

# Specification For Approval



<b>Item P/N</b>	PCN5045CI-SERIES	<b>Test Instrument</b>	E4991 / 4339B / 6379
<b>Product</b>	Common Choke Coil for Power Lines	<b>Test Frequency</b>	100 MHz / 0.5V

Customer : \_\_\_\_\_

Customer P/N : \_\_\_\_\_

Description : Common Choke Coil for Power Lines

HT P/N : PCN5045CI-SERIES

Revision No. : Version: 1.0

Date : \_\_\_\_\_

Notes : Automobile Conform to AEC-Q200



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IATF 16949:2016 / ISO 9001:2015 / ISO 14001:2015

Ht Documented	Customer Approval
Approved                  Jack	
Checked                     George	
Prepared                    Cherrie	

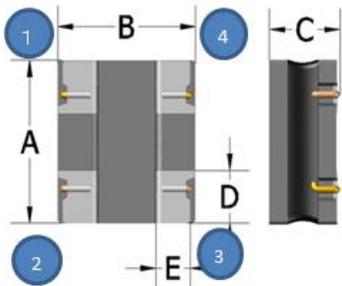


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## ■ Style and Dimensions (mm)



PCN5045	Dimensions
A	5.0 ± 0.3
B	4.5 ± 0.3
C	2.5 Max.
D	1.8 ± 0.3
E	1.5 ± 0.3

## ■ Explanation Of Part Numbers

①      ②      ③      ④  
 PCN    5045    CI    -    102

- ① Product name
- ② Shapes and dimensions
- ③ for Automobile Conform to ACE-Q200 Grade 1
- ④ Impedance 【at 100MHz】 102:1000Ω

## ■ Electrical Characteristics

for Automobile P/N	Z(Ω) Common Mode	DCR (Ω)	IDC (A)	Rated Voltage	Insulation Resistance	Withstand Voltage
	Impedance at 100MHz	±40%	Max.	Vdc (V)Typ.	IR (MΩ) Min.	Vdc (V)Typ.
PCN5045CI-101	100 Typ.	0.009	6.0	100	10	250
PCN5045CI-251	250 Typ.	0.014	5.0	100	10	250
PCN5045CI-501	500 Typ.	0.019	4.0	100	10	250
PCN5045CI-102	1000 Typ.	0.024	3.0	100	10	250
PCN5045CI-142	1400 Typ.	0.040	1.5	100	10	250
PCN5045CI-252	2500 Typ.	0.040	2.0	100	10	250

※Operating temperature : -40 to +125°C

Storage temp. and humidity: Less than 40°C and 60% RH.

Typical Heat Rating DC Current would cause an approximately ΔT of 40°C

If Use Wave soldering is there will be some risk.

Re-flow soldering temperatures below 240 degrees, there will be unwitting risk.

