ISO9001 ISO14001 IATF16949 **CHILISIN ELECTRONICS CORP.**

RoHS & Halogen Free & REACH Compliance.

# SPECIFICATION FOR APPROVAL

| | | | | |
|---|---|---|---|---|
| **Customer：** | 天河星 | | | |
| **Customer P/N:** | | | | |
| **Drawing No：** | **IE1-030338** | | | |
| **Quantity：** | **0** | **Pcs.** | **Date :** | **2020/3/25** |
| **Chilisin P/N：** | **HEI201610B-R10N-Q8DH** | | | |

| **SPECIFICATION ACCEPTED BY:** | |
|---|---|
| **COMPONENT ENGINEER** | |
| **ELECTRICAL ENGINEER** | |
| **MECHANICAL ENGINEER** | |
| **APPROVED** | |
| **REJECTED** | |


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| Drawn by | Checked by | Approved by |
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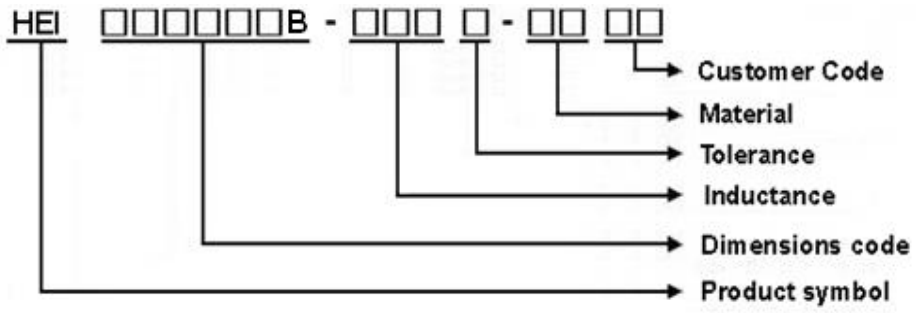
ISO9001 ISO14001 IATF16949 CHILISIN ELECTRONICS CORP.

# HEI201610B Series Specification

## 1 Scope:

This specification applies to Molding power inductors

## 2 Part Numbering:




## 3 Rating:

Operating Temperature: -40℃~125℃(Including self - temperature rise)

Storage Temperature: -40℃~125℃(after PCB)
-5℃~35℃,Humidity 45%~85%(before PCB)

## 4 Marking:

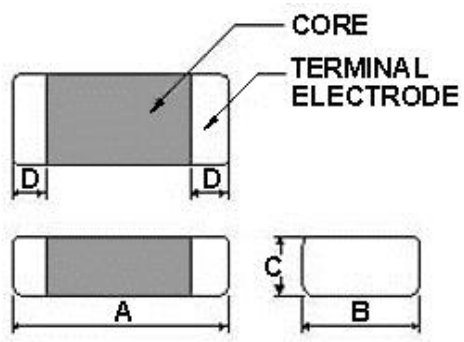
No Marking

## 5 Standard Testing Condition

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

# HEI201610B Series Specification

## 6 Configuration and Dimensions:




Dimensions in mm

| TYPE | HEI201610B |
|---|---|
| A | 2.0±0.2 |
| B | 1.6±0.2 |
| C | 1.0 Max. |
| D | 0.5±0.3 |

## 7 Electrical Characteristics:

| Part No. | Inductance (uH ) | Tolerance (±%) | Test Freq. | Irms(A) Max.(Typ) | Isat(A) Max.(Typ) | RDC(mΩ) Max.(Typ) |
|---|---|---|---|---|---|---|
| HEI201610B-R10N-Q8DH | 0.1 | 30 | 10MHz,0.2V | 6.0(7.0) | 9.0(10.0) | 14.8(12) |

**NOTE:**

1.Operating temperature range -40℃~125℃(Including self - temperature rise)

2.Isat for Inductance drop 30% from its value without current.

3.Irms for a 40℃ temperature rise from 25℃ ambient.

