

## I . SCOPE :

This specification applies to the Pb Free Wound Chip Inductors for  
MNC-292522-SERIES

### PRODUCT IDENTIFICATION

MNC- 292522- 4R7 K

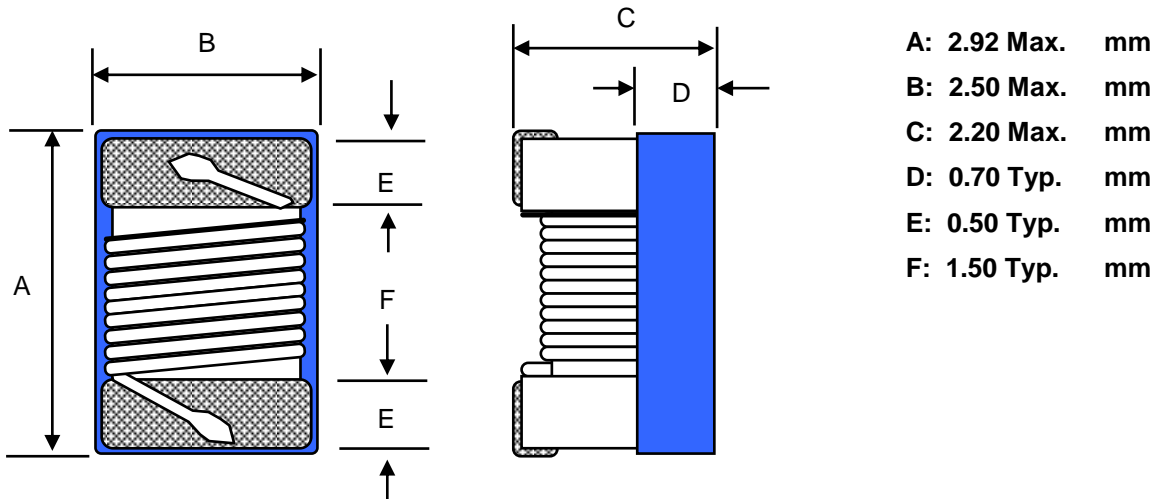
①      ②      ③      ④

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

## II . INDEX :

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<b>9.STANDARD TEST CONDITIONS</b> 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%		
<b>10.SHELF LIFE</b> Storage conditions: recommended conditions is 0~40℃ , below 70%RH, storage area must remain cool and dry, and free of corrosive fumes to ensure solderability. The product should be used within 12months of receipt. In case of storage over 6 months, solderability shall be checked before actual usage.		

## (1) SHAPES AND DIMENSIONS



## (2) ELECTRICAL SPECIFICATIONS

### SEE TABLE 1

#### TEST INSTRUMENTS

L,Q,SRF : HP 4291B IMPEDANCE ANALYZER (or equivalent)

RDC : CHROMA MODEL 16502 MILLIOHMMETER (or equivalent)

## (3) CHARACTERISTICS

(3)-1 Operate temperature range .....  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$

(Including self temp. rise)

(3)-2 Storage temperature range .....  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$

