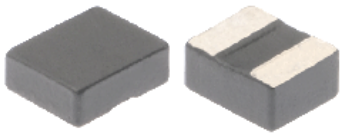


# Molded Power Inductor ACKST201610 Series

## 小一体成型电感ACKST201610系列



Automotive A Series  
车规品

Operating Temp : -55~150°C  
工作温度: -55~150°C

### BASIC INFORMATION 基本信息

#### Features 特性

- Metal material for large current and low loss  
采用合金材料，满足大电流、低损耗特性
- Closed magnetic circuit design reduces leakage flux  
闭合磁路设计，漏磁干扰小

#### Applications 用途

- ADAS (Advanced Driver Assistance Systems)  
ADAS高级驾驶辅助系统
- In-Vehicle Infotainment Systems  
车载信息娱乐系统
- LED Lighting  
LED照明
- Airbag and IoV (Internet of Vehicles)  
安全气囊/车联网

### PART NUMBERING SYSTEM 品名系统

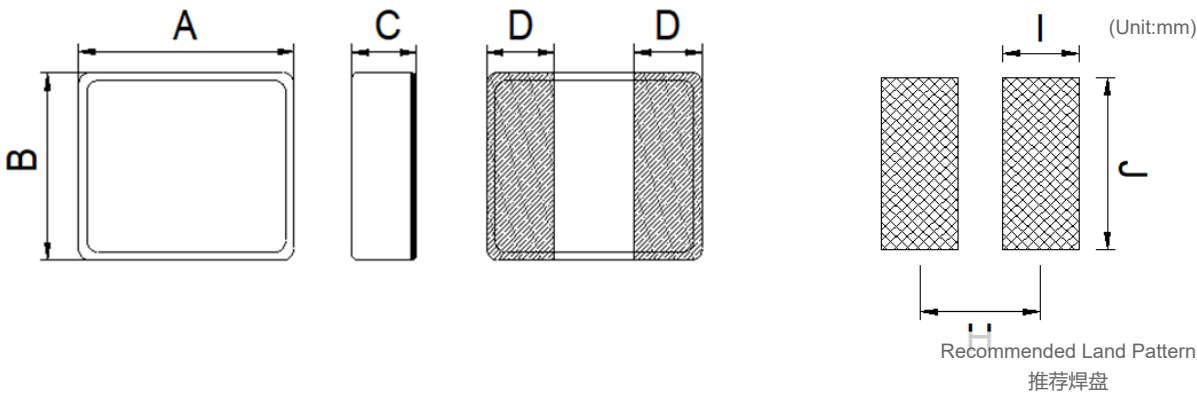
|       |        |   |     |   |   |
|-------|--------|---|-----|---|---|
| ACKST | 201610 | - | 1uH | / | M |
| ①     | ②      |   | ③   |   | ④ |

- ① Automobile Type 车载一体成型系列

③ Inductance Value 感值
- ② External Dimensions 外形尺寸

④ Inductance Tolerance 电感值公差

### SHAPES AND DIMENSIONS 外形尺寸



| A       | B       | C        | D       | H   | I   | J   |
|---------|---------|----------|---------|-----|-----|-----|
| 2.0±0.2 | 1.6±0.2 | 1.0 Max. | 0.5±0.2 | 1.5 | 1.0 | 1.8 |

