



## PRODUCT IDENTIFICATION

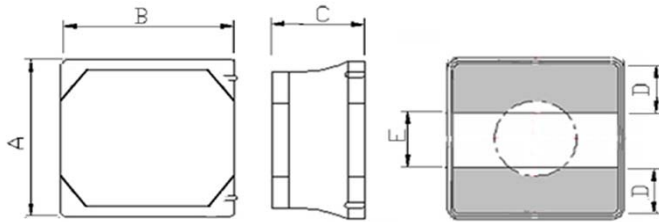
Diagram illustrating the relationship between various parameters and Inductance:

- JNR** is associated with **Type**.
- 4010** is associated with **Size**.
- H** is associated with **Lead Free**.
- is associated with **Inductance**.
- 1R0** is associated with **1R0**.
- N** is associated with **Tol.**

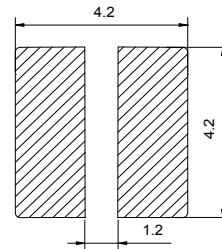
## ■ FEATURES

1. This specification applies Low Profile Power Inductors.
2. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
3. Operating temperature : -40~+125℃ (Including self - temperature rise)

**■ DIMENSIONS (mm)**



### Recommended PC Board Pattern



| Part No.  | Size (mm) |           |          |          |          |
|-----------|-----------|-----------|----------|----------|----------|
|           | A         | B         | C        | D        | E        |
| JNR 4010H | 4.0 ± 0.2 | 4.0 ± 0.2 | 1.0 Max. | 1.2 Ref. | 1.6 Ref. |

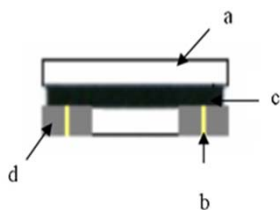
## SERIES LIST

| No. | Part No.       | L    | Tol. | RDC<br>(Ω) | Isat<br>(A) |      | Irms<br>(A) |      |
|-----|----------------|------|------|------------|-------------|------|-------------|------|
|     |                | (μH) |      | ±20%       | typ         | max  | typ         | max  |
| 1   | JNR 4010H-1R0N | 1.0  | ±30% | 0.056      | 2.40        | 2.00 | 2.30        | 1.90 |
| 2   | JNR 4010H-2R2M | 2.2  | ±20% | 0.085      | 1.50        | 1.20 | 1.80        | 1.50 |
| 3   | JNR 4010H-3R3M | 3.3  | ±20% | 0.100      | 1.30        | 1.10 | 1.70        | 1.40 |
| 4   | JNR 4010H-4R7M | 4.7  | ±20% | 0.140      | 1.20        | 0.95 | 1.50        | 1.20 |
| 5   | JNR 4010H-6R8M | 6.8  | ±20% | 0.200      | 1.00        | 0.80 | 1.20        | 1.00 |
| 6   | JNR 4010H-100M | 10   | ±20% | 0.300      | 0.80        | 0.62 | 0.90        | 0.75 |
| 7   | JNR 4010H-150M | 15   | ±20% | 0.430      | 0.70        | 0.54 | 0.80        | 0.60 |
| 8   | JNR 4010H-220M | 22   | ±20% | 0.570      | 0.60        | 0.45 | 0.80        | 0.50 |

Note:

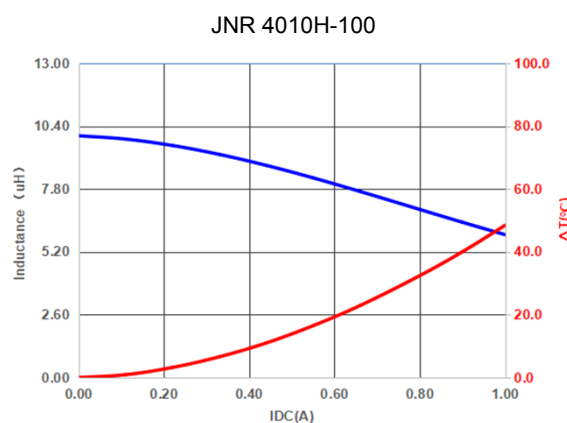
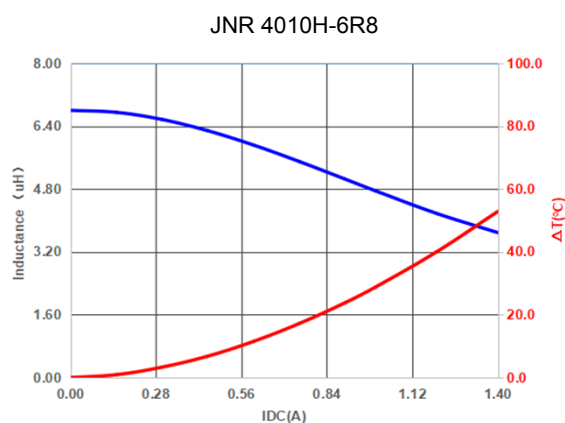
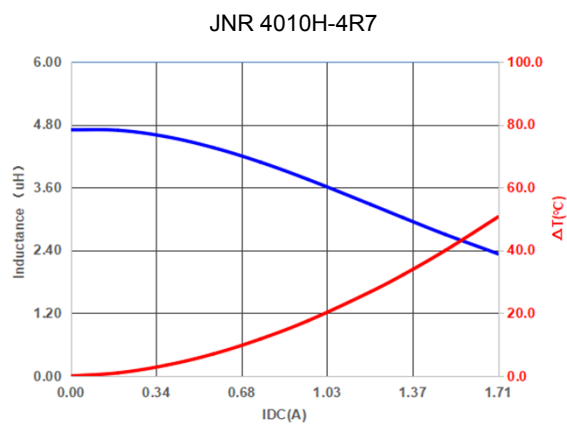
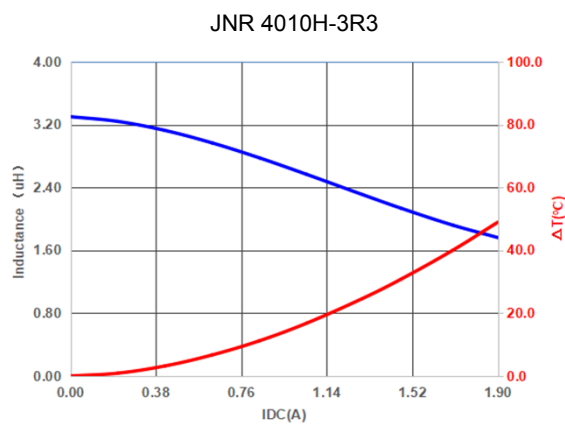
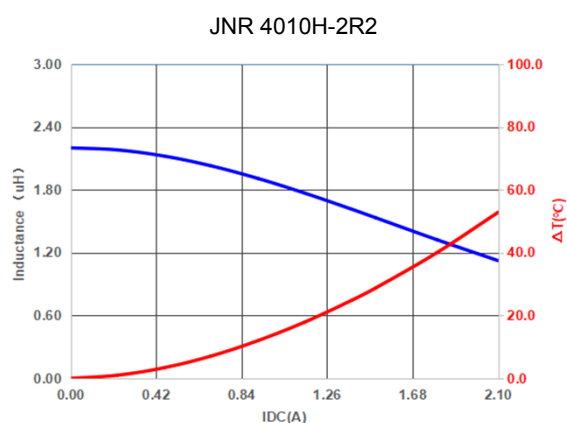
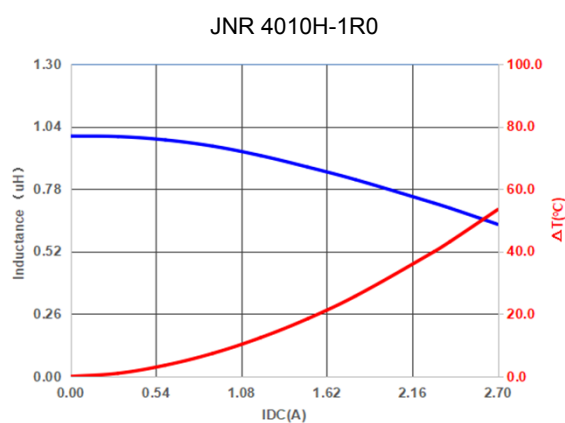
1. Test Frequency : 100KHz /1V
2. All test data referenced to 25°C ambient
3. Isat : Saturation Current (Isat) will cause L0 to drop approximately 30%.
4. Irms : Heat Rated Current (Irms) will cause the coil temperature rise approximately  $\Delta T$  of 40°C
5. Rated DC current : The lower value of Irms and Isat.

