

深圳市方磁電子有限公司

SHENZHEN FOUNDS ELECTRONICS CO., LTD

【物料承認書】

APPROVAL SHEET

客戶 (Customer) : _____

產品名稱 (Description) : POWER INDUCTOR

客戶料號 (Cus P/N) : _____

料號 (Part NO) : FSNR3015系列

日期 (Date) : 2019-05-15

版本 (Version) : A1.0

| 核准 APPROVED BY | 審核 CHECKED BY | 製作 DRAWN BY |
|-------------------|------------------|----------------|
| TopoCheng | VincentShang | AbbyShi |

Please sign back after confirmation:

Client signature: Qualified Unqualified

| 批准 APPROVAL | 審核 CHECKED | 檢驗 CONFORM |
|----------------|---------------|---------------|
| | | |

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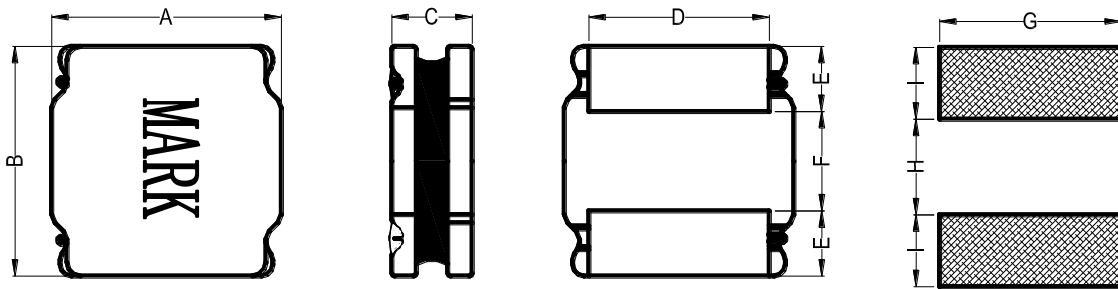
<http://www.ele-founds.com>



【Version of Changed Record】

| Rev. | Effective Date | Changed Contents | Change Reasons | Approved By |
|------|----------------|------------------|----------------|-------------|
| A1.0 | 2019.05.15 | New release | / | TopoCheng |
| | | | | |

1. Shape and Dimension (Unit:mm)



| A | B | C | D | E | F | G | H | I |
|-----------|----------|--------|---------|----------|---------|--------|---------|---------|
| 3.0 ± 0.2 | 3.0± 0.2 | 1.5Max | 2.5±0.2 | 0.75±0.2 | 1.5±0.2 | 2.7Ref | 1.5 Ref | 0.8 Ref |

2. Electronic Characteristics List

| Part Number | Inductance (uH) | Tolerance (±%) | DCR(mΩ) ±30% | Isat (A) | Irise (A) | Test Condition | MARKING |
|---------------|-----------------|----------------|--------------|----------|-----------|----------------|---------|
| FSNR3015-R30N | 0.30 | 30 | 15 | 4.60 | 3.50 | 1MHz /0.25V | R30 |
| FSNR3015-R47N | 0.47 | 30 | 20 | 4.00 | 3.50 | 100KHz /0.25V | R47 |
| FSNR3015-R56N | 0.56 | 30 | 20 | 3.30 | 2.80 | 100KHz /0.25V | R56 |
| FSNR3015-1R0N | 1.0 | 30 | 30 | 2.32 | 2.10 | 100KHz /0.25V | 1R0 |
| FSNR3015-1R5M | 1.5 | 20 | 50 | 2.00 | 1.70 | 100KHz /0.25V | 1R5 |
| FSNR3015-1R8N | 1.8 | 30 | 55 | 1.75 | 1.65 | 100KHz /0.25V | 1R8 |
| FSNR3015-2R2M | 2.2 | 20 | 60 | 1.60 | 1.60 | 100KHz /0.25V | 2R2 |
| FSNR3015-2R7N | 2.7 | 30 | 70 | 1.52 | 1.50 | 100KHz /0.25V | 2R7 |
| FSNR3015-3R3M | 3.3 | 20 | 80 | 1.32 | 1.36 | 100KHz /0.25V | 3R3 |
| FSNR3015-3R9M | 3.9 | 20 | 108 | 1.20 | 1.10 | 100KHz /0.25V | 3R9 |
| FSNR3015-4R7M | 4.7 | 20 | 125 | 1.10 | 1.09 | 100KHz /0.25V | 4R7 |
| FSNR3015-5R6M | 5.6 | 20 | 170 | 1.05 | 1.00 | 100KHz /0.25V | 5R6 |
| FSNR3015-6R8M | 6.8 | 20 | 200 | 0.85 | 0.85 | 100KHz /0.25V | 6R8 |
| FSNR3015-8R2M | 8.2 | 20 | 230 | 0.80 | 0.75 | 100KHz /0.25V | 8R2 |
| FSNR3015-100M | 10 | 20 | 250 | 0.72 | 0.77 | 100KHz /0.25V | 100 |
| FSNR3015-150M | 15 | 20 | 350 | 0.66 | 0.65 | 100KHz /0.25V | 150 |
| FSNR3015-180M | 18 | 20 | 430 | 0.56 | 0.59 | 100KHz /0.25V | 180 |
| FSNR3015-220M | 22 | 20 | 460 | 0.52 | 0.57 | 100KHz /0.25V | 220 |
| FSNR3015-270M | 27 | 20 | 630 | 0.48 | 0.46 | 100KHz /0.25V | 270 |
| FSNR3015-330M | 33 | 20 | 780 | 0.44 | 0.42 | 100KHz /0.25V | 330 |
| FSNR3015-470M | 47 | 20 | 1200 | 0.35 | 0.32 | 100KHz /0.25V | 470 |

