



◆ Features

- 1、Magnetic-resin shielded construction reduces buzz noise to ultra-low levels;
- 2、Metallization on ferrite core results in excellent shock resistance and damage-free durability;
- 3、Closed magnetic circuit design reduces leakage flux and Electro Magnetic Interference (EMI);
- 4、30% higher current rating than conventional inductors of equal size;
- 5、Take up less PCB real estate and save more power.



◆ Applications

- 1、LED Lighting;
- 2、Mobile devices with multifunction such as adding color TV and camera;
- 3、Flat-screen TVs, blue-ray disc recorders, set top boxes;
- 4、Notebooks, desktop computers, servers, graphic cards;
- 5、Portable gaming devices, personal navigation systems, personal multimedia devices;
- 6、Automotive systems
- 7、Telecomm base stations

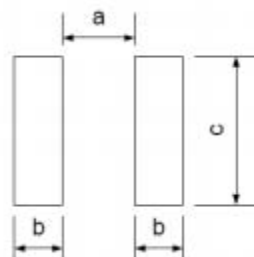
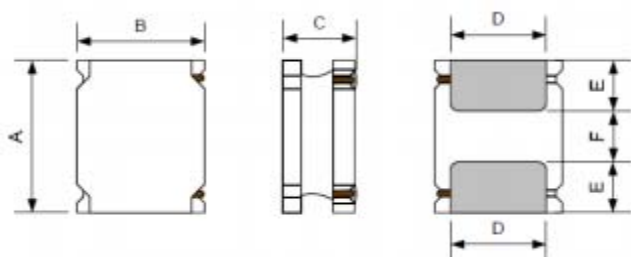
◆ Lead Free Part Numbering

INNER 5040 F 100 M T
(1) (2) (3) (4) (5) (6)

- (1) Series Type
- (2) Dimension: L X H
- (3) Material Code
- (4) Inductance: 2R2=2.2 μ H;
100=10 μ H; 101=100 μ H
- (5) Inductance Tolerance: M=±20%, N=±30%
- (6) Packaging: Tape Carrier Package

◆ Dimensions

Recommended Land Pattern



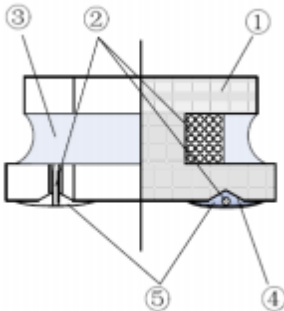
Unit:mm

Series	A	B	C	D	E	F	a Typ.	b Typ.	c Typ.
INNER5040F	5.0±0.2	5.0±0.2	4.0Max.	4.0±0.2	1.25±0.2	2.50±0.2	2.1	1.5	4.4

◆ Electrical Characteristics

- 1) Operating temperature range (Including self-heating): $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
- 2) Storage temperature range (packaging conditions): $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$ and RH 70% (Max.)

