

# 承认书

## SPECIFICATION FOR APPROVAL

客户名称：

Customer

品 名： 色码电感器

Part name Axial color code inductor

规 格： LGA 0307—XXX X X XX E

Product SPEC

版 本 号： V1.4

Version

日 期： 2014/04/01

Date

|                 |               |                |                    |               |                |
|-----------------|---------------|----------------|--------------------|---------------|----------------|
| 客户<br>Customer  |               |                | 制造<br>Manufacturer |               |                |
| 确认<br>Approval  |               |                | 确认<br>Approval     |               |                |
| 检验<br>Inspector | 审核<br>Checker | 批准<br>Approver | 拟制<br>Designer     | 审核<br>Checker | 批准<br>Approver |
|                 |               |                | 肖永斌                | 肖永斌           | 蒋飞             |

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1、订货代码 HOW TO ORDER

举例 For example

|     |      |   |     |   |   |    |   |
|-----|------|---|-----|---|---|----|---|
| LGA | 0307 | — | 101 | K | P | 52 | E |
| ↓   | ↓    | ↓ | ↓   | ↓ | ↓ | ↓  | ↓ |
| A   | B    | C | D   | E | F | G  |   |

A:

| 产 品 类 别※<br>Product type |                                      |
|--------------------------|--------------------------------------|
| LGA                      | 轴向色码电感器<br>Axial color code inductor |

B:

| 尺 寸<br>Dimensions (mm) |                     |                     |
|------------------------|---------------------|---------------------|
| 类型<br>Type             | 外径 D <sub>max</sub> | 体长 L <sub>max</sub> |
| 0307                   | 2.8                 | 7.0                 |

C:

| 标称电感量<br>Inductance (μH)   |
|--|
| 前两位数字为有效数字,后一位数字表示零的个数。<br>The first two digits are significant, and the third digit is number of zeros.<br>*例如 For example:<br>100=10 μH<br>101=100 μH<br>5R6=5.6 μH<br>R47=0.47 μH |

D:

| 感量偏差<br>Tolerance |       |
|-------------------|-------|
| J                 | ±5.0% |
| K                 | ±10%  |
| M                 | ±20%  |

E:

| 包 装 方 式<br>Packaging style |    |                              |
|----------------------------|----|------------------------------|
| 编带<br>Tape & reel          | P  | 盒带包装<br>Ammo                 |
|                            | T  | 卷带包装<br>Reel                 |
| 散包装<br>Bulk                | F  | 直脚轴向<br>Axial                |
|                            | L  | 直脚成型<br>Straight lead formed |
|                            | V  | 弯脚成型<br>Bent lead formed     |
|                            | VK | 弯脚 K 型<br>Bent lead K formed |

F:

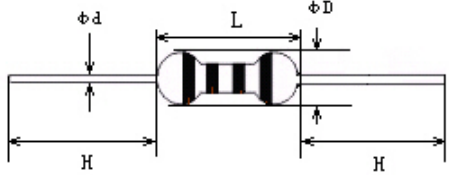
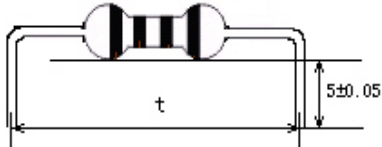
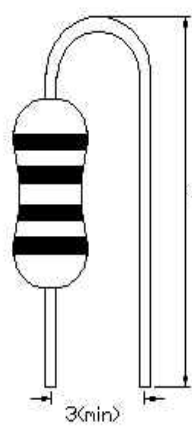
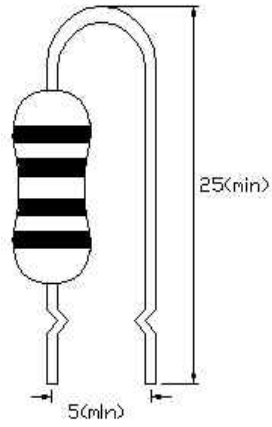
| 引 脚 形 式<br>Lead configuration |    |                                    |
|-------------------------------|----|------------------------------------|
| 编带<br>Tape & reel             | 26 | 编带内距: 26mm<br>Tape width:          |
|                               | 52 | 编带内距: 52mm<br>Tape width:          |
| 引脚成型<br>Formed lead           | 05 | 引脚脚距: 5.08mm<br>Formed lead pitch: |
|                               | 07 | 引脚脚距: 7.5mm<br>Formed lead pitch:  |
|                               | 10 | 引脚脚距: 10.0mm<br>Formed lead pitch: |
|                               | 12 | 引脚脚距: 12.5mm<br>Formed lead pitch: |
|                               | 15 | 引脚脚距: 15.0mm<br>Formed lead pitch: |
|                               | 17 | 引脚脚距: 17.5mm<br>Formed lead pitch: |
|                               | 20 | 引脚脚距: 20.0mm<br>Formed lead pitch: |

