



# POWER INDUCTOR MOLDING TYPE CIP SERIES

## Introductions

The CIP series power inductors are surface-mount molding type which widely used in the applications such as DC/DC converters in Notebook, Netbook, desktop and server and low profile, high current power supplies.

## Features

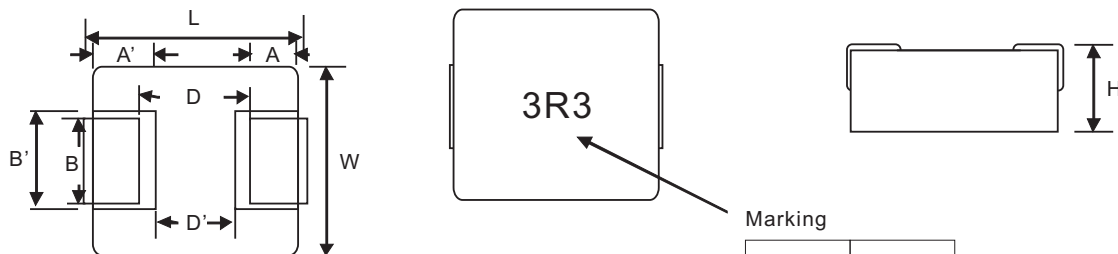
- \* Operating temperature -55 to +125 °C.
- High performance (saturation current) due to powdered iron composition.
- Low loss due to design of low DC resistance.
- Frequency application up to 3MHz.
- \* Low profile with max thickness 3.0mm.
- \* 100% lead free and metted RoHS standard.
- \* Excellent solderability and resistance to soldering heat .
- \* Suitable for reflow soldering..
- \* High reliability and easy surface mount assembly.

## Part Number Code

CIP	0530	HI	1R0	M
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

### 1 Product Type

### 2 Dimension



L : 5.4 ± 0.35 mm	A : 1.0 ± 0.4 mm
W : 5.2 ± 0.2 mm	A' : 1.5 ± 0.1 mm
H : 3.0mm max.	B : 2.0 ± 0.3 mm
D' : 2.20 ± 0.2mm	B' : 2.5 ± 0.2 mm

Marking

HI series	3R3
LR series	LR 3R3

### 3 Application

HI High Saturation Current  
LR Low DC Resistance

### 4 Inductance Value

1R0 = 1.0 uH                      2R2 = 2.2 uH  
1R5 = 1.5 uH                      3R3 = 3.3 uH