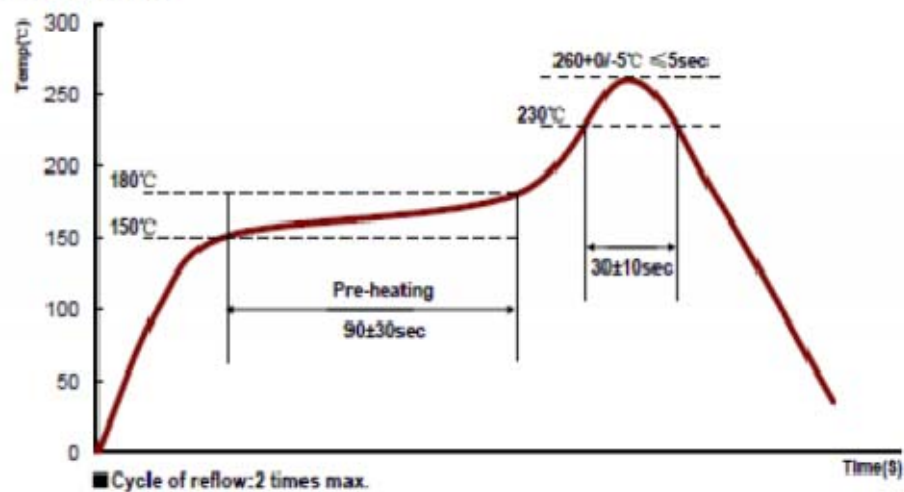
◆ Construction and material



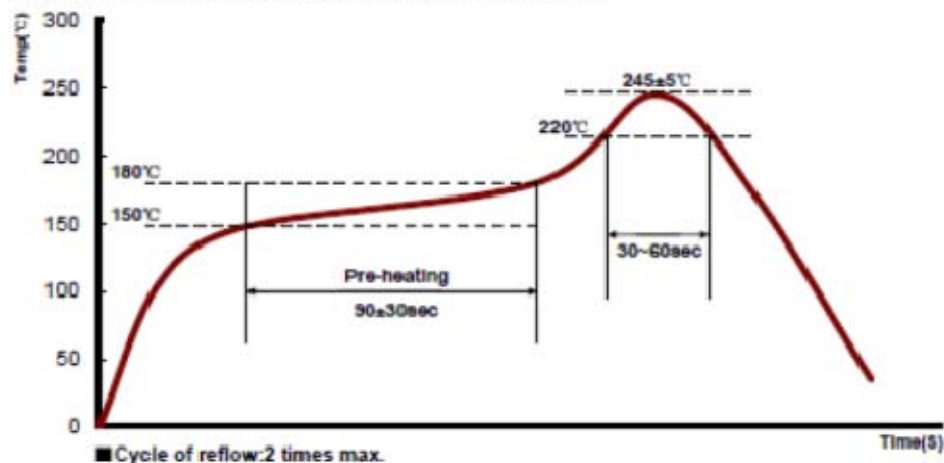
Code	Part Name	Material Name
①	Ferrite Core	Ni-Zn Ferrite
②	Wire	Polyurethane system enameled copper wire
③	Magnetic Glue	Epoxy resin and magnetic powder
④	Plating Electrodes	Ag
		Ni
		Sn
⑤	Outer Electrodes	Top surface solder coating Sn, Ag, Cu

◆ REFLOW-PROFILE

Limit Profile



Standard Profile (for EOC Solder paste S70G-HF)



◆ Specification

Part Number	Inductance @100KHz, 1V (μH)	DC Resistance ±30% (Ω)	Min.Self-resonant Frequency (MHz)	Saturation Current(A)	Heat Rating Current (A)
		DCR	S.R.F	Isat	Irms
CMLW5040 Series					
INNER5040F1R0MT	1.0±20%	0.012	117	7.35	4.90
INNER5040F1R5MT	1.5±20%	0.013	86	7.30	4.45
INNER5040F2R2MT	2.2±20%	0.019	42	6.50	3.95
INNER5040F3R3MT	3.3±20%	0.025	32	5.10	3.40
INNER5040F4R7MT	4.7±20%	0.030	28	4.40	3.10
INNER5040F6R8MT	6.8±20%	0.043	21	3.80	2.40
INNER5040F8R2MT	8.2±20%	0.048	20	2.70	2.30
INNER5040F100MT	10±20%	0.055	18	2.90	2.10
INNER5040F150MT	15±20%	0.089	13	2.30	1.60
INNER5040F220MT	22±20%	0.126	9	1.90	1.40
INNER5040F330MT	33±20%	0.192	7	1.60	1.20
INNER5040F470MT	47±20%	0.283	6	1.30	0.94
INNER5040F680MT	68±20%	0.520	5	1.10	0.90
INNER5040F820MT	82±20%	0.610	5	0.80	0.70
INNER5040F101MT	100±20%	0.728	4	0.80	0.65
INNER5040F151MT	150±20%	0.915	2	0.60	0.50
INNER5040F221MT	220±20%	1.550	2	0.55	0.45
INNER5040F331MT	330±20%	3.020	2	0.45	0.38
INNER5040F471MT	470±20%	3.600	1	0.40	0.35
INNER5040F561MT	560±20%	4.160	1	0.35	0.33
INNER5040F102MT	1000±20%	8.640	1	0.30	0.25

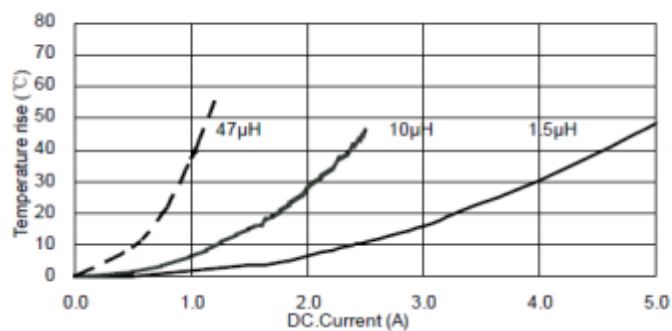
◆ Note

- 1: All test data is referenced to 20°C ambient;
- 2: Rated current: Isat or Irms, whichever is smaller;
- 3: Isat: DC current at which the inductance drops approximate 30% from its value without current;
- 4: Irms: DC current that causes the temperature rise ($\Delta T = 40^\circ\text{C}$) from 20°C ambient.