CHARACTERISTICS SPECIFICATION TABLE 特性规格表

| Model<br>产品型号         | Inductance<br>电感值<br>(μH) | Tolerance<br>公差<br>(%) | DCR<br>直流电阻<br>(mΩ)Max. | DCR<br>直流电阻<br>(mΩ)Typ. | Isat<br>饱和电流<br>(A)Max. | Isat<br>饱和电流<br>(A)Typ. | Irms<br>温升电流<br>(A)Max. | Irms<br>温升电流<br>(A)Typ. |
|-----------------------|---------------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| ACKST201610-0.24uH/M  | 0.24                      | ±20                    | 20                      | 16                      | 7.0                     | 8.0                     | 6.2                     | 6.8                     |
| ACKST201610-0.33uH/M  | 0.33                      | ±20                    | 20                      | 16                      | 6.2                     | 7.0                     | 6.0                     | 6.5                     |
| ACKST201610-0.47uH/M  | 0.47                      | ±20                    | 28                      | 23                      | 6.0                     | 7.0                     | 4.5                     | 5.0                     |
| ACKST201610L-0.47uH/M | 0.47                      | ±20                    | 23                      | 20                      | 5.0                     | 5.7                     | 4.7                     | 5.3                     |
| ACKST201610-0.68uH/M  | 0.68                      | ±20                    | 40                      | 33                      | 4.0                     | 4.2                     | 3.4                     | 4.0                     |
| ACKST201610-1uH/M     | 1.0                       | ±20                    | 49                      | 43                      | 3.8                     | 4.0                     | 3.4                     | 4.0                     |
| ACKST201610-1.5uH/M   | 1.5                       | ±20                    | 74                      | 66                      | 3.2                     | 3.5                     | 2.8                     | 3.2                     |
| ACKST201610-2.2uH/M   | 2.2                       | ±20                    | 110                     | 94                      | 2.7                     | 3.0                     | 2.5                     | 2.7                     |
| ACKST201610-3.3uH/M   | 3.3                       | ±20                    | 250                     | 210                     | 1.9                     | 2.2                     | 1.3                     | 1.5                     |
| ACKST201610-4.7uH/M   | 4.7                       | ±20                    | 280                     | 250                     | 1.7                     | 2.0                     | 1.2                     | 1.4                     |
| ACKST201610-6.8uH/M   | 6.8                       | ±20                    | 485                     | 433                     | 1.2                     | 1.5                     | 0.8                     | 1.0                     |

Notes 注意事项

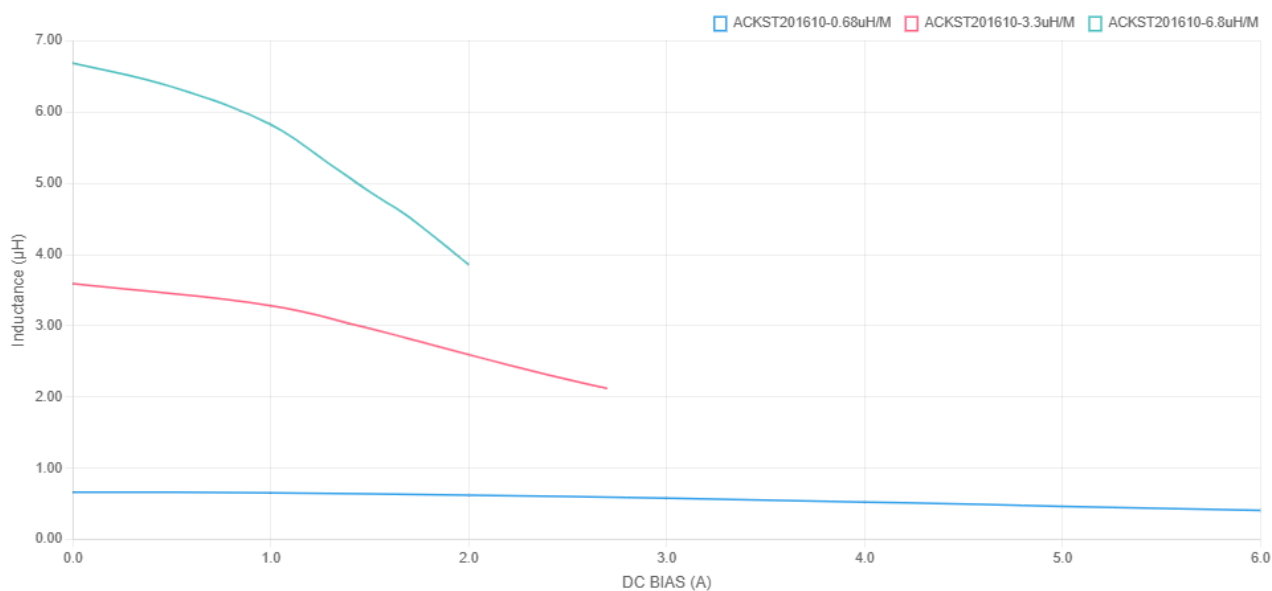
1. All test data are referenced to an ambient temperature of  $20 \pm 5^{\circ}\text{C}$  and a relative humidity of 60%–80% RH.  
所有测试数据参考环境温度 $20\pm5^{\circ}\text{C}$ ，湿度60%~80%RH。
2. Saturation current  
饱和电流：  
• Maximum: DC current at which the inductance drops by less than 30% from its zero-current value.  
最大值，使电感感值下降小于30%的直流电流；  
• Typical: DC current at which the inductance drops by approximately 30% from its zero-current value.  
典型值，使电感感值下降接近30%的直流电流。
- Temperature-rise current  
温升电流：  
• Maximum: DC current resulting in  $\Delta T < 40^{\circ}\text{C}$ .  
最大值，使温升 $\Delta T < 40^{\circ}\text{C}$ 的直流电流；  
• Typical: DC current resulting in  $\Delta T \approx 40^{\circ}\text{C}$ .  
典型值，使温升 $\Delta T$ 接近 $40^{\circ}\text{C}$ 的直流电流。
3. Operating temperature range:  $-55^{\circ}\text{C}$  to  $+155^{\circ}\text{C}$  (including self-temperature rise).  
工作温度范围为 $-55^{\circ}\text{C}$ 至 $+155^{\circ}\text{C}$ （包括自身温升）。
4. Absolute maximum voltage: DC 20V; Test Conditions: 1MHz/1V.  
绝对最大电压：DC 20 V；测试条件：1MHz/1V。