### 5 Tolerance

M = ±20%  
N = ±30%

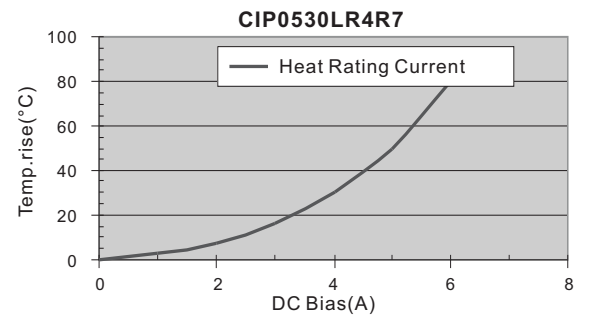
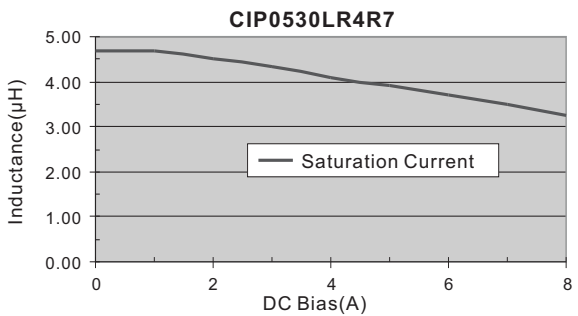
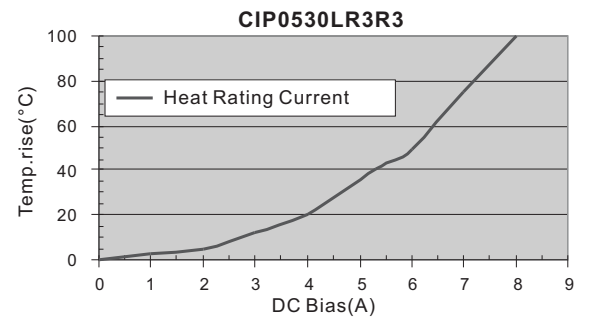
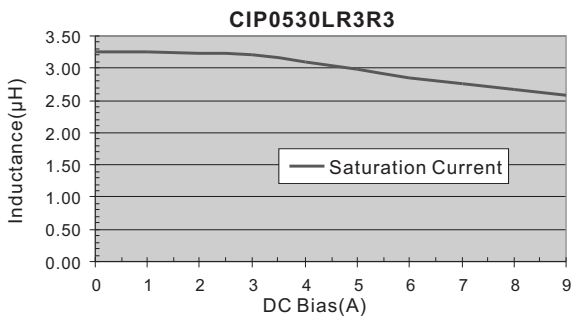
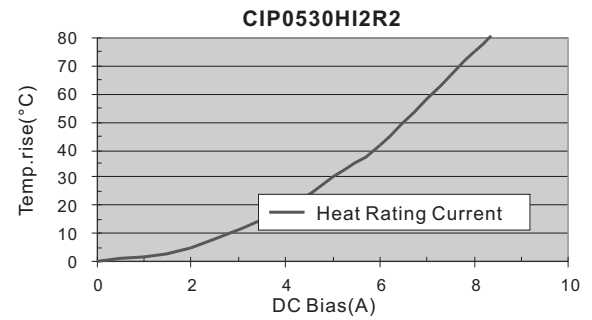
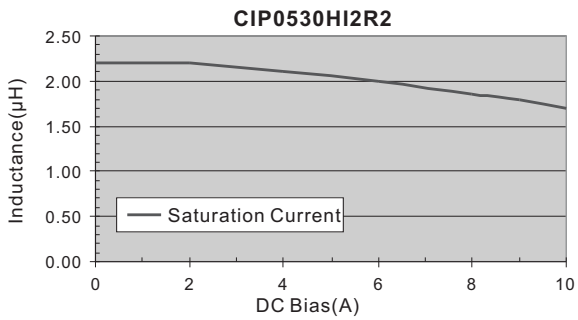
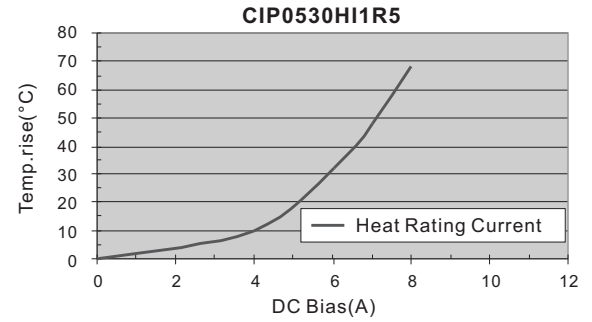
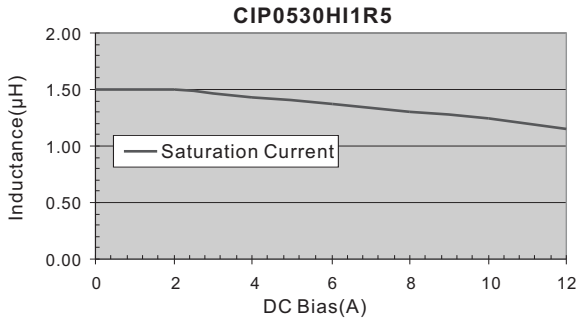
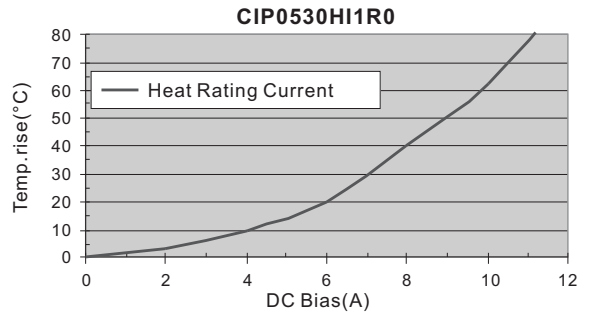
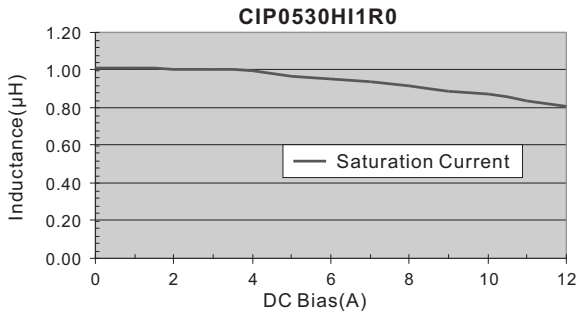
**POWER INDUCTOR  
MOLDING TYPE**