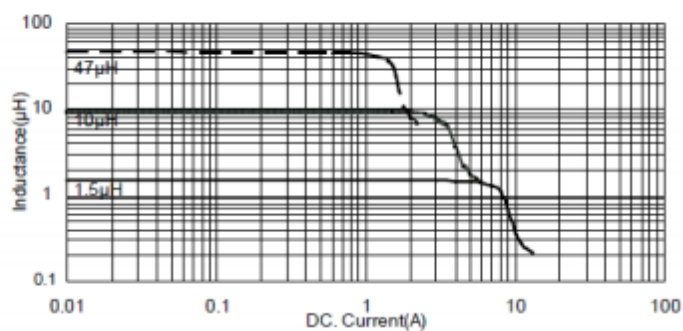
◆ TYPICAL ELECTRICAL CHARACTERISTICS

INNER5040F Series

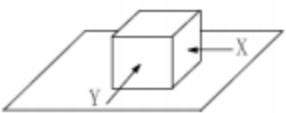
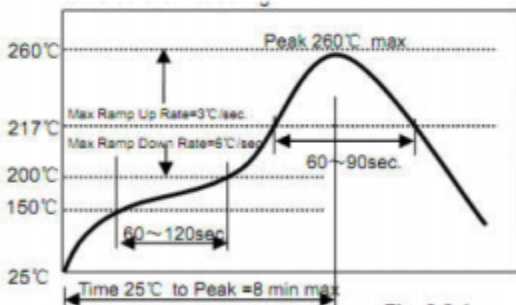
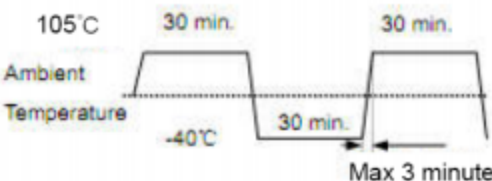
Temperature vs. DC Current Characteristics



Inductance vs. DC Current Characteristics

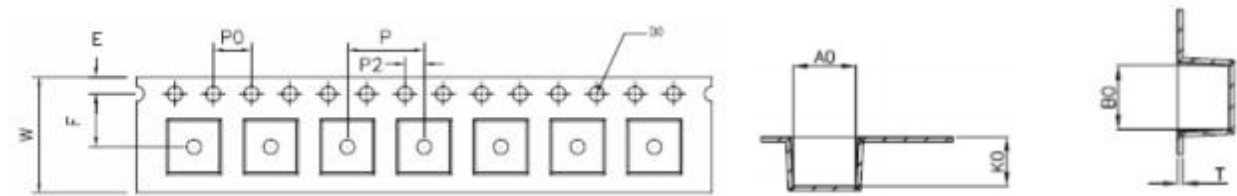


◆Reliability Test

Items	Requirements	Test Methods and Remarks
A. Terminal Strength	No removal or split of the termination or other defects shall occur.  Fig.7.1-1	1) Solder the inductor to the testing jig (glass epoxy board shown in Fig.7.1-1) using eutectic solder. Then apply a force in the direction of the arrow. 2) 10N force. 3) Keep time: 5±2s
B. High Temperature	1. No visible mechanical damage. 2. Inductance change: Within ±10%	1) Storage Temperature :125±5℃ 2) Duration : 96 ±4 Hours 3) Recovery : then measured at room ambient temperature after placing 24 hours.
C. Low Temperature	1. No visible mechanical damage 2. Inductance change: Within ±10%	1) Temperature and time: -40±5℃ 2) Duration: 96±4 hours 3) TRecovery : then measured at room ambient temperature after placing 24 hours.
D. Vibration test	1. No visible mechanical damage. 2. Inductance change: Within ±10%	1) Frequency range:10HZ~55HZ~10HZ 2) Amplitude:1.5mm p-p 3) Direction:X,Y,Z 4) Time:1 minute/cycle,2hours per axis
E. High Temperature Storage Tested	1. No visible mechanical damage. 2. Inductance change: Within ±10%	1) Storage Temperature :60±2℃ 2) Relative Humidity :90-95% RH 3) Duration : 96 ±4 Hours 4) Recovery : then measured at room ambient temperature after placing 24 hours.
F. Resistance to Soldering Heat	1. No visible mechanical damage. 2. Inductance change: Within ±10%  Fig. 1	1) Re-flowing Profile: Please refer to Fig. 1 2) Test board thickness: 1.0mm 3) Test board material: glass epoxy resin 4) The chip shall be stabilized at normal condition for 1~2 hours before measuring
G. Thermal Shock	1. No visible mechanical damage. 2. Inductance change: Within ±10%  Fig. 2	1) Temperature and time: -40±3℃ for 30±3 min→105℃ for 30±3min, please refer to Fig. 2. 2) Transforming interval: Max, 3 minute 3) Tested cycle: 100 cycles 4) The chip shall be stabilized at normal condition for 1~2 hours before measuring