Isat (A) :

DC Saturation Current that will cause initial inductance to drop approximately 30% max.

Irise(A)

DC Current that will cause an approximate ΔT of 40 °C

Measuring Instrument :

L:HIOKI3532-50

DCR:HIOKI 3540

Isat / Irise:HP4284A+42841

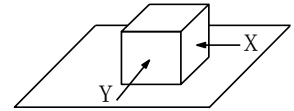
3. General Characteristics

3-1. Storage Temperature range : $-40^{\circ}\text{C} \sim +105^{\circ}\text{C}$

3-2. Operating temperature range: $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$ (Including coil's self temperature rise)

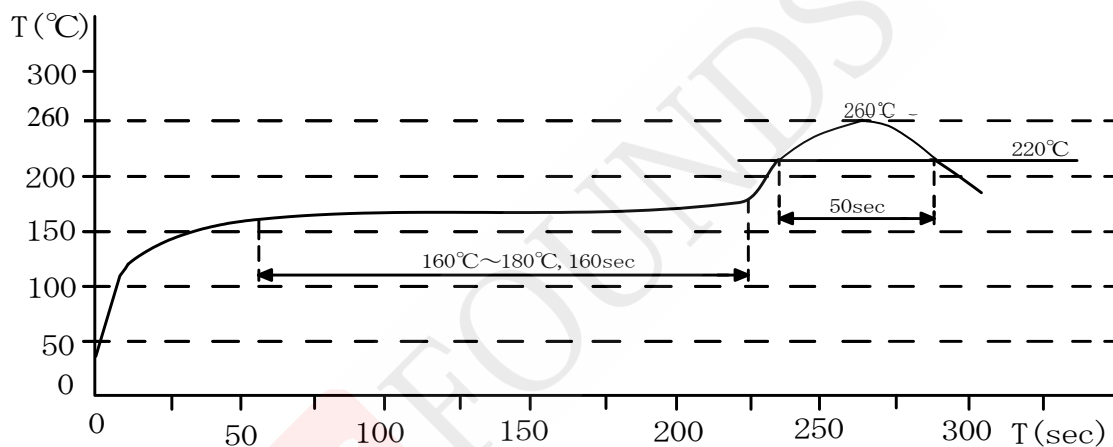
3-3. External appearance : No external defects can be found in the visual inspection.

3-4. Electrode strength : No electrode detachment should be found when the device is pushed in two directions of X and Y with the force of 10.0N for 10 ± 2 seconds after soldering between copper plate and the electrodes.
(Refer to figure at right)



3-5. Vibration test : Inductance deviation is within $\pm 10.0\%$ after 1 hour sweeping vibration in each three directions, namely, forward and backward, up and down, right and left. The frequency is $10 \sim 55 \sim 10\text{Hz}$ and the amplitude of 1 minute cycle is 1.5mm PP.