### MATERIALS

NO.	ITEM	DESCRIPTION & TYPE
1	CORE	FERRITE
2	WIRE	COPPER WIRE(Grade 180)
3	Epoxy	UV Epoxy

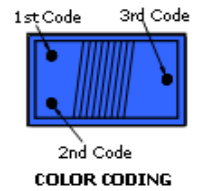


**MAG.LAYERS**

**TABLE 1**

MAGLAYERS PT/NO.	Inductance L(μH)	Percent Tolerance	Quality Min.	L,Q Freq. (MHz)	SRF (MHz)Min.	DCR (Ω) Max.	IDC (mA)	Color Coding		
								1st	2nd	3rd
MNC-292522-1R0□	1.0	J,K	25	7.96	300	0.34	1500	Brown	Black	Red
MNC-292522-1R2□	1.2	J,K	25	7.96	280	0.40	1400	Brown	Red	Red
MNC-292522-1R5□	1.5	J,K	25	7.96	270	0.42	1400	Brown	Green	Red
MNC-292522-1R8□	1.8	J,K	25	7.96	150	0.45	1200	Brown	Gray	Red
MNC-292522-2R2□	2.2	J,K	25	7.96	140	0.50	1200	Red	Red	Red
MNC-292522-3R3□	3.3	J,K	25	7.96	95	0.65	1000	Orange	Orange	Red
MNC-292522-4R7□	4.7	J,K	25	7.96	90	0.80	800	Yellow	Violet	Red
MNC-292522-6R8□	6.8	J,K	25	7.96	68	1.00	730	Blue	Gray	Red
MNC-292522-100□	10	J,K	20	2.52	45	1.50	700	Brown	Black	Orange
MNC-292522-150□	15	J,K	20	2.52	40	2.20	500	Brown	Green	Orange
MNC-292522-220□	22	J,K	20	2.52	25	2.70	470	Red	Red	Orange
MNC-292522-330□	33	J,K	20	2.52	25	4.00	400	Orange	Orange	Orange
MNC-292522-390□	39	J,K	16	2.52	20	7.00	320	Orange	White	Orange
MNC-292522-470□	47	J,K	16	2.52	20	8.00	300	Yellow	Violet	Orange

- ※ 1. □ specify the inductance tolerance, J(±5%), K(±10%)
- ※ 2. IDC : Based on inductance change ( $\Delta L/L_0$  : drop 10% Max.) @ambient temperature 25°C
- 3. Color coding is not necessarily same position,  
and Color coding non-directional printing.

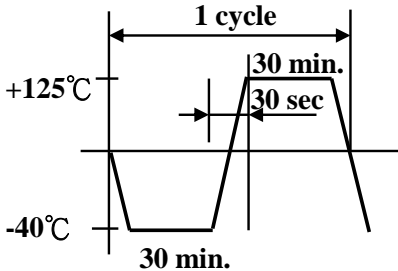


## (4) RELIABILITY TEST METHOD

### MECHANICAL

Item	Specifications	Test conditions
Solderability	The metalized area must have 90% minimum solder coverage.	Dip pads in flux and dip in solder pot (96.5 Sn/3.5 Ag solder) at 255°C ±5°C.
Resistance to soldering heat	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be reflowed onto a PC board using 96.5 Sn/3.5 Ag solder paste. Solder process shall be at a maximum temperature of 260°C. For 96.5 Sn/3.5 Ag solder paste:>217°C for 90 seconds
Vibration	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Solder specimen inductor on the test printed circuit board. Apply vibrations in each of the x,y and z directions for 2 hours for a total of 6 hours. Frequency : 10~50 Hz Amplitude : 1.5mm
High temperature resistance	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to temperature 125±2°C for 500±12 hours. Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.
Static Humidity	Inductors must not have a shorted or open winding.	Inductors shall be subjected to temperature 85±2°C and 90 to 95%RH. for ten 24-hours. Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.
Component adhesion (push test)	Inductors shall be subjected to 1.0Kg	Inductors shall be reflow soldered (255°C ±5°C for 10 seconds) to a tinned copper substrate. A force gauge shall be applied to the side of the component. The device must withstand the stated force without a failure of the termination.

## MECHANICAL

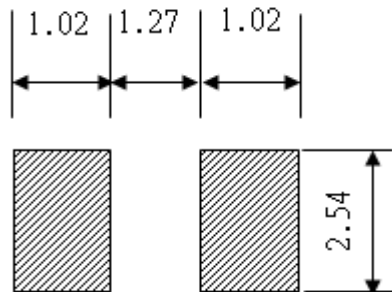
Item	Specifications	Test conditions
Low temperature storage	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to temperature $-40\pm 2^{\circ}\text{C}$ for $48\pm 12$ hours. Measure the test items after leaving the inductors at room temperature and humidity for 1 to 2 hours.
Resistance to solvent	There must be no case deformation, change in dimensions, or obliteration of marking.	Inductors must withstand 6 minutes of alcohol or water.
Thermal shock	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to 10 cycles to the the following temperature cycle:  Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.