Test Equipment Information 测试设备信息

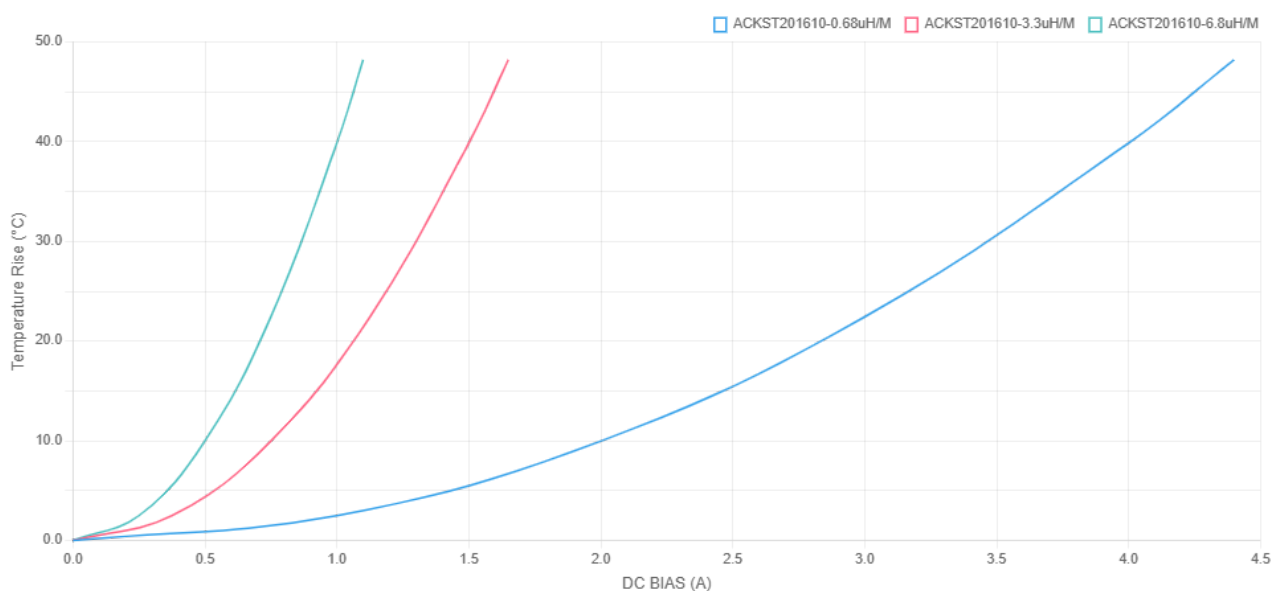
| NO.<br>序号 | Measurement Item<br>测量项目 | Equipment Model<br>设备型号 | Manufacturer<br>制造商 |
|-----------|--------------------------|-------------------------|---------------------|
| 1         | L                        | 4284A                   | Keysight            |
| 2         | DCR                      | 34420A                  | Keysight            |
| 3         | Z                        | E4991B                  | Keysight            |
| 4         | Isat                     | 4284A+42841A            | Keysight            |
| 5         | Irms                     | 42841A                  | Keysight            |