**CIP 0530 SERIES**

Part No.	Inductance <sup>1</sup> (uH)	Percent <sup>2</sup> Tolerance	DCR <sup>3</sup>		Isat <sup>4</sup> (A)	Irat <sup>5</sup> (A)
			Typ. (mΩ)	Max. (mΩ)		
CIP 0530 HI 1R0	1.0	M	14.0	15.5	11.0	7.0
CIP 0530 HI 1R5	1.5	M	20.0	25.0	10.0	6.0
CIP 0530 HI 2R2	2.2	M	29.0	35.0	9.0	5.5
CIP 0530 LR 3R3	3.3	M	36.0	40.0	5.0	5.0
CIP 0530 LR 4R7	4.7	M	54.0	60.0	4.5	4.5

1. Inductance is measured in HP-4284A Precision LCR Meter.
2. Tolerance : M =20% , N=30% (Table shows stock tolerances in □).
3. RDC is measured in HP 4338B mill ohm meter.(or equivalent).
4. Isat : Based on inductance change ( $\Delta L/L_0 : \leq -20\%$ )
5. Irat : Based on temperature rise ( $\Delta T : 40^\circ\text{C TYP.}$ )

# PERFORMANCE GRAPHS



# MOLDING TYPE INDUCTOR SPECIFICATIONS

## 1 Scope

This specification applies to fixed inductors of the following types used in electronic equipment :

- \* LR Type : For low power application with lower DC resistance and lower power loss design requirement.
- \* HI Type : For higher high performance application with higher saturation current requirement.

## 2 Construction

- \* Configuration & Dimension : Please refer to the attached figures and tables.

## 3 Operating Temperature Range

Operating Temperature Range is the scope of ambient temperature at which the inductor can be operated continuously at rated current.

- \* Temp. Range : - 55 °C to + 125 °C

## 4 Characteristics

### Standard Atmospheric Conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows :

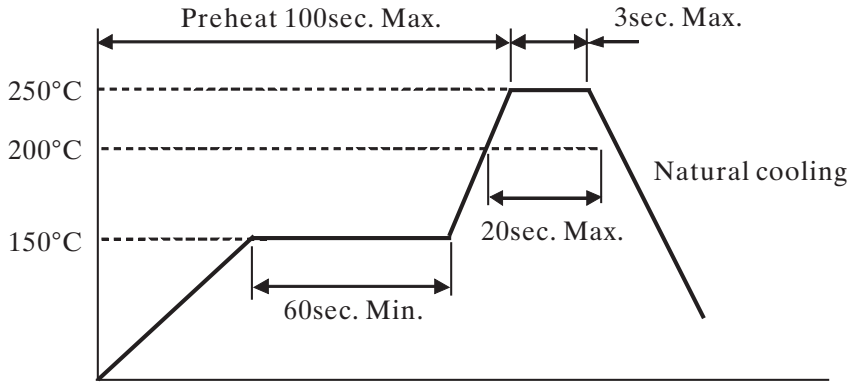
- \* Ambient Temperature : 25°C  $\pm$  2 °C
- \* Relative Humidity : 60% to 70%
- \* Air Pressure : 86 Kpa to 106 Kpa

# MOLDING TYPE INDUCTOR SPECIFICATIONS

**Recommended Soldering Conditions (Please use this product by reflow soldering)**

**a Recommended Reflow temperature profile**

(Temperature of the mounted parts surface on the printed circuit board)

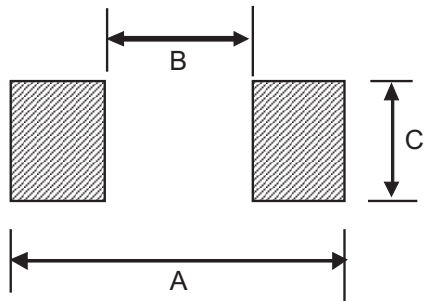


**b Dip temperature**

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.