G:

| 备 注<br>Remark |                      |
|---------------|----------------------|
| E             | 无铅<br>Lead Free      |
| 空格<br>Blank   | 含铅<br>Lead Contained |

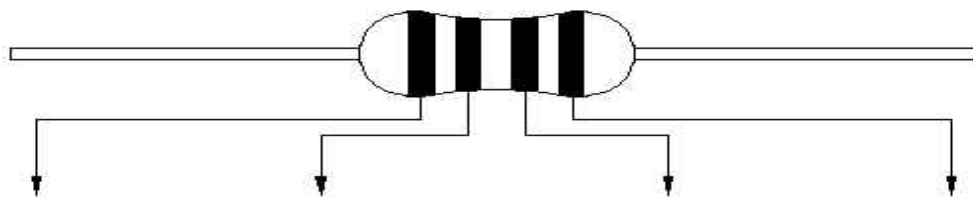
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2、外形尺寸 EXTERNAL DIMENSIONS

| 类型<br>Type | 尺寸<br>Body size (mm) |          |                   |                 |          |  <p>轴向 (Axial)</p>  |
|------------|----------------------|----------|-------------------|-----------------|----------|--|
|            | $\phi D \leq$        | $L \leq$ | $t = t_0 \pm 0.6$ | $\phi d$        | $H \geq$ |  |
| LGA0307    | 2.8                  | 7.0      | $t_0 = 10; 12.5$  | $0.50 \pm 0.05$ | 20       |  <p>直脚成型 (L type)</p>  <p>弯脚成型 (V type)</p>  <p>弯脚 K 型 (VK type)</p> |

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### 3、色码标记代号 MARKING



|             | 标称电感量<br>Nominal inductance ( $\mu$ H ) |                                    |                                    | 感量偏差<br>Tolerance                  |
|-------------|---|------------------------------------|------------------------------------|------------------------------------|
|             | 第一色环<br>1 <sup>st</sup> color zone      | 第二色环<br>2 <sup>nd</sup> color zone | 第三色环<br>3 <sup>rd</sup> color zone | 第四色环<br>4 <sup>th</sup> color zone |
|             | 第一数字<br>1 <sup>st</sup> digit           | 第二数字<br>2 <sup>nd</sup> digit      | 第三数字<br>3 <sup>rd</sup> digit      |                                    |
| 黑<br>Black  | 0                                       | 0                                  | $\times 10^0$ (1)                  | M: $\pm 20\%$                      |
| 棕<br>Brown  | 1                                       | 1                                  | $\times 10^1$ (10)                 |                                    |
| 红<br>Red    | 2                                       | 2                                  | $\times 10^2$ (100)                |                                    |
| 橙<br>Orange | 3                                       | 3                                  | $\times 10^3$ (1000)               |                                    |
| 黄<br>Yellow | 4                                       | 4                                  | $\times 10^4$ (10000)              |                                    |
| 绿<br>Green  | 5                                       | 5                                  | $\times 10^5$ (100000)             |                                    |
| 蓝<br>Blue   | 6                                       | 6                                  |                                    |                                    |
| 紫<br>Purple | 7                                       | 7                                  |                                    |                                    |
| 灰<br>Gray   | 8                                       | 8                                  |                                    |                                    |
| 白<br>White  | 9                                       | 9                                  |                                    |                                    |
| 金<br>Gold   | /                                       | /                                  | $\times 10^{-1}$ (0.1)             | J: $\pm 5\%$                       |
| 银<br>Silver | /                                       | /                                  | $\times 10^{-2}$ (0.01)            | K: $\pm 10\%$                      |

\*例如 e.g. :

标称电感量及偏差为 22 $\mu$ H,  $\pm 5\%$ 的电感器其色码为: 红+红+黑+金;