## TYPICAL ELECTRICAL CHARACTERISTICS 典型电气特性

### INDUCTANCE VS. DC BIAS CHARACTERISTICS 饱和电流曲线

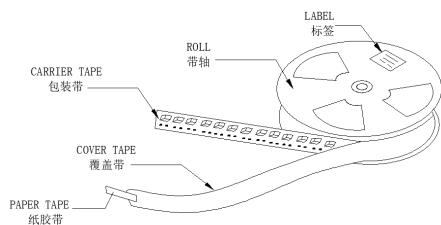


### TEMPERATURE VS. DC BIAS CHARACTERISTICS 温升电流曲线



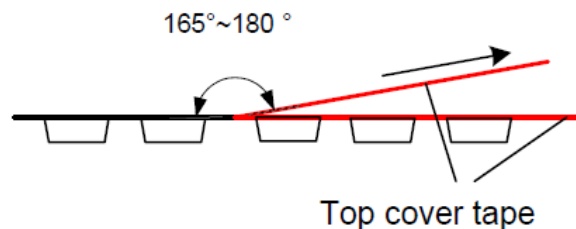
## PACKAGE 包装

### Packaging 包装



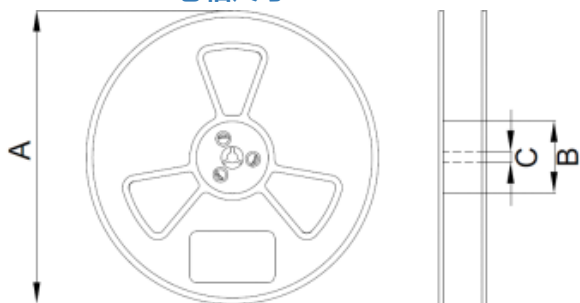
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.  
撕下盖带的力是按箭头方向10~130克。

### Cover Tape 盖带



Peel-off speed: 300mm/min.  
剥离速度: 300mm/min。

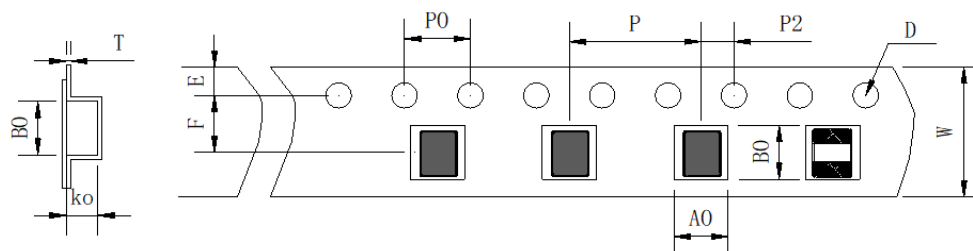
### Reel Dimensions 卷轴尺寸



(Unit:mm)

| Item<br>项目 | Dimension<br>尺寸 |
|------------|-----------------|
| A          | 178±1           |
| B          | 60±1            |
| C          | 13±0.5          |

