

POWER INDUCTOR MOLDING TYPE CIP SERIES

INTRODUCTION

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

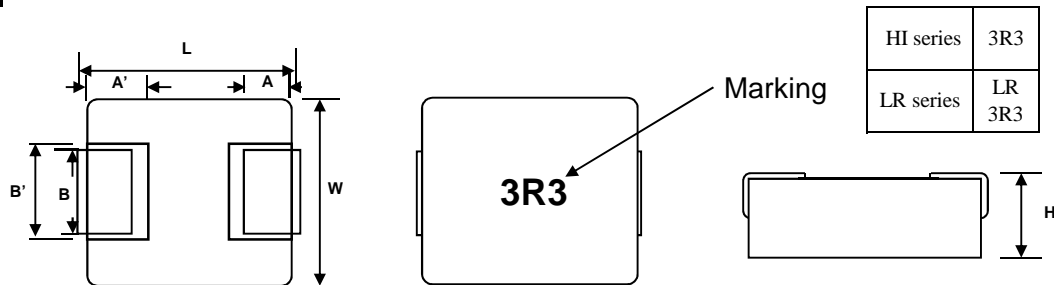
- * Operating temperature -55 to +125 °C.
- * High performance (saturation current) due to powdered iron composition.
- * Low loss due to design of low DC resistance.
- * Frequency application up to 3MHz.
- * Low profile with max thickness 3.0mm.
- * 100% lead free and metted RoHS standard.
- * Excellent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

PART NUMBER

| | | | | | | |
|------------|-------------|-----------|------------|----------|----------|----------------------|
| CIP | 0630 | HI | 1R0 | M | - | □□ |
| 1 | 2 | 3 | 4 | 5 | | Internal Code |

1 Product Type

2 Dimension



| SIZE | L (mm) | W (mm) | H (mm) | A (mm) | A' (mm) | B (mm) | B' (mm) |
|---------|-------------|-------------|-------------|-----------|-----------|-----------|-----------|
| CIP0520 | 5.60 ± 0.35 | 5.20 ± 0.20 | 2.00 ± 0.10 | 1.0 ± 0.4 | 1.5 ± 0.1 | 2.0 ± 0.3 | 2.5 ± 0.2 |
| CIP0530 | 5.60 ± 0.35 | 5.20 ± 0.20 | 3.00 max. | 1.0 ± 0.4 | 1.5 ± 0.1 | 2.0 ± 0.3 | 2.5 ± 0.2 |
| CIP0630 | 7.20 ± 0.30 | 6.65 ± 0.20 | 3.00 max. | 1.6 ± 0.4 | 2.0 ± 0.1 | 3.0 ± 0.3 | 3.4 ± 0.2 |

3 Application

HI : High Saturation Current
LR : Low DC Resistance

4 Inductance Value

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

5 Tolerance

M = ± 20 %
N = ± 30 %

MOLDING TYPE INDUCTOR SPECIFICATION

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^oC to + 125^oC

4 Characteristics

Standard Atmospheric Conditions

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

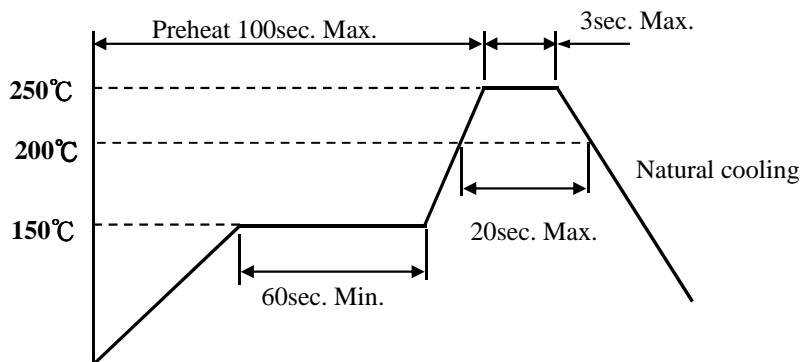
- Ambient Temperature : 25 °C ± 2 °C
- Relative Humidity : 60% to 70%
- Air Pressure : 86 Kpa to 106 Kpa

MOLDING TYPE INDUCTOR SPECIFICATION

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)

