



# 深圳市佑驰电子有限公司

## Specification for Approval

产品名称： 一体系列电感

规格型号： HNRA-4012S-XXX-MT

产品编号：

日 期： 2020-08-15

- 1、本承认书的内容更改需经过双方确认，任一方单独的修改均视为无效。
- 2、本承认书在送达客户后，请给予承认并即签回，如无签回下订单的，我司有权以此承认书标准生产，并表示购买方默认许可。

|  | 审核 | 制作 |
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|  |    |    |

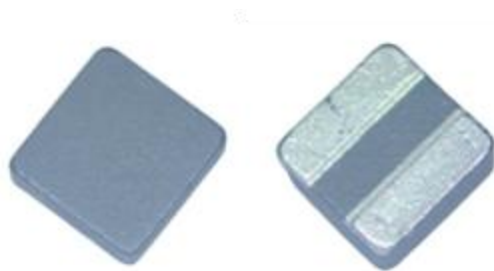
| 批准 | 审核 | 检验 |
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| REVISION |             |            |          |         |          |
|----------|-------------|------------|----------|---------|----------|
| REV      | DESCRIPTION | DATE       | DESIGNED | CHECKED | APPROVED |
| A0       | 文件建立        | 2020/08/15 | 吕秀秀      | Bowen   | Darren   |
|          |             |            |          |         |          |
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## High Current, Power Inductors

### HNRA-4012S-XXX-MT Power Choke



#### Description

- Halogen Free
- 125°C maximum total temperature operation
- 4.2 x 4.2 x 1.2mm maximum surface mount package
- Magnetically shielded, low EMI
- High current carrying capacity, Low core losses
- RoHS compliant



#### Applications

- Voltage Regulator Module (VRM)
- Multi-phase regulators
- Point-of-load modules
- Smart phone POL modules
- SSD modules
- Notebook regulators
- Battery power systems
- Graphics cards
- Data networking and storage systems

#### Environmental Data

- Storage temperature range: -55°C to +125 °C
- Operating temperature range: -55°C to +125°C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 compliant

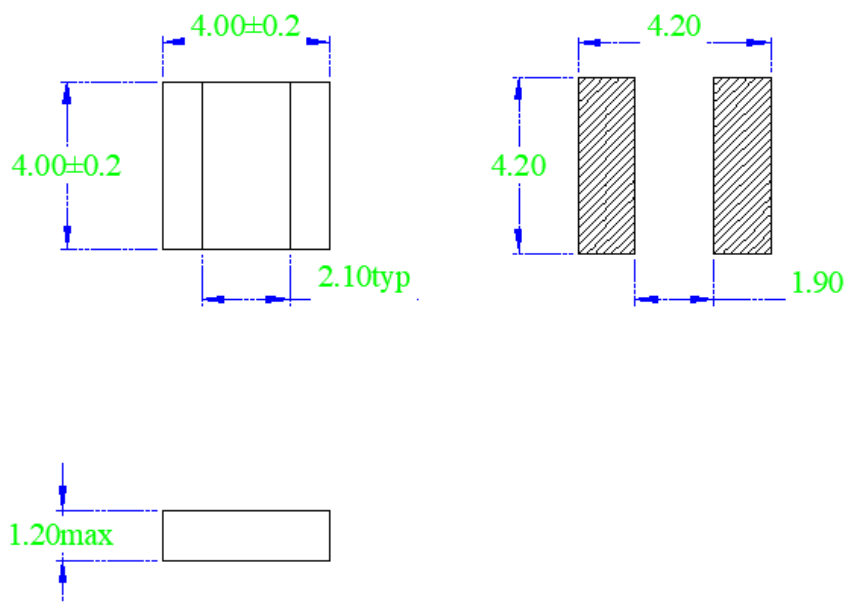
| Description                                                                         |   |   |   |  |  |                                                                                     |   |   |   |                                                                                     |  |                                                                                      |   |   |                                                                                       |  |                                                                                       |  |
|-------------------------------------------------------------------------------------|---|---|---|--|--|-------------------------------------------------------------------------------------|---|---|---|-------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|---|---|---------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|
| HNRA-4012S-1R0-MT                                                                   |   |   |   |  |  | 1 . 0 μH                                                                            |   |   |   | ±20 %                                                                               |  |                                                                                      |   |   |                                                                                       |  |                                                                                       |  |
| Model                                                                               |   |   |   |  |  | Inductance Value                                                                    |   |   |   | Inductance Tolerance                                                                |  |                                                                                      |   |   |                                                                                       |  |                                                                                       |  |
|                                                                                     |   |   |   |  |  | Global Part Number                                                                  |   |   |   |                                                                                     |  |                                                                                      |   |   |                                                                                       |  |                                                                                       |  |
| H                                                                                   | N | R | A |  |  | 4                                                                                   | 0 | 1 | 2 | S                                                                                   |  | 1                                                                                    | R | 0 | M                                                                                     |  | T                                                                                     |  |
|  |   |   |   |  |  |  |   |   |   |  |  |  |   |   |  |  |  |  |
| Product Series                                                                      |   |   |   |  |  | Dimensions                                                                          |   |   |   | Feature Type                                                                        |  | Inductance Value                                                                     |   |   | Tolerance                                                                             |  | Packing                                                                               |  |