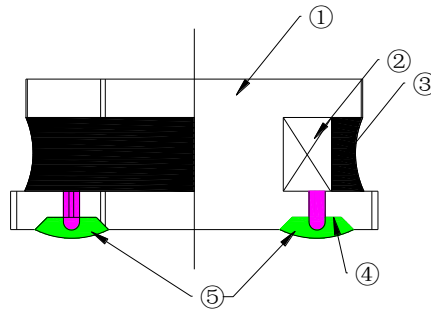
3-6. Recommended reflow condition:



3-7. Humidity test : Inductance deviation is within $\pm 5.0\%$ after 96 ± 4 hours test under the condition of relative humidity of $90 \sim 95\%$ and temperature of $60 \pm 2^{\circ}\text{C}$, and 1 hour storage under room ambient conditions after the device is wiped with dry cloth.



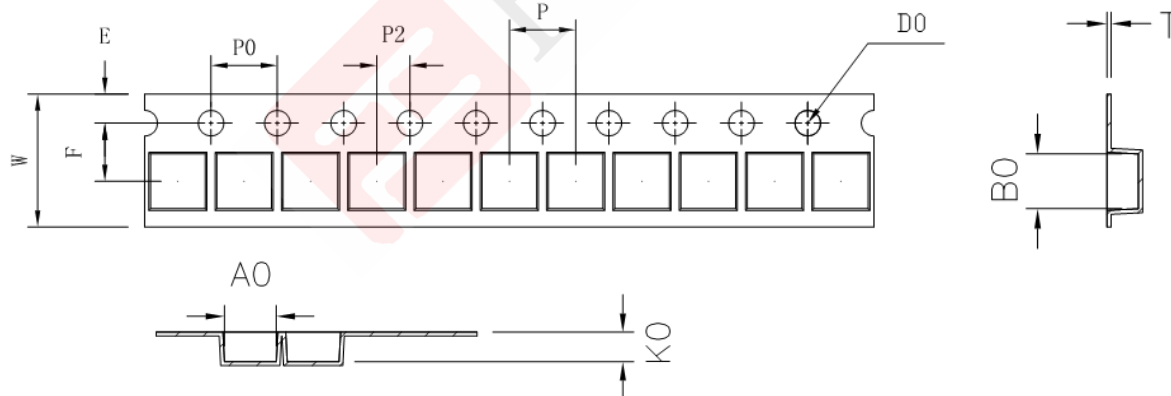
4. Construction and materials



| No. | Part name | Material | Ceaiya P/N |
|-----|--------------------|----------------------------------------------------|------------|
| ① | Drum Core | Ni-Zn Ferrite Core M13D DRS3.0×1.35×3.0 | BQ、TD |
| ② | Wire | Polyurethane enameled copper wire | YLSL |
| ③ | Adhesive | Epoxy Resin Magnetic Powder | CH |
| ④ | Plating Electrodes | Plating: Ag 10-20 μm Ni 1-3 μm Sn 3-7 μm | |
| ⑤ | Outer Electrodes | Top surface solder coating Sn99%、 Ag0.3%、Cu0.7% | YX |