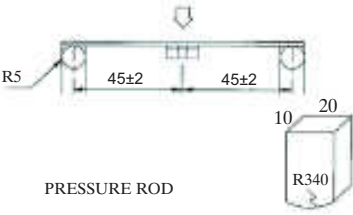
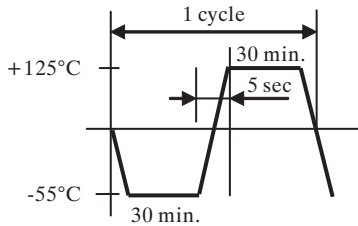
2 seconds max. at 260°C.

**c Recommended Footprint**



Type	A	B	C
0420	5.20 mm	2.20 mm	2.50 mm
0520	5.99 mm	2.20 mm	2.50 mm
0530	5.99 mm	2.20 mm	2.50 mm
0630	8.40 mm	3.70 mm	3.40 mm
1040	13.60 mm	5.40 mm	4.10 mm

## RELIABILITY SPECIFICATION

ITEM	SPECIFICATIONS	TEST CONDITIONS
<b>Solderability</b>	The metalized area shall have 95% minimum solder coverage.	1. Preheating at $160 \pm 10^\circ\text{C}$ 90sec 2. $245^\circ\text{C} \pm 5^\circ\text{C}$ for $2 \pm 1$ sec
<b>Substrate Bending</b>	$\Delta L/L_0 : \leq \pm 5\%$ There shall be no mechanical damage or electrical damage.	The sample shall be soldered onto the printed circuit board and a load applied until the figure in the arrow direction is made approximately 2mm (keep time $5 \pm 1$ seconds)  F(Pressurization)  PRESSURE ROD
<b>Vibration</b>	$\Delta L/L_0 : \leq \pm 5\%$ There shall be no mechanical damage	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 : 10~55~10Hz in 60sec as a period Amplitude : 1.5mm
<b>High Temperature Storage</b>	$\Delta L/L_0 : \leq \pm 5\%$ There shall be no mechanical damage or electrical damage.	The sample shall be left for 96 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.
<b>Low Temperature Storage</b>	$\Delta L/L_0 : \leq \pm 5\%$ There shall be no mechanical damage or electrical damage.	The sample shall be left for 96 hours in an atmosphere with a temperature of $-40 \pm 2^\circ\text{C}$ . 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.
<b>Thermal Shock</b>	$\Delta L/L_0 : \leq \pm 5\%$ There shall be no damage problems.	The sample shall be subject to 10 continuous cycles, such as shown in the following temperature cycle:   Measure the test items after leaving the inductors at room temperature and humidity for 1 hour.
<b>Moisture Storage</b>	$\Delta L/L_0 : \leq \pm 5\%$ There shall be no mechanical damage.	The sample shall be left for 96 hours in a temperature of $60 \pm 2^\circ\text{C}$ 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.

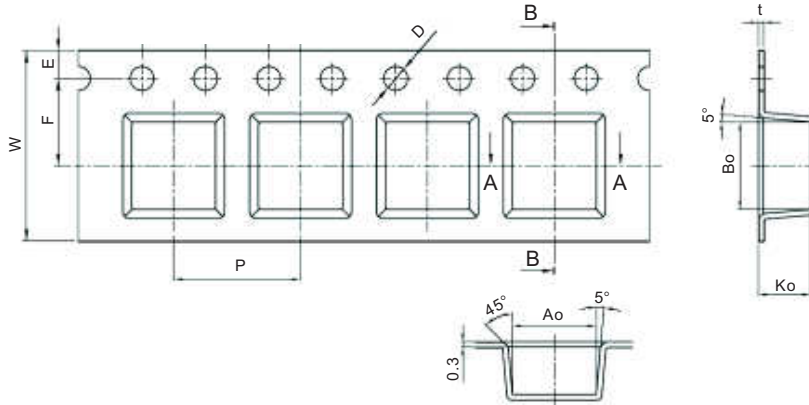
# PACKAGING INFORMATION

## Packaging

The packaging must be done not to receive any damage during transporting and storing.

