产 品 规 格 书

PRODUCT SPECIFICATION

客户名称 CUSTOMER	
产品名称 PRODUCT NAME	一体成型功率电感 Molded SMD Power Inductor
产品料号 PART NO.	LPCH0503KS系列 LPCH0503KS series
客户料号 CUSTOMER'S PART NO.	——
规格书编号 SPEC NO.	——
版本号 EDITION NO.	V1

客户接收签章
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从发行日期起算2个月内无回签，则本交货规格书将视为已收到。

When there in no return within two months from the date of the issue,this product specification will be regarded as accepted.

发行日期 DATE		2026.05.25	
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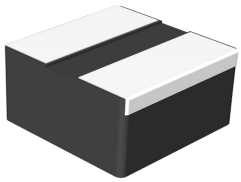
变更履历

REVISION HISTORY

版本号 EDITION	变更日期 DATE	变更内容 REVISED CONTENT	变更页码 PAGE	批准 APPROVED	编制 DRAWN
V0	2025.07.03	初版发行	/	村上	宋斌
V1	2026.05.25	载带尺寸变更 新增品番R56、R68、1R0	/	村上	宋斌

Power Inductor LPCH0503KS

1. 特征 / Features



- ○ 采用金属磁性材料具有高磁通饱和密度特性
  High magnetic flux saturation density characteristics by metal magnetic material.
- ○ 采用扁平线材实现较低Rdc
  Low DC resistance by flat wire.and achieve high conversion efficiency and lower temperature rising.
- ○ 通过闭磁路结构减少漏磁通
  Magnetically shielded structure to accomplish high resolution in EMC protection.
- ○ Chip形状，贴装稳定性强
  High mounting stability due to Chip shape.
- ○ 具有独立结构，可靠性高
  High reliability by original structure.
- ○ 无卤素、无铅化，符合RoHS要求
  Halogen free,Lead free、RoHS Compliance.

2. 应用 / Application

- ○ DC/DC转换器
  DC/DC converter
- ○ 智能手机/PAD、HDD/SSD、DVC/DSC
  Smart phone/PAD,HDD/SSD,DVC/DSC
- ○ 平板电脑，便携式游戏机，集成电源模块
  Mobile display panels, portable game devices, compact power supply modules,other.

3. 料号标识 / Part Number Construction

L	P	C	H	0	5	0	3	K	S	R	4	7	M	T	G	0	0

产品类型 Product type	产品尺寸 Product size	类别 Type	电感值 Inductance	公差 Tolerance	包装类型 Packing	管理编号 Management No.
一体成型电感 Molding power inductor	5.1×5.3×3.0^{max} (mm)		R47:0.47uH 1R0:1.00uH	M:±20% N:±30%	T:Taping	

4. 特性规格表 / Characteristics Specification Table

料号 Part No.	电感值 / L(μH) Inductance		直流电阻 / DCR(mΩ) DC Resistance		饱和电流 / Isat(A) Saturation current		温升电流 / Itemp(A) Temperature rise current	
	Typ.	Tolerance	Typ.	Max.	Typ.	Max.	Typ.	Max.
LPCH0503KSR15MTG00	0.15	±20%	0.85	0.96	45.0	41.0	38.0	35.0
LPCH0503KSR24MTG00	0.24	±20%	1.5	1.8	38.0	32.0	33.0	30.0
LPCH0503KSR33MTG00	0.33	±20%	1.8	2.2	32.0	27.5	28.5	25.5
LPCH0503KSR47MTG00	0.47	±20%	2.5	3.0	26.0	22.5	24.0	21.5
LPCH0503KSR56MTG00	0.56	±20%	3.0	3.6	24.0	21.0	22.0	20.0
LPCH0503KSR68MTG00	0.68	±20%	3.8	4.6	21.5	18.5	19.5	17.5
LPCH0503KS1R0MTG00	1.00	±20%	5.0	6.0	18.0	15.5	17.0	15.5

- L值测试频率：1MHz,OSC LEVEL:1V 。/ Test frequency at 1MHz,OSC LEVEL:1V.
- 额定电流：以Isat和Itemp两个中的一个较小值作为额定电流值。/ Rated current: smaller value of either Isat or Itemp.
- Isat ：电感量比初始值下降约30%时所加载的直流电流值。
  Isat:The DC current at which the inductance decreases approximately 30% from the actual initial value.
  Itemp: 基于温度上升的情况(自身发热温度上升40℃)。
  Itemp:When based on the temperature increase(temperature increase of 40°C by self heating).
  ※ Itemp是基于本公司的使用环境的参考值。/ Itemp is a reference value according to our usage environment.
  ※ 在最终应用中，必须在产品温度上升不超过40°C的条件下进行电路设计。
  In the end application, the circuit design should be such that the part temperature rise does not exceed 40 ℃.
- 工作温度范围：-40～+125°C。 / Operating Temperature range: -40°C to +125°C.

