



ISO9001 & ISO14001 & TS16949 **CHILISIN ELECTRONICS CORP.**

**RoHS & Halogen Free & REACH Compliance.**

**SPECIFICATION FOR APPROVAL**

**Customer :** 國益興業

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

**Drawing No :** \_\_\_\_\_

**Quantity :**  X  **Pcs.** **Date :**  2016/11/28

**Chilisin P/N :**  HEI201610K-1R0M-Q8DG

<b>SPECIFICATION ACCEPTED BY:</b>	
<b>COMPONENT ENGINEER</b>	
<b>ELECTRICAL ENGINEER</b>	
<b>MECHANICAL ENGINEER</b>	
<b>APPROVED</b>	
<b>REJECTED</b>	

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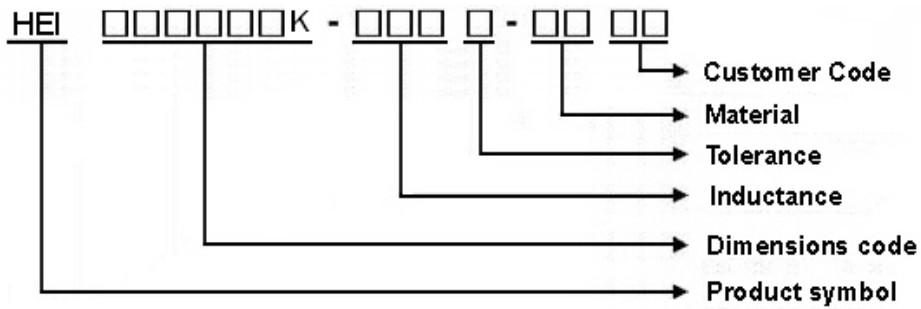
  

<p>Drawn by <b>張鈺雯 Chang.Yuwen</b></p>	<p>Checked by <b>張鈺雯 Chang.Yuwen</b></p>	<p>Approved by <b>鍾瑞民 Jacky.Chung</b></p>
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# HEI201610K Series Specification

**1 Scope:** This specification applies to Molding power inductors

**2 Part Numbering:**



**3 Rating:**

Operating Temperature:  $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$  (Including self - temperature rise)

Storage Temperature:  $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$  (after PCB)

$-5^{\circ}\text{C} \sim 35^{\circ}\text{C}$ , Humidity 45%~85% (before PCB)

**4 Marking:**

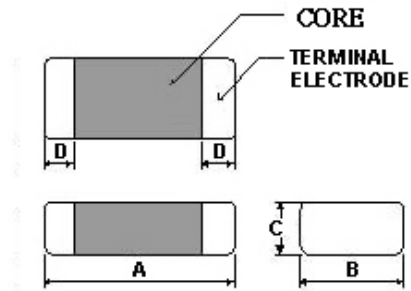
No Marking

**5 Standard Testing Condition**

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35°C)	20 to 30°C
Humidity	Ordinary Humidity(25 to 85% RH)	50 to 80 %RH

## HEI201610K Series Specification

### 6 Configuration and Dimensions:



Dimensions in mm

TYPE	HEI201610K
A	2.0±0.2
B	1.6±0.2
C	1.0Max.
D	0.5±0.3

### 7 Electrical Characteristics:

Part No.	Inductance (uH)	Tolerance (±%)	Test Freq.	I <sub>rms</sub> (A) Max.(Typ)	I <sub>sat</sub> (A) Max.(Typ)	RDC(mΩ) Max.(Typ)
HEI201610K-1R0M-Q8DG	1.0	20	2MHz,0.2V	3.1(3.25)	4.0(4.1)	56(50)