### 1 Tape dimensions

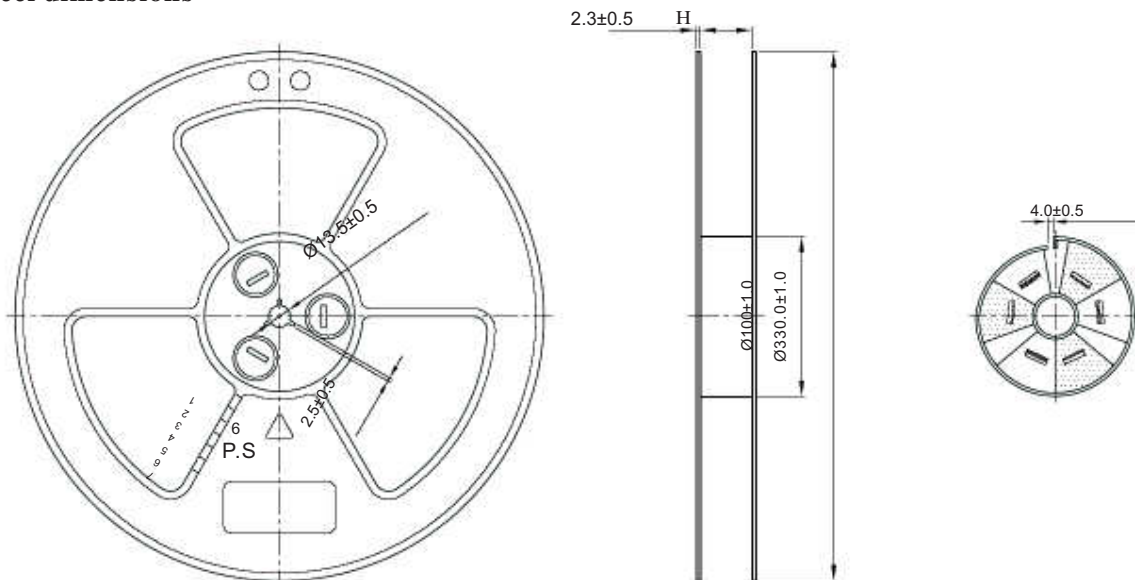
\* CIP 0420 / 0520 / 0530 / 0630 / 1040 series



(Unit:m/m)

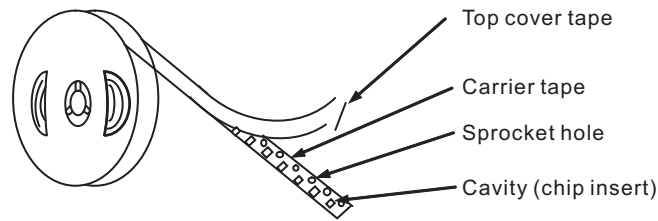
	0420 series	0520 series	0530 series	0630 series	1040 series
A0	4.25	5.30	5.30	7.80	10.50
B0	4.70	5.50	5.50	8.00	11.50
K0	2.20	2.20	3.30	3.90	4.20
P	0.30	8.00	8.00	11.00	16.00
t	0.30	0.40	0.40	0.50	0.50
W	12.00	12.00	12.00	16.10	24.00
E	1.75	1.75	1.75	3.10	1.75
F	5.50	5.50	5.50	7.00	11.50
D	1.50	1.50	1.50	1.50	1.50

### 2 Reel dimensions



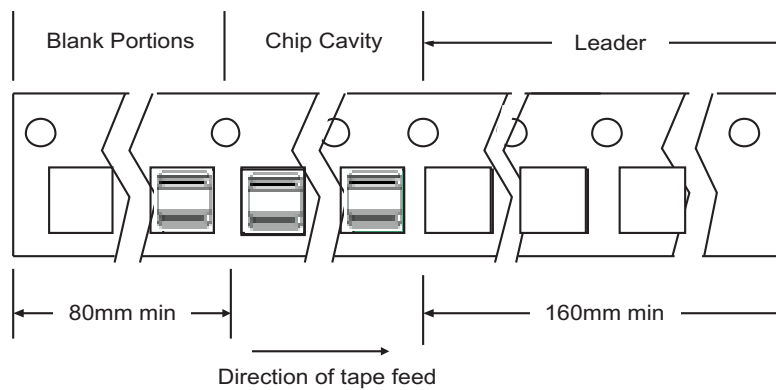
# PACKAGING INFORMATION

## 3 Tapping figure



## 4 Packaging Form

There shall not continuation more than two vacancies of the product.



## 5 Packing Quantity

Reel Dimensions ( m/m ) = $\phi$ 330	0420 series	0520 series	0530 series	0630 series	1040 series
Parts per Reel (pcs)	2000	2000	2000	1500	1000
Inner Carton	4 Reels	4 Reels	4 Reels	4 Reels	4 Reels
Master Carton (pcs)	32000	32000	32000	24000	16000