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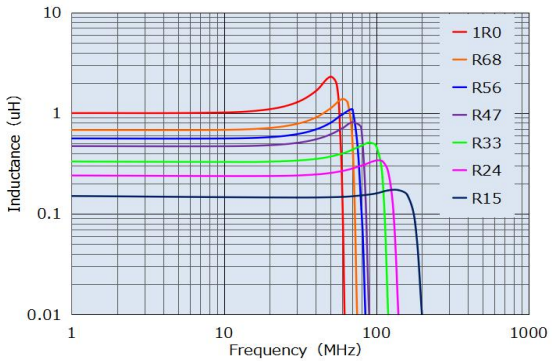
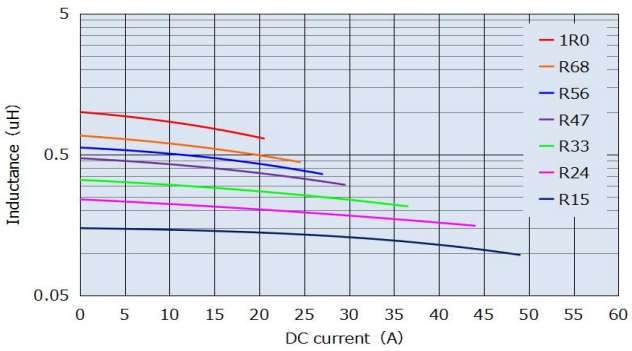
5. 特性曲线 / Characteristic curve

L值频率特性 / L vs Frequency Characteristics

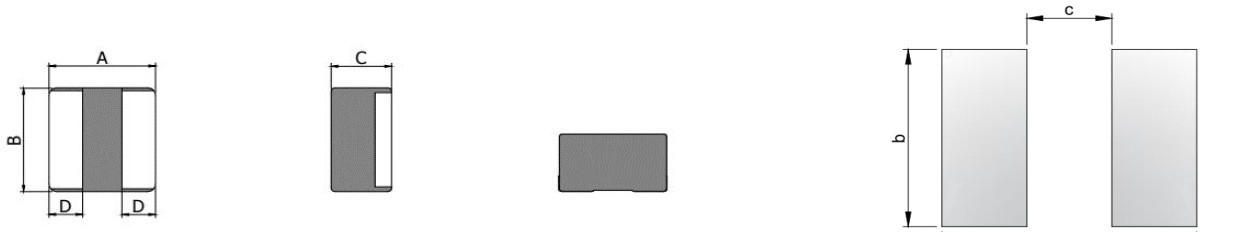


饱和电流曲线 / Inductance vs. DC Bias



6. 外观和尺寸 / Shape and Dimensions

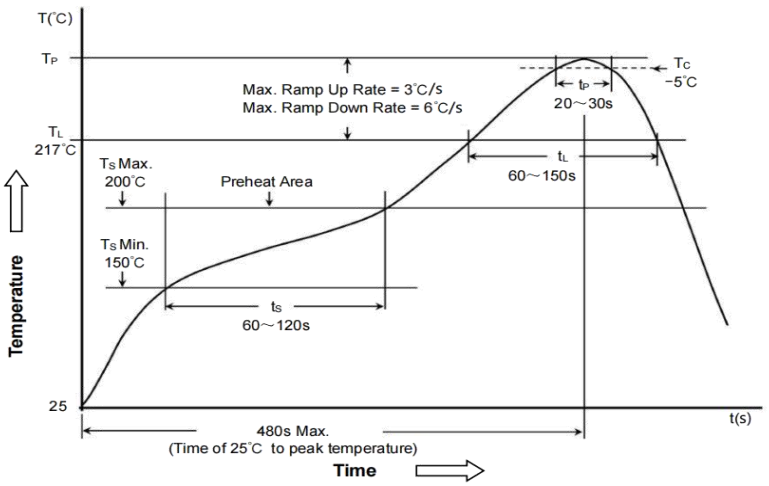
推荐焊盘尺寸 / Recommended Land Pattern



单位 / Unit: mm

A	B	C	D	a	b	c
5.1 ± 0.2	5.3± 0.2	3.0 Max	1.7 ± 0.2	5.5 ref	5.7 ref	1.9 ref

7. 推荐使用的回流焊曲线 / Recommended Reflow Profile



封装体积与峰值温度(TP)关系分类 / Classification of peak package body temperature (TP)