4.All test data is referenced to 25℃ ambient

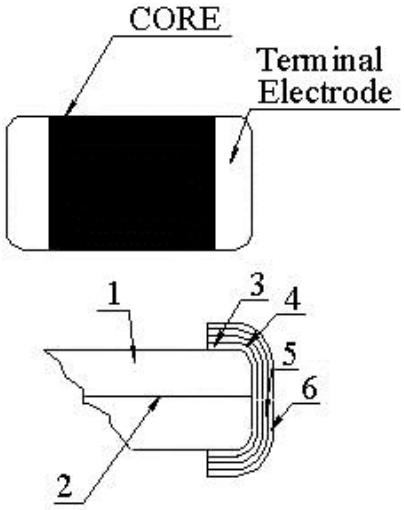
5.Absolute maximum voltage 20VDC

6. Rated current: Isat or Irms, whichever is smaller

# HEI201610B Series Specification

## 8 HEI201610B Series

### 8.1 Construction:



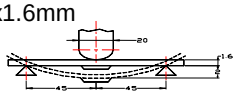
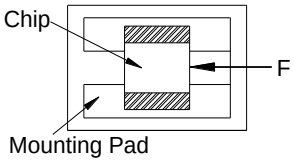

### 8.2 Material List:

| No | Part | Material |
|---|---|---|
| 1 | Core | Metal Powder |
| 2 | Wire | Copper wire |
| 3 | Sputter/Plating | Cu |
| 4 | Silver Electrode | Ag |
| 5 | Plating | Ni |
| 6 | Plating | Sn |

# HEI201610B Series Specification

## 9 Reliability Of Molding power inductors

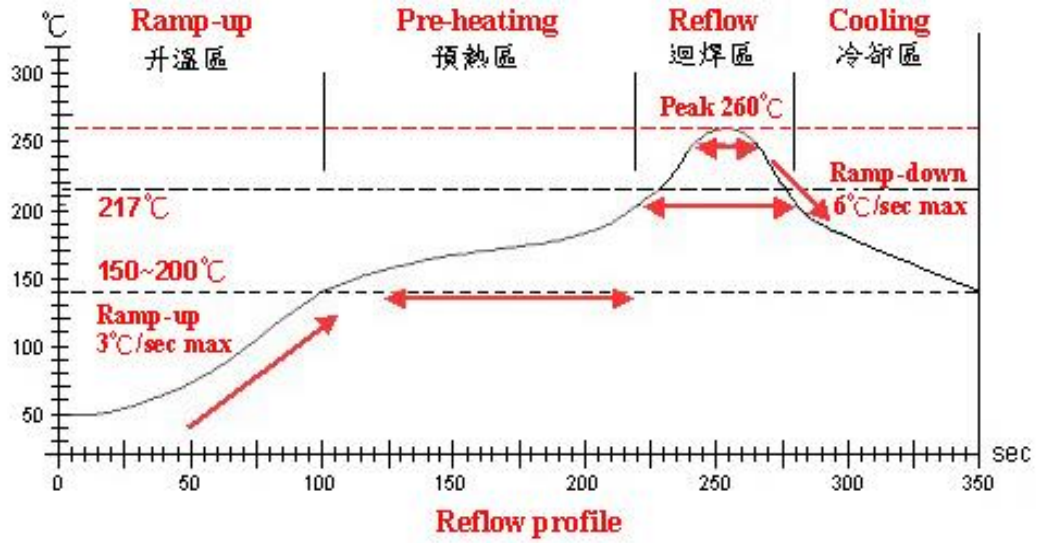
### 1-1.Mechanical Performance

| 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<br>Substrate Dimension: 100x40x1.6mm<br>Deflection: 2.0mm<br>Keeping Time: 30sec<br> |
| 1-1-2 | Vibration | Appearance:No damage (for microscope of CASTOR MZ-45 20X)<br>Inductance change shall be within ±20% | Test device shall be soldered on the substrate<br>Oscillation Frequency: 10 to 55 to 10Hz for 1min<br>Amplitude: 1.5mm<br>Time: 2hrs for each axis (X, Y & Z), total 6hrs |
| 1-1-3 | Resistance to Soldering Heat | Appearance: No damage<br>More than 75% of the terminal. electrode should be covered with solder.<br>Inductance: within ±20% of initial value | Pre-heating: 150℃, 1min<br>Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free)<br>Solder Temperature: 260±5℃<br>Immersion Time: 10±1sec |
| 1-1-4 | Solder ability | The electrodes shall be at least 95% covered with new solder coating | Pre-heating: 150℃, 1min<br>Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free)<br>Solder Temperature: 245±5℃<br>Immersion Time: 4±1sec |
| 1-1-5 | Terminal Strength Test | No split termination<br> | Test device shall be soldered on the substrate, then apply a force in the direction of the arrow.<br>Force : 5N<br>Keeping Time: 10±1sec |