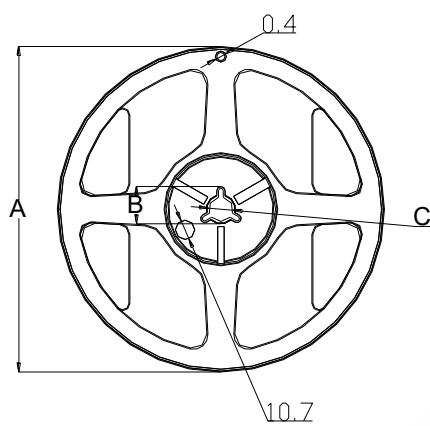
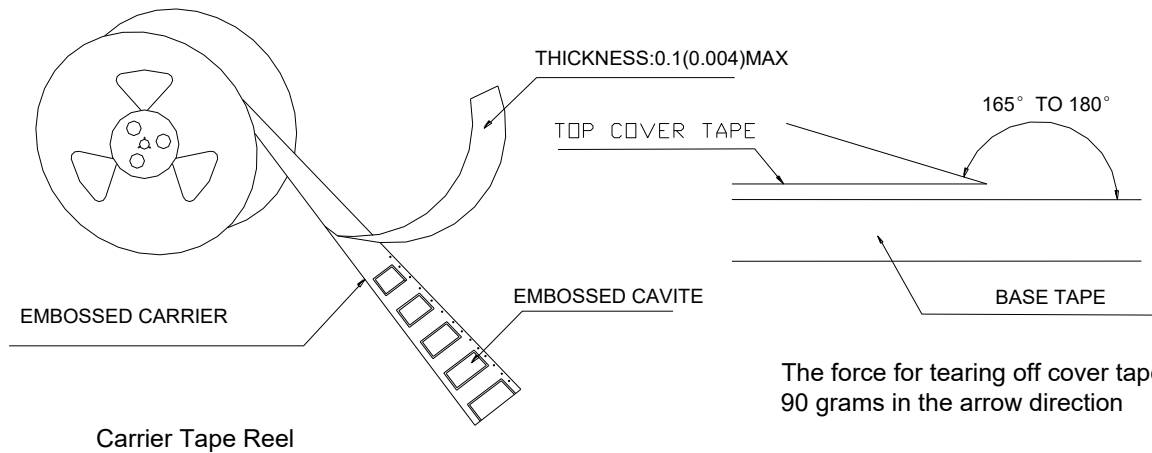
5. Packaging and Marking:

5-1. Carrier Tape Dimensions:



| TEM | W | A0 | B0 | K0 | P | F | E | D0 | P0 | P2 | T |
|------|------|-------|-------|-------|------|-------|------|------|------|-------|-------|
| DIM | 8.00 | 3.3 | 3.3 | 1.9 | 4.00 | 3.50 | 1.75 | 1.50 | 4.00 | 2.00 | 0.25 |
| TOLE | ±0.3 | ±0.05 | ±0.05 | ±0.05 | ±0.1 | ±0.05 | ±0.1 | +0.1 | ±0.1 | ±0.05 | ±0.05 |

5-2. Reel Dimensions:



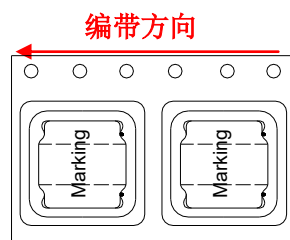
MATERIAL:PAPER/PLASTIC

| Type | A | B | C | G | N | T |
|------|-----|----------|--------|---|----|------|
| 8mm | 178 | 20.7±0.8 | 13±0.4 | 9 | 60 | 10.8 |

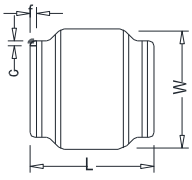
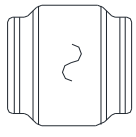
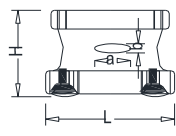
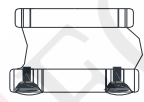
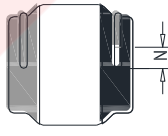
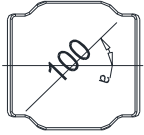
6. PACKAGE SPECIFICATION:

2KPCS/ Reel 20KPCS/ Inner Box 80KPCS/ Outer Box

编带方向 , 如下图所示



Visual Inspection Standard of Product

| No. | Defect Item | Figure | Rejection Identification | Acceptance |
|-----|----------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------|
| 1 | Core Defect |  | The defect length(c or f) more than L/6 or W/6 , NG | AQL=0.65 |
| 2 | Core Crack |  | Visual cracks , NG | AQL=0.65 |
| 3 | Starvation |  | (1)Resin starved length a more than L/2, NG (2)When L>2mm,b>H/2, NG (3)When L≤2mm, b don't control | AQL=0.65 |
| 4 | Excessive glue |  | The length, width or height of product beyond specified value, NG | AQL=0.65 |
| 5 | Cold Solder |  | (1)For CR2520** Series , cold solder N>0.5mm,NG (2)For other series, cold solder N>1mm,NG | AQL=0.65 |
| 6 | Marking Defect |  | The marking angle a>45° , NG | AQL=0.65 |