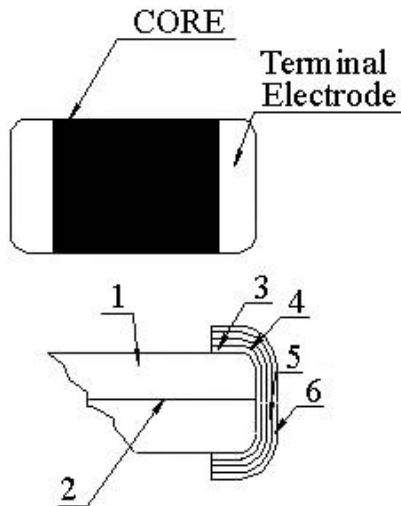
#### NOTE:

1. Operating temperature range - 40°C ~ 125°C (Including self - temperature rise)
2. I<sub>sat</sub> for Inductance drop 30% from its value without current.
3. I<sub>rms</sub> for a 40°C temperature rise from 25°C ambient.
4. All test data is referenced to 25°C ambient

## HEI201610K Series Specification

### 8 HEI201610K Series

#### 8.1 Construction:



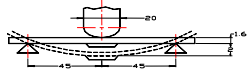
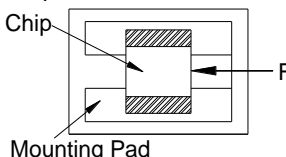
#### 8.2 Material List:

NO	Part	Description
1	Core	Metal Powder
2	Wire	Copper wire
3	Sputter/Plating	Cu
4	Silver Electrode	Ag
5	Plating	Ni
6	Plating	Sn

## HEI201610K Series Specification

### 9 Reliability of Molding Power Inductor

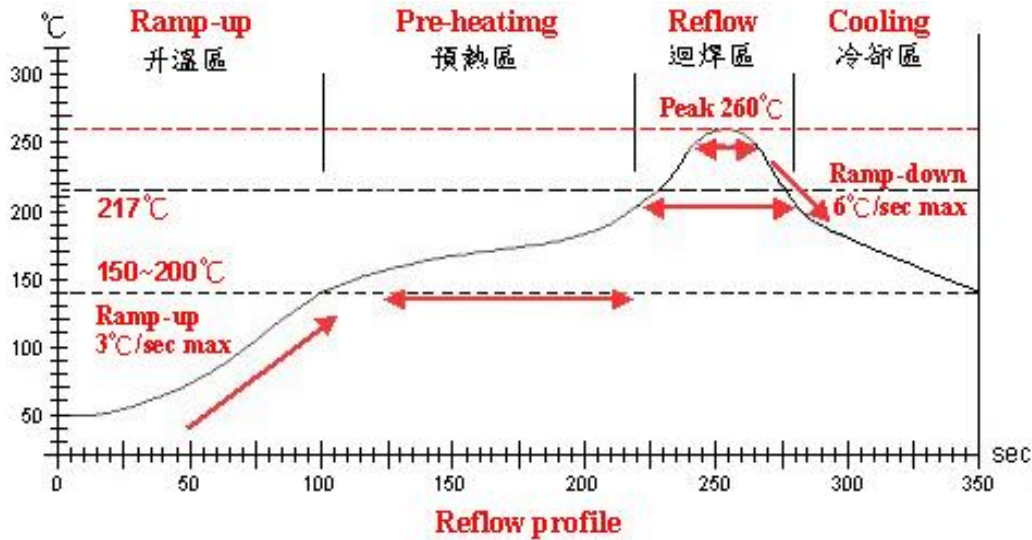
#### 1-1. Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Flexure Strength	The forces applied on the right conditions must not damage the terminal electrode and the metal body	Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm Keeping Time: 30sec 
1-1-2	Vibration	Appearance: No damage (for microscope of CASTOR MZ-45 20X) Inductance change shall be within $\pm 20\%$	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
1-1-3	Resistance to Soldering Heat	Appearance: No damage More than 75% of the terminal electrode should be covered with solder. Inductance: within $\pm 20\%$ of initial value	Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 260 $\pm$ 5°C Immersion Time: 10 $\pm$ 1sec
1-1-4	Solder ability	The electrodes shall be at least 95% covered with new solder coating	Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 245 $\pm$ 5°C Immersion Time: 4 $\pm$ 1sec
1-1-5	Terminal Strength Test	No split termination  Chip Mounting Pad	Test device shall be soldered on the substrate, then apply a force in the direction of the arrow. Force : 5N Keeping Time: 10 $\pm$ 1sec