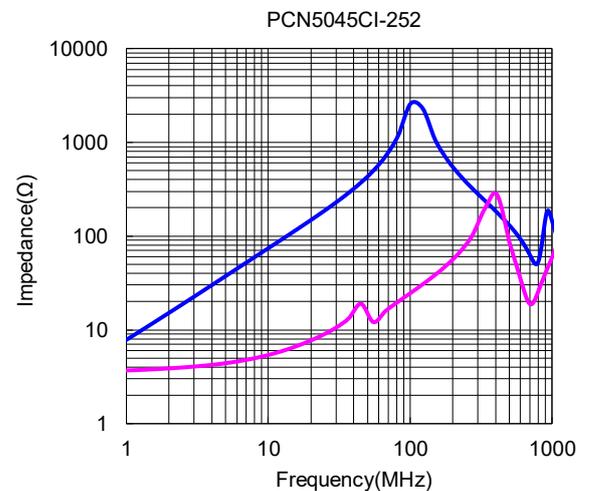
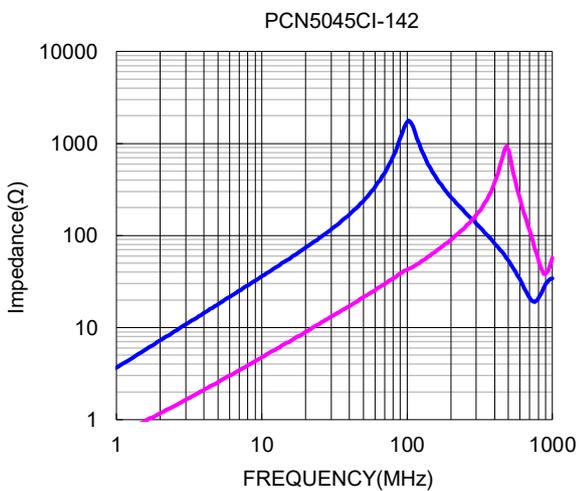
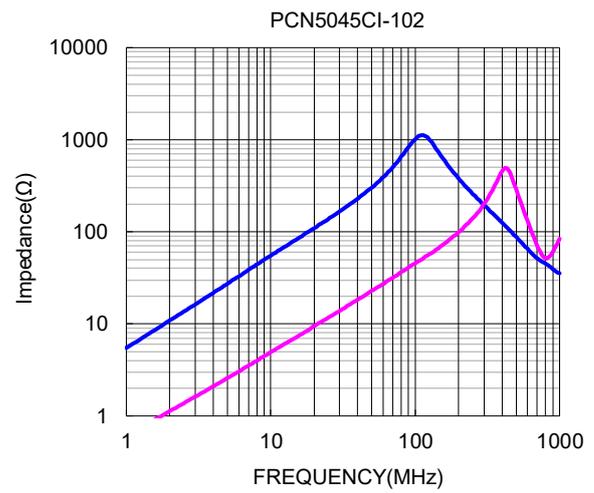
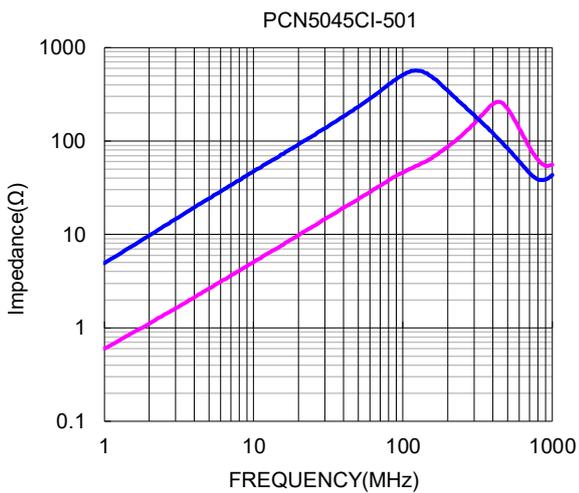
