

# 承诺书

## PRODUCT FOR APPROVAL

我们很高兴向您提交我们的规格图纸和样品供您批准。经批准后请附上您授权签名的一份副本寄回给我们。本规格承认书如客户未回签即下订单,则为承认此份规格承认书。

(We are pleased in submitting you here with our specification drawing together with samples for your approval. Please return to us one copy with your authorized signatures as approved.If the customer places an order without countersigning this specification acknowledgement,it is an acknowledgement of this specification acknowledgement.)

客户/ CUSTOMER :

类型/ DESCRIPTION : 一体成型电感

产品型号/ PART NUMBER : HTDG0630H-100MC-P

客户编号/ CUSTOMER P/N :

客户代号/ CUSTOMER CODE :

发行日期/ ISSUE DATE : 2022-11-11

| 公司/COMPANY        |               |                   |
|-------------------|---------------|-------------------|
| 编制<br>PREPARED BY | 审核CHECK<br>BY | 批准<br>APPROVED BY |
| Siyi Zhang        | Tao Yang      | Liang Zheng       |

| 客户/CUSTOMER       |
|-------------------|
| 批准<br>APPROVED BY |
|                   |

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## 质量责任原则(THE PRINCIPLE OF QUALITY RESPONSIBILITY)

未列入承认书的参数请参考下列标准或相关行业标准:

*For the parameters not prescribed in the Specification for Approval, please refer to the following standards or the relative industry standards.*

GB/T 15290-94 电子设备用电源变压器和滤波扼流圈总技术条件

GB 2423 电工电子产品基本环境试验规程

GB 2828 逐批检查计数抽样程序及抽样表(适用于连续批的检查)

GB 2829 周期检查计数抽样程序及抽样表(适用于生产过程稳定性的检查)。

GB 8554 电子和通信设备用变压器和电感器测试方法及试验程序。

GB 4943-2001 信息技术的安全。

SJ 2488 电子设备用变压器、阻流和铁芯噪声测试方法。

SJ 2916-88 彩色电视广播接收机用开关电源变压器总技术条件。

SJ 3270-90 隔离变压器的安全要求。

GJB360A-96 《电子及电气元件试验方法》

UL1446 绝缘材料认证标准

IPC 9592 电脑和通信电源要求

IPC 020D 联合行业标准

IEC1007 电子和电信设备用变压器和电感器 测量方法和试验程序

AEC-Q200 被动元件汽车级品质认证

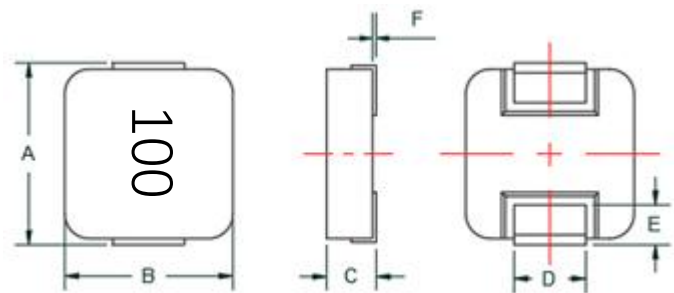
## Applications 应用

- Body electronics 车身电子
- Central body control module 中央车身控制模块
- Vehicle access control system 车辆门禁系统
- Headlamps, tail lamps and interior lighting 前照灯、尾灯和车内照明
- Doors, window lift and seat control 车门、车窗升降机和座椅控制
- Basic and smart surround, and rear and front view camera 基本和智能环绕声，以及后视和前视摄像头
- Automatic parking control 自动泊车控制
- Car black box system 汽车黑匣子系统
- Infotainment and cluster electronics 信息娱乐和集群电子
- Active noise cancellation (ANC)主动降噪
- Audio subsystem: head unit and trunk amp 音频子系统：音响主机和中继放大器
- Digital instrument cluster 数字仪表盘
- In-vehicle infotainment (IVI) and navigation 车载信息娱乐系统 (IVI) 和导航