	封装厚度 Package Thickness	封装体积 / Package Volume		
		<350 mm^3	350 ~ 2000 mm^3	>2000 mm^3
无铅装配 PB-Free Assembly	<1.6mm	260℃	260℃	260℃
	1.6 ~ 2.5mm	260℃	250℃	245℃
	≥2.5mm	250℃	245℃	245℃

※ 回流焊参照标准 IPC/JEDEC J-STD-020D。/ Reflow is referred to standard IPC/JEDEC J-STD-020D.

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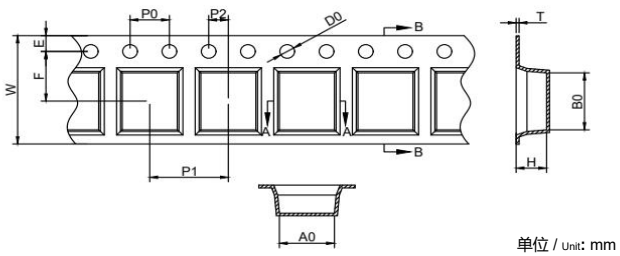
8. 包装规格 / Packaging Specifications

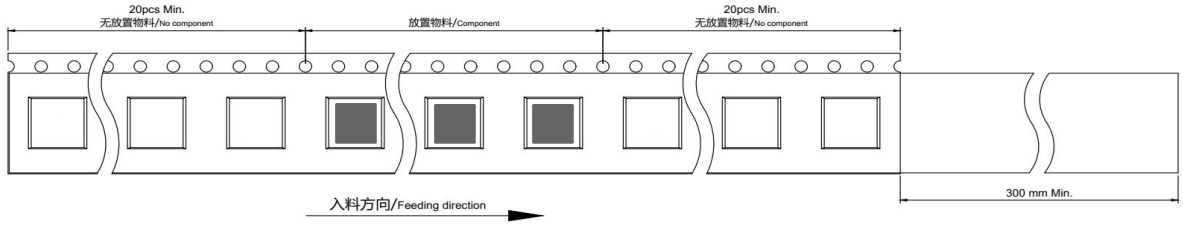
○ 载带尺寸 / Taping Dimensions



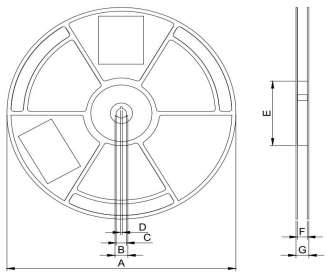
单位 / Unit: mm

W	E	F
12.00 ± 0.30	1.75 ± 0.10	5.50 ± 0.10
P0	P1	P2
4.00 ± 0.10	8.00 ± 0.10	2.00 ± 0.10
D0	D1	T
1.50 +0.10/-0	/	0.35 ± 0.05
H	A0	B0
3.20 ± 0.10	5.80 ± 0.10	5.60 ± 0.10

○ 包装方向 / Packaging direction



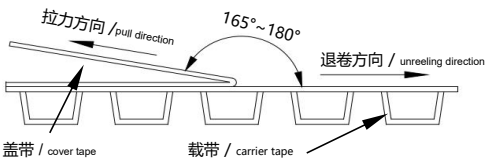
○ 卷盘尺寸 / Reel Dimensions



单位 / Unit: mm

A	330.0 ± 2.0
B	21.0 ± 0.8
C	13.0 ± 0.5
D	2.0 ± 0.5
E	100.0 Min
F	12.5 Min
G	20.0 Max