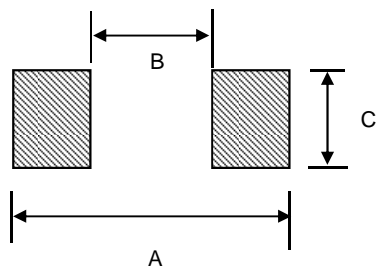


b Dip temperature

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



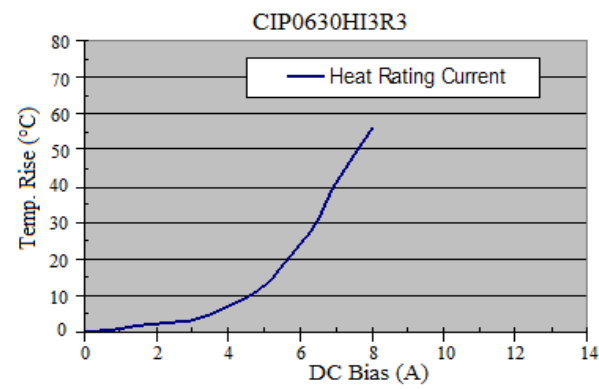
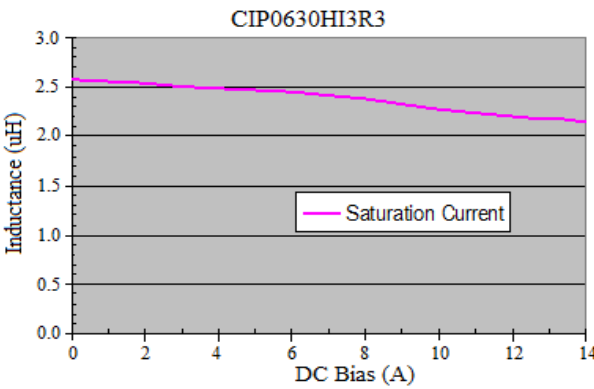
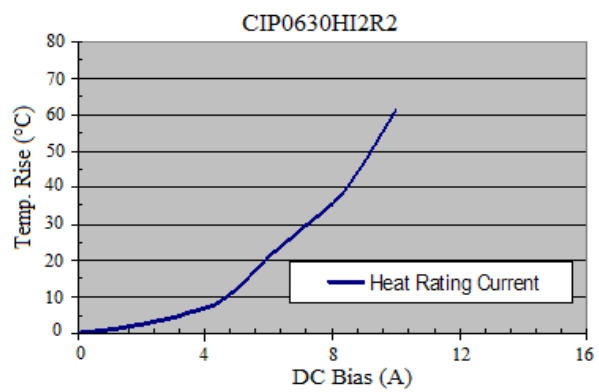
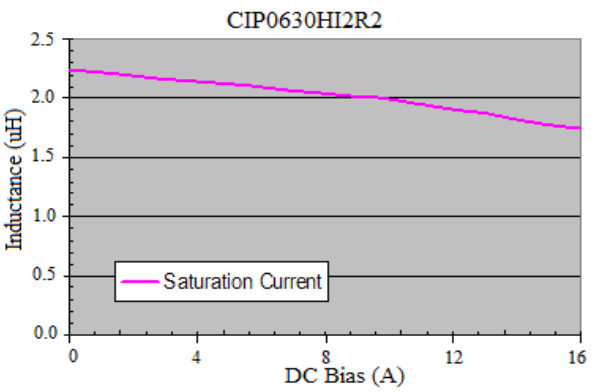
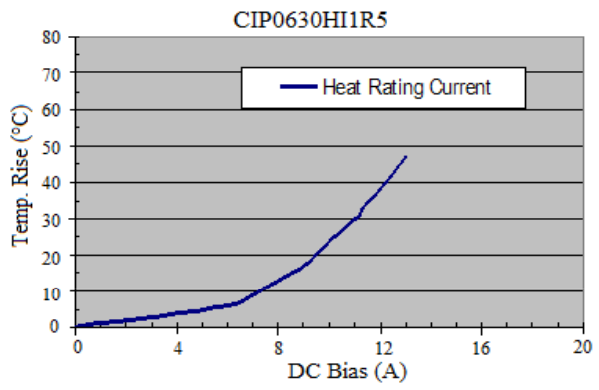
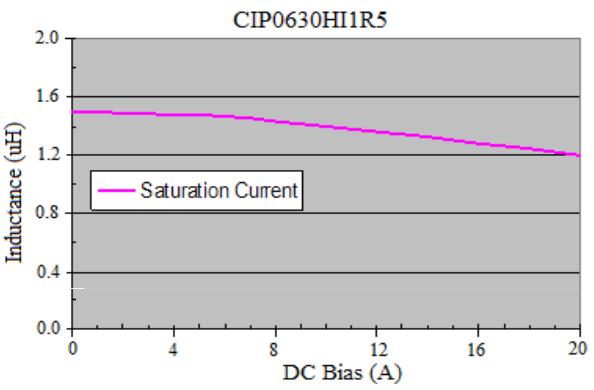
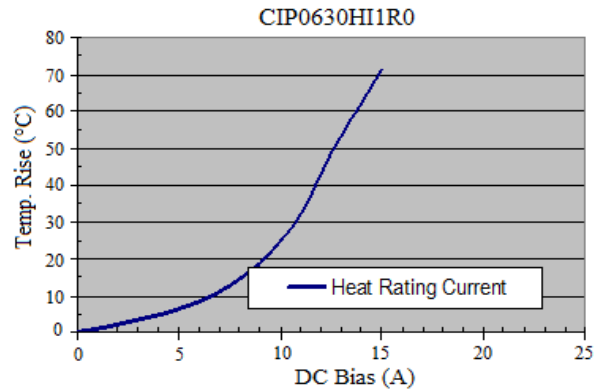
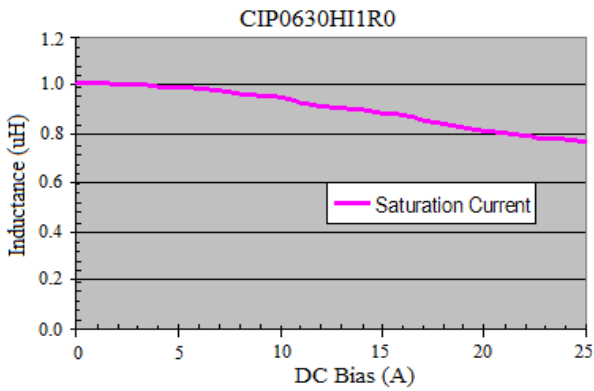
| TYPE | A (mm) | B (mm) | C (mm) |
|------|--------|--------|--------|
| 0520 | 5.99 | 2.20 | 2.50 |
| 0530 | 5.99 | 2.20 | 2.50 |
| 0630 | 8.40 | 3.70 | 3.40 |