| Part No.          | Inductance        | DC Resistance |      | Heating Rating Current |      | Saturation Current |      |
|-------------------|-------------------|---------------|------|------------------------|------|--------------------|------|
|                   | L0 (μH)           | DCR (mΩ)      |      | Idc (A)                |      | Isat (A)           |      |
|                   | ±20 %, 100kHz, 1V | TYP.          | MAX. | TYP.                   | MAX. | TYP.               | MAX. |
| HNRA-4012S-1R0-MT | 1.0               | 33            | 43   | 5.0                    | 4.5  | 6.5                | 6.0  |
| HNRA-4012S-2R2-MT | 2.2               | 90            | 95   | 3.0                    | 2.7  | 3.2                | 2.9  |

#### Notes

1. All test data is referenced to 25 °C ambient
2. Operating temperature range - 55 °C to + 125 °C
3. Idc(A):DC current (A) that will cause an approximate  $\Delta T$  of 40 °C(reference ambient temperature is 25°C)
4. Isat(A):DC current (A) that will cause L0 to drop approximately 30%
5. The part temperature (ambient + temp rise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

•Dimensions-mm



Notes

1. Tolerances are  $\pm 0.1$  millimeters unless stated otherwise
2. Dimensions of recommended PCB layout are reference only.
3. Do not route traces nor place vias underneath the inductor. Proper layout is required.