#### 1-2. Environmental Performance

No	Item	Specification	Test Method		
1-2-1	Temperature Cycle	Appearance: No damage Inductance: within $\pm 20\%$ of initial value	One cycle:		
			Step	Temperature (°C)	Time (min)
			1	-40 $\pm$ 3	30
			2	25 $\pm$ 2	3
			3	125 $\pm$ 3	30
4	25 $\pm$ 2	3			
			Total: 100cycles Measured after exposure in the room condition for 24hrs		
1-2-2	Humidity Resistance		Temperature: 60 $\pm$ 2°C Relative Humidity: 90 ~ 95% / Time: 500hrs Measured after exposure in the room condition for 24hrs		
1-2-3	High Temperature Resistance		Temperature: 85 $\pm$ 3°C Relative Humidity: 0% / Time: 500hrs Measured after exposure in the room condition for 24hrs		
1-2-4	Low Temperature Resistance		Temperature: -40 $\pm$ 3°C Relative Humidity: 0% / Time: 500hrs Measured after exposure in the room condition for 24hrs		

## HEI201610K Series Specification



Lead-Free(LF) 標準溫度分析範圍

Refer to J-STD-020C

管制項目 Item.	升温區 Ramp-up	預熱區 Pre-heating	迴焊區 Reflow	Peak Temp	冷卻區 Cooling
溫度範圍 Temp. scope	R.T. ~ 150°C	150°C ~ 200°C	217°C	260±5°C	Peak Temp. ~ 150°C
標準時間 Time spec.	—	60 ~ 180 sec	60 ~ 150 sec	20 ~ 40 sec	—
實際時間 Time result	—	75 ~ 100 sec	90 ~ 120 sec	20 ~ 35 sec	—

NOTE :

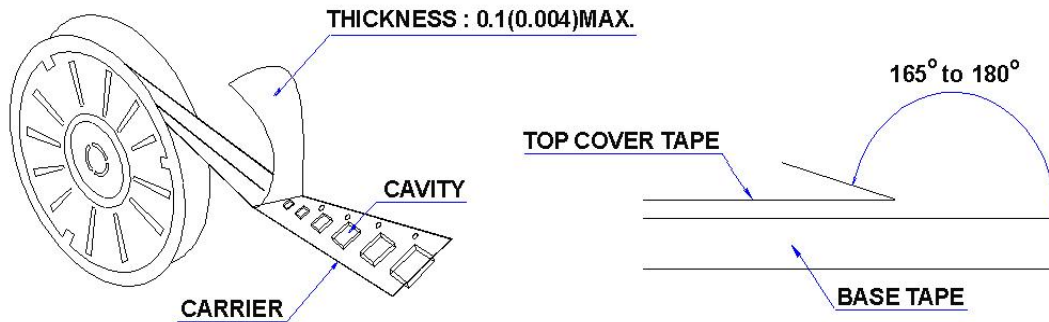
1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow

## HEI201610K Series Specification

### 10 Packaging:

#### 10.1 Packaging -Cover Tape

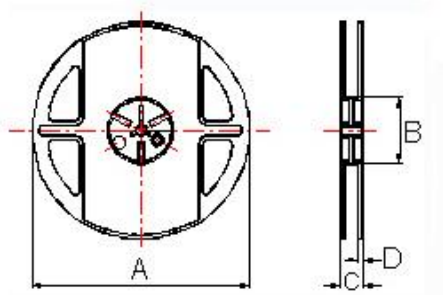
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