If nominal inductance & tolerance is 22 $\mu$ H,  $\pm 5\%$ , respectively red+red+black+gold should be marked;

标称电感量及偏差为 1.0 $\mu$ H,  $\pm 10\%$ 的电感器其色码为: 棕+黑+金+银;

If nominal inductance & tolerance is 1.0 $\mu$ H,  $\pm 10\%$ , respectively brown+black+gold+silver should be marked;

标称电感量及偏差为 0.22 $\mu$ H,  $\pm 20\%$ 的电感器其色码为: 红+红+银+黑。

If nominal inductance & tolerance is 0.22 $\mu$ H,  $\pm 20\%$ , respectively red+red+silver+black should be marked.

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4. 电性能参数及测试条件 ELECTRICAL CHARACTERISTICS & TEST CONDITIONS

LGA0307 型电感器电性能参数及测试条件

LGA0307 TYPE INDUCTORS ELECTRICAL CHARACTERISTICS & TEST CONDITIONS

| LGA0307<br>类型 Type          | 电感量<br>Inductance<br>( $\mu$ H) | 误差<br>Tolerance | Q<br>(min) | 直流电阻<br>RDC<br>( $\Omega$ ) max | 测试频率<br>Test frequency<br>(MHz) | 自谐频率<br>SRF<br>(MHz) min | 额定电流<br>Rated current<br>I <sub>bc</sub> (mA) max |
|-----------------------------|---------------------------------|-----------------|------------|---------------------------------|---------------------------------|--------------------------|---|
| LGA0307-R22                 | 0.22                            | M:<br>±20%      | 35         | 0.40                            | 25.2                            | 150                      | 400   |
| LGA0307-R27                 | 0.27                            |                 |            | 0.43                            |                                 |                          | 380   |
| LGA0307-R33                 | 0.33                            |                 |            | 0.48                            |                                 |                          | 370   |
| LGA0307-R39                 | 0.39                            |                 |            | 0.51                            |                                 |                          | 350   |
| LGA0307-R47                 | 0.47                            |                 |            | 0.56                            |                                 |                          | 330   |
| LGA0307-R56                 | 0.56                            |                 | 40         | 0.61                            |                                 |                          | 320   |
| LGA0307-R68                 | 0.68                            |                 |            | 0.67                            |                                 |                          | 310   |
| LGA0307-R82                 | 0.82                            |                 |            | 0.74                            |                                 |                          | 290   |
| LGA0307-1R0                 | 1.0                             |                 |            | 0.80                            |                                 |                          | 270   |
| LGA0307-1R2                 | 1.2                             |                 |            | K:<br>±10%                      |                                 |                          | 50  |
| LGA0307-1R5                 | 1.5                             | 1.0             | 131        |                                 | 250                             |                          |   |
| LGA0307-1R8                 | 1.8                             | 1.1             | 121        |                                 | 240                             |                          |   |
| LGA0307-2R2                 | 2.2                             | 1.2             | 110        |                                 | 230                             |                          |   |
| LGA0307-2R7                 | 2.7                             | 1.3             | 100        |                                 | 220                             |                          |   |
| LGA0307-3R3                 | 3.3                             | 1.4             | 94         |                                 | 210                             |                          |   |
| LGA0307-3R9                 | 3.9                             | 1.6             | 65         |                                 | 200                             |                          |   |
| LGA0307-4R7                 | 4.7                             | 1.7             | 56         |                                 | 190                             |                          |   |
| LGA0307-5R6                 | 5.6                             | 1.9             | 48         |                                 | 180                             |                          |   |
| LGA0307-6R8                 | 6.8                             | 2.0             | 37         |                                 | 175                             |                          |   |
| LGA0307-8R2                 | 8.2                             | 2.2             | 25         | 165                             |                                 |                          |   |
| LGA0307-100                 | 10                              | 2.5             | 21         | 160                             |                                 |                          |   |
