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## ■中高压多层片式陶瓷电容器

### High Voltage Multi-layer Ceramic Capacitors



#### ◆特征 Feature

- \* 中高压多层片状陶瓷电容器是在多层片状陶瓷电容器的工艺技术、设备基础上，通过采用特殊设计制作出来的一种具有良好高压可靠性的产品，该产品适合于表面贴装，适合于多种直流高压线路，可以有效的改善电子线路的性能。  
High voltage MLCC is a kind of special design MLCC that bases on the technology of general MLCC. This kind of MLCC has stable high voltage reliability and suitable to SMT. High voltage MLCC is widely applicable for many direct high voltage circuits in which it can improve the performance of the circuit.
- \* 叠层独石结构，具有高可靠性能  
There is high reliability on monolithic structure of laminated layers.
- \* 具有优良的焊接与耐焊性能，适用于回流焊接与波峰焊接  
And its character of excellent soldering ability and soldering resistance ability is suitable for reflow soldering and peak soldering.
- \* 具有较高的容量且容量性能稳定  
It includes high and stable capacitance
- \* 执行标准：GB/T 21041-2007 GB/T 21042-2007  
Executive Standard: GB/T 21041-2007 GB/T 21042-2007

#### ◆应用范围

##### Application

- \* 模拟或数字调制解调器  
Analog & Digital Modems
- \* 局域网/广域网接口界面  
LAN/WAN Interface
- \* 日光灯启动辉器照明电路  
Lighting Ballast Circuits
- \* 倍压电器  
Voltage Multipliers
- \* 直流变送器  
DC-DC Converters
- \* 背光源驱动电路  
Back-lighting Inverters

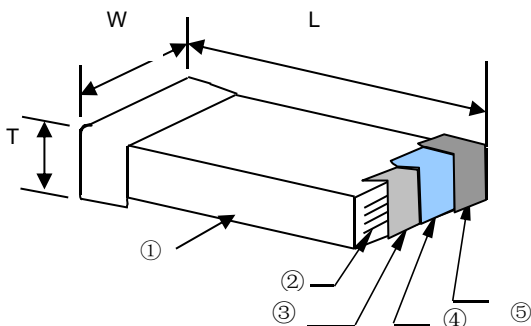
◆型号表示法

How To Order

|                         |                    |                    |                                             |                     |                                                                                                                                            |                                            |
|-------------------------|--------------------|--------------------|---------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| 0805                    | CG                 | 102                | K                                           | 500                 | N                                                                                                                                          | T                                          |
| 尺寸规格<br>Size Code       |                    |                    | 标称容量<br>Nominal Capacitance<br>单位(unit): pF |                     | 额定电压<br>Rated Voltage<br>单位(unit): V                                                                                                       |                                            |
| 尺寸规格<br>Size Code       | EIA                | 长×宽<br>(L×W)<br>mm | 表示方式<br>Express Method                      | 实际值<br>Actual Value | 表示方式<br>Express Method                                                                                                                     | 实际值<br>Actual Value                        |
| 0402                    | 0402               | 1.00×0.50          | 0R5                                         | 0.5                 | 6R3                                                                                                                                        | 6.3                                        |
| 0603                    | 0603               | 1.60×0.80          |                                             |                     | 500                                                                                                                                        | 50×10 <sup>0</sup>                         |
| 0805                    | 0805               | 2.00×1.25          | 1R0                                         | 1.0                 | 201                                                                                                                                        | 20×10 <sup>1</sup>                         |
| 1206                    | 1206               | 3.20×1.60          | 102                                         | 10×10 <sup>2</sup>  | 注：头两位数字为有效数字，第三位数字为 0 的个数；R 为小数点。<br>Note: the first two digits are significant; third digit denotes number of zeros; R=decimal point.     |                                            |
| 1210                    | 1210               | 3.20×2.50          |                                             |                     |                                                                                                                                            |                                            |
| 1808                    | 1808               | 4.60×2.00          |                                             |                     |                                                                                                                                            |                                            |
| 1812                    | 1812               | 4.60×3.20          |                                             |                     |                                                                                                                                            |                                            |
| 2211                    | 2211               | 5.70×2.80          |                                             |                     |                                                                                                                                            |                                            |
| 2220                    | 2220               | 5.70×5.00          |                                             |                     |                                                                                                                                            |                                            |
| 2225                    | 2225               | 5.70×6.30          |                                             |                     |                                                                                                                                            |                                            |
|                         |                    |                    |                                             |                     |                                                                                                                                            |                                            |
| 介质种类<br>Dielectric Code |                    |                    | 容量误差<br>Capacitance Tolerance               |                     |                                                                                                                                            | 包装方式<br>Package Styles                     |
| 介质种类<br>Dielectric Code | 介质材料<br>Dielectric |                    | 代码<br>Code                                  | 误差<br>Tolerance     | 备注<br>Note                                                                                                                                 | 表示方式<br>Express Method                     |
| B                       | X7R                |                    | A                                           | ±0.05pF             | A、B、C、D 级误差适用于容量≤10pF 的产品。<br>These Capacitance tolerance A, B, C, D are just applicable the capacitance that equals to or less than 10pF. | T                                          |
| CG                      | C0G                |                    | B                                           | ±0.10pF             |                                                                                                                                            |                                            |
|                         |                    |                    | C                                           | ±0.25pF             |                                                                                                                                            |                                            |
|                         |                    |                    | D                                           | ±0.50pF             |                                                                                                                                            |                                            |
|                         |                    |                    | F                                           | ±1%                 |                                                                                                                                            |                                            |
|                         |                    |                    | G                                           | ±2%                 |                                                                                                                                            |                                            |
|                         |                    |                    | J                                           | ±5%                 |                                                                                                                                            |                                            |
|                         |                    |                    | K                                           | ±10%                |                                                                                                                                            |                                            |
|                         |                    |                    | M                                           | ±20%                |                                                                                                                                            |                                            |
|                         |                    |                    | A                                           | ±0.05pF             |                                                                                                                                            |                                            |
|                         |                    |                    |                                             |                     |                                                                                                                                            | 编带 7 寸盘包装<br>Braided 7 inch disc packing   |
|                         |                    |                    |                                             |                     |                                                                                                                                            | D                                          |
|                         |                    |                    |                                             |                     |                                                                                                                                            |                                            |
|                         |                    |                    |                                             |                     |                                                                                                                                            | 编带 13 寸盘包装<br>Braided 13 inch disc packing |
|                         |                    |                    |                                             |                     |                                                                                                                                            |                                            |
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◆产品结构

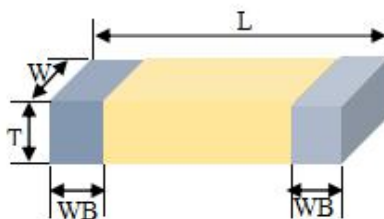
Product Structure



| 序号<br>NO | 名称<br>Name                 |
|----------|----------------------------|
| ①        | 陶瓷介质<br>Ceramic dielectric |
| ②        | 内电极<br>Inner electrode     |
| ③        | 外电极<br>Substrate electrode |
| ④        | 镍层<br>Nickel Layer         |
| ⑤        | 锡层<br>Tin Layer            |

## ◆ 产品尺寸

### Product Dimensions



| 型号 Type         |                | 尺寸 Dimensions (mm) |           |           |           | 尺寸代码<br>Size code |
|-----------------|----------------|--------------------|-----------|-----------|-----------|-------------------|
| 英制表示<br>British | 公制表示<br>Metric | L                  | W         | T         | WB        |                   |
| 0402            | 1005           | 1.00±0.05          | 0.50±0.05 | 0.50±0.05 | 0.25±0.05 | CA                |
| 0603            | 1608           | 1.60±0.10          | 0.80±0.10 | 0.80±0.10 | 0.35±0.20 | DA                |
| 0805            | 2012           | 2.00±0.20          | 1.25±0.25 | 0.80±0.20 | 0.50±0.20 | EA                |
|                 |                | 2.00±0.20          | 1.25±0.25 | 1.25±0.25 | 0.50±0.20 | EB                |
| 1206            | 3216           | 3.20±0.30          | 1.60±0.30 | 0.80±0.20 | 0.60±0.30 | FA                |
|                 |                |                    |           | 1.25±0.25 |           | FB                |
|                 |                |                    |           | 1.60±0.30 |           | FC                |
| 1210            | 3225           | 3.20±0.30          | 2.50±0.30 | 1.25±0.25 | 0.60±0.30 | GA                |
|                 |                |                    |           | 1.60±0.30 |           | GB                |
|                 |                |                    |           | 2.00±0.30 |           | GC                |
|                 |                |                    |           | 2.50±0.30 |           | GD                |
| 1808            | 4620           | 4.60±0.40          | 2.00±0.30 | 1.60±0.30 | 0.60±0.30 | HA                |
|                 |                |                    |           | 2.0±0.30  |           | HB                |
| 1812            | 4632           | 4.60±0.40          | 3.20±0.30 | 1.25±0.25 | 0.60±0.30 | IA                |
|                 |                |                    |           | 1.60±0.30 |           | IB                |
|                 |                |                    |           | 2.00±0.30 |           | IC                |
|                 |                |                    |           | 2.50±0.30 |           | ID                |
| 1825            | 4663           | 4.60±0.40          | 6.30±0.50 | 1.60±0.30 | 0.60±0.30 | JA                |
|                 |                |                    |           | 2.00±0.30 |           | JB                |
|                 |                |                    |           | 2.50±0.30 |           | JC                |
| 2211            | 5728           | 5.70±0.40          | 2.80±0.40 | 1.60±0.30 | 0.60±0.30 | KA                |
|                 |                |                    |           | 2.00±0.30 |           | KB                |
| 2220            | 5750           | 5.70±0.40          | 5.00±0.40 | 1.60±0.30 | 0.60±0.30 | LA                |
|                 |                |                    |           | 2.00±0.30 |           | LB                |
|                 |                |                    |           | 2.50±0.30 |           | LC                |
| 2225            | 5763           | 5.70±0.50          | 6.30±0.50 | 1.60±0.30 | 0.60±0.30 | MA                |
|                 |                |                    |           | 2.00±0.30 |           | MB                |
|                 |                |                    |           | 2.50±0.30 |           | MC                |