CIP0630 HI SERIES

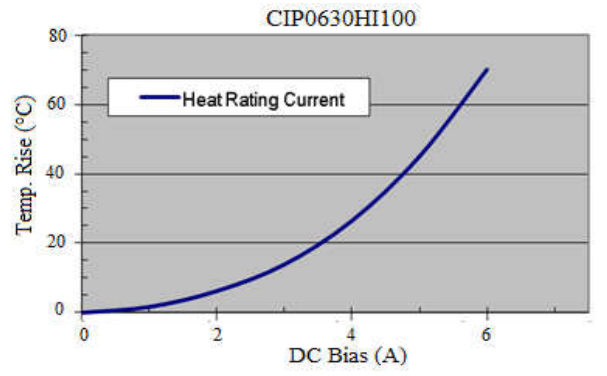
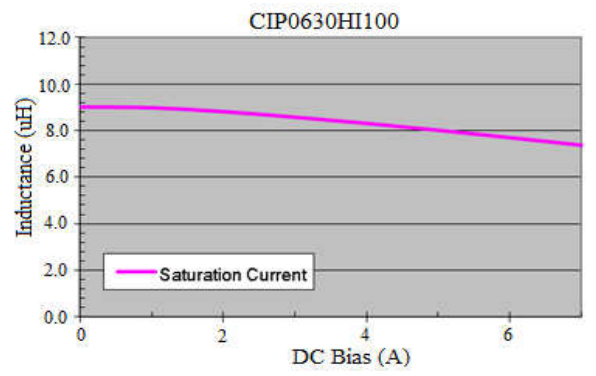
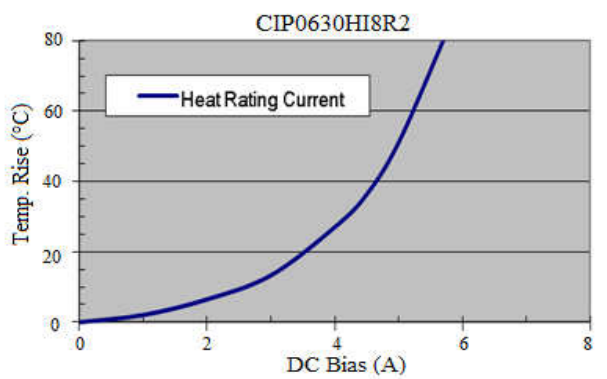
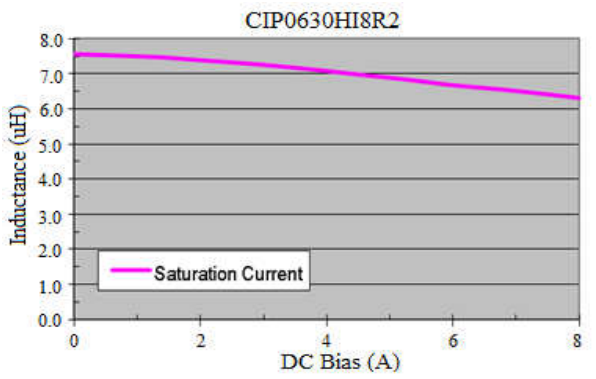
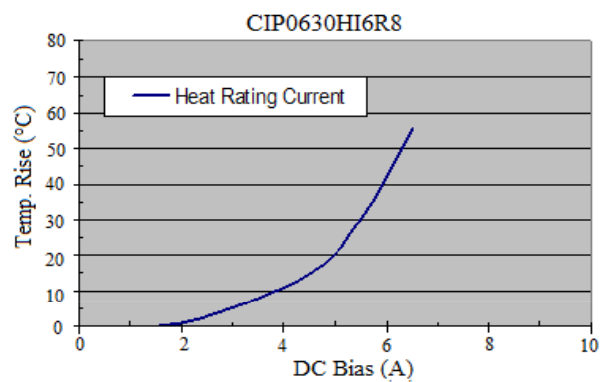
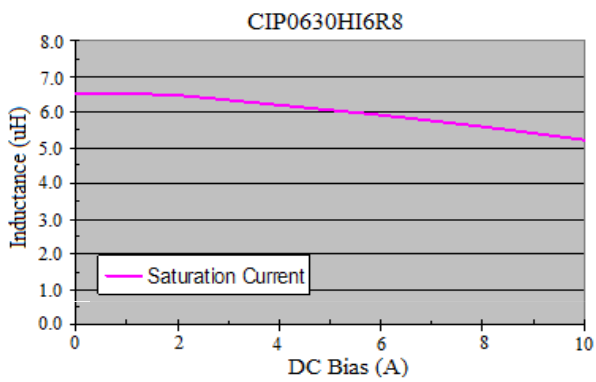
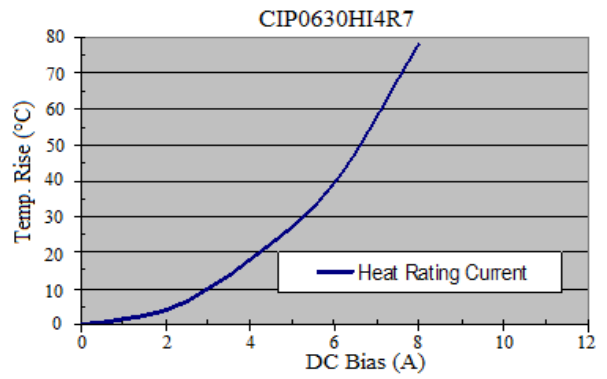
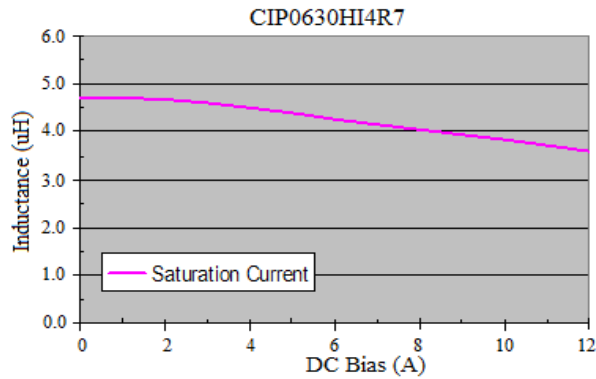
| Part No. | Inductance ¹ (uH) | Percent ² Tolerance | DCR ³ | | Isat ⁴ (A) | Irat ⁵ (A) |
|---------------------|---------------------------------|-----------------------------------|------------------|----------|--------------------------|--------------------------|
| | | | Typ.(mΩ) | Max.(mΩ) | | |
| CIP0630 HI 1R0 □-□□ | 1.0 | M | 9.0 | 10.0 | 20.5 | 11.0 |
| CIP0630 HI 1R5 □-□□ | 1.5 | M | 14.0 | 15.0 | 17.0 | 9.0 |
| CIP0630 HI 2R2 □-□□ | 2.2 | M | 18.0 | 20.0 | 14.0 | 8.0 |
| CIP0630 HI 3R3 □-□□ | 3.3 | M | 28.0 | 30.0 | 13.5 | 6.8 |
| CIP0630 HI 4R7 □-□□ | 4.7 | M | 37.0 | 40.0 | 10.0 | 5.5 |
| CIP0630 HI 6R8 □-□□ | 6.8 | M | 54.0 | 60.0 | 8.0 | 4.5 |
| CIP0630 HI 8R2 □-□□ | 8.2 | M | 64.0 | 68.0 | 7.5 | 4.0 |
| CIP0630 HI 100 □-□□ | 10 | M | 102.0 | 105.0 | 7.0 | 3.0 |