### 1-2.Environmental Performance

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

# HEI201610B Series Specification




Reflow profile

Lead-Free(LF) 標準溫度分析範圍 Refer to J-STD-020C

| 管制項目 Item. | 升溫區 Ramp-up | 預熱區 Pre-heatimg | 迴焊區 Reflow | Peak Temp | 冷卻區 Cooling |
|---|---|---|---|---|---|
| 溫度範圍 Temp.scope | R.T.~150℃ | 150℃~200℃ | 217℃ | 260±5℃ | Peak Temp.~150℃ |
| 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 :

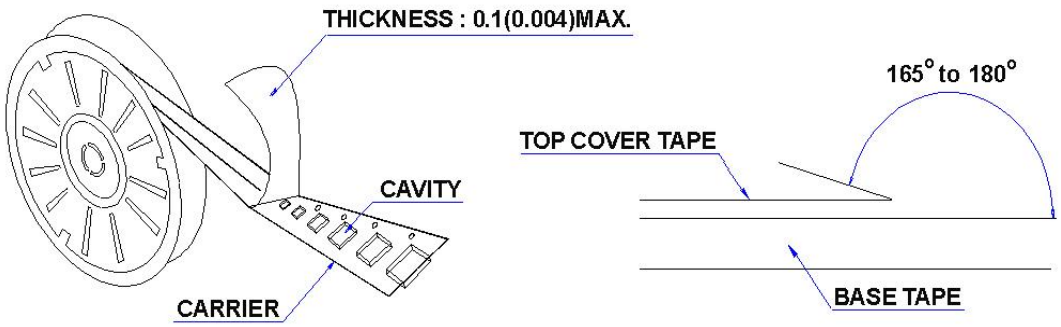
1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow

# HEI201610B Series Specification

## 10 Packaging:

### 10.1 Packaging -Cover Tape

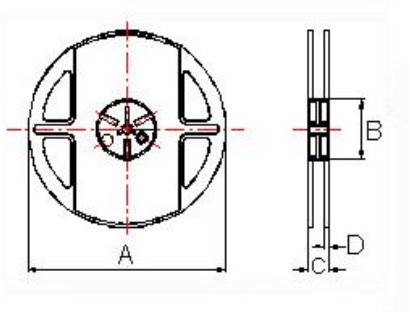
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.




### 10.2 Packaging Quantity

| TYPE | PCS/REEL |
|---|---|
| HEI201610B | 3000 |

### 10.3 Reel Dimensions



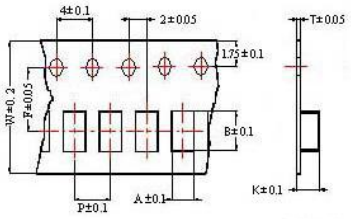

Dimensions in mm

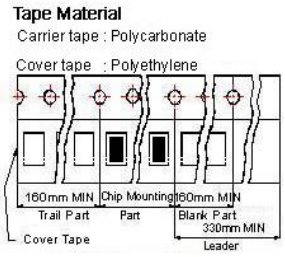
| TYPE | A | B | C | D |
|---|---|---|---|---|
| HEI201610B | 178 | 60 | 12 | 1.5 |

# HEI201610B Series Specification

## 10 Packaging:

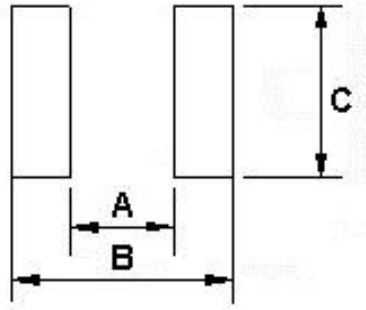
### 10.4 Tape Dimensions in mm




| TYPE | A | B | T | W | P | F | K |
|---|---|---|---|---|---|---|---|
| HEI201610B | 1.80 | 2.20 | 0.22 | 8 | 4 | 3.5 | 1.15 |

## 11 Recommended Land Pattern:




Dimensions in mm

| TYPE | A | B | C |
|---|---|---|---|
| HEI201610B | 0.7 | 2.3 | 1.8 |

## 12 Note:

1. Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock nor drop.
3. 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.
4. Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)
5. 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
6. The moisture sensitivity level (MSL) of products is classified as level 1.

# HEI201610B Series Specification

**13 Graph:**