备注：1、产品具体厚度“T”查阅本承认书中“容量范围及其电压”。2、可根据客户的特殊要求设计符合客户需求的产品。

Note: 1、The specific thickness of the product can read "capacity range and voltage" in this approval sheet.

2、We can design according to customer special requirements

## ◆ 温度系数/特性 Temperature Coefficient /Characteristics

| 介质种类<br>Dielectric | 参考温度点<br>Reference Temperature Point | 标称温度系数<br>Temperature Coefficient | 工作温度范围<br>Operation Temperature Range |
|--------------------|--------------------------------------|-----------------------------------|---------------------------------------|
| C0G                | 25°C                                 | 0±30ppm/°C                        | -55°C~125°C                           |
| X7R                | 25°C                                 | ±15%                              | -55°C~125°C                           |

## ◆ 容量范围及电压

### Capacitance Range and Voltage

\*I 类电容器具体电压对应容量及厚度情况列表

\* List of specific voltage corresponding to capacity and thickness of Class I capacitors

| 材料<br>Dielectric              | C0G                   |                       |      |      |                       |      |      |      |     |
|-------------------------------|-----------------------|-----------------------|------|------|-----------------------|------|------|------|-----|
| 尺寸<br>Dimension               | 0402<br>(1.0mm*0.5mm) | 0603<br>(1.6mm*0.8mm) |      |      | 0805<br>(2.0mm*1.2mm) |      |      |      |     |
| 容量/电压<br>Capacity/<br>Voltage | 100V                  | 100V                  | 200V | 250V | 100V                  | 200V | 250V | 500V | 1KV |
| 0.5pF                         |                       |                       |      |      |                       |      |      |      |     |
| 1pF                           |                       | DA                    |      |      |                       |      |      |      |     |
| 1.2pF                         |                       | DA                    |      |      |                       |      |      |      |     |
| 1.5pF                         |                       | DA                    |      |      |                       |      |      |      |     |
| 1.8pF                         |                       | DA                    |      |      | EA                    |      |      |      |     |
| 2.0pF                         |                       | DA                    |      |      | EA                    |      |      |      |     |
| 2.2pF                         | CA                    | DA                    |      |      | EA                    |      |      |      |     |
| 2.7pF                         | CA                    | DA                    |      | DA   | EA                    |      |      |      |     |
| 3.0pF                         | CA                    | DA                    |      | DA   | EA                    |      |      |      |     |
| 3.3pF                         | CA                    | DA                    |      | DA   | EA                    |      |      |      |     |
| 3.6pF                         | CA                    | DA                    |      | DA   | EA                    |      |      |      |     |
| 3.9pF                         | CA                    | DA                    |      | DA   | EA                    |      |      |      |     |
| 4.7pF                         | CA                    | DA                    |      | DA   | EA                    |      |      | EA   |     |
| 5.0pF                         | CA                    | DA                    |      | DA   | EA                    |      |      | EA   |     |
| 5.6pF                         | CA                    | DA                    |      | DA   | EA                    |      |      | EA   |     |
| 6.8pF                         | CA                    | DA                    |      | DA   | EA                    |      |      | EA   | EA  |
| 8.0pF                         | CA                    | DA                    |      | DA   | EA                    |      |      | EA   | EA  |
| 8.2pF                         | CA                    | DA                    |      | DA   | EA                    |      |      | EA   | EA  |
| 10pF                          | CA                    | DA                    |      | DA   | EA                    |      |      | EA   | EB  |
| 12pF                          | CA                    | DA                    |      | DA   | EA                    |      | EA   | EA   | EB  |
| 15pF                          | CA                    | DA                    |      | DA   | EA                    |      | EA   | EA   | EB  |
| 18pF                          | CA                    | DA                    |      | DA   | EA                    |      | EA   | EA   | EB  |
| 22pF                          | CA                    | DA                    |      | DA   | EA                    |      | EA   | EA   | EB  |
| 27pF                          | CA                    | DA                    |      | DA   | EA                    |      | EA   | EA   | EB  |
| 33pF                          | CA                    | DA                    |      | DA   | EA                    |      | EA   | EA   | EB  |
| 39pF                          | CA                    | DA                    |      | DA   | EA                    |      | EA   | EA   | EB  |
| 47pF                          | CA                    | DA                    |      | DA   | EA                    | EA   | EA   | EA   | EB  |
| 56pF                          | CA                    | DA                    | DA   | DA   | EA                    | EA   | EA   | EA   | EB  |
| 68pF                          | CA                    | DA                    | DA   | DA   | EA                    | EA   | EA   | EA   | EB  |
| 100pF                         | CA                    | DA                    | DA   | DA   | EA                    | EA   | EA   | EA   | EB  |
| 120pF                         | CA                    | DA                    | DA   | DA   | EA                    | EA   | EA   | EA   | EB  |
| 150pF                         | CA                    | DA                    | DA   | DA   | EA                    | EA   | EA   | EA   | EB  |
| 180pF                         | CA                    | DA                    | DA   | DA   | EA                    | EA   | EA   | EB   | EB  |
| 220pF                         | CA                    | DA                    | DA   | DA   | EA                    | EA   | EA   | EB   | EB  |
| 270pF                         | CA                    | DA                    | DA   | DA   | EA                    | EA   | EA   | EB   |     |
| 300pF                         | CA                    | DA                    | DA   | DA   | EA                    | EA   | EA   | EB   |     |
| 330pF                         |                       | DA                    | DA   | DA   | EA                    | EA   | EA   | EB   |     |
| 390pF                         |                       | DA                    | DA   |      | EA                    | EA   | EA   | EB   |     |
| 470pF                         |                       | DA                    | DA   |      | EA                    | EA   | EA   | EB   |     |
| 560pF                         |                       | DA                    |      |      | EA                    | EA   | EA   | EB   |     |
| 680pF                         |                       | DA                    |      |      | EA                    | EA   | EA   | EB   |     |
| 820pF                         |                       | DA                    |      |      | EA                    | EA   | EA   | EB   |     |
| 1nF                           |                       | DA                    |      |      | EA                    | EA   | EA   | EB   |     |
| 1.5nF                         |                       |                       |      |      | EA                    | EB   | EB   |      |     |
| 1.8nF                         |                       |                       |      |      | EA                    | EB   | EB   |      |     |
| 2.2nF                         |                       |                       |      |      | EA                    | EB   | EB   |      |     |
| 2.7nF                         |                       |                       |      |      | EA                    | EB   | EB   |      |     |
| 3.3nF                         |                       |                       |      |      | EA                    | EB   | EB   |      |     |
| 4.7nF                         |                       |                       |      |      | EA                    | EB   | EB   |      |     |
| 10nF                          |                       |                       |      |      |                       |      |      |      |     |

| 代码 Code | CA        | DA        | EA        | EB        |
|---------|-----------|-----------|-----------|-----------|
| T       | 0.50±0.05 | 0.80±0.10 | 0.80±0.20 | 1.25±0.25 |