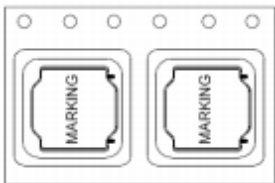
◆Packaging and Marking:

1.Carrier Tape Dimensions:

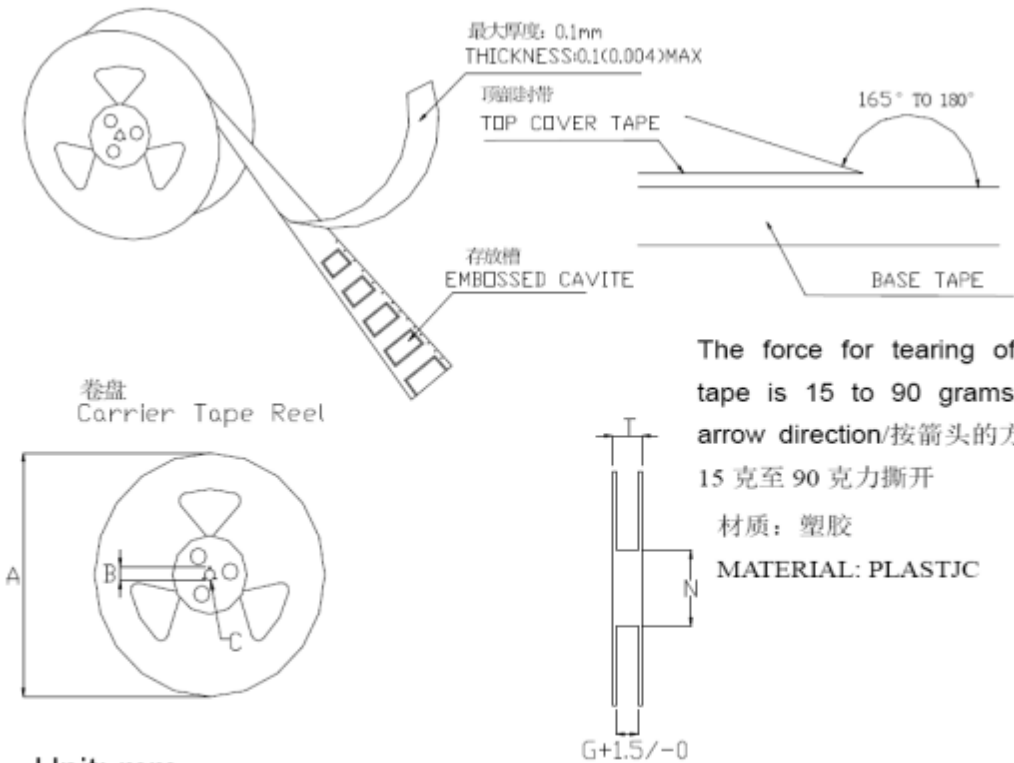


ITEM	W	A0	B0	K0	P	F	E	D0	D1	P0	P2	T
DIM	12.00	5.3	5.3	4.3	8.00	5.50	1.75	1.50	1.50	4.00	2.00	0.4
TOLE	±0.3	±0.1	±0.1	±0.15	±0.1	±0.15	±0.1	+0.1	+0.1	±0.1	±0.1	±0.05

2.Taping Dimensions:



3.Reel Dimensions:



Unit: mm

Type	A	B	C	G	N	T
12mm	330	21±0.8	13±0.4	12.4	100	16.4

4. Packaging Quantity:

Standard Packing Quantity: 1500 pcs/reel