| LGA0307-120                 | 12                              | J:<br>±5%       | 50         | 2.5                             | 2.52                            | 19                       | 150   |
| LGA0307-150                 | 15                              |                 |            | 2.8                             |                                 | 17                       | 145   |
| LGA0307-180                 | 18                              |                 |            | 3.1                             |                                 | 13                       | 140   |
| LGA0307-220                 | 22                              |                 |            | 3.4                             |                                 | 9.6                      | 130   |
| LGA0307-270                 | 27                              |                 |            | 3.8                             |                                 | 7.2                      | 125   |
| LGA0307-330                 | 33                              |                 |            | 4.1                             |                                 | 6.3                      | 120   |
| LGA0307-390                 | 39                              |                 |            | 4.5                             |                                 | 6.3                      | 115   |
| LGA0307-470                 | 47                              |                 |            | 4.9                             |                                 | 6.3                      | 110   |
| LGA0307-560                 | 56                              |                 |            | 5.3                             |                                 | 6.2                      | 105   |
| LGA0307-680                 | 68                              |                 |            | 5.8                             |                                 | 5.7                      | 100   |
| LGA0307-820                 | 82                              | 6.3             | 5.3        | 95                              |                                 |                          |   |
| LGA0307-101                 | 100                             | 7.0             | 4.8        | 90                              |                                 |                          |   |
| LGA0307-121                 | 120                             | 0.796           | 13.0       | 3.8                             | 90                              |                          |   |
| LGA0307-151                 | 150                             |                 | 15.0       | 3.5                             | 85                              |                          |   |
| LGA0307-181                 | 180                             |                 | 16.0       | 3.3                             | 80                              |                          |   |
| LGA0307-221                 | 220                             |                 | 17.0       | 3.0                             | 75                              |                          |   |
| LGA0307-271                 | 270                             |                 | 19.0       | 2.8                             | 65                              |                          |   |
| LGA0307-331                 | 330                             |                 | 20.0       | 2.6                             | 60                              |                          |   |
| LGA0307-391                 | 390                             |                 | 22.0       | 2.4                             | 55                              |                          |   |
| LGA0307-471                 | 470                             |                 | 24.0       | 2.25                            | 55                              |                          |   |
| LGA0307-561                 | 560                             |                 | 26.0       | 2.10                            | 50                              |                          |   |
| LGA0307-681                 | 680                             |                 | 28.0       | 1.95                            | 45                              |                          |   |
| LGA0307-821                 | 820                             | 30.0            | 1.85       | 40                              |                                 |                          |   |
| LGA0307-102                 | 1000                            | 33.0            | 1.40       | 40                              |                                 |                          |   |
| 测试仪器<br>Test equipment      | HP4285A (HP4286A, HP4287A)      |                 |            | HP4338B                         |                                 | HM9461                   | HP42841A  |
| 环境温度<br>Ambient temperature | 18~25℃                          |                 |            |                                 |                                 |                          |   |
| 环境湿度<br>Ambient humidity    | 45%~75%                         |                 |            |                                 |                                 |                          |   |