| 材料<br>Dielectric              | C0G                   |      |      |        |        |         |     |         |
|-------------------------------|-----------------------|------|------|--------|--------|---------|-----|---------|
| 尺寸<br>Dimension               | 1206<br>(3.2mm*1.6mm) |      |      |        |        |         |     |         |
| 容量/电压<br>Capacity/<br>Voltage | 100V                  | 200V | 250V | 500V   | 630V   | 1KV     | 2KV | 3KV     |
| 0.5pF                         |                       |      |      | FB     |        | FB      |     |         |
| 1pF                           |                       |      |      | FA     |        | FB      |     |         |
| 1.2pF                         |                       |      |      | FA     |        | FB      |     |         |
| 1.5pF                         |                       |      |      | FA     |        | FB      |     |         |
| 1.8pF                         |                       |      |      | FA     |        | FA      |     |         |
| 2.0pF                         |                       |      |      | FA     |        | FB      | FB  |         |
| 2.2pF                         |                       |      |      | FA     |        | FB      | FB  |         |
| 2.7pF                         |                       |      |      | FA     |        | FB      | FB  |         |
| 3.0pF                         |                       |      | FA   | FA     |        | FB      | FB  |         |
| 3.3pF                         |                       |      | FA   | FA/FB* |        | FB      | FB  |         |
| 3.6pF                         |                       |      | FA   | FA     |        | FB      | FB  |         |
| 3.9pF                         |                       |      | FA   | FA     |        | FB      | FB  |         |
| 4.7pF                         |                       |      | FA   | FA     |        | FB      | FB  |         |
| 5.0pF                         |                       |      | FA   | FA     |        | FB      | FB  |         |
| 5.6pF                         |                       |      | FA   | FA     |        | FB      | FB  |         |
| 6.8pF                         |                       |      | FA   | FB     |        | FB      | FB  |         |
| 8.0pF                         |                       |      | FA   | FB     |        | FB      | FB  |         |
| 8.2pF                         |                       |      | FA   | FB     |        | FB      | FB  |         |
| 10pF                          |                       |      | FA   | FA     |        | FB      | FB  |         |
| 12pF                          |                       |      | FA   | FA/FB* |        | FB      | FB  |         |
| 15pF                          |                       |      | FA   | FB     |        | FB      | FB  |         |
| 18pF                          |                       |      | FA   | FB     |        | FB      | FB  |         |
| 22pF                          | FA                    | FA   | FA   | FB     |        | FA*/FB  | FB  |         |
| 27pF                          | FA                    | FA   | FA   | FB     |        | FB      | FB  |         |
| 33pF                          | FA                    | FA   | FA   | FB     |        | FB      | FB  | FB/ FC* |
| 39pF                          | FA                    | FA   | FA   | FA     |        | FB      | FB  |         |
| 47pF                          | FA                    | FA   | FA   | FA/FB* |        | FB      | FB  | FB/ FC* |
| 56pF                          | FA                    | FA   | FA   | FB     |        | FB      | FB  |         |
| 68pF                          | FA                    | FA   | FA   | FB     | FB     | FB      | FC  |         |
| 100pF                         | FA                    | FA   | FA   | FB     | FB     | FB      | FC  |         |
| 120pF                         | FA                    | FA   | FA   | FA     | FA     | FB      | FC  |         |
| 150pF                         | FA                    | FA   | FA   | FA/FB* | FB     | FB      | FC  |         |
| 180pF                         | FA                    | FA   | FA   | FA/FB* | FB     | FB      | FC  |         |
| 220pF                         | FA                    | FA   | FA   | FA/FB* | FB     | FB      | FC  |         |
| 270pF                         | FA                    | FA   | FA   | FB     | FB     | FB      | FC  |         |
| 330pF                         | FA                    | FA   | FA   | FB     | FB     | FB/ FC* | FC  |         |
| 390pF                         | FA                    | FA   | FA   | FB     | FB     | FB/ FC* | FC  |         |
| 470pF                         | FA                    | FA   | FA   | FB     | FB     | FB      |     |         |
| 560pF                         | FA                    | FA   | FA   | FB     | FB     | FC      |     |         |
| 680pF                         | FA                    | FA   | FA   | FB/FC* | FB     | FC      |     |         |
| 820pF                         | FA                    | FA   | FA   | FC     | FB     | FC      |     |         |
| 1nF                           | FA                    | FB   | FB   | FC     | FC     | FC      |     |         |
| 1.5nF                         | FA                    | FB   | FB   | FC     | FC     |         |     |         |
| 1.8nF                         | FA                    | FB   | FB   | FB/FC* | FB/FC* |         |     |         |
| 2.2nF                         | FA                    | FB   | FB   | FB/FC* | FB/FC* |         |     |         |
| 2.7nF                         | FA                    | FB   | FB   | FB/FC* | FB/FC* |         |     |         |
| 3.3nF                         | FA                    | FB   | FB   | FB/FC* | FB/FC* |         |     |         |
| 4.7nF                         |                       | FB   | FB   | FB/FC* | FB/FC* |         |     |         |
| 5.6nF                         |                       | FB   | FB   | FB/FC* | FB/FC* |         |     |         |
| 6.8nF                         |                       |      |      | FC     | FC     |         |     |         |
| 10nF                          |                       |      |      | FC     | FC     |         |     |         |

| 代码 Code | FA        | FB        | FC        | 备注 Note                                 |
|---------|-----------|-----------|-----------|-----------------------------------------|
| T       | 0.80±0.20 | 1.25±0.25 | 1.60±0.30 | 加“*”为特殊品<br>Add “*” as special product. |

| 材料<br>Dielectric              | C0G                   |               |        |      |        |        |                       |     |        |        |        |
|-------------------------------|-----------------------|---------------|--------|------|--------|--------|-----------------------|-----|--------|--------|--------|
| 尺寸<br>Dimension               | 1210<br>(3.2mm*2.5mm) |               |        |      |        |        | 1808<br>(4.6mm*2.0mm) |     |        |        |        |
| 容量/电压<br>Capacity/<br>Voltage | 100V                  | 200V<br>/250V | 500V   | 630V | 1KV    | 2KV    | 500V                  | 1KV | 2KV    | 3KV    | 5KV    |
| 2.0pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     |        |
| 2.2pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     |        |
| 2.7pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     |        |
| 3.0pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     | HA     |
| 3.3pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     | HA     |
| 3.6pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     | HA     |
| 3.9pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     | HA     |
| 4.7pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     | HA     |
| 5.0pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     | HA     |
| 5.6pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     | HA     |
| 6.8pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     | HA     |
| 8.0pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     | HA     |
| 8.2pF                         |                       |               |        |      |        |        | HA                    |     |        | HA     | HA     |
| 10pF                          |                       | GA            | GA     |      |        | GA     | HA                    |     |        | HA     | HA     |
| 12pF                          |                       | GA            | GA     |      |        | GA     | HA                    |     |        | HA     | HA     |
| 15pF                          |                       | GA            | GA     |      |        | GA     | HA                    |     |        | HA     | HA     |
| 18pF                          |                       | GA            | GA     |      |        | GA     | HA                    |     |        | HA     | HA     |
| 22pF                          |                       | GA            | GA     |      |        | GA     | HA                    |     |        | HA     | HA     |
| 27pF                          |                       | GA            | GA     |      |        | GA     | HA                    |     |        | HA     | HA     |
| 33pF                          |                       | GA            | GA     |      |        | GA     | HA                    | HA  |        | HA     | HA     |
| 39pF                          |                       | GA            | GA     |      |        | GA     | HA                    | HA  |        | HA     | HA     |
| 47pF                          |                       | GA            | GA     |      |        | GA*/GB | HA                    | HA  |        | HA     | HA     |
| 56pF                          |                       | GA            | GA     |      |        | GA*/GB | HA                    | HA  |        | HA     | HA     |
| 68pF                          |                       | GA            | GA     |      | GA     | GA*/GB | HA                    | HA  |        | HA     | HA     |
| 82pF                          |                       | GA            | GA     |      | GA     | GA*/GB | HA                    | HA  |        | HA     | HA*/HB |
| 100pF                         | GA                    | GA            | GA     | GA   | GA*/GB | GB     | HA                    | HA  | HA     | HA     | HB     |
| 120pF                         | GA                    | GA            | GA     | GA   | GB     | GB     | HA                    | HA  | HA     | HA     |        |
| 150pF                         | GA                    | GA            | GA     | GA   | GB     | GB     | HA                    | HA  | HA     | HA     |        |
| 180pF                         | GA                    | GA            | GA     | GA   | GB     | GB     | HA                    | HA  | HA     | HA     |        |
| 220pF                         | GA                    | GA            | GA     | GA   | GC     | GB     | HA                    | HA  | HA     | HA     |        |
| 270pF                         | GA                    | GA            | GA     | GA   | GC     | GB     | HA                    | HA  | HA     | HA     |        |
| 300pF                         | GA                    | GA            | GA     | GA   | GC     | GB     | HA                    | HA  | HA     | HA/HB* |        |
| 330pF                         | GA                    | GA            | GA     | GA   | GC     | GB*/GC | HA                    | HA  | HA     | HA     |        |
| 390pF                         | GA                    | GA            | GA     |      | GC     |        | HA                    | HA  | HA     |        |        |
| 470pF                         | GA                    | GA            | GA     |      | GB*/GC |        | HA                    | HA  | HA*/HB |        |        |
| 560pF                         | GA                    | GA            | GA     |      | GB     |        | HA                    | HA  | HA*/HB |        |        |
| 680pF                         | GA                    | GA            | GA     |      | GB     |        | HA                    | HA  | HA*/HB |        |        |
| 820pF                         | GA                    | GA            | GA     |      | GB*/GC |        | HA                    | HA  | HA*/HB |        |        |
| 1nF                           | GA                    | GA            | GB     |      | GB*/GC |        | HA                    | HA  | HB     |        |        |
| 1.5nF                         | GA                    | GA            | GA*/GB |      | GB*/GC |        | HA                    |     |        |        |        |
| 1.8nF                         | GA                    | GA            | GB     |      | GC     |        | HA                    |     |        |        |        |
| 2.2nF                         | GA                    | GA            | GB     |      | GC     |        | HA                    | HB  |        |        |        |
| 2.7nF                         | GA                    | GA            | GA/GC* |      |        |        | HA                    |     |        |        |        |
| 3.3nF                         | GA                    | GA            | GB     | GB   | GC     |        | HA                    |     |        |        |        |
| 4.7nF                         | GA                    | GA            | GB     | GB   | GC     |        | HA                    |     |        |        |        |
| 5.6nF                         | GA                    | GA            | GB     | GB   | GC     |        |                       |     |        |        |        |
| 6.8nF                         | GA                    |               |        | GC   | GC     |        |                       |     |        |        |        |
| 8.2nF                         |                       |               |        | GC   | GC     |        |                       |     |        |        |        |
| 10nF                          |                       |               |        | GD   | GD     |        |                       |     |        |        |        |
| 15nF                          |                       |               |        | GD   | GD     |        |                       |     |        |        |        |
| 18nF                          |                       |               |        | GD   | GD     |        |                       |     |        |        |        |
| 22nF                          |                       |               |        | GD   | GD     |        |                       |     |        |        |        |