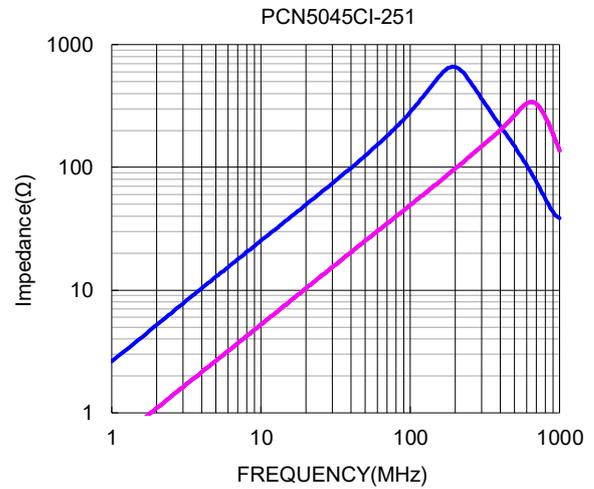
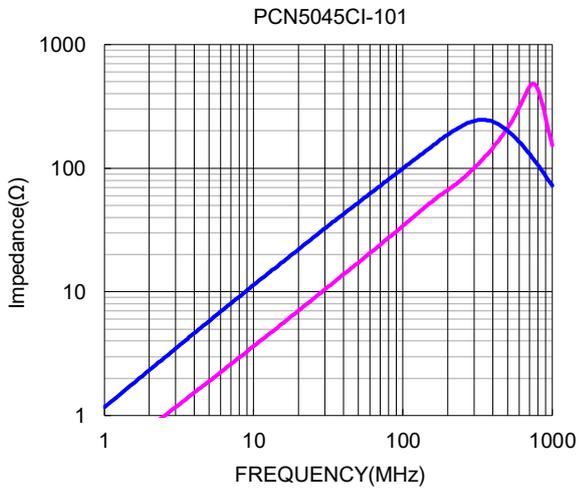
Solder standard according to IPC-A-610D 8.2.1 Chip Components - Bottom Only Terminations.