# 特殊要求的产品可以根据客户要求生产

The products can be customized according to customer requirement.

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5. 可靠性试验项目及要求: ITEM AND REQUIREMENT OF RELIABILITY TEST

| 项目<br>Item                                    | 性能要求<br>Specification  | 试验条件及方法<br>Test methods and remarks   |
|---|--|---|
| 1<br>工作温度范围<br>Operating temperature range    | -25~+85℃   |   |
| 2<br>储存温度范围<br>Storage temperature range      | -40~+85℃   |   |
| 3<br>外观和外形尺寸<br>Appearance & dimensions       | 符合产品规范和公差要求<br>Conformity to the product specification   | 目测, 精度不低于 0.02 mm 的游标卡尺测量<br>Eyeball; vernier calliper with precision no lower than 0.02mm  |
| 4<br>L 值、Q 值<br>Inductance、Q                  | 在规定的允许范围内<br>Within the specified tolerance  | 电感量和 Q 值在规定的测试频率下, 用 HP4285A 进行测试。<br>Condition: at specified test frequency.<br>Test equipment: HP4285A  |
| 5<br>直流电阻<br>DC resistance                    | 在规定的允许范围内<br>Within the specified tolerance  | 测试仪器: HP4338B<br>Test equipment: HP4338B  |
| 6<br>自谐振频率<br>Self-resonance frequency        | 在规定的允许范围内<br>Within the specified tolerance  | 测试仪器: 射频/阻抗材料分析仪 HP4291A<br>Test equipment: HP4291A   |
| 7<br>额定电流<br>Rated current                    | 在规定的允许范围内<br>Within the specified tolerance  | 电感值变化 10%、温升 20℃ 以内的最大直流电流。<br>The maximum DC value having inductance within 10% and temperature increase within 20℃ by the application of DC bias.   |
| 8<br>引出端强度<br>Terminal strength               | 外观无可见损伤、引线不断<br>There shall be no evidence of damage during the test and the lead no breakage. | 拉力: 沿轴向施加 2kgf, 持续时间: 5s<br>Pull: adding 2kgf down axial Duration: 5s<br>弯折循环: 在靠近端子末端将引线弯折 90 度后还原持续 5s, 再向反方向重复一次为一个循环。重复 2 次<br>Bucking cycle: buck lead 90° at the end of closing terminal and then reset keeping 5s, redoing one time at the counter is one cycle. Repeat two times. |
| 9<br>耐焊接热<br>Resistance to soldering heat     | $\Delta L/L \leq \pm 5\%$<br>$\Delta Q/Q \leq \pm 20\%$  | 焊锡温度: 270±5℃ 浸锡时间: 10±1s<br>恢复时间: 1~2 小时<br>Tin review: 270±5℃ Duration: 10±1s<br>Recovery: 1~2hours  |
| 10<br>可焊性<br>Solder ability                   | 引线的表面圆周覆盖率不小于 95%<br>Leads shall be at least 95% areas covered with a new solder coating.      | 焊锡温度: 250±5℃ 浸锡时间: 2±0.5s<br>Tin review: 250±5℃ Duration: 2±0.5s  |
| 11<br>标记耐溶剂性<br>Resistance to solvent         | 标志无可见损伤<br>There shall be no evidence of damage  | 溶剂温度: 25±5℃ Solvent temperature: 25±5℃<br>将棉球和样品浸在溶剂中 1min, 在样品有标志部位用棉球擦 3 次。<br>There shall be put the cotton ball and sample steep in dissolvent 1min, at sample's notation area brush 10 times, repeat 3 times   |
| 12<br>介质耐压<br>Dielectric Withstanding Voltage | 无弧光、击穿或损伤。<br>There shall be no arc, breakdown or damage.                                      | 在外封和引线间施加直流电压 500V, 持续 60 秒。<br>Apply 500VDC between outer coating and terminal for 60sec.  |
| 13<br>绝缘电阻<br>Insulation resistance           | $IR \geq 100M\Omega$   | 在外封和引线间施加直流电压 500V, 持续 60 秒。<br>Apply 500VDC between outer coating and terminal for 60sec.  |
| 14<br>温度特性<br>Temperature characteristic      | $\Delta L/L \leq \pm 5\%$<br>$\Delta Q/Q \leq \pm 20\%$  | 以 20℃ 电感量为基准, 在 -25℃—+85℃ 测量电感量<br>Measurement shall be made at an ambient temp of -25℃—+85℃ reference inductance shall be measured at 20℃.   |
| 15<br>高温试验<br>High temperature life test      | $\Delta L/L \leq \pm 10\%$<br>$\Delta Q/Q \leq \pm 30\%$                                       | 温度: 85±2℃, 试验时间: 96 小时<br>Test temperature: 85±2℃, Time: 96hours  |

备注: 1、如无特别指定时, 电性能测试应在常温、常湿中恢复 1~2 小时, 然后立即测试。

2、若测试结果有争议时, 仲裁试验结果用标准大气条件为: 温度: 25±1℃, 相对湿度 48%~52%, 气压: 86~106kPa。

Note: 1. In the event of no special requirement, the measurement shall be conducted immediately after a recovery of 1~2 hours under the standard condition.

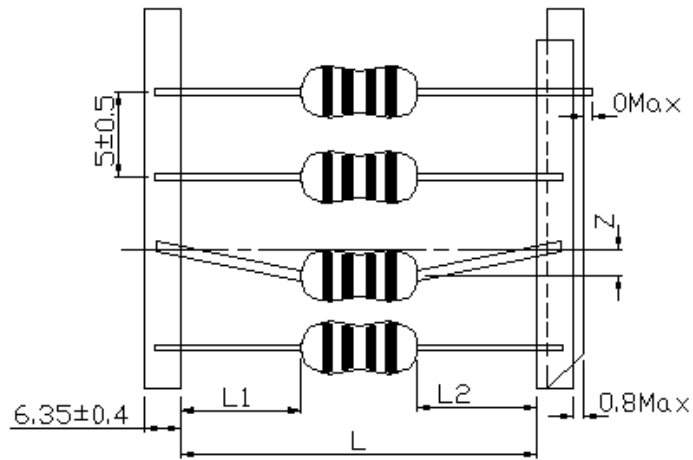
2. In the event of any dispute, the standard condition for arbitration shall be as follows: 25±1℃ of temperature, 48%~52% RH and 86~106kPa air pressure.