| 代码 Code | GA        | GB        | GC        | GD        | HA        | HB        | 备注 Note                                 |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------------------------------|
| T       | 1.25±0.25 | 1.60±0.30 | 2.00±0.30 | 2.50±0.30 | 1.60±0.30 | 2.00±0.30 | 加“*”为特殊品<br>Add "*" as special product. |

| 材料<br>Dielectric              | C0G                   |      |        |      |        |        |        |     |                       |     |
|-------------------------------|-----------------------|------|--------|------|--------|--------|--------|-----|-----------------------|-----|
| 尺寸<br>Dimension               | 1812<br>(4.6mm*3.2mm) |      |        |      |        |        |        |     | 1825<br>(4.6mm*6.3mm) |     |
| 容量/电压<br>Capacity/<br>Voltage | 100V                  | 200V | 500V   | 630V | 1KV    | 2KV    | 3KV    | 5KV | 1KV                   | 3KV |
| 2.0pF                         |                       |      |        |      |        |        |        | IB  |                       |     |
| 2.2pF                         |                       |      |        |      |        |        |        | IB  |                       |     |
| 2.7pF                         |                       |      |        |      |        |        |        | IB  |                       |     |
| 3.0pF                         |                       |      |        |      |        |        |        | IB  |                       |     |
| 3.3pF                         |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 3.6pF                         |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 3.9pF                         |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 4.7pF                         |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 5.0pF                         |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 5.6pF                         |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 6.8pF                         |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 8.0pF                         |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 8.2pF                         |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 10pF                          |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 12pF                          |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 15pF                          |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 18pF                          |                       |      |        |      | IB     |        | IB     | IB  |                       |     |
| 22pF                          |                       |      | IA     |      | IB     | IB     | IB     | IB  |                       |     |
| 27pF                          |                       |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 33pF                          |                       |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 39pF                          |                       |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 47pF                          |                       |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 56pF                          | IA                    |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 68pF                          | IA                    |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 82pF                          | IA                    |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 100pF                         | IA                    |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 120pF                         | IA                    |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 150pF                         | IA                    |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 180pF                         | IA                    |      | IA     |      | IB     | IB     | IB     |     |                       |     |
| 220pF                         | IA                    |      | IA     |      | IB     | IB     | IB     |     |                       | JA  |
| 270pF                         | IA                    |      | IA     |      | IB     | IB     | IB*/IC |     |                       |     |
| 330pF                         | IA                    |      | IA     |      | IB     | IB     | IB*/IC |     |                       |     |
| 390pF                         | IA                    |      | IA     |      | IB     | IB     | IC     |     |                       |     |
| 470pF                         | IA                    |      | IA     |      | IB     | IB     | IC     |     |                       |     |
| 560pF                         | IA                    |      | IA     |      | IB     | IB*/IC |        |     |                       |     |
| 680pF                         | IA                    |      | IA     |      | IB     | IB*/IC |        |     |                       |     |
| 820pF                         | IA                    |      | IA     |      | IB     | IB*/IC |        |     |                       |     |
| 1nF                           | IA                    |      | IA/IB* | IB   | IB     | ID     |        |     |                       |     |
| 1.5nF                         | IA*/IB                |      | IB     |      | IB     |        |        |     |                       |     |
| 1.8nF                         | IA*/IB                |      | IB     |      | IB*/ID |        |        |     |                       |     |
| 2.2nF                         | IA*/IB                |      | IB     |      | ID     |        |        |     |                       |     |
| 2.7nF                         | IA*/IB                |      | IB     |      |        |        |        |     |                       |     |
| 3.3nF                         | IA*/IB                |      | IB     |      |        |        |        |     |                       |     |
| 3.9nF                         | IA*/IB                |      | IB     |      |        |        |        |     |                       |     |
| 4.7nF                         | IA*/IB                | IB   | IB     |      | ID     |        |        |     |                       |     |
| 5.6nF                         | IA*/ID                |      |        |      |        |        |        |     |                       |     |
| 6.8nF                         | IA*/ID                |      |        |      |        |        |        |     |                       |     |
| 10nF                          | IA*/ID                |      |        |      |        |        |        |     | JB                    |     |
| 15nF                          | IA*/ID                |      |        |      |        |        |        |     |                       |     |
| 18nF                          | IA*/ID                |      |        |      |        |        |        |     |                       |     |
| 22nF                          | ID                    |      |        |      |        |        |        |     |                       |     |
| 33nF                          | ID                    |      |        |      |        |        |        |     |                       |     |

| 代码 Code | IA        | IB        | IC        | ID       | JA        | JB        | 备注 Note                                 |
|---------|-----------|-----------|-----------|----------|-----------|-----------|-----------------------------------------|
| T       | 1.25±0.25 | 1.60±0.30 | 2.00±0.30 | 2.5±0.30 | 1.60±0.30 | 2.00±0.30 | 加“*”为特殊品<br>Add "*" as special product. |