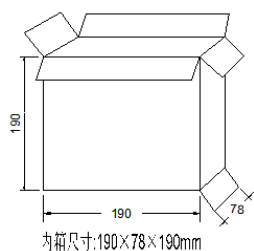
### Tape Dimensions 载带尺寸



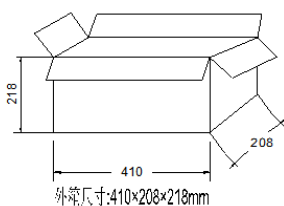
(Unit:mm)

| W       | A0       | B0       | K0      | D       | F       | E        | P       | P0      | P2      | T         |
|---------|----------|----------|---------|---------|---------|----------|---------|---------|---------|-----------|
| 8.0±0.3 | 1.95±0.1 | 2.35±0.1 | 1.3±0.1 | 1.5±0.1 | 3.5±0.1 | 1.75±0.1 | 4.0±0.1 | 4.0±0.1 | 2.0±0.1 | 0.25±0.05 |

### Packaging Quantity 包装数量



为箱尺寸:190×78×190mm

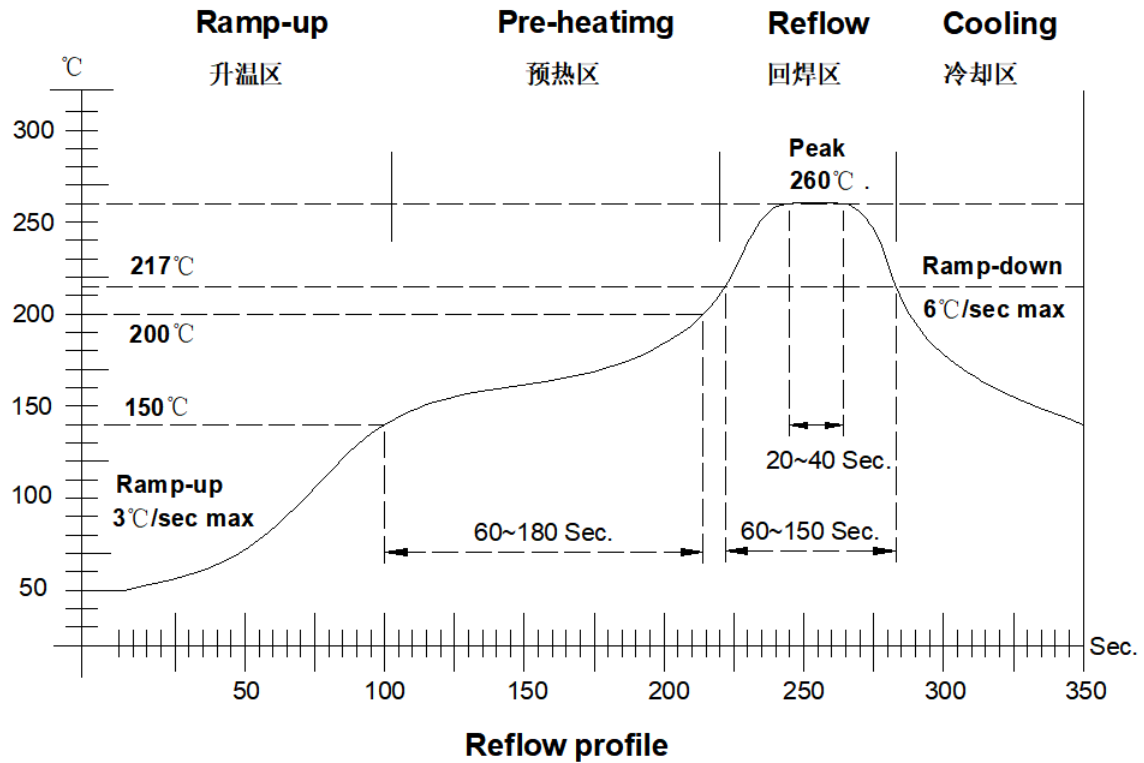


外箱尺寸:410×208×218mm

(Unit:mm)

| Reel<br>卷盘 | Box<br>盒装  | Carton<br>箱装 |
|------------|------------|--------------|
| 3000       | 15000      | 75000        |
| 1Reel      | 5Reel/1Box | 5Box/1Carton |

## RECOMMENDED REFLOW PROFILE 推荐回流焊温度曲线



## Important Notes 注意事项

1. Do not place this product near magnets or objects with magnetic force.

请勿将本产品靠近磁铁或带有磁力的物体。

2. Do not store the product in unsuitable environments such as high temperature, high humidity, dusty, corrosive environments (salt, acid, alkali, etc.).