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## ■ Performance curves

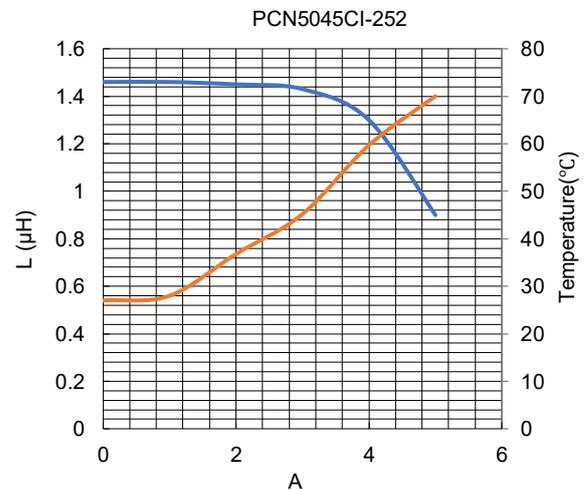
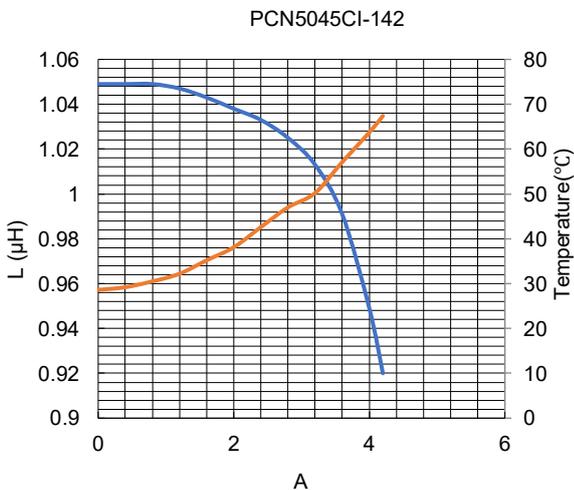
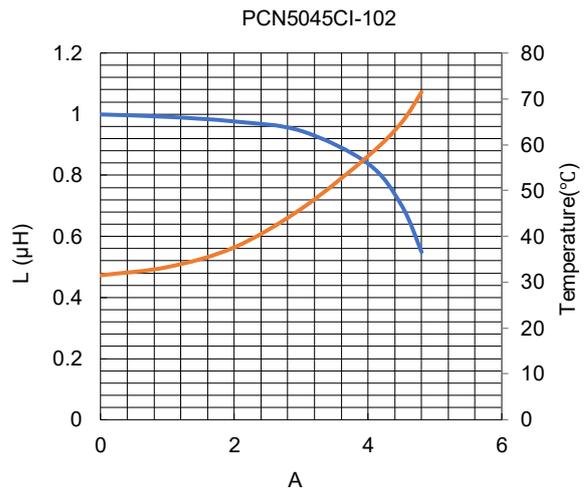
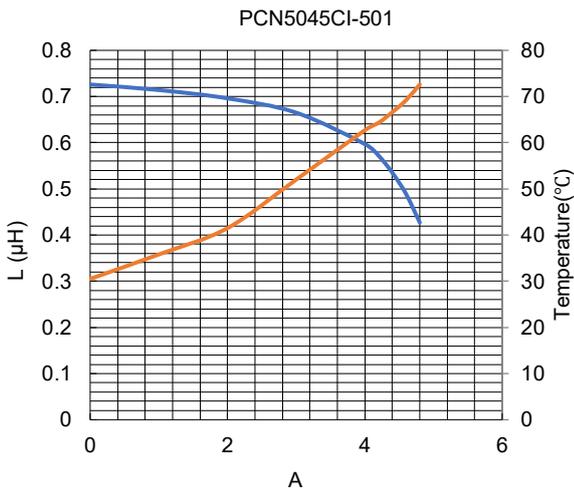
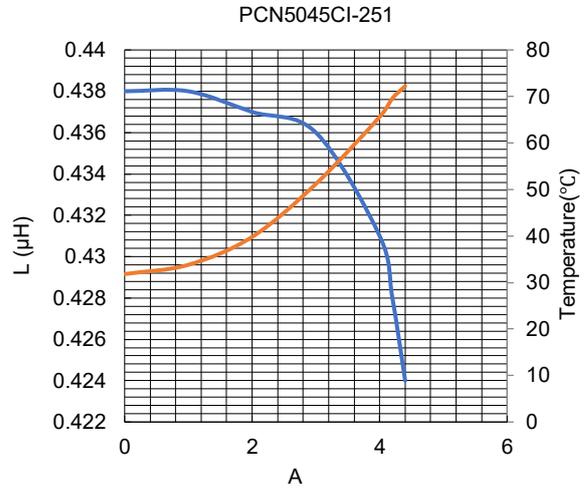
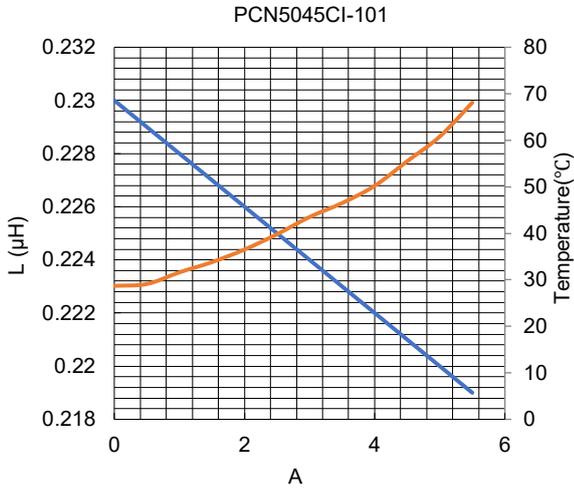