| 材料<br>Dielectric              | C0G                   |         |        |                       |          |       |        |        |       |                       |        |        |           |         |
|-------------------------------|-----------------------|---------|--------|-----------------------|----------|-------|--------|--------|-------|-----------------------|--------|--------|-----------|---------|
| 尺寸<br>Dimension               | 2211<br>(5.7mm*2.8mm) |         |        | 2220<br>(5.7mm*5.0mm) |          |       |        |        |       | 2225<br>(5.7mm*6.3mm) |        |        |           |         |
| 容量/电压<br>Capacity/<br>Voltage | 250<br>V              | 3K<br>V | 5KV    | 250<br>V              | 500<br>V | 1KV   | 2KV    | 3KV    | 5KV   | 1K<br>V               | 1.5KV  | 2KV    | 2.5K<br>V | 3K<br>V |
| 3.3pF                         |                       |         |        |                       |          |       |        |        |       |                       |        |        |           | MA      |
| 3.6pF                         |                       |         |        |                       |          |       |        |        |       |                       |        |        |           | MA      |
| 3.9pF                         |                       |         |        |                       |          |       |        |        |       |                       |        |        |           | MA      |
| 4.7pF                         |                       |         |        |                       |          |       |        |        |       |                       |        |        |           | MA      |
| 5.0pF                         |                       |         |        |                       |          |       |        |        |       |                       |        |        |           | MA      |
| 5.6pF                         |                       |         |        |                       |          |       |        |        |       |                       |        |        |           | MA      |
| 6.8pF                         |                       |         |        |                       |          |       |        |        |       |                       |        |        |           | MA      |
| 8.0pF                         |                       |         |        |                       |          |       |        |        |       |                       |        |        |           | MA      |
| 8.2pF                         |                       |         |        |                       |          |       |        |        |       |                       |        |        |           | MA      |
| 10pF                          |                       |         | KA     |                       |          |       |        |        |       |                       |        |        |           | MA      |
| 12pF                          |                       |         | KA     |                       | LA       |       |        |        |       |                       |        |        |           | MA      |
| 15pF                          |                       |         | KA     |                       | LA       |       |        |        |       |                       |        |        | MA        | MA      |
| 18pF                          |                       |         | KA     |                       | LA       |       |        |        |       |                       |        |        | MA        | MA      |
| 22pF                          |                       |         | KA     |                       | LA       |       |        |        |       |                       |        |        | MA        | MA      |
| 27pF                          |                       |         | KA     |                       | LA       |       |        |        |       |                       |        |        | MA        | MA      |
| 33pF                          |                       |         | KA     |                       | LA       |       |        |        |       |                       |        |        | MA        | MA      |
| 39pF                          |                       |         | KA     |                       | LA       |       |        |        |       |                       |        |        | MA        | MA      |
| 47pF                          |                       |         | KA*/KB |                       | LA       |       |        |        |       |                       |        |        | MA        | MA      |
| 56pF                          |                       |         |        |                       | LA       |       |        |        |       |                       |        |        | MA        | MA      |
| 68pF                          |                       |         |        |                       | LA       |       |        |        |       |                       |        |        | MA        | MA      |
| 82pF                          |                       |         |        |                       | LA       |       |        |        |       |                       |        |        | MA        | MA      |
| 100pF                         |                       |         |        |                       | LA       |       | LA     | LA     | LA    |                       |        | MA     | MA        | MA      |
| 120pF                         |                       |         |        |                       | LA       |       | LA     | LA     | LA/LB |                       |        | MA     | MA        | MA      |
| 150pF                         |                       |         |        |                       | LA       |       | LA     | LA     | LA/LB |                       |        | MA     | MA        | MA      |
| 180pF                         |                       |         |        |                       | LA       |       | LA     | LA     | LA/LB |                       |        | MA     | MA        | MA      |
| 220pF                         |                       | KA      |        |                       | LA       |       | LA*/LB | LA*/LB | LB    | MA                    |        | MA     | MA        | MA      |
| 270pF                         |                       |         |        |                       | LA       |       | LA*/LB | LA*/LB |       | MA                    |        | MA     | MA        | MA      |
| 330pF                         |                       |         |        |                       | LA       |       | LA*/LB | LA*/LB |       | MA                    |        | MA/MC  |           |         |
| 390pF                         |                       |         |        |                       | LA       |       | LA*/LB | LA*/LB |       | MA                    | MA     | MA/MC  |           |         |
| 470pF                         |                       |         |        |                       | LA       |       | LA*/LB | LA*/LB |       | MA                    | MA     | MA/MC  |           |         |
| 560pF                         |                       |         |        |                       | LA       |       | LA*/LB | LA*/LB |       | MA                    | MA     | MA/MC  |           |         |
| 680pF                         |                       |         |        | LA                    | LA       |       | LA*/LB | LA*/LB |       | MA                    | MA     | MA/MC  |           |         |
| 820pF                         |                       |         |        | LA                    | LA       |       | LB     | LB     |       | MA                    | MA*/MB | MA/MC  |           |         |
| 1nF                           | KA                    |         |        | LA                    | LA       | LA    | LB     | LB     |       | MA                    | MA     | MA*/MC |           |         |
| 1.5nF                         |                       |         |        | LA                    | LA       | LA/LC | LB*/LC | LB*/LC |       |                       |        |        |           |         |
| 1.8nF                         |                       |         |        | LA                    | LA       | LA/LC | LB*/LC | LB*/LC |       |                       |        |        |           |         |
| 2.2nF                         |                       |         |        | LA                    | LA       | LA/LC | LC     | LC     |       |                       |        |        |           | MC      |
| 2.7nF                         |                       |         |        | LA                    | LA       | LA/LC |        |        |       |                       |        |        |           | MC      |
| 3.3nF                         |                       |         |        | LA                    | LA       | LA/LC |        |        |       |                       |        |        |           | MC      |
| 3.9nF                         |                       |         |        | LA                    | LA       | LA/LC |        |        |       |                       |        |        |           |         |
| 4.7nF                         |                       |         |        | LA                    | LA       | LA/LC |        |        |       |                       |        |        |           |         |
| 5.6nF                         |                       |         |        | LA                    |          | LA/LC |        |        |       |                       |        |        |           |         |
| 6.8nF                         |                       |         |        | LA                    |          | LC    |        |        |       |                       |        |        |           |         |
| 8.2nF                         |                       |         |        | LA                    |          |       |        |        |       |                       |        |        |           |         |
| 10nF                          |                       |         |        | LA                    |          |       |        |        |       |                       |        |        |           |         |

| 代码 Code | KA        | KB        | LA        | LB        | LC        | MA        | MB        | MC        | 备注 Note                                 |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------------------------------|
| T       | 1.60±0.30 | 2.00±0.30 | 1.60±0.30 | 2.00±0.30 | 2.50±0.30 | 1.60±0.30 | 2.00±0.30 | 2.50±0.30 | 加“*”为特殊品<br>Add “*” as special product. |

\*II 类电容器具体电压对应容量及厚度情况列表

A list of the specific voltage-specific capacitors of Class I capacitors

| 材料<br>Dielectric              | X7R                   |                       |      |      |                       |        |        |        |        |        |       |
|-------------------------------|-----------------------|-----------------------|------|------|-----------------------|--------|--------|--------|--------|--------|-------|
| 尺寸<br>Dimension               | 0402<br>(1.0mm*0.5mm) | 0603<br>(1.6mm*0.8mm) |      |      | 0805<br>(2.0mm*1.2mm) |        |        |        |        |        |       |
| 容量/电压<br>Capacity/<br>Voltage | 100V                  | 100V                  | 200V | 250V | 100V                  | 200V   | 250V   | 500V   | 630V   | 1000V  | 2000V |
| 100pF                         |                       |                       |      |      |                       |        | EA     | EA     |        |        |       |
| 120pF                         |                       |                       |      |      |                       |        | EA     | EA     |        |        |       |
| 150pF                         |                       | DA                    |      |      | EA                    |        | EA     | EA     |        |        |       |
| 180pF                         |                       | DA                    |      |      | EA                    |        | EA     | EA     |        |        |       |
| 220pF                         | CA                    | DA                    | DA   |      | EA                    | EA     | EA     | EA     |        |        |       |
| 270pF                         | CA                    | DA                    | DA   |      | EA                    | EA     | EA     | EA     |        |        |       |
| 330pF                         | CA                    | DA                    | DA   |      | EA                    | EA     | EA     | EA     |        |        |       |
| 390pF                         | CA                    | DA                    | DA   |      | EA                    | EA     | EA     | EA     |        |        |       |
| 470pF                         | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EA     |        |        |       |
| 560pF                         | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EA     |        |        |       |
| 680pF                         | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EA     |        |        |       |
| 1nF                           | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EA/EB* | EA     | EA     | EB    |
| 1.5nF                         | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EA/EB* | EA     | EA/EB* |       |
| 1.8nF                         | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EA/EB* | EA     | EA/EB* |       |
| 2.2nF                         | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EA/EB* | EA     | EB     |       |
| 2.7nF                         | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EA/EB* | EA/EB* |        |       |
| 3.3nF                         | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EB     | EA/EB* |        |       |
| 4.7nF                         | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EA     | EA/EB* |        |       |
| 5.6nF                         | CA                    | DA                    | DA   | DA   | EA                    | EA     | EA     | EA     | EA/EB* |        |       |
| 10nF                          | CA                    | DA                    | DA   | DA   | EA                    | EA/EB* | EA/EB* | EB     |        |        |       |
| 15nF                          |                       | DA                    |      |      | EA                    | EA/EB* | EA/EB* |        |        |        |       |
| 18nF                          |                       | DA                    |      |      | EA                    | EA/EB* | EA/EB* |        |        |        |       |
| 22nF                          |                       | DA                    |      |      | EA                    | EA/EB* | EA/EB* |        |        |        |       |
| 33nF                          |                       | DA                    |      |      | EB                    | EB     | EB     |        |        |        |       |
| 39nF                          |                       | DA                    |      |      | EB                    |        |        |        |        |        |       |
| 47nF                          |                       | DA                    |      |      | EA*/EB                |        |        |        |        |        |       |
| 56nF                          |                       | DA                    |      |      | EA*/EB                |        |        |        |        |        |       |
| 68nF                          |                       | DA                    |      |      | EA*/EB                |        |        |        |        |        |       |
| 82nF                          |                       | DA                    |      |      | EA*/EB                |        |        |        |        |        |       |
| 100nF                         |                       | DA                    |      |      | EB                    |        |        |        |        |        |       |
| 220nF                         |                       |                       |      |      | EB                    |        |        |        |        |        |       |
| 330nF                         |                       |                       |      |      | EB                    |        |        |        |        |        |       |
| 470nF                         |                       |                       |      |      | EB                    |        |        |        |        |        |       |
| 680nF                         |                       |                       |      |      | EB                    |        |        |        |        |        |       |
| 1μF                           |                       |                       |      |      | EB                    |        |        |        |        |        |       |
| 2.2μF                         |                       |                       |      |      |                       |        |        |        |        |        |       |
| 3.3μF                         |                       |                       |      |      |                       |        |        |        |        |        |       |
| 4.7μF                         |                       |                       |      |      |                       |        |        |        |        |        |       |
| 6.8μF                         |                       |                       |      |      |                       |        |        |        |        |        |       |
| 10μF                          |                       |                       |      |      |                       |        |        |        |        |        |       |

| 代码 Code | CA        | DA        | EA        | EB        | 备注 Note                                 |
|---------|-----------|-----------|-----------|-----------|-----------------------------------------|
| T       | 0.50±0.05 | 0.80±0.10 | 0.80±0.20 | 1.25±0.25 | 加“*”为特殊品<br>Add “*” as special product. |