请勿将产品保存在高温、高湿、有灰尘、腐蚀环境（盐、酸、碱等）等不适合环境中。

4. The product will self-heat (temperature rise) due to power-on, and sufficient margin should be left in thermal design.

产品会因通电而发热（温度上升），在热设计方面需留有充分余量。

5. When designing the PCB, please consider the installation position of the non-magnetic shielded components to avoid failures caused by magnetic interference.

在设计PCB时，请考虑非磁屏蔽元器件的安装位置，避免磁干扰引起的故障。

6. Since the static electricity carried by the human body will be transmitted to the ground wire, please use an anti-static wrist strap.

由于人体所带的静电会传到接地线上，因此请使用防静电腕带。

7. Grease on human hands may lead to decreased solderability. Please avoid direct contact with the terminals.

人体手上有油脂可能导致可焊性下降。请避免手直接接触端子。

8. Excessive bending of the terminal will lead to disconnection, please do not bend the terminal excessively.

端子过度弯曲会导致断线，请不要过度弯曲端子。

9. The product is very sensitive to direct impact, the impact may cause damage and breakage of the product's magnetic core.

产品对直接冲击很敏感，冲击可能导致产品磁芯损伤及破损。

10. When the customer uses, if the product is potted or glued, it must be noted:

在客户使用时，如果产品被灌封或胶固定，必须注意：

► Most potting materials will shrink when hardened, so there is a stress on the plastic skeleton or magnetic core, this stress action can negatively affect the electrical properties and in extreme cases can damage the mechanical properties of the magnetic core or plastic skeleton.

大部分灌封材料在硬化时都会收缩，因此对塑胶骨架或磁芯有施加应力，这种应力作用可以给电气特性带来负面影响，极端情况下可能损坏磁芯或塑胶骨架的机械性能。

► It must be checked whether the use of potting materials will cause the insulation layer of the enameled wire, the performance of the plastic skeleton or the glue to be degraded or even damaged.

必须检查使用灌封材料是否会导致漆包线的绝缘层，塑胶骨架或胶水的性能降低甚至损坏。

► The effect of potting material can change the high frequency characteristics of magnetic components.

灌封材料的影响可以改变磁性元器件的高频特性。

11. For alloy or non-coated products, if the product is placed in a humid environment for a long time, the surface of the product may rust, But it will not affect the characteristics of the product.

对于合金或非涂层产品，如果将产品长期放置在潮湿的环境中，产品的表面可能会生锈，但不会影响产品的特性。

12. This product refers to the general standard used in audio-visual entertainment, home appliances, computers, office automation, communications, power modules, LED lighting, measuring equipment, Machine tools, industrial control panels and other general electronic equipment. And the general electronic equipment should be used under the usual operation and usage methods.

本产品是指在通用标准上用于影音娱乐，家电，计算机，办公自动化，通讯，电源模块，LED照明，测量设备，机械工具，工业控制板等一般电子设备中。并且该一般电子设备要在通常的操作和使用方法下使用。

13. When this product is used in occasions other than general electronic equipment, such as: Automotive Electronic products, medical equipment, military equipment, Aerospace equipment, submarine equipment, etc., please be sure to contact the company's sales department, the company will cooperate with customer needs, and negotiate different intended use described in this product.

当本产品使用在一般电子设备以外的场合，如：车载，交通工具控制设备，医疗设备，军用设备，航空航天设备，海底设备等，请务必联系本公司销售部门，本公司会配合客户需求，一起协商不同于本产品中所记载的使用用途。

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