1. Inductance is measured in HP-4284A Precision LCR Meter under 0.25V 100kHz.
2. Tolerance : M =20% , N=30%.
3. RDC is measured in HP 4338B mill ohm meter.(or equivalent).
4. Isat : Based on inductance change ($\Delta L/Lo$: LR -30% typical / HI -20% typical)
5. Irat : Based on temperature rise (ΔT : 40°C TYP.)

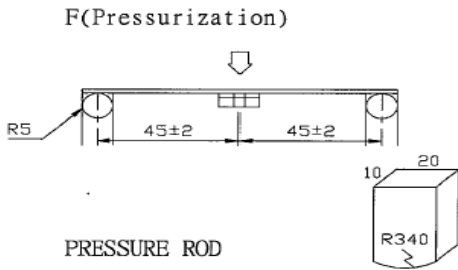
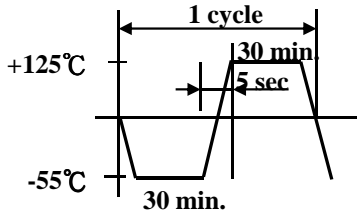
CIP0630 HI SERIES



CIP0630 HI SERIES



RELIABILITY SPECIFICATION

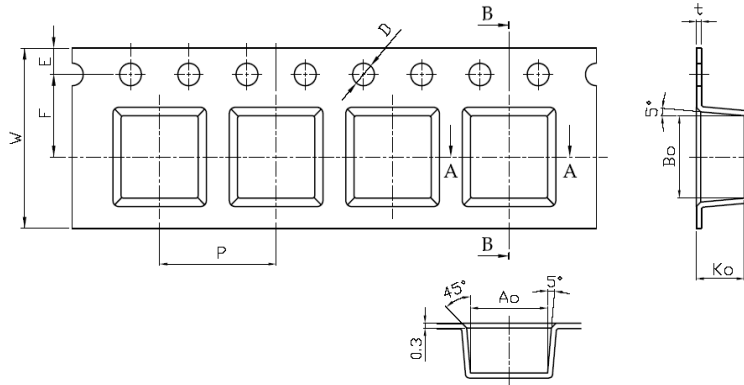
| ITEM | SPECIFICATION | TEST CONDITION |
|--------------------------|--|--|
| Solderability | The metalized area must have 95% minimum solder coverage. | 1. Preheating at 160±10°C 90sec 2. 245°C ±5°C for 2 ±1sec |
| Substrate Bending | $\Delta L/L_0 : \leq \pm 5\%$ There shall be no mechanical damage 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±1 seconds)  |
| Vibration | $\Delta L/L_0 : \leq \pm 5\%$ 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 house for a total of 6 hours. Frequency : 10~55~10Hz in 60sec as a period Amplitude : 1.5mm |
| High Temperature Storage | $\Delta L/L_0 : \leq \pm 5\%$ 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±2°C and a normal humidity. Upon the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour. |
| Low Temperature Storage | $\Delta L/L_0 : \leq \pm 5\%$ 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±2°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. |
| Thermal Shock | $\Delta L/L_0 : \leq \pm 5\%$ 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 hours. |
| Moisutire Storage | $\Delta L/L_0 : \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be left for 96 hours in a temperature of 60±2°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