•Marking

1. Marking :Ink Marking
2. Stamping 1 R0 :inductor



### Performance Graphs

#### Test Instruments

Wayne kerr 3260B/G LCR Meter

Wayne kerr 3265B Bias Current Source

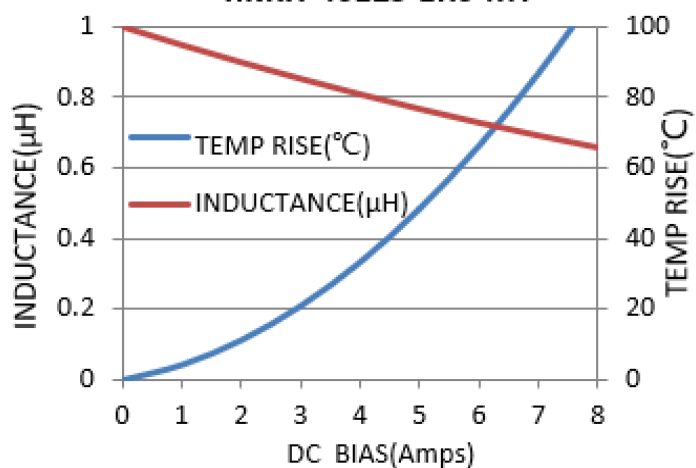
#### Test Condition

Temperature:  $26 \pm 3^{\circ}\text{C}$

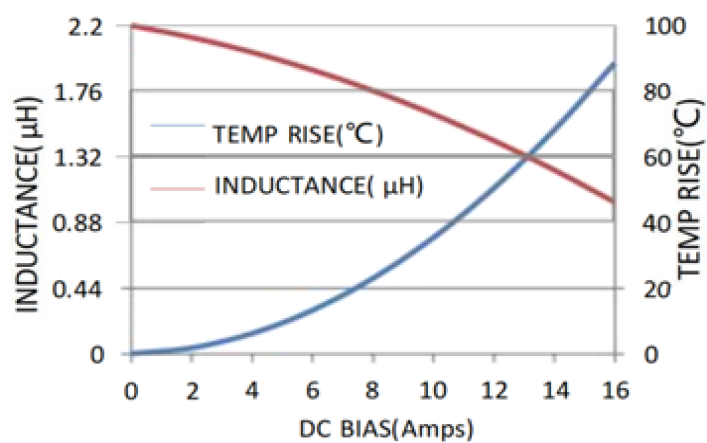
Humidity:  $< 70\% \text{ RH}$

Frequency: 100kHz, 1.0V

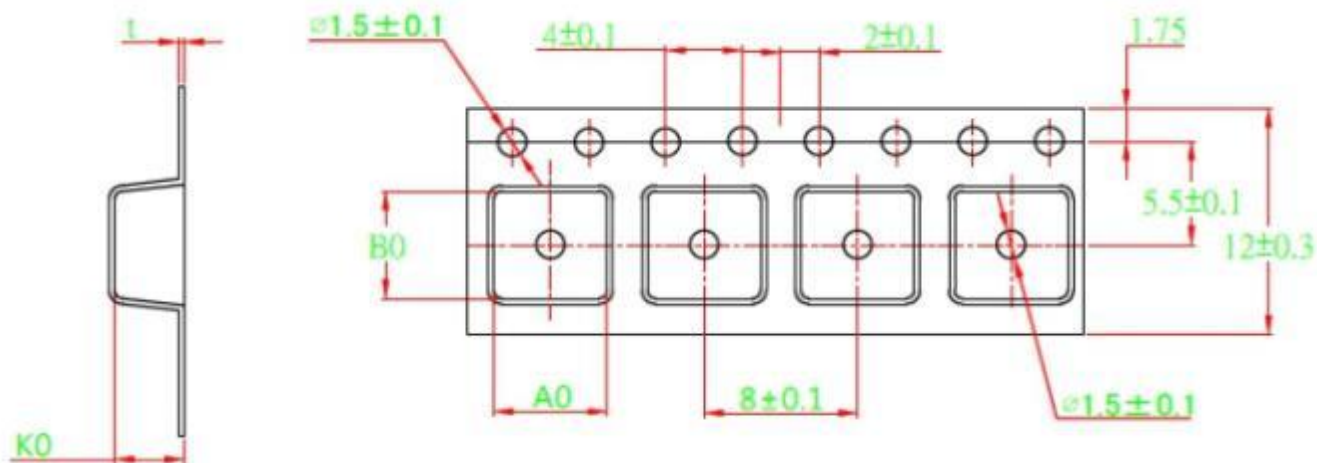
**HNRA-4012S-1R0-MT**



**HNRA-4012S-2R2-MT**

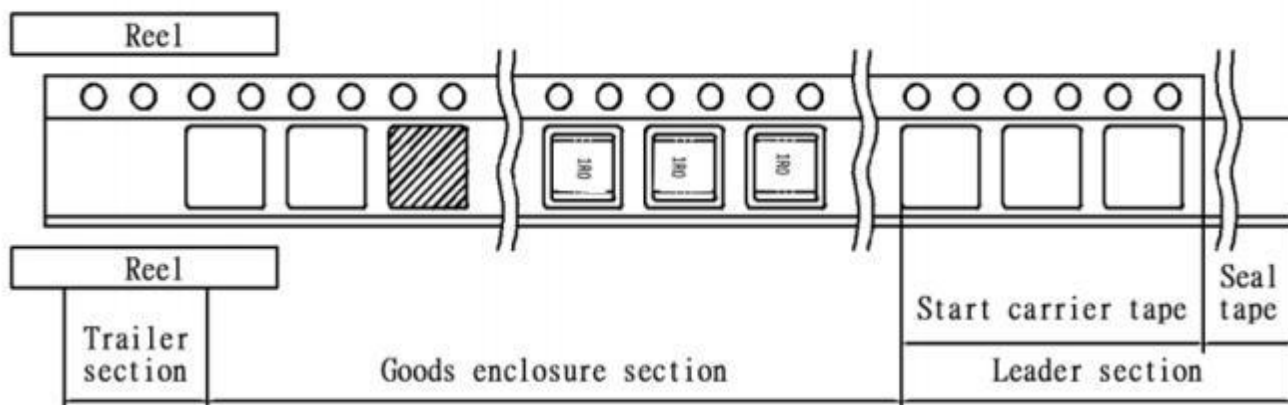


### Tape Packaging Dimensions



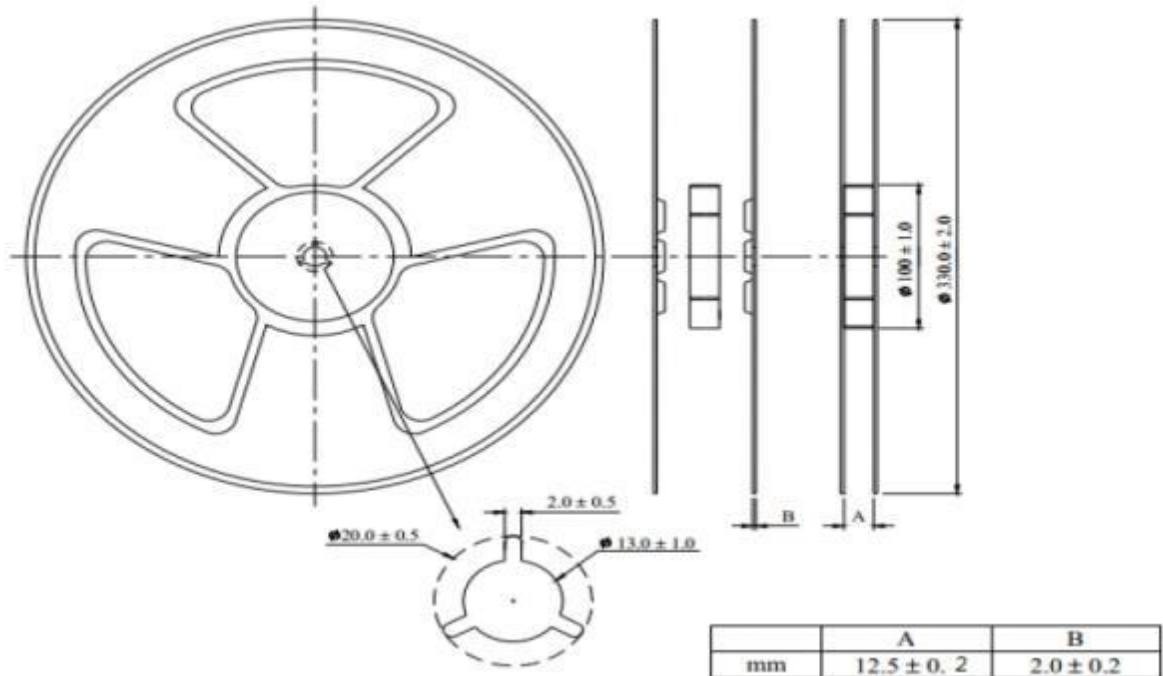
| A0            | B0            | K0             | t               |