## (5) RECOMMENDED SOLDERING CONDITIONS

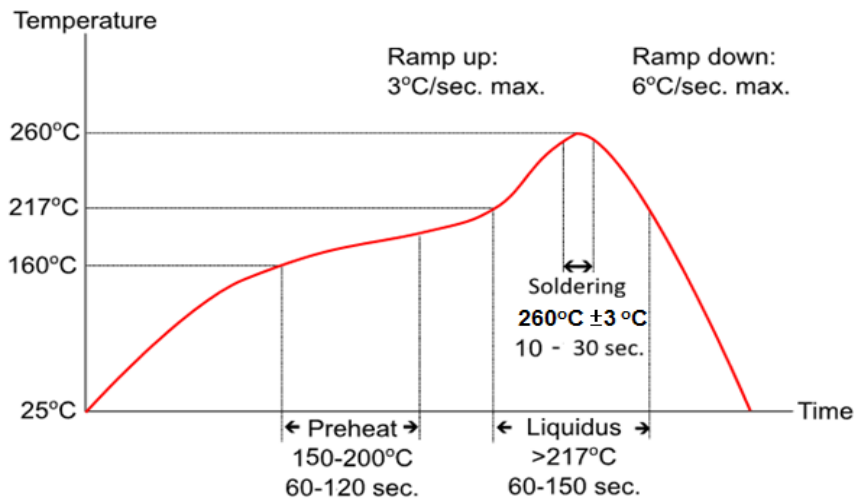
(Please use this product by reflow soldering)

### (5)-1 RECOMMENDED FOOTPRINT

Unit: mm



### (5)-2 RECOMMENDED REFLOW PATTERN



### (5)-3 IRON SOLDERING

Use a solder iron of less than 30W when soldering ,do not allow the soldering iron tip directly touch the Ferrite body outside of terminal electrode.

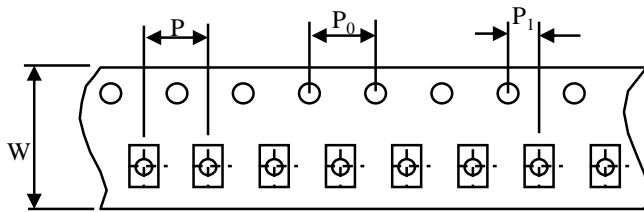
3 seconds max. at 260°C.