# Characteristics



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## ■ Performance Curves

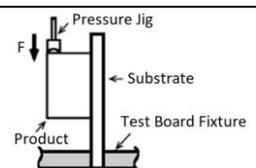
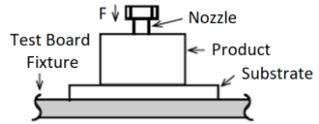
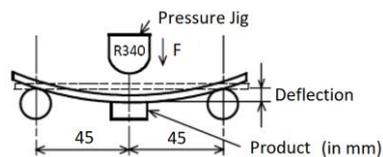
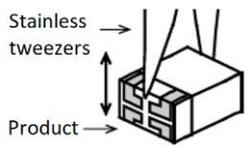


# Characteristics



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## ■ Mechanical Performance

No.	Item	Specifications	Test Method								
1	Appearance and Dimensions	Style and Dimensions	Visual Inspection and Measured with Slide Calipers.								
2	Bonding Strength and Core Strength	No Evidence of Chipping, Breakage. No Evidence of Coming off Glass-Epoxy Substrate.	Applying Force (F): 10N Applying Time: 5± 1s 								
3	Body Strength	No Evidence of Chipping, Breakage.	Applying Force (F): 10N Applying Time: 5± 1s 								
4	Bonding Strength	Meet Table 1. Table 1	Substrate: Glass-Epoxy (t=1.6mm) Deflection: 2.0mm Keeping Time: 30s Speed of Applying Force: 0.5mm/s 								
5	Vibration	<table border="1"> <tr> <td>Appearance</td> <td>No Damaged.</td> </tr> <tr> <td>Impedance Change (at 100MHz)</td> <td>Within ±20%</td> </tr> <tr> <td>I.R.</td> <td>10MΩ Min.</td> </tr> <tr> <td>Withstand Voltage</td> <td>No Damaged.</td> </tr> </table>	Appearance	No Damaged.	Impedance Change (at 100MHz)	Within ±20%	I.R.	10MΩ Min.	Withstand Voltage	No Damaged.	Products Shall be Soldered on the Substrate. Oscillation Frequency: 10 to 55 to 10Hz for 1 Min. Total Amplitude: 1.5mm Testing Time: A Period of 2 Hours in Each of 3 Mutually Perpendicular Directions (Total 6 Hours).
Appearance	No Damaged.										
Impedance Change (at 100MHz)	Within ±20%										
I.R.	10MΩ Min.										
Withstand Voltage	No Damaged.										
6	Drop		Products Shall be Dropped Concrete or Steel Board. Method: Free Fall Height: 1m The Number of Times: 10 Times								
7	Solderability	The electrodes Shall be at Least 90% Covered with New Solder coating.	Flux: Ethanol Solution of Rosin, 25 (wt)% Pre-Heating: 150± 10°C, 1 Minute. Solder: (1) Su/Pb=60/40, (2) Su-3.0Ag-0.5Cu Solder Temperature: (1) 230±5°C, (2) 230±5°C Immersion Time: 4± 1s Immersion and Immersion Rates: 25mm/s 								
8	Resistance to Soldering Heat	Meet Table 1.	Flux: Ethanol Solution of Rosin, 25 (wt)% Pre-Heating: 150± 10°C, 1 Minute. Solder: (1) Su/Pb=60/40, (2) Su-3.0Ag-0.5Cu Solder Temperature: 270±5°C Immersion Time: 5± 1s Immersion and Immersion Rates: 25mm/s Then Measured After Exposure in the Room Condition for 4 to 48 Hours.								

# Characteristics



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## ■ Enviromental Performance

**Product shall be solderd on the glass-epoxy substrate (t=1.6mm)**

No.	Item	Specifications	Test Method
1	Temperature Cycle	Meet Table 1.	1 Cycle 1 step: -40°C (+0, -3)°C / 30min (+3, -0) min 2 step: Ordinary Temp. / 3 min max. 3 step: +125°C (+3, -0)°C / 30min (+3, -0) min 4 step: Ordinary Temp. / 3 min max. Total of 10 Cycles Then Measured After Exposure in the Room Condition for 4 to 48 Hours.
2	Humidity		Temperature: 40±2°C Humidity: 90 to 95% (RH) Time: 1000h (+48 h, -0 h) Then Measured After Exposure in the Room Condition for 4 to 48 Hours.
3	Humidity Load		Temperature: 40±2°C Humidity: 90 to 95% (RH) Test Voltage: Rated Voltage Time: 1000h (+48 h, -0 h) Then Measured After Exposure in the Room Condition for 4 to 48 Hours. (Ref. Item)
4	Heat Life		Temperature: 125±2°C Humidity: 90 to 95% (RH) Test Voltage: Rated Voltage Time: 1000h (+48 h, -0 h) Then Measured After Exposure in the Room Condition for 4 to 48 Hours. (Ref. Item)
5	Cold Resistance		Temperature: -40±2°C Time: 1000h (+48 h, -0 h) Then Measured After Exposure in the Room Condition for 4 to 48 Hours. (Ref. Item)

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## Terminal to be Tested

When measuring and suppling the voltage, the following terminal is applied.