#### 10.2 Packaging Quantity

TYPE	PCS/REEL
HEI201610K	3000

#### 10.3 Reel Dimensions



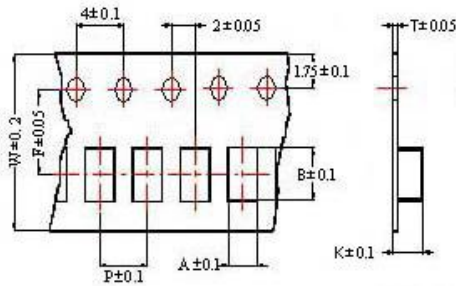
Dimensions in mm

TYPE	A	B	C	D
HEI201610K	178	60	12	1.5

## HEI201610K Series Specification

### 10 Packaging:

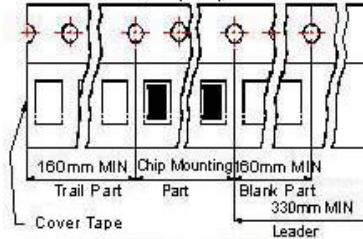
#### 10.4 Tape Dimensions in mm



#### Tape Material

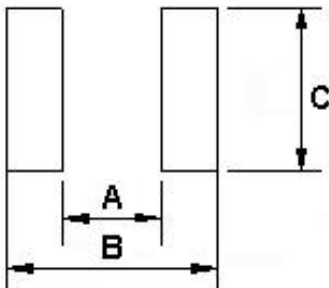
Carrier tape : Polycarbonate

Cover tape : Polyethylene



TYPE	A	B	T	W	P	F	K
HEI201610K	1.80	2.20	0.22	8	4	3.5	1.15

### 11 Recommended Land Pattern:



Dimensions in mm

TYPE	A	B	C
HEI201610K	0.7	2.3	1.8

### 12 Note:

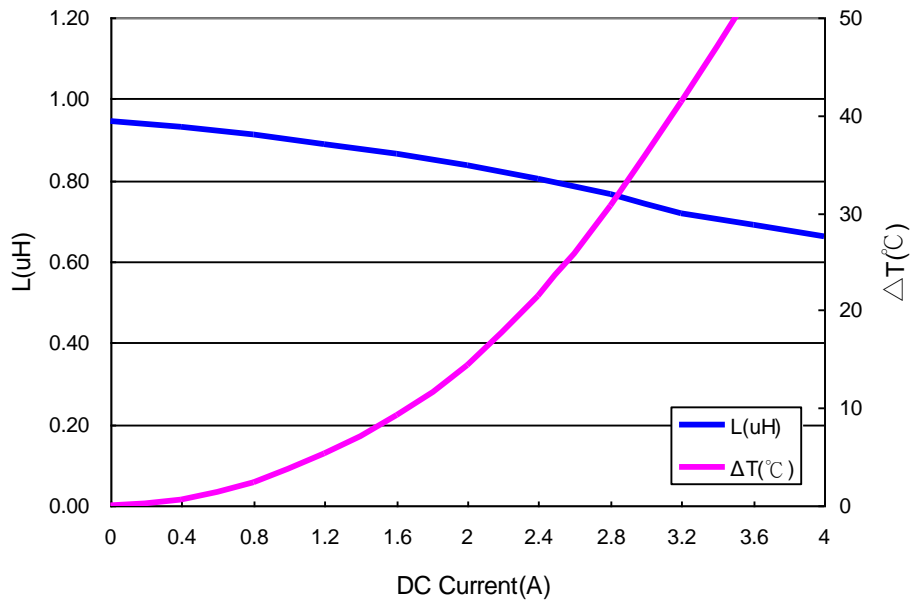
- Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
- Do not knock nor drop.
- All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.
- Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)
- After manufacturing process, there might be slight irregular shape on the edge of the products, and it's a normal phenomenon that can be neglected
- The moisture sensitivity level (MSL) of products is classified as level 1.





# HEI201610K Series Specification

13 Graph: HEI201610K-1R0M-Q8DG



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