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## (6) PACKAGING

### (6)-1 CARRIER TAPE DIMENSIONS

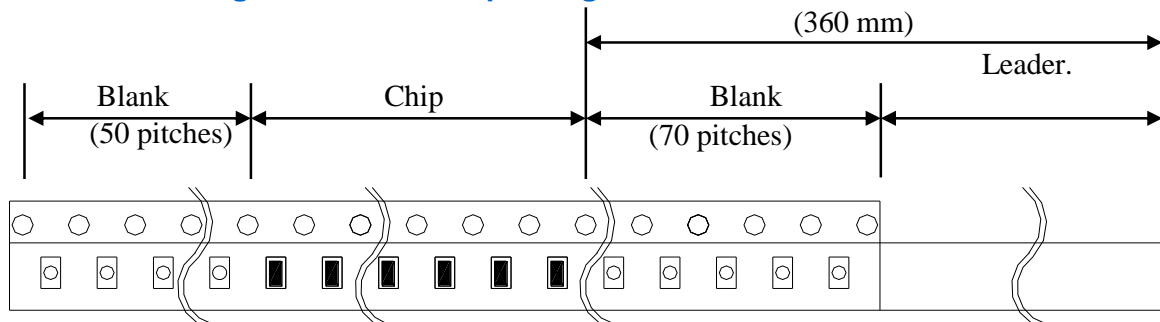


W	: 8.0	mm
P	: 4.0	mm
P <sub>0</sub>	: 4.0	mm
P <sub>1</sub>	: 2.0	mm

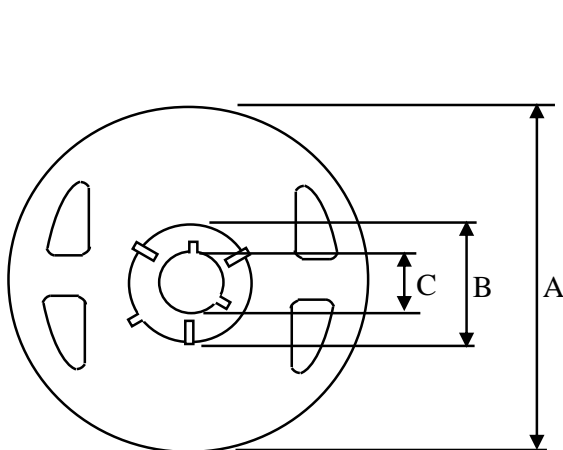
### (6)-2 TAPING DIMENSIONS

There shall not continuation more than two vacancies of the product

\*Marking non-directional printing



### (6)-3 REEL DIMENSIONS



A	: 180	mm
B	: 60.0	mm
C	: 13.0	mm
D	: 12.0	mm
E	: 8.4	mm

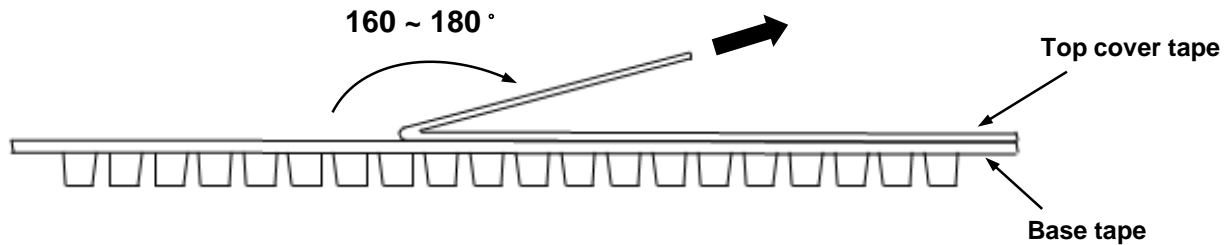
## (6)-4 COVER TAPE PEEL STRENGTH

The force for tearing off cover tape is 0.1~0.6(N) in the arrow direction at the following conditions:

Temperature : 5 ~ 35°C

Humidity : 45 ~ 85%

Atmospheric pressure : 860 ~ 1060 hpa



## (6)-5 QUANTITY

2000 pcs/Reel

(6)-6 The products are packaged so that no damage will be sustained.

## (7) ATTENTION IN CASE OF USING

In case of using product ,please avoid following matters:

Splashing water or salt water

Dew condens

Toxic gas (Hydrogen sulfide, Sulfurous acid ,Chlorine, Ammonia)

Vibrations or shocks which exceed the specified condition

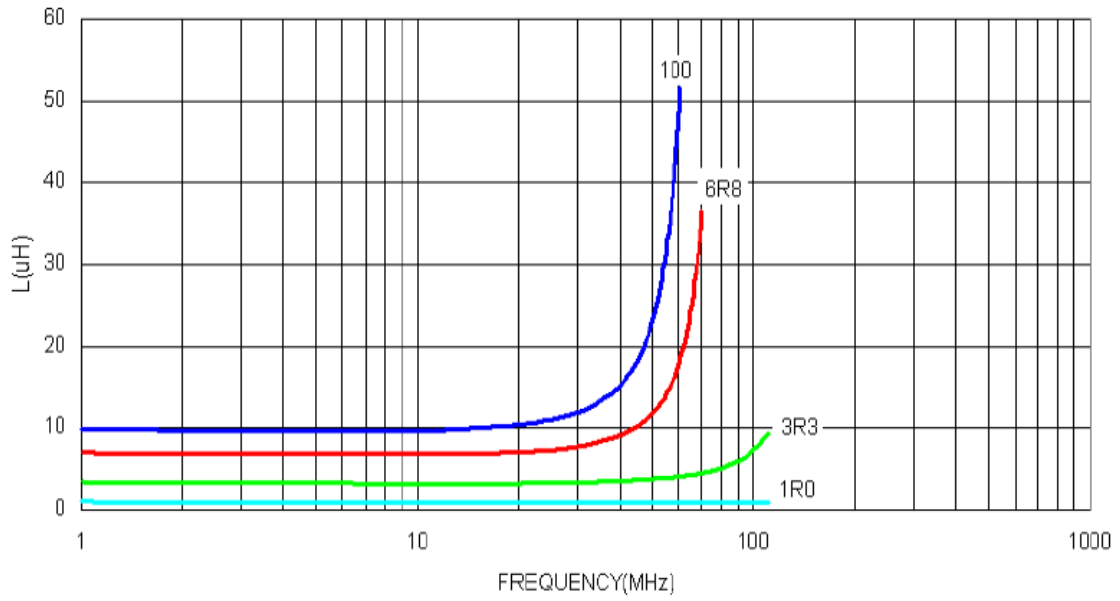
Please be careful for the stress to this product by board flexure or something after the mounting.

Please note that the contents may change without any prior notice due to reasons such as upgrading.



# TYPICAL ELECTRICAL CHARACTERISTICS

## INDUCTANCE vs FREQUENCY



## Q vs FREQUENCY

