text{ min.} \end{array} $
atmospheric       3     85±2°C       (Themostat No.2)
3 (Themostat No.2)
Standard
4 Standard No.2→No.1
atmospheric
Moisture storage △L/Lo≦±5% The sample shall be left for 96±4 hours in a temperature of
$40\pm 2^{\circ}$ and a humidity(RH) of 90~95%.
There shall be Upon completion of the test, the measurement shall be made
no mechanical after the sample has been left in a normal temperature and
damage
Test conditions :
The sample shall be reflow soldered onto the printed circuit board in every test.

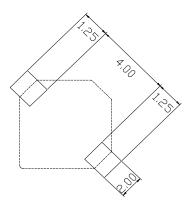


# (5) LAND DIMENSION (Ref.)

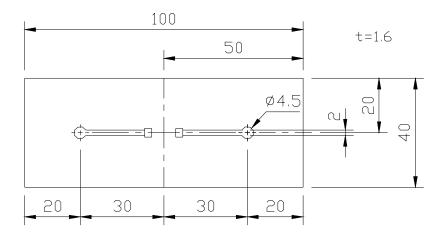
PCB: GLASS EPOXY t=1.6mm

### (5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN) unit : mm

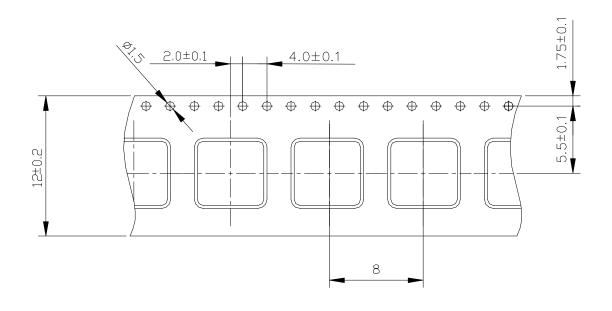


## (5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD



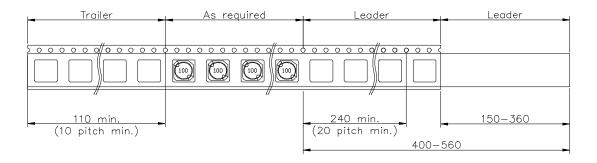


## (6) PACKAGING (6)-1 CARRIER TAPE DIMENSIONS (mm)



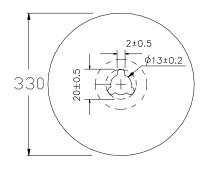
### (6)-2 TAPING DIMENSIONS (mm)

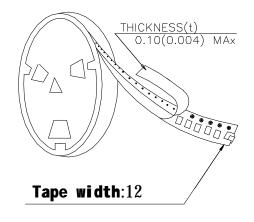






# (6)-3 REEL DIMENSIONS (mm)





# (6)-4 QUANTITY

2000pcs/Reel

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