## Product features 产品特点

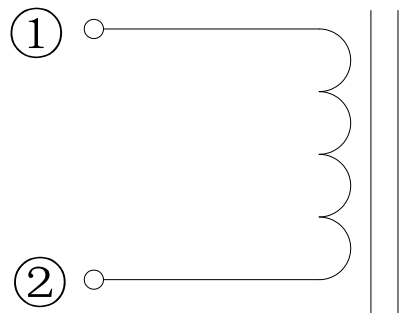
- AEC-Q200 qualified 符合 AEC-Q200 标准
- High current carrying capacity 高载流能力
- Magnetically shielded, Low EMI 磁屏蔽，低电磁干扰
- Rugged flexible construction 坚固灵活的结构
- Lowest DCR/ $\mu$ H, in this package size 最低的 DCR/ $\mu$ H
- Frequency range up to 5.0 MHz 频率范围高达 5.0 MHz
- Moisture Sensitivity Level (MSL): 1 湿度敏感度级别 (MSL) : 1

### 1. 安装尺寸及外形图(CONFIGURATION & DIMENSIONS)

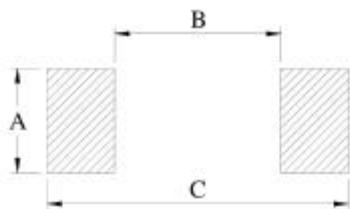


| 编号      | A              | B              | C       | D              | E              |
|---------|----------------|----------------|---------|----------------|----------------|
| 尺寸 (mm) | $7.0 \pm 0.50$ | $6.6 \pm 0.30$ | 3.00Max | $3.0 \pm 0.30$ | $1.6 \pm 0.30$ |

### 2. 线圈联线图(SCHEMATIC)



### 3. 推荐焊盘(Recommend Land Pattern Dimensions)



|   |     |
|---|-----|
| A | 3.5 |
| B | 2.5 |
| C | 8.4 |

Unit: mm

#### 4. 电气特性(ELECTRIC CHARACTERISTICS) @25℃

| 编号<br>NO. | 项目<br>Item | 测试表现<br>Test Performance                       | 测试条件<br>Test Condition | 测试设备<br>Test Equipment           |
|-----------|------------|------------------------------------------------|------------------------|----------------------------------|
| 1         | L(+0Adc)   | 10.0uH±20%                                     | 100KHz,1V              | WK3260B+WK3265B<br>or Equivalent |
| 2         | L(+5.5Adc) | Cause L0 to drop approximately30%<br>使L0下降约30% |                        |                                  |
| 3         | DCR        | 68mΩ Max                                       | 25℃                    | HIOKI-RM3544 或等同                 |
| 4         | Isat       | 5.5A                                           |                        |                                  |
| 5         | Irms       | 4.5A, $\Delta T \leq 40^\circ\text{C}$         |                        |                                  |

Notes: (1) All test data is referenced to 25 °C ambient  
(2) Operting temperature range - 55 °C to + 155 °C  
(3) The part temperature (ambient + temp. rise) should not exceed 155 °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.