No.	Item	Terminal to be Tested
1	Impedance ( $\Omega$ ) (Measurement Terminal)	
2	DC Resistance ( $\Omega$ ) (Measurement Terminal)	
3	Heat Rating Current DC I rms.(A) (Measurement Terminal)	
4	Saturation Current DC I sat. (A) (Measurement Terminal)	
5	Insulation Resistance (I.R.) (Measurement Terminal)	
6	Withstanding Voltage (V) (Measurement Terminal)	
7	Rated Voltage (V) (Measurement Terminal)	
8	Humidity Load (Supply Terminal)	
9	Heat Life (Supply Terminal)	

# Characteristics



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## ■ Soldering and Mounting

### Soldering

Mildly activated rosin fluxes are preferred. Terminations are suitable for re-flow soldering systems.

If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

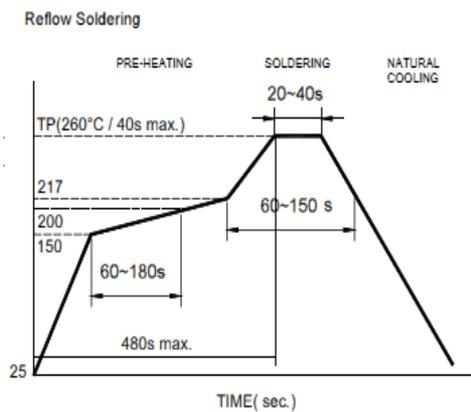
### Solder re-flow:

Recommended temperature profiles for re-flow soldering in Figure 1.

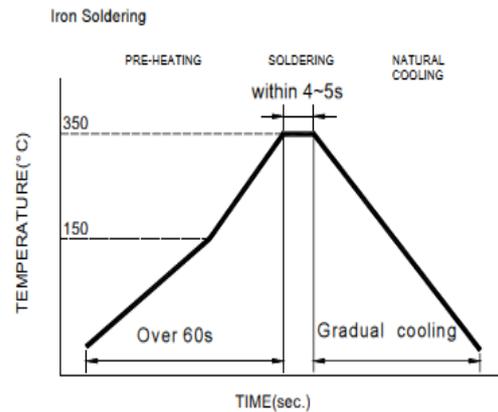
### Soldering Iron (Figure 2):

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- Preheat circuit and products to 150℃
- Never contact the ceramic with the iron tip
- Use a 20-watt soldering iron with tip diameter of 1.0mm
- 355℃ tip temperature (max.)
- 1.0mm tip diameter (max.)



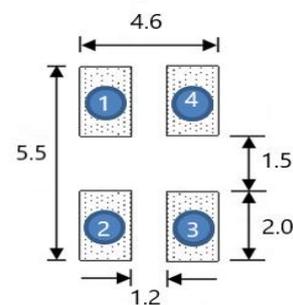
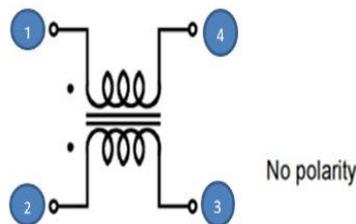
Reflow times: 3 times max.  
Fig.1



Iron Soldering times: 1 times max.  
Fig.2

## ■ Recommended PC Board Pattern

• Equivalent Circuits



**Guideline of solder paste thickness:  $\geq 120\mu\text{m}$**

\*Solderability is subject to reflow conditions and thermal conductivity.

Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.

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## ■ Application Notice

### ●Storage Conditions(component level)

To maintain the solderability of terminal electrodes:

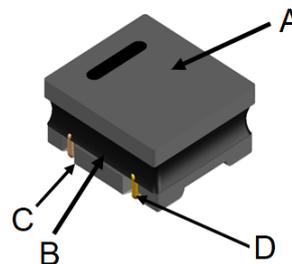
1. HUNGTRON products meet IPC/JEDEC J-STD-020D standard-MSL, level 1.
2. Temperature and humidity conditions: Less than 40°C and 60% RH.
3. Recommended products should be used within 12 months form the time of delivery.
4. The packaging material should be kept where no chlorine or sulfur exists in the air.