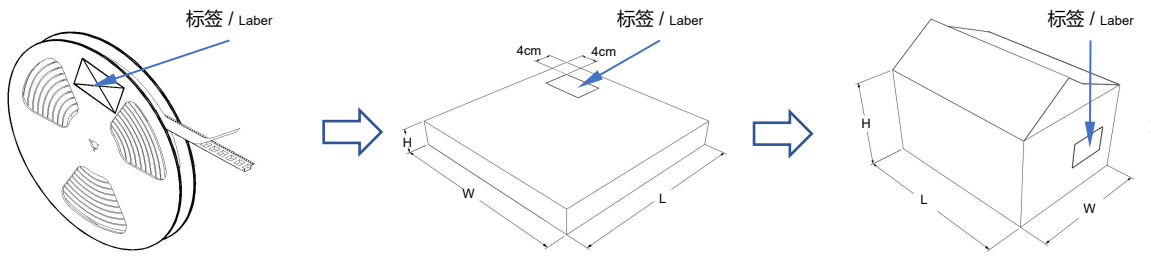
○ 盖带强度 / Cover tape strength



剥离强度 / Peel-off strength	10~130gf
剥离角度 / Peel-off angle	165°~180°
剥离速度 / Peel-off speed	300mm/min.

○ 纸箱尺寸和包装数量 / Carton dimensions and packaging quantity

卷盘 / Reel　　内箱 / Inner box　　外箱 / Outer box



包装数量 / Per reel quatity	内箱尺寸 / Inner box size	外箱尺寸 / Outer box size
1.5Kpcs	34.0*34.0*5.2 cm（3Kpcs）	35.4*35.4*17.6 cm（9Kpcs）

尺寸与实际配合有关，仅供参考

The dimensions are related to the actual fit，for reference only。

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9. 信赖性试验 / Reliability and Test Condition

<table>
<tr><th>试验项目/Test item</th><th>试验条件/Test condition</th><th>规格/Specification</th></tr>
<tr><td>耐热试验
Dry heat Test</td><td>· 温度：+125±2℃
Temperature:+125±2℃
· 放置时间：500±12Hr
Load time:500±12Hr
· 放置于常温常湿中，在24±4小时以内测定
Measurement shall be made within 24±4 h.</td><td>· L变化率：±10%以内(以初期L值为基准)
⊿L/L：within ± 10%(Change from an initial value)
· 试验后的外观无异常
No abnormal appearance after the test.</td></tr>
<tr><td>温度循环试验
Temperature cycle Test</td><td>· 1循环条件 / Condition of 1 cycle
<table>
<tr><th>步骤
Step</th><th>温度(℃)
Temp.</th><th>时间(min.)
Duration</th></tr>
<tr><td>1</td><td>-40±3</td><td>30±3</td></tr>
<tr><td>2</td><td>常温
Room temp.</td><td>2以下
Within 2</td></tr>
<tr><td>3</td><td>+125±2</td><td>30±3</td></tr>
<tr><td>4</td><td>常温
Room temp.</td><td>2以下
Within 2</td></tr>
</table>
· 放置循环数：100±12cycle
Load cycle：100±12cycle
· 放置于常温常湿中，在24±4小时以内测定
Measurement shall be made within 24±4 h.</td><td>· L变化率：±10%以内(以初期L值为基准)
⊿L/L：within ± 10%(Change from an initial value)
· 试验后的外观无异常
No abnormal appearance after the test.</td></tr>
<tr><td>耐湿试验
Humidity Test</td><td>· 温度：+60±2℃
Temperature:+60±2℃
· 湿度：90～95%RH
Humidity:90~95%RH
· 放置时间：500±12Hr
Load time:500±12Hr
· 放置于常温常湿中，在24±4小时以内测定
Measurement shall be made within 24±4 h.</td><td>· L变化率：±10%以内(以初期L值为基准)
⊿L/L：within ± 10%(Change from an initial value)
· 试验后的外观无异常
No abnormal appearance after the test.</td></tr>
<tr><td>高温负载试验
High Temperature Operating Test</td><td>· 温度：+85±2℃
Temperature:+85±2℃
· 额定电流：Isat和Itemp中的较小值。
Rated current: smaller value of either Isat or Itemp.
· 放置时间：500±12Hr
Load time:500±12Hr
· 放置于常温常湿中，在24±4小时以内测定
Measurement shall be made within 24±4 h.</td><td>· L变化率：±10%以内(以初期L值为基准)
⊿L/L：within ± 10%(Change from an initial value)
· 试验后的外观无异常
No abnormal appearance after the test.</td></tr>
<tr><td>耐冲击试验
Mechanical shock test</td><td>· 加速度：1962 m/s²
Peak acceleration:1962 m/s²
· 作用时间：6ms
Duration of pulse：6ms
· X,Y,Z方向各3次（总计9次）
3 times in each of 3(X,Y,Z) axes.</td><td>· L变化率：±10%以内(以初期L值为基准)
⊿L/L：within ± 10%(Change from an initial value)
· 试验后的外观无异常
No abnormal appearance after the test.</td></tr>
<tr><td>耐振动试验
Vibration test</td><td>· 扫描频率：10~55~10Hz/分
Sweep frequency：10～55Hz(10Hz to 55Hz to 10Hz in a period of one minute)
· 振幅：1.5mm
Amplitud：1.5mm
· X,Y,Z方向各2Hr（总计6Hr）
2Hr in each of 3(X, Y, Z) axes.</td><td>· L变化率：±10%以内(以初期L值为基准)
⊿L/L：within ± 10%(Change from an initial value)
· 试验后的外观无异常
No abnormal appearance after the test.</td></tr>
<tr><td>跌落试验
Drop test</td><td>· 将贴装有试验品的基板安装在质量为500g的治具上，从1m高处向相互垂直的3个方向自然落下在坚硬的木板上，各3次（共9次）。
The specimen must be fixed on PCB. It must be equipped with instruments of which weight is 500g. Then it shall be fallen freely from 100cm height to rigid wood 3 times in each of three axes.</td><td>· L变化率：±10%以内(以初期L值为基准)
⊿L/L：within ± 10%(Change from an initial value)
· 试验后的外观无异常
No abnormal appearance after the test.</td></tr>
</table>