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## 6. 包装方式 PACKAGING STYLE

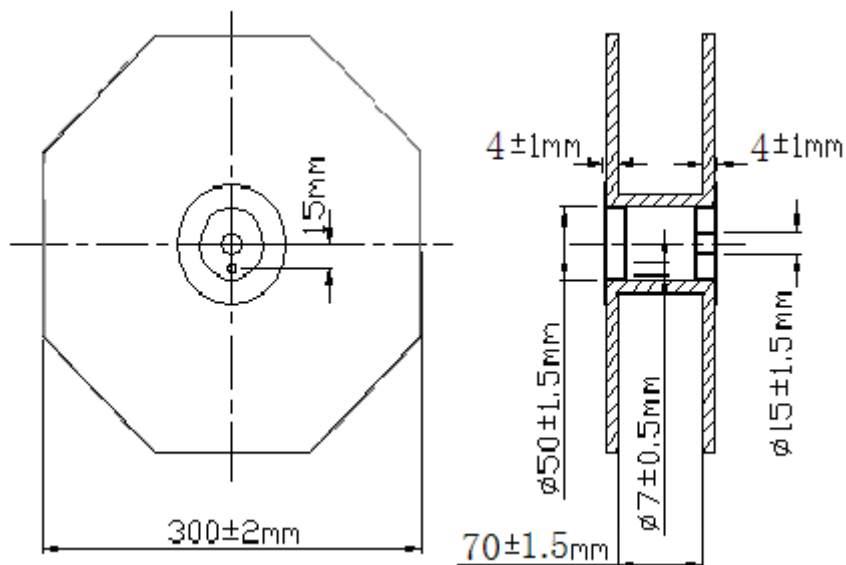
### ● 编带尺寸 Taping dimensions

单位 UNIT: mm



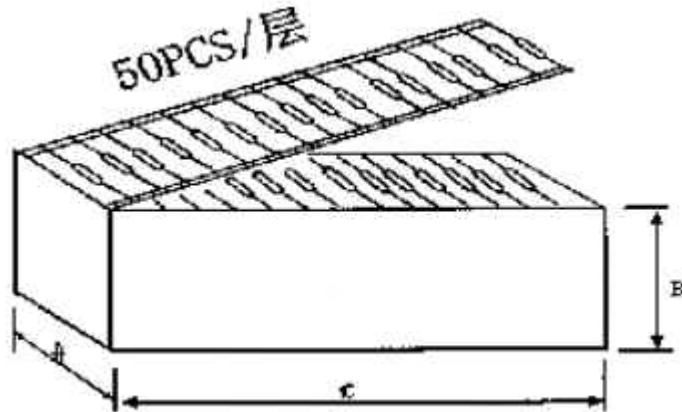
| 编带方式<br>Tape style    | L                                  | Z       | L1-L2   |
|-----------------------|------------------------------------|---------|---------|
| 编带内距:26<br>Tape width | 26±1.0                             | 0.8 Max | 1.0 Max |
| 编带内距:52<br>Tape width | 52 <sup>+2.0</sup> <sub>-1.0</sub> | 1.2 Max |         |

### ● 卷带包装尺寸 Tape & reel packaging dimensions



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● 盒带包装尺寸 Ammo packaging dimensions



● 包装盒尺寸 Dimensions of box

单位 UNIT: mm

| 编带类型<br>Tape type | 尺寸<br>Dimensions (±5mm) |     |     |
|-------------------|-------------------------|-----|-----|
|                   | A                       | B   | C   |
| 52                | 75                      | 60  | 256 |
| 26                | 50                      | 110 | 256 |

● 包装数量 Packaging quantity

| 包装方式<br>Packaging style | 盒带包装<br>Ammo | 卷带包装<br>Tape & reel | 散包装<br>Bulk |
|-------------------------|--------------|---------------------|-------------|
| 包装数量<br>Quantity        | 2000         | 4000                | 1000        |

# 可根据用户需求包装

Packaging according to customer's requirement

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