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

1. Tape dimensions

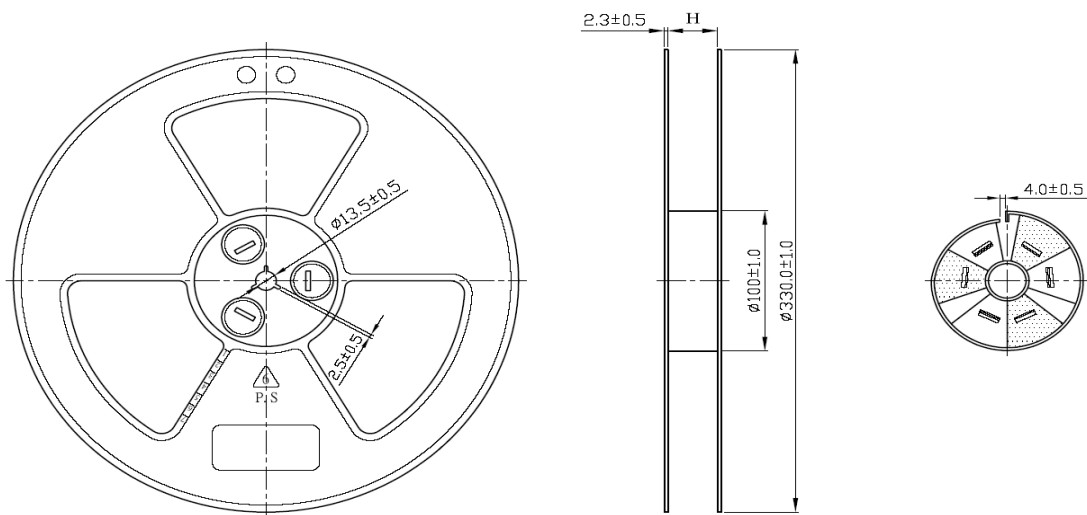
* CIP0520 / 0530 / 0630 SERIES



(Unit:m/m)

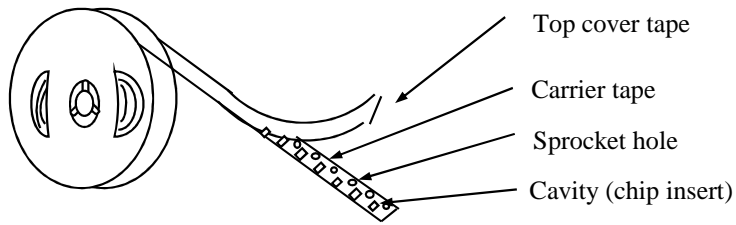
| | 0520 | 0530 | 0630 |
|----|-------|-------|-------|
| A0 | 5.30 | 5.30 | 7.20 |
| B0 | 5.50 | 5.50 | 7.50 |
| K0 | 2.20 | 3.30 | 3.60 |
| P | 8.00 | 8.00 | 12.00 |
| t | 0.40 | 0.40 | 0.30 |
| W | 12.00 | 12.00 | 16.00 |
| E | 1.75 | 1.75 | 1.75 |
| F | 5.50 | 5.50 | 7.50 |
| D | 1.50 | 1.50 | 1.50 |

2. Reel dimensions



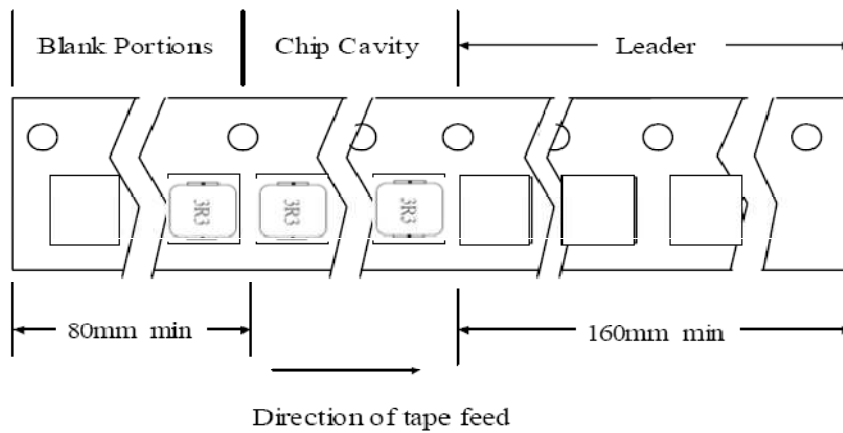
PACKAGING INFORMATION

3. Tapping figure



4. Packaging Form

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



5. Packing Quantity

| Reel Dimension (m/m) = ϕ 330 | 0520 series | 0530 series | 0630 series |
|--------------------------------------|----------------|----------------|----------------|
| Part per Reel (pcs) | 2000 | 2000 | 1500 |
| Inner Carton | 4 Reels | 4 Reels | 4 Reels |
| Master Carton (pcs) | 32000 | 32000 | 24000 |