## Materials

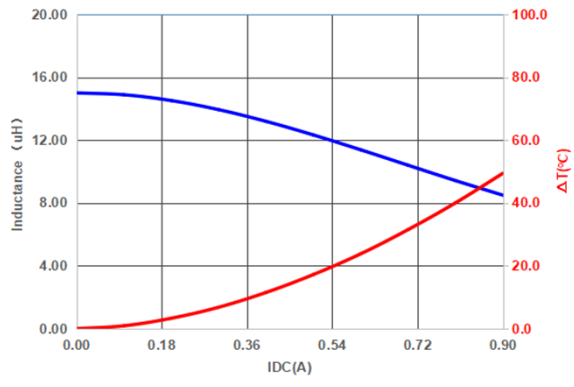


| No. | Description | Specification              |
|-----|-------------|----------------------------|
| a   | Core        | Ferrite Core               |
| b   | Wire        | Enameled Copper Wire       |
| c   | Glue        | Epoxy with magnetic powder |
| d   | Terminal    | Ag/Ni/Sn                   |

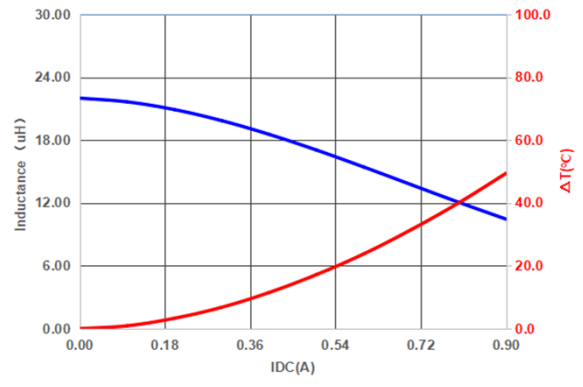
## TYPICAL PERFORMANCE CURVES



JNR 4010H-150



JNR 4010H-220



## ■ Appearance criterion

### 1・Core chipping

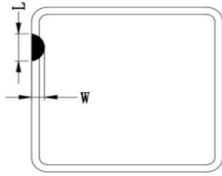
The appearance standard of the chipping size on top side, and bottom side ferrite core is listed below.

Chip off is generated during molding and manufacturing process.

Chip off acceptance limits subjected to the product size.

Our current Defect limit is based on the IPC-A-610.

Some chip off does not impact the product function, see the IPC standard 1 & 2.



|   |                     |
|---|---------------------|
| L | ≤50 % of the length |
| W | ≤25 % of the width  |

Defects usually occur at the corners and edges of the product,

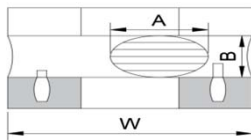
There will be a slight defect black and rough,

but not exposed copper, and does not affect the product

performance and reliability.

### 2・Void appearance tolerance Limit

Size of voids occurring to coating resin is specified below.



Exposed wire tolerance limit of coating resin part on product side.

Size of exposed wire occurring to coating resin is specified below.

1. Width direction ( dimension a ) : Acceptable when  $a \leq w/2$ .

2. Length direction ( dimension b ) : Dimension b is not specified.

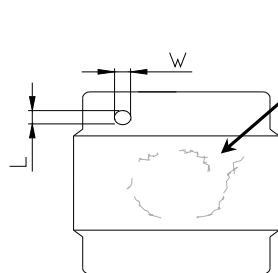
3. The total area of exposed wire occurring to each sides is not greater than 50% of coating resin area, and is acceptable.

### 3・External appearance criterion for exposed wire

Exposed winding wire at the secondary side is regarded as qualified product.



### 4、Electrode appearance criterion for exposed wire



Visual check on core surface with no crack means pass.

Only top side of wire is exposed.  
(regardless of whole top side of wire exposed)

Conforming

Wire is soldered insufficiently and less than half of outer diameter is covered with solder.