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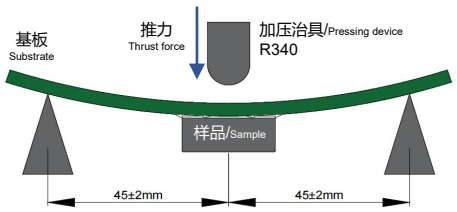
试验项目Test item	试验条件/Test condition	规格/Specification
耐焊接热试验 Resistance to Soldering Heat	· 回流焊方法 Reflow soldering method 预热 / Preheat：150～180℃ 90±30sec. 峰值温度 / Peak temperature.：250(±5)℃ （230℃min.,30±10sec.） · 基板厚度：1.6mm PCB thickness:1.6mm · 2次 / 2times · 常温常湿中放置一小时后测量 The specimen shall be stored at standard atmospheric conditions for 1 h in prior to the measurement.	· L变化率：±10％以内(以初期L值为基准) ⊿L/L：within ± 10%(Change from an initial value) · 试验后的外观无异常 No abnormal appearance after the test.
可焊性试验 Solderability	· 电极在室温下涂上焊剂后根据下述条件将试验样品整体浸于焊锡槽中。 Electrode shall be immersed in flux at room temperature and then shall be immersed in solder bath after preheat · 焊锡温度：245±5℃ Solder temperature:245±5℃ · 浸锡時間：5±0.5sec. Dip time:5±0.5sec.	· 电极面 90%以上覆盖新的焊料。 New solder shall cover 90% minimum of the surface immersed.
基板弯曲试验 Bending test	· 弯曲量:2mm / Bent depth:2mm · 加压速度:0.5mm/s / Speed:0.5mm/s · 基板尺寸:40×100mm / PCB size:40×100mm · 基板厚度:1.6mm / PCB thickness:1.6mm · 保持时间:30秒 / Test time:30sec. 	· L变化率：±10％以内(以初期L值为基准) ⊿L/L：within ± 10%(Change from an initial value) · 试验后的外观无异常 No abnormal appearance after the test.
附着力强度试验 Adhesion strength	· 施压时间：10±1秒 / Test time:10±1sec. · 推力:5N / Pressure:5N · 移除负载后进行测量 Measure after removing pressure. 	· L变化率：±10％以内(以初期L值为基准) ⊿L/L：within ± 10%(Change from an initial value) · 试验后的外观无异常 No abnormal appearance after the test.

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10. 注意事项 / Reminders

○ 请在交货规格书的规定内使用。/ Do not use for a purpose outside of the contents regulated in the delivery specifications.

○ 使用温度 / Using temperature

- 部件温度（周围温度＋温度上升）在最恶劣的操作条件下，不得超过125°C。
  The part temperature (ambient + temp rise) should not exceed 125℃ under worst case operating conditions.
- 电路设计、组件布局、PCB迹线尺寸/厚度、气流和其他冷却条件都会影响部件温度。
  Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature.
- 部件温度必须在最终应用中验证。/ Part temperature should be verified in the end application.