### ●Transportation

1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

## ■ Product Composition Diagram

No.	Description	Specification
a.	Core	Metal Core
b.	Coating	Epoxy with Metal powder
c.	Termination	Tin Pb Free
d.	Wire	Enameled Copper Wire

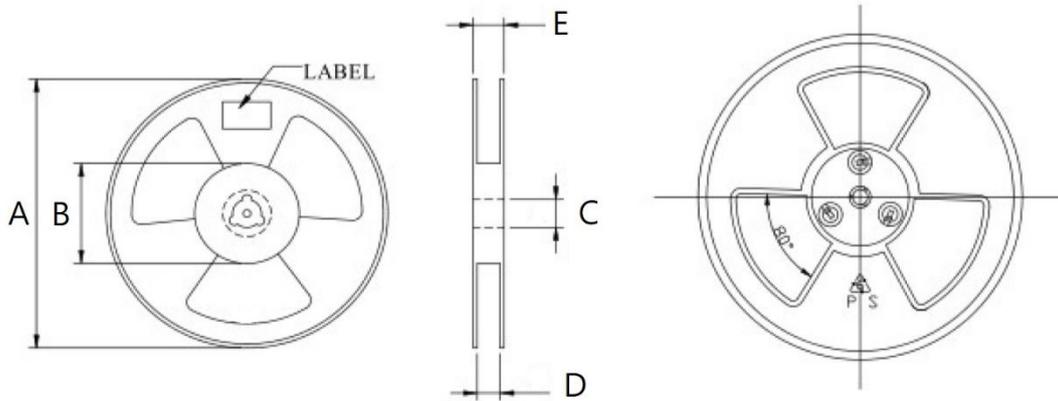


# Packing For SMD

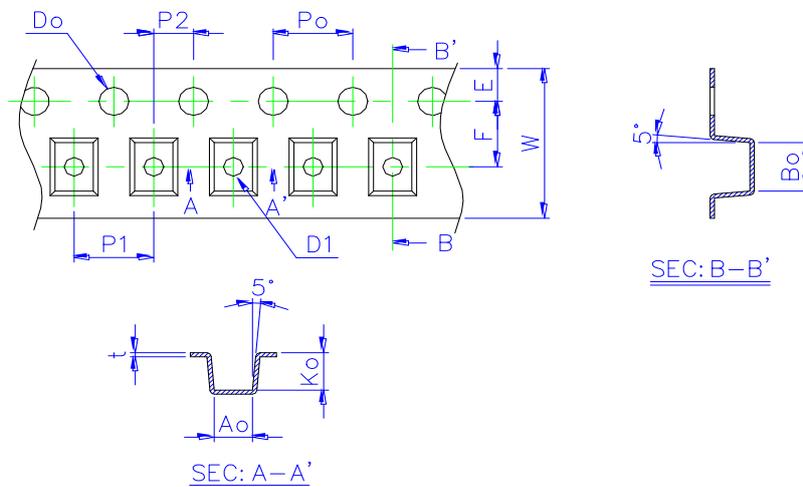


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## ■ Reel Dimension & Tape Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
13"X12mm	330±1.0	100±2	13.5±0.5	12.7±0.5	16.7±0.5



Size	t(mm)	Ao(mm)	Bo(mm)	Ko(mm)	W(mm)	E(mm)	F(mm)	Po(mm)	P1(mm)	P2(mm)	Do(mm)
5045	0.25±0.05	4.80±0.10	5.30±0.10	2.50±0.10	12.00±0.20	1.75±0.10	5.50±0.05	4.00±0.05	8.00±0.10	2.00±0.05	1.50+0.1,-0

## ■ Packaging Quantity

Chip Size	5045
13" / Reel	2500