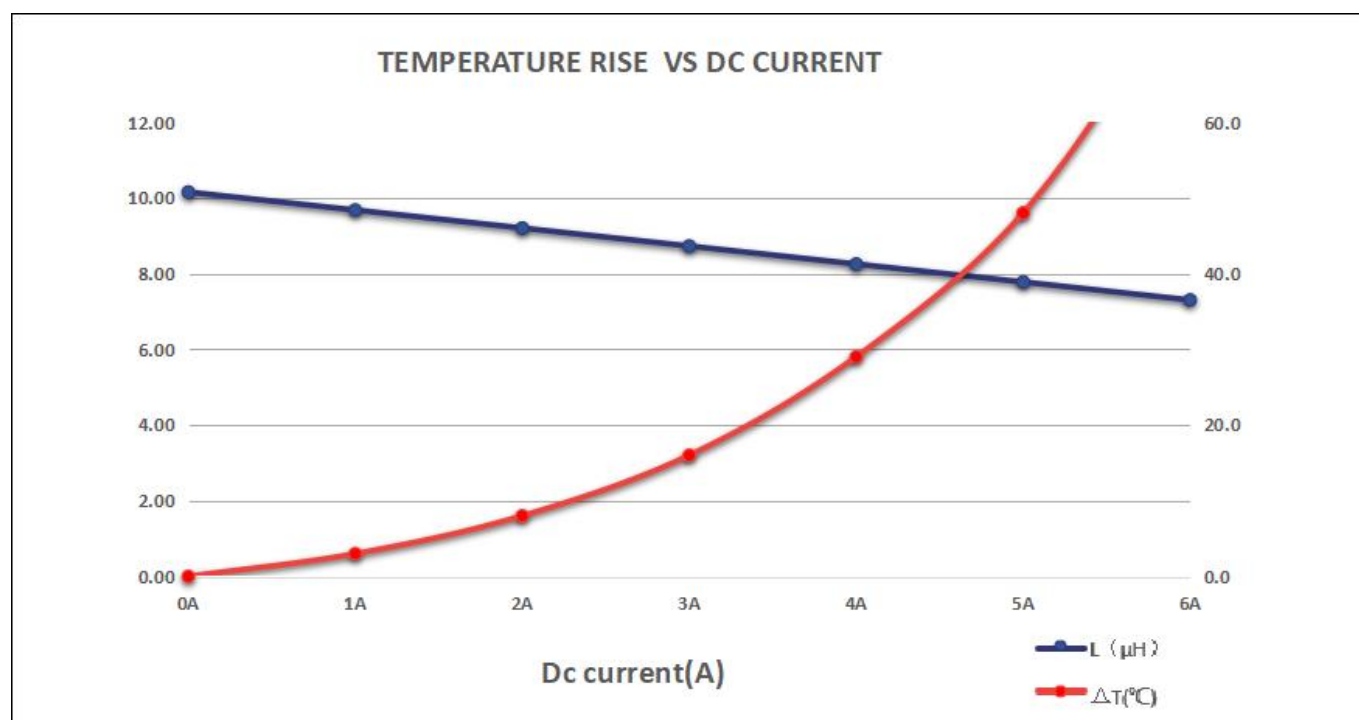
注：(1)所有测试数据均以 25 °C 环境温度为准

(2)工作温度范围 - 55 °C 至 + 155 °C

(3)在最坏的工作条件下，部件温度（环境温度 + 温度升高）不应超过 155 °C。电路设计、元件放置、PWB 走线尺寸和厚度、气流和其他冷却规定都会影响零件温度。应在最终应用中验证零件温度

#### 5. 电流曲线

##### 5.1 电感-电流曲线(INDUCTANCE VS DC CURRENT )



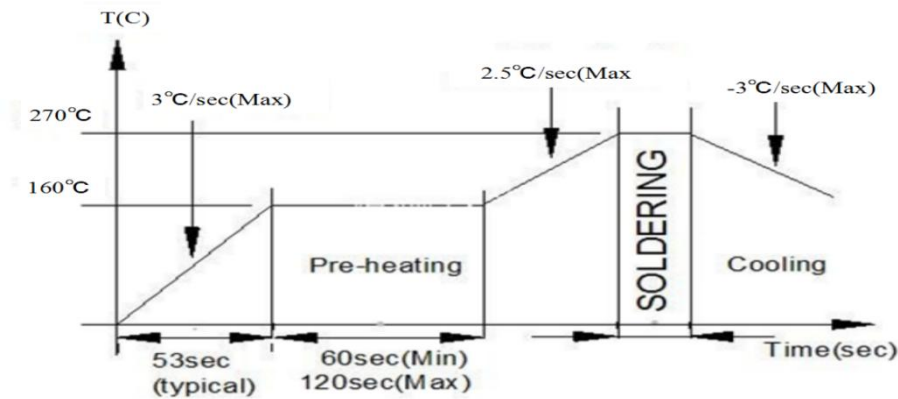
## 6. 可靠性试验要求(RELIABILITY TEST REQUIREMENT)