| 材料<br>Dielectric | X7R                   |        |        |        |        |        |        |       |
|------------------|-----------------------|--------|--------|--------|--------|--------|--------|-------|
| 尺寸<br>Dimension  | 1206<br>(3.2mm*1.6mm) |        |        |        |        |        |        |       |
| 电压<br>Voltage    | 100V                  | 200V   | 250V   | 500V   | 630V   | 1000V  | 2000V  | 2500V |
| 100pF            | FA                    | FA     |        | FA     |        | FB     | FB     |       |
| 120pF            | FA                    | FA     |        | FA     |        | FB     | FB     |       |
| 150pF            | FA                    | FA     |        | FA     |        | FA*/FB | FB     |       |
| 180pF            | FA                    | FA     |        | FA     |        | FB     | FB     |       |
| 220pF            | FA                    | FA     |        | FA     |        | FA*/FB | FB     |       |
| 270pF            | FA                    | FA     |        | FA     |        | FB     | FB     |       |
| 330pF            | FA                    | FA     |        | FA     |        | FA*/FB | FB     |       |
| 390pF            | FA                    | FA     |        | FA     |        | FB     | FB     |       |
| 470pF            | FA                    | FA     | FA     | FA     | FA     | FA*/FB | FB     |       |
| 560pF            | FA                    | FA     | FA     | FA     | FA     | FB     | FB     |       |
| 680pF            | FA                    | FA     | FA     | FA     | FA     | FA*/FB | FB     |       |
| 820pF            | FA                    | FA     | FA     | FA     | FA     | FA*/FB | FB     |       |
| 1nF              | FA                    | FA     | FA     | FA     | FA     | FA*/FB | FB     | FB    |
| 1.5nF            | FA                    | FA     | FA     | FA     | FA     | FB     | FB     |       |
| 1.8nF            | FA                    | FA     | FA     | FA     | FA     | FB     | FB     |       |
| 2.2nF            | FA                    | FA     | FA     | FA     | FA     | FB     | FB/FC* |       |
| 2.7nF            | FA                    | FA     | FA     | FB     | FB     | FB     | FB     |       |
| 3.3nF            | FA                    | FA     | FA     | FB     | FB     | FB     | FB     |       |
| 4.7nF            | FA                    | FA     | FA     | FB     | FB     | FB     | FB/FC* |       |
| 5.6nF            | FA                    | FA     | FA     | FB     | FB     | FB     | FB/FC* |       |
| 6.8nF            | FA                    | FA     | FA     | FB     | FB     | FC     | FC     |       |
| 10nF             | FA                    | FA     | FA     | FB     | FB     | FB     |        |       |
| 15nF             | FA                    | FA     | FA     | FB     | FB     |        |        |       |
| 18nF             | FA                    | FA     | FA     | FB     | FB     |        |        |       |
| 22nF             | FA                    | FA     | FA/FB* | FB     | FB     |        |        |       |
| 33nF             | FA                    | FB     | FB     | FB/FC* | FB/FC* |        |        |       |
| 47nF             | FA                    | FB     | FB     | FC     | FC     |        |        |       |
| 56nF             | FA                    | FB     | FB     |        |        |        |        |       |
| 68nF             | FB/FA*                | FB     | FB     |        |        |        |        |       |
| 100nF            | FB                    | FB/FC* | FB/FC* |        |        |        |        |       |
| 220nF            | FB                    | FC     | FC     |        |        |        |        |       |
| 330nF            | FB/FC*                |        |        |        |        |        |        |       |
| 470nF            | FC                    |        |        |        |        |        |        |       |
| 680nF            | FB*/FC                |        |        |        |        |        |        |       |
| 1μF              | FC                    |        |        |        |        |        |        |       |
| 2.2μF            | FC                    |        |        |        |        |        |        |       |
| 3.3μF            | FC                    |        |        |        |        |        |        |       |
| 4.7μF            |                       |        |        |        |        |        |        |       |
| 6.8μF            |                       |        |        |        |        |        |        |       |
| 10μF             |                       |        |        |        |        |        |        |       |

| 代码 Code | FA        | FB        | FC        | 备注 Note                                   |
|---------|-----------|-----------|-----------|-------------------------------------------|
| T       | 0.80±0.20 | 1.25±0.25 | 1.60±0.30 | 加 “*” 为特殊品<br>Add “*” as special product. |

| 材料<br>Dielectric | X7R                   |      |            |        |            |        |     |                       |          |         |        |        |        |        |
|------------------|-----------------------|------|------------|--------|------------|--------|-----|-----------------------|----------|---------|--------|--------|--------|--------|
| 尺寸<br>Dimension  | 1210<br>(3.2mm*2.5mm) |      |            |        |            |        |     | 1808<br>(4.6mm*2.0mm) |          |         |        |        |        |        |
| 电压<br>Voltage    | 100V                  | 200V | 250V       | 500V   | 630V       | 1KV    | 2KV | 250V                  | 500<br>V | 1K<br>V | 2KV    | 3KV    | 4KV    | 5KV    |
| 100pF            |                       |      |            |        |            |        |     |                       |          |         | HA     | HA     |        |        |
| 120pF            |                       |      |            |        |            |        |     |                       |          |         | HA     | HA     |        |        |
| 150pF            |                       |      |            |        |            |        |     |                       |          |         | HA     | HA     |        | HA     |
| 180pF            |                       |      |            |        |            |        |     |                       |          |         | HA     | HA     |        | HA     |
| 220pF            |                       |      |            | GA     | GA         | GA     | GA  |                       |          | HA      | HA     | HA     |        | HA     |
| 270pF            |                       |      |            | GA     | GA         | GA     | GA  |                       |          | HA      | HA     | HA     |        | HA     |
| 330pF            |                       |      |            | GA     | GA         | GA     | GA  |                       |          | HA      | HA     | HA     |        | HA     |
| 390pF            |                       |      |            | GA     | GA         | GA     | GA  |                       |          | HA      | HA     | HA     |        | HA     |
| 470pF            |                       |      |            | GA     | GA         | GA     | GA  | HA                    |          | HA      | HA     | HA     |        | HA     |
| 560pF            |                       |      |            | GA     | GA         | GA     | GA  | HA                    |          | HA      | HA     | HA     |        | HA     |
| 680pF            |                       |      |            | GA     | GA         | GA     | GA  | HA                    |          | HA      | HA     | HA     |        | HA     |
| 1nF              |                       |      | GA         | GA     | GA         | GA     | GA  | HA                    |          | HA      | HA/HB* | HA/HB* | HA/HB* | HA/HB* |
| 1.5nF            |                       |      | GA         | GA     | GA         | GA     | GA  | HA                    |          | HA      | HA     | HA/HB* |        |        |
| 1.8nF            |                       |      | GA         | GA     | GA         | GA     | GA  | HA                    |          | HA      | HA     | HA/HB* |        |        |
| 2.2nF            |                       |      | GA         | GA     | GA         | GA     | GA  | HA                    |          | HA      | HA/HB* | HA/HB* |        |        |
| 2.7nF            |                       |      | GA         | GA     | GA         | GA     | GA  | HA                    |          | HA      | HA     | HA     |        |        |
| 3.3nF            |                       |      | GA         | GA     | GA         | GA     | GA  | HA                    |          | HA      | HA/HB* | HA/HB* |        |        |
| 4.7nF            | GA                    |      | GA         | GA     | GA/GB*     | GA/GB* | GB  | HA                    |          | HA      | HA     | HA     |        |        |
| 5.6nF            | GA                    |      | GA         | GA     | GA         | GA     | GB  |                       |          | HA      | HA     |        |        |        |
| 6.8nF            | GA                    |      | GA         | GA     | GA         | GA*/GB | GB  |                       |          | HA      | HA     |        |        |        |
| 8.2nF            | GA                    |      | GA         | GA     | GA         | GA*/GB | GB  |                       |          | HA      | HA     |        |        |        |
| 10nF             | GA                    |      | GA         | GA     | GA         | GA*/GB | GB  |                       |          | HA      | HA     |        |        |        |
| 15nF             | GA                    |      | GA         | GA     | GA         | GB     |     |                       |          | HA      |        |        |        |        |
| 18nF             | GA                    |      | GA         | GA     | GA         | GB     |     |                       |          | HA      |        |        |        |        |
| 22nF             | GA                    |      | GA         | GA     | GA         | GB     |     |                       |          | HA      |        |        |        |        |
| 33nF             | GA                    |      | GA         | GB     | GB/GC*     |        |     |                       |          |         |        |        |        |        |
| 39nF             | GA                    |      | GA         | GA/GB* | GA/GB*     |        |     |                       |          |         |        |        |        |        |
| 47nF             | GA                    | GA   | GA         | GB/GC* | GB/GC*/GD* |        |     |                       | HA       |         |        |        |        |        |
| 56nF             | GA                    |      | GA         | GB     | GB         |        |     |                       |          |         |        |        |        |        |
| 68nF             | GA/GB*                |      | GA         | GB     | GB         |        |     |                       |          |         |        |        |        |        |
| 82nF             | GA                    |      | GA         | GB     | GB         |        |     |                       |          |         |        |        |        |        |
| 100nF            | GA                    |      | GA         | GB/GC* | GB/GC*     |        |     |                       |          |         |        |        |        |        |
| 220nF            | GB                    |      | GB/GC*/GD* |        |            |        |     |                       |          |         |        |        |        |        |
| 330nF            | GB                    |      | GC         |        |            |        |     |                       |          |         |        |        |        |        |
| 470nF            | GB                    |      |            |        |            |        |     |                       |          |         |        |        |        |        |
| 680nF            | GB                    |      |            |        |            |        |     |                       |          |         |        |        |        |        |
| 820nF            | GB                    |      |            |        |            |        |     |                       |          |         |        |        |        |        |
| 1μF              | GB                    |      |            |        |            |        |     |                       |          |         |        |        |        |        |
| 2.2μF            | GB/GC*/GD*            |      |            |        |            |        |     |                       |          |         |        |        |        |        |
| 3.3μF            |                       |      |            |        |            |        |     |                       |          |         |        |        |        |        |
| 4.7μF            | GC*/GD                |      |            |        |            |        |     |                       |          |         |        |        |        |        |
| 6.8μF            |                       |      |            |        |            |        |     |                       |          |         |        |        |        |        |