Less than 1/2 of joint side length.  
(More than 1/2 is selected as defect)

|                                    |
|------------------------------------|
| L & W                              |
| ≤20% of the area on one single pad |

Foreign materials on the product body is inevitable and accepted.

Electrodes with foreign body (dirt) appearance standards

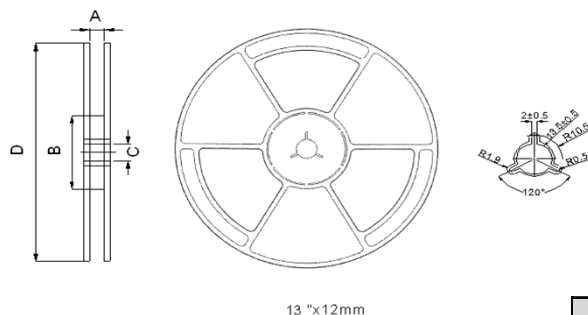
Foreign materials (dirt) will not affect the coplanarity of PAD,

below the example of foreign materials (dirt) quantity ≤2PCS on single PAD.

Dimensions range as shown in the table.

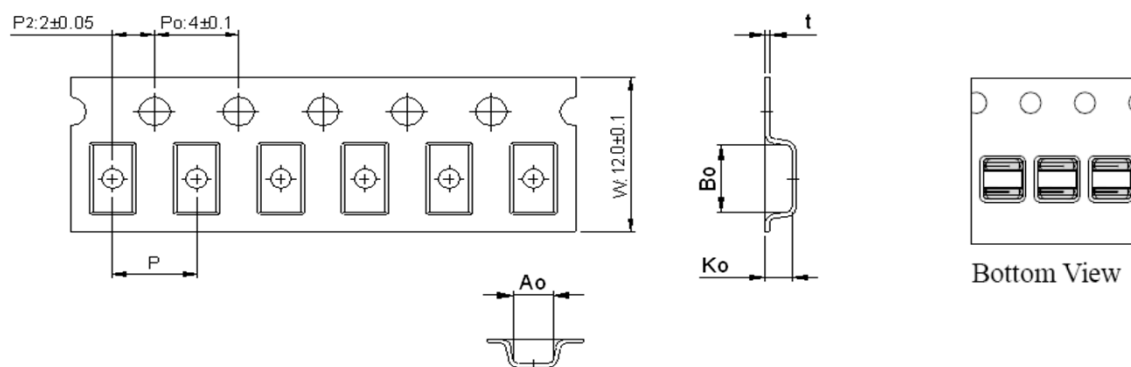
## Packaging Information

### • Reel Dimension



| Type      | A(mm)  | B(mm)   | C(mm)    | D(mm)   |
|-----------|--------|---------|----------|---------|
| 13''x12mm | 12±1.5 | 100±0.5 | 13.2±0.5 | 330±0.5 |

### • Tape Dimension



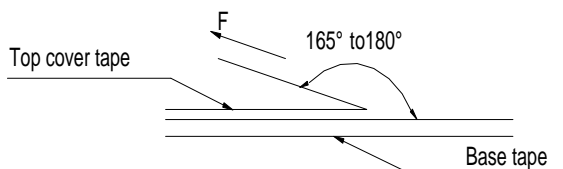
| Ao(mm)   | Bo(mm)   | Ko(mm)   | P(mm)    | t(mm)     |
|----------|----------|----------|----------|-----------|
| 4.50±0.1 | 4.35±0.1 | 1.55±0.1 | 8.0±0.10 | 0.25±0.05 |

### • Packaging Quantity

| Size      | Reel |
|-----------|------|
| JNR 4010H | 5000 |

### • Tearing Off Force

The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (referenced ANSI/EIA-481-D-2008 of 4.11 standard).



| Tearing Speed<br>mm | Room Temp.<br>(°C) | Room Humidity<br>(%) | Room atm<br>(hPa) |
|---------------------|--------------------|----------------------|-------------------|
| 300±10%             | 5~35               | 45~85                | 860~1060          |

## **■ Application Notice**

- Storage Conditions(component level)

To maintain the solderability of terminal electrodes:

1. Products meet IPC/JEDEC J-STD-020E 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.