| Test items<br>测试项目                                | Mandatory Field<br>必选项目 | Test content<br>测试内容                                 | Remark<br>(备注) |
|---------------------------------------------------|-------------------------|------------------------------------------------------|----------------|
| Welding heat test 耐焊接热试验                          | √                       | MIL-STD-202G Method 210F or JESD22-B106              |                |
| Solderability test 可焊性试验                          | √                       | MIL-STD-202, Method 208, or JESD22-B-102             |                |
| Store at low temperatures 低温储存                    | √                       | JESD22-A119                                          |                |
| Store at high temperatures 高温储存                   | √                       | JESD22-A103 or MIL-STD-202 Method 108                |                |
| High temperature and high humidity test<br>高温高湿试验 | √                       | JESD22-A101 or MIL-STD-202G Method 103B              |                |
| Hot and cold shock test 冷热冲击试验                    | √                       | JESD22-A104 or MIL-STD-202 Method 107                |                |
| Insulation test 绝缘试验                              | √                       | MIL-STD-202G Method 302                              |                |
| Life test 寿命试验                                    | √                       | JESD22-A108 or MIL-STD-202 Method 108                |                |
| Drop test 跌落试验                                    | √                       | MIL-STD-202G Method 213 or JESD22B-104               |                |
| Vibration test 震动试验                               | √                       | MIL-STD-202G Method 204D or JESD22B-103              |                |
| Bending resistance test 抗弯试验                      | √                       | AEC-Q200-005 or JIS-C-5202 Section 4.33              |                |
| resistance test 耐溶剂试验                             | √                       | MIL-PRF-55342 Section 3.20 or MIL-STD-202 Method 215 |                |
| Mechanical impact test 机械冲击试验                     | √                       | MIL-STD-202G Method 213 or JESD22B-104               |                |

## 7. 推荐焊接条件(SOLDERING CONDITION RECOMMENDED)

器件焊接方式: 回流焊(Device welding method: reflow welding)

### 7.1 回流焊焊接方式及推荐炉温曲线(Reflow welding method and recommended furnace temperature curve)



无铅器件推荐温度要求(Recommended temperature requirements for lead-free devices)

(IPC/JEDEC J-STD-020C)

| Package Thickness | Volume mm <sup>3</sup><br>< 350 | Volume mm <sup>3</sup><br>350-2000 | Volume mm <sup>3</sup><br>> 2000 |
|-------------------|---------------------------------|------------------------------------|----------------------------------|
| < 1.6mm           | 260°C                           | 260°C                              | 260°C                            |
| 1.6mm~2.5mm       | 260°C                           | 250°C                              | 245°C                            |
| > 2.5mm           | 250°C                           | 245°C                              | 245°C                            |

7.2 高温耐热性描述 (在 265°C 的熔融铅料中, 停留时间不少于 10 秒, 3 次最少, 无质量问题。)

High temperature heat resistance description (in the molten lead material at 265 °C, the residence time shall not be less than 10 seconds, the least three times, and there is no quality problem.)

7.3 返修温度和时间 (温度: 400°C; 时间: 不少于 5 秒。)

Repair temperature and time (temperature: 400oC; time: not less than 5S.)

7.4 焊接次数 (元器件能承受的焊接次数不少于 3 次。)

Welding times (the welding times that components can withstand shall not be less than 3 times.)

## 8. 包装及外观要求(PACKAGE AND SEMBLABLE REQUIREMENT)

### 8.1 包装(PACKAGE REQUIREMENT)

① 包装箱上标明产品型号、名称、数量、生产周期, 出厂日期、承制方名称及出厂检验章;

(可按客户要求印字包装)

The packing box shall be marked with product model, name, quantity, production cycle, date, manufacturer's name and inspection seal;

(printed and packaged according to customer requirements)

② 不同生产周期号的同一产品不得放入同一包装箱内;

The same product with different production cycle numbers shall not be put into the same packing box;

③ 货物运达客户方后, 包装箱封条应完好, 箱体无破损、开裂等现象;

After the goods arrive at the customer, the seal of the packing box shall be intact, and the box shall be free of damage, cracking and other phenomena;

④ 开箱后, 箱内包装材料无破损。产品应分层、间隔包装, 不满一箱应加垫填充物。

After unpacking, the packing materials in the box shall be free from damage. The products shall be packed in layers and at intervals, and padding shall be added if it is less than one box.