| 代码 Code | GA        | GB        | GC        | GD        | HA        | HB        | 备注 Note                                   |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-------------------------------------------|
| T       | 1.25±0.25 | 1.60±0.30 | 2.00±0.30 | 2.50±0.30 | 1.60±0.30 | 2.00±0.30 | 加 “*” 为特殊品<br>Add “*” as special product. |

| 材料 Dielectric | X7R                   |      |        |        |        |        |        |        |     |        |
|---------------|-----------------------|------|--------|--------|--------|--------|--------|--------|-----|--------|
| 尺寸 Dimension  | 1812<br>(4.6mm*3.2mm) |      |        |        |        |        |        |        |     |        |
| 电压 Voltage    | 100V                  | 200V | 250V   | 500V   | 630V   | 1KV    | 2KV    | 3KV    | 4KV | 5KV    |
| 100pF         |                       |      |        |        |        |        |        |        |     |        |
| 120pF         |                       |      |        |        |        |        |        |        |     |        |
| 150pF         |                       |      |        |        |        |        |        | IB     | IB  |        |
| 180pF         |                       |      |        |        |        |        |        | IB     | IB  |        |
| 220pF         |                       |      |        |        |        |        | IB     | IB     | IB  |        |
| 270pF         |                       |      |        |        |        |        | IB     | IB     | IB  |        |
| 330pF         |                       |      |        |        |        | IB     | IB     | IB     | IB  |        |
| 390pF         |                       |      |        |        |        | IB     | IB     | IB     | IB  |        |
| 470pF         |                       |      |        |        |        | IB     | IB     | IB     | IB  |        |
| 560pF         |                       |      |        |        |        | IB     | IB     | IB     | IB  |        |
| 680pF         |                       |      | IB     |        |        | IB     | IB     | IB     | IB  |        |
| 820pF         |                       |      | IB     |        |        | IB     | IB     | IB     | IB  |        |
| 1nF           |                       | IB   | IB     |        |        | IB     | IB     | IB     | IB  |        |
| 1.5nF         |                       | IB   | IB     |        |        | IB     | IB     | IB     | IB  |        |
| 1.8nF         |                       | IB   | IB     |        |        | IB     | IB     | IB     | IB  |        |
| 2.2nF         |                       | IB   | IB     |        |        | IB     | IB     | IB/IC* | IB  | IB/IC* |
| 2.7nF         |                       | IB   | IB     |        |        | IB     | IB     | IB     | IB  |        |
| 3.3nF         |                       | IB   | IB     |        |        | IB     | IB     | IB     | IB  |        |
| 4.7nF         |                       | IB   | IB     |        |        | IB     | IB     | IB     |     |        |
| 5.6nF         |                       | IB   | IB     |        |        | IB     | IB     | IB/ID* |     |        |
| 6.8nF         |                       | IB   | IB     |        |        | IB     | IB     | IB/ID* |     |        |
| 8.2nF         |                       | IB   | IB     |        |        | IB     | IB     | IB/ID* |     |        |
| 10nF          |                       | IB   | IB     | IB     |        | IB     | IB     | ID     |     |        |
| 12nF          |                       | IB   | IB     | IB     |        | IB     | IB     |        |     |        |
| 15nF          |                       | IB   | IB     | IB     |        | IB     | IB/ID* |        |     |        |
| 18nF          |                       | IB   | IB     | IB     |        | IB     | ID     |        |     |        |
| 22nF          |                       | IB   | IB     | IB     | IB     | IB     |        |        |     |        |
| 33nF          |                       | IB   | IB     | IA     | IB     | IB     |        |        |     |        |
| 47nF          | IB                    | IB   | IB     | IB     | IB     | IB/IC* |        |        |     |        |
| 56nF          | IB                    | IB   | IB     | IB     | IB     | IC     |        |        |     |        |
| 68nF          | IB                    | IB   | IB     | IB     | IB     |        |        |        |     |        |
| 82nF          | IB                    | IB   | IB     | IB     | IB     |        |        |        |     |        |
| 100nF         | IB                    | IB   | IA*/IB | IB     | IC/ID* |        |        |        |     |        |
| 120nF         | IB                    | IB   | IA     | IC     | IC     |        |        |        |     |        |
| 150nF         | IB                    | IB   | IC     | IC     | IC     |        |        |        |     |        |
| 180nF         | IB                    | IB   | IB     | IC     | IC/ID* |        |        |        |     |        |
| 220nF         | IB                    | IB   | IB/IC* | IC/ID* | IC/ID* |        |        |        |     |        |
| 330nF         | IB                    | IC   | IB*/IC |        |        |        |        |        |     |        |
| 470nF         | IB                    | IC   | ID     |        |        |        |        |        |     |        |
| 560nF         | IB*/IC                | IC   | IC     |        |        |        |        |        |     |        |
| 680nF         | IC                    | IC   | IC     |        |        |        |        |        |     |        |
| 820nF         | IC                    | IC   | IC     |        |        |        |        |        |     |        |
| 1μF           | IC                    | IC   | IC     |        |        |        |        |        |     |        |
| 2.2μF         | IC/ID*                |      |        |        |        |        |        |        |     |        |
| 3.3μF         |                       |      |        |        |        |        |        |        |     |        |
| 4.7μF         |                       |      |        |        |        |        |        |        |     |        |
| 6.8μF         |                       |      |        |        |        |        |        |        |     |        |
| 10μF          |                       |      |        |        |        |        |        |        |     |        |

| 代码 Code | IA        | IB        | IC        | ID        | 备注 Note                                   |
|---------|-----------|-----------|-----------|-----------|-------------------------------------------|
| T       | 1.25±0.25 | 1.60±0.30 | 2.00±0.30 | 2.50±0.30 | 加 “*” 为特殊品<br>Add “*” as special product. |

| 材料<br>Dielectric | X7R                   |        |      |      |       |       |                       |       |       |
|------------------|-----------------------|--------|------|------|-------|-------|-----------------------|-------|-------|
| 尺寸<br>Dimension  | 1825<br>(4.6mm*6.3mm) |        |      |      |       |       | 2211<br>(5.7mm*2.8mm) |       |       |
| 电压<br>Voltage    | 200V                  | 250V   | 500V | 630V | 1000V | 2000V | 3000V                 | 3000V | 5000V |
| 100pF            |                       |        |      |      |       |       |                       |       |       |
| 120pF            |                       |        |      |      |       |       |                       |       |       |
| 150pF            |                       |        |      |      |       |       |                       |       | JA    |
| 180pF            |                       |        |      |      |       |       |                       |       | JA    |
| 220pF            |                       |        |      |      |       |       |                       |       | JA    |
| 270pF            |                       |        |      |      |       |       |                       |       | JA    |
| 330pF            |                       |        |      |      |       |       |                       |       | JA    |
| 390pF            |                       |        |      |      |       |       |                       |       | JA    |
| 470pF            |                       |        |      |      |       |       |                       |       | JA    |
| 560pF            |                       |        |      |      |       |       |                       |       | JA    |
| 680pF            |                       |        |      |      |       |       |                       |       | JA    |
| 820pF            |                       |        |      |      |       |       |                       |       | JA    |
| 1nF              |                       |        |      |      |       | JA    |                       |       | JA    |
| 1.2nF            |                       |        |      |      |       | JA    |                       |       | JA    |
| 1.5nF            |                       |        |      |      |       | JA    |                       |       | JA    |
| 1.8nF            |                       |        |      |      |       | JA    |                       |       | JA    |
| 2.2nF            |                       |        |      |      |       | JA    |                       | JA    | JA    |
| 2.7nF            |                       |        |      |      |       | JA    |                       |       |       |
| 3.3nF            |                       |        |      |      |       | JA    |                       |       |       |
| 3.9nF            |                       |        |      |      |       | JA    |                       |       |       |
| 4.7nF            |                       |        |      |      |       | JA    | JA/JB*                |       |       |
| 5.6nF            |                       |        |      |      |       | JA    |                       |       |       |
| 6.8nF            |                       |        |      |      |       | JA    |                       |       |       |
| 8.2nF            |                       |        |      |      |       | JA    |                       |       |       |
| 10nF             |                       |        |      |      |       | JA    |                       |       |       |
| 12nF             |                       |        |      |      |       | JA    |                       |       |       |
| 15nF             |                       |        |      |      |       | JA    |                       |       |       |
| 18nF             |                       |        |      |      |       | JA    |                       |       |       |
| 22nF             |                       |        |      |      |       | JA    |                       |       |       |
| 33nF             |                       |        |      |      |       |       |                       |       |       |
| 47nF             |                       |        |      |      |       |       |                       |       |       |
| 56nF             |                       |        |      |      |       |       |                       |       |       |
| 68nF             |                       |        |      |      |       |       |                       |       |       |
| 82nF             |                       |        |      |      |       |       |                       |       |       |
| 100nF            | JA                    |        | JA   | JA   | JA    |       |                       |       |       |
| 120nF            |                       |        | JA   | JA   |       |       |                       |       |       |
| 150nF            |                       |        | JA   | JA   |       |       |                       |       |       |
| 220nF            |                       |        | JA   |      |       |       |                       |       |       |
| 270nF            |                       |        |      |      |       |       |                       |       |       |
| 330nF            |                       |        |      |      |       |       |                       |       |       |
| 470nF            |                       |        |      |      |       |       |                       |       |       |
| 560nF            |                       |        |      |      |       |       |                       |       |       |
| 680nF            |                       |        |      |      |       |       |                       |       |       |
| 8520nF           |                       |        |      |      |       |       |                       |       |       |
| 1μF              |                       | JB/JC* |      |      |       |       |                       |       |       |
| 1.2μF            |                       |        |      |      |       |       |                       |       |       |
| 1.5μF            |                       |        |      |      |       |       |                       |       |       |
| 1.8μF            |                       |        |      |      |       |       |                       |       |       |
| 2.2μF            |                       |        |      |      |       |       |                       |       |       |
| 2.7μF            |                       |        |      |      |       |       |                       |       |       |
| 3.3μF            |                       |        |      |      |       |       |                       |       |       |
| 4.7μF            |                       |        |      |      |       |       |                       |       |       |
| 6.8μF            |                       |        |      |      |       |       |                       |       |       |
| 10μF             |                       |        |      |      |       |       |                       |       |       |