|---------------|---------------|----------------|-----------------|
| $4.5 \pm 0.1$ | $4.5 \pm 0.1$ | $1.7 \pm 0.15$ | $0.35 \pm 0.05$ |

### Taping dimension and tape direction ,Leader ,Trailer, section dimension



|                         |           |
|-------------------------|-----------|
| Leader section          | Min.400mm |
| Carrier tape start size | Min.100mm |
| Trailer section size    | Min.160mm |

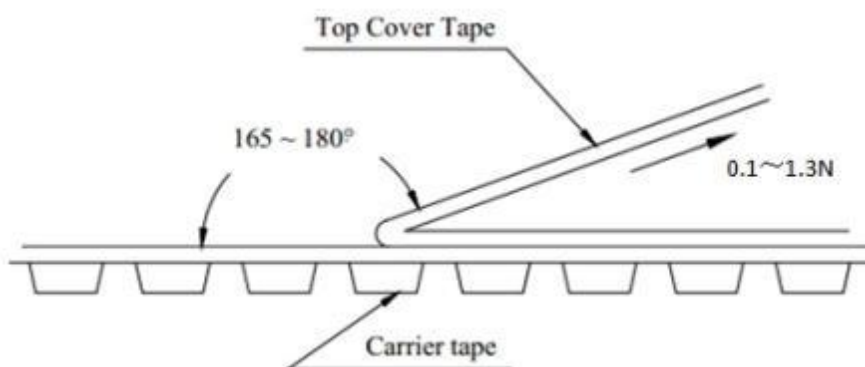
## Reel Dimensions



### • Peel force of top cover tape

The peel speed shall be about 300mm/minute

The peel force of top cover tape shall be between 0.1 to 1.3N



### • Numbers of taping

3000pieces/reel