## 8.2 外观(SEMBLABLE REQUIREMENT)

① 外观整洁，印字清晰。

Clean appearance and clear printing.

## 8.3 检验(TEST REQUIREMENT)

① 产品生产中必须进行全数进行电气性能;

All electrical performance tests must be carried out during product production;

② 产品出货前按批次，必须根据承认书按国家行业标准进行抽样检验，合格后出具出厂检验报告，记录抽样测试数据，在每批次包装尾箱中放置一份;

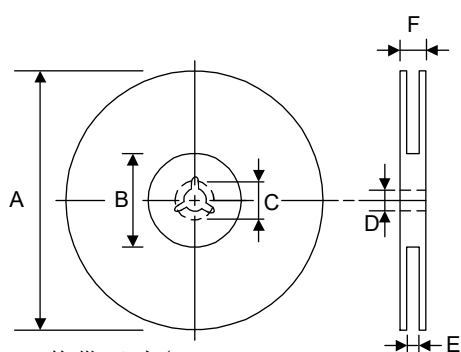
注：批次按定单号发货为准。

Before shipment, the products must be sampled and inspected according to the national and industrial standards according to the letter of acceptance. After passing the inspection, the factory inspection report shall be issued and the sampling records shall be recorded. One copy of sample test data shall be placed in the tail box of each batch of packaging;

Note: the batch shall be delivered according to the order number.

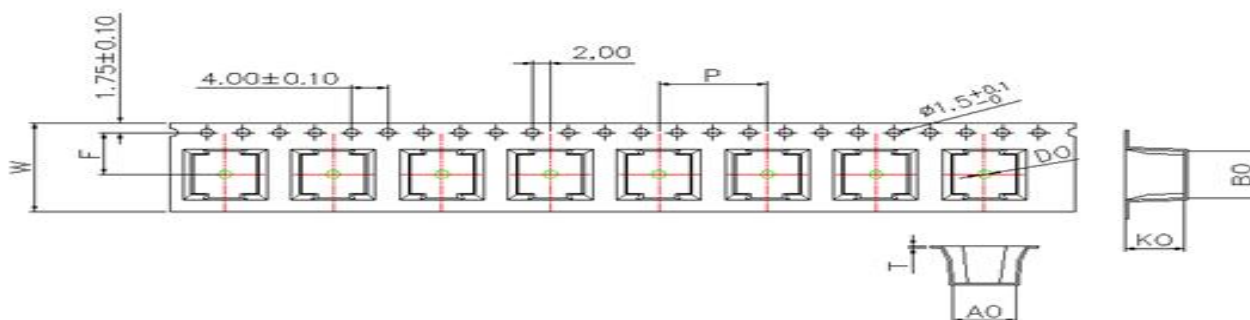
## 8.4 包装示意图:

### 8.4.1 卷轴尺寸 (Reel Dimension)



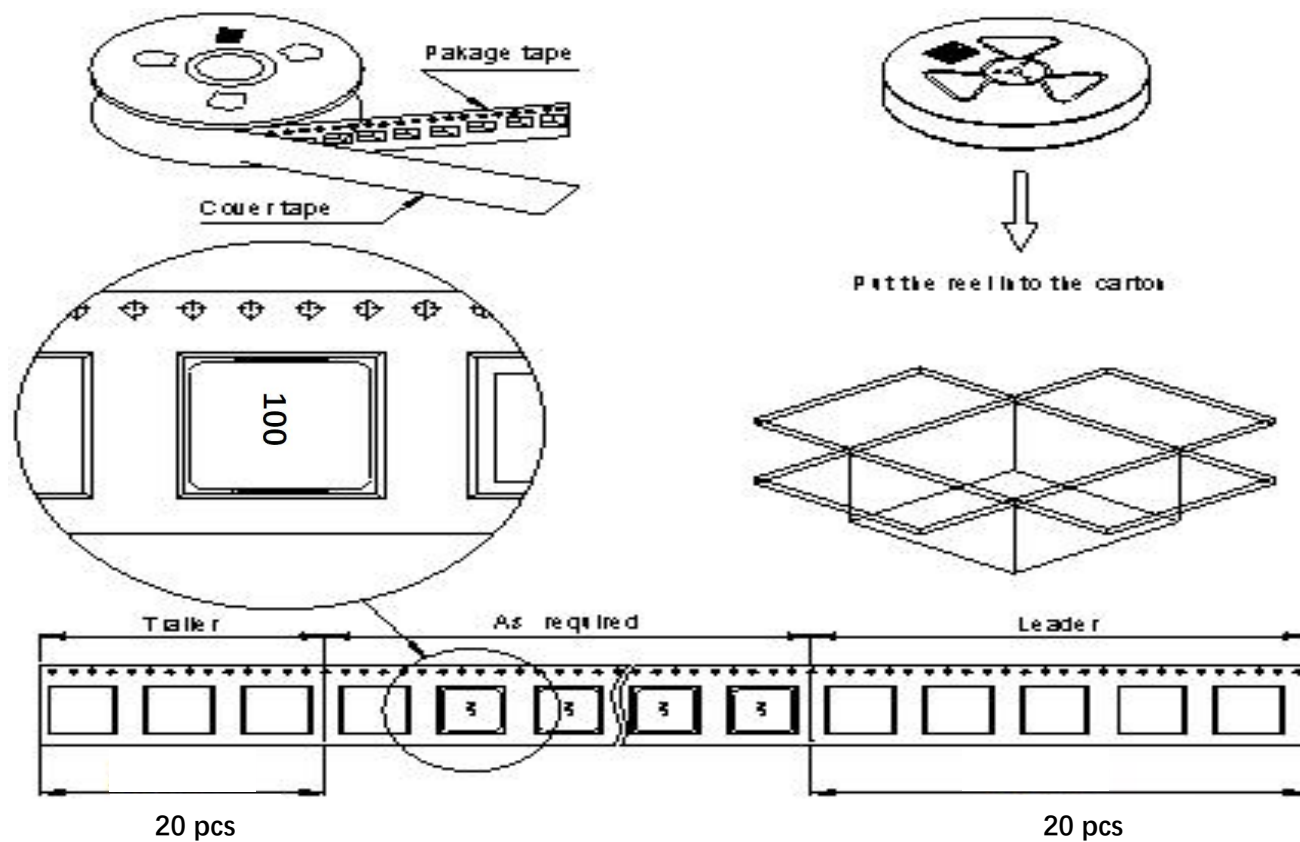
| TYPE | A   | B   | C        | D                                  | E      | F    |
|------|-----|-----|----------|------------------------------------|--------|------|
| 16mm | 330 | 100 | 21.0±0.8 | 13 <sup>+0.5</sup> <sub>-0.2</sub> | 16±0.3 | 22.4 |

### 8.4.2 载带尺寸 (Tape Dimension)



| Q'TY (PCS) | A0      | B0      | KO      | W        | P        | T         |
|------------|---------|---------|---------|----------|----------|-----------|
| 1500       | 7.0±0.1 | 7.8±0.1 | 3.2±0.1 | 16.0±0.3 | 12.0±0.1 | 0.35±0.05 |

#### 8.4.3 包装方式(Packaging method)



- ①一卷包装 (Reel): 1500Pcs;
- ② 小箱装两卷 (Inner box): 一共 3000Pcs;
- ③ 大箱装三小箱 (Carton): 一共 9000Pcs.