○ 额定电流 / Rated current

- 请勿超过额定电流使用。/ Do not exceed the rated current.

※ 超过额定电流使用时，可能导致绝缘电阻降低、过度发热。
If it is used exceeding the rated current, insulation resistance may decrease and excessive heat generation may occur.

※ 万一本公司产品发生异常或不良情况，请务必在成品上添加适当的故障安全功能以防止二次灾害。
In case of any abnormality or malfunction of our products, be sure to add the appropriate Fail safe function to the finished product to prevent secondary disasters.

○ 保管方法 / Storage method

- 保管期限：6个月以内
- 环境：温度5～40℃、湿度20～75%RH
  The storage period is less than 6 months. Be sure to follow the storage conditions (temperature: 5 to 40°C, humidity: 20 to 75% RH or less).

※ 超过保管期限时，端子电极的焊接性可能会劣化。/ If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
※ 请避免在日光直射和发生振动等地方保管。/ Avoid storage in places subject to direct sunlight, vibration, etc.
※ 请勿在受气体腐蚀影响的环境中（氯气、酸、碱、硫化气体等）使用、保管。
Do not use or store in an environment (chlorine gas, acid, alkali, sulfide gas, etc.) that is affected by gas corrosion.

○ 搬运 / Transport

- 请勿施加过度的振动、冲击。 / Please do not give excessive vibration and impact.

○ 电路板贴装 / Substrate installation

- 请勿在线圈下方设计通孔或图案。/ Do not design Through hole or Pattern under Coil.
- 请在避免线圈间互相接触的条件下进行布局设计。/ Please arrange so that Coil does not touch each other.
- 当将电路板集成到SET中时，由于螺丝紧固件等会造成电路板变形，请不要施加应力到线圈上。
  When incorporating the circuit board into the SET, be sure not to apply stress to the Coil due to distortion of the board due to Screw fastening part or the like.
- 请考虑线圈自身发热的热设计。
  Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.

○ 焊接修正方法 / Soldering correction method

- 预热：150℃ 1分。
  Pre Heat：150℃ 1min.
- 烙铁头温度：350℃以下。
  Soldering tip temperature: 350 ° C or less.
- 焊接修正作业时间：3秒以内。
  Correction work time: within 3 seconds.
- 烙铁功率：80W以下。
  Soldering tip power: 80 W or less.
- 烙铁头直径：Φ3mm以下。
  Soldering tip diameter: Φ 3 mm or less.

○ 请佩戴腕带消除体内静电（带电状态下请勿触摸线圈）。
Use a wrist band to discharge static electricity in your body through the grounding wire.

○ 请勿靠近磁铁或带磁铁的物体。
Do not expose the products to magnets or magnetic fields.

○ 请不要清洗本产品，如果需要清洗，请咨询本公司。
Please do not clean this product. If necessary, please consult with us.

○ 对于树脂涂层，请注意树脂的选择，并在贴装状态下进行可靠性评估。
For resin Coating, pay attention to resin selection and perform reliability evaluation in the mounted state.

○ 本目录所列产品以适用于一般民用电子设备（家电产品、通信设备、计算机设备等）为前提在正常操作和使用条件下使用。
The products listed on this catalog are intended for use in general electronic equipment (home appliances, telecommunications equipment, computer equipment) under a normal operation and use condition.

○ 对使用在安全性和可靠性要求非常高或者因设备故障、误操作可能对人体生命和社会造成巨大影响的应用场合(参照下列)不作保证。
The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society,person or property.

- 航空/宇宙设备
  Aerospace/aviation equipment
- 军事用设备
  Military equipment
- 情报处理设备（公共性高的）
  Public information-processing equipment
- 医疗设备
  Medical equipment
- 安全装置
  Safety equipment
- 公共运输设备（船舶等）
  Transportation equipment (cars, electric trains, ships, etc.)
- 发电控制设备
  Power-generation control equipment
- 海底作业用设备
  Seabed equipment
- 防灾/防犯機器
  Disaster prevention/crime prevention equipment
- 原子能相关设备
  Atomic energy-related equipment
- 交通机关控制设备
  Transportation control equipment
- 非通用用途的其它用途
  Other applications that are not considered general-purpose applications