| 代码 Code | JA        | JB        | JC        | 备注 Note                                 |
|---------|-----------|-----------|-----------|-----------------------------------------|
| T       | 1.60±0.30 | 2.00±0.30 | 2.50±0.30 | 加“*”为特殊品<br>Add “*” as special product. |

| 材料<br>Dielectric | X7R                   |        |        |        |        |        |        |       |        |        |        |
|------------------|-----------------------|--------|--------|--------|--------|--------|--------|-------|--------|--------|--------|
| 尺寸<br>Dimension  | 2220<br>(5.7mm*5.0mm) |        |        |        |        |        |        |       |        |        |        |
| 电压<br>Voltage    | 100V                  | 200V   | 250V   | 500V   | 630V   | 1000V  | 2000V  | 2500V | 3000V  | 4000V  | 5000V  |
| 100pF            |                       |        |        |        |        |        |        |       |        |        |        |
| 120pF            |                       |        |        |        |        |        |        |       |        |        |        |
| 150pF            |                       |        |        |        |        |        |        |       |        |        |        |
| 180pF            |                       |        |        |        |        |        |        |       |        |        |        |
| 220pF            |                       |        |        |        |        |        |        |       |        |        |        |
| 270pF            |                       |        |        |        |        |        |        |       |        |        |        |
| 330pF            |                       |        |        | LA     | LA     |        |        |       |        |        |        |
| 390pF            |                       |        |        | LA     | LA     |        |        |       |        |        |        |
| 470pF            |                       |        |        | LA     | LA     |        |        |       |        |        |        |
| 560pF            |                       |        |        | LA     | LA     |        |        |       |        |        |        |
| 680pF            |                       |        |        | LA     | LA     |        |        |       |        |        |        |
| 820pF            |                       |        |        | LA     | LA     |        |        |       |        |        |        |
| 1nF              |                       |        |        | LA     | LA     |        | LA     |       | LA     | LA     | LA     |
| 1.5nF            |                       |        |        | LA     | LA     |        | LA     |       | LA     | LA     | LA/LB* |
| 1.8nF            |                       |        |        | LA     | LA     |        | LA     |       | LA     | LA     | LA/LB* |
| 2.2nF            |                       | LA     | LA     | LA     | LA     |        | LA     |       | LA/LB* | LA     | LB     |
| 2.7nF            |                       | LA     | LA     | LA     | LA     |        | LA     |       | LA     | LA     | LB     |
| 3.3nF            |                       | LA     | LA     | LA     | LA     |        | LA     |       | LA     | LA     | LB     |
| 3.9nF            |                       | LA     | LA     | LA     | LA     |        | LA     |       | LA     | LA     | LB     |
| 4.7nF            |                       | LA     | LA     | LA     | LA     | LA     | LA/LB* |       | LA/LB* | LA     | LB     |
| 5.6nF            |                       | LA     | LA     | LA     | LA     | LA     | LA     |       | LA     | LA     |        |
| 6.8nF            |                       | LA     | LA     | LA     | LA     | LA     | LA     |       | LA     | LA     |        |
| 8.2nF            |                       | LA     | LA     | LA     | LA     | LA     | LA     |       | LA     | LA/LB* |        |
| 10nF             |                       | LA     | LA     | LA     | LA     | LA     | LA     | LA    | LA     |        |        |
| 12nF             |                       | LA     | LA     | LA     | LA     | LA     | LA     |       |        |        |        |
| 15nF             |                       | LA     | LA     | LA     | LA     | LA     | LA     |       |        |        |        |
| 18nF             |                       | LA     | LA     | LA     | LA     | LA     | LA     |       |        |        |        |
| 22nF             |                       | LA     | LA     | LA     | LA     | LA     | LA     |       |        |        |        |
| 33nF             |                       | LA     | LA     | LA     | LA     | LA     | LA     |       |        |        |        |
| 47nF             | LA                    | LA     | LA     | LA     | LA     | LB     | LA/LB* |       |        |        |        |
| 56nF             | LA                    | LA     | LA     | LA     | LA     | LA/LB* |        |       |        |        |        |
| 68nF             | LA                    | LA     | LA     | LA     | LA     | LA/LB* |        |       |        |        |        |
| 82nF             | LA                    | LA     | LA     | LA     | LA     | LA/LB* |        |       |        |        |        |
| 100nF            | LA                    | LA     | LA     | LA     | LA     | LB     |        |       |        |        |        |
| 120nF            | LA                    | LA     | LA     | LA     | LA     | LB     |        |       |        |        |        |
| 150nF            | LA                    | LA     | LA     | LA     | LA     | LB     |        |       |        |        |        |
| 220nF            | LA                    | LA     | LA     | LA     | LA/LC  | LB     |        |       |        |        |        |
| 330nF            | LA                    | LA     | LA     | LA*/LB | LA*/LB |        |        |       |        |        |        |
| 470nF            | LA                    | LA     | LA     | LA*/LB | LA*/LB |        |        |       |        |        |        |
| 680nF            | LA                    | LA     | LA     |        |        |        |        |       |        |        |        |
| 820nF            | LA                    | LA     | LA     |        |        |        |        |       |        |        |        |
| 1μF              | LA                    | LA     | LA     |        |        |        |        |       |        |        |        |
| 1.2μF            | LA                    | LA     | LA     |        |        |        |        |       |        |        |        |
| 1.5μF            | LA                    | LA     | LA     |        |        |        |        |       |        |        |        |
| 1.8μF            | LA                    | LA     | LA     |        |        |        |        |       |        |        |        |
| 2.2μF            | LA*/LB                | LA*/LB | LA*/LB |        |        |        |        |       |        |        |        |
| 3.3μF            | LB                    |        |        |        |        |        |        |       |        |        |        |
| 4.7μF            | LB                    |        |        |        |        |        |        |       |        |        |        |
| 6.8μF            |                       |        |        |        |        |        |        |       |        |        |        |
| 10μF             |                       |        |        |        |        |        |        |       |        |        |        |

| 代码 Code | LA        | LB        | LC        | 备注 Note                                 |
|---------|-----------|-----------|-----------|-----------------------------------------|
| T       | 1.60±0.30 | 2.00±0.30 | 2.50±0.30 | 加“*”为特殊品<br>Add “*” as special product. |

| 材料<br>Dielectric | X7R                   |      |        |        |        |        |       |        |       |       |       |
|------------------|-----------------------|------|--------|--------|--------|--------|-------|--------|-------|-------|-------|
| 尺寸<br>Dimension  | 2225<br>(5.7mm*6.3mm) |      |        |        |        |        |       |        |       |       |       |
| 电压<br>Voltage    | 100V                  | 200V | 250V   | 500V   | 630V   | 1000V  | 1500V | 2000V  | 3000V | 4000V | 5000V |
| 100pF            |                       |      |        |        |        |        |       |        |       |       |       |
| 120pF            |                       |      |        |        |        |        |       |        |       |       |       |
| 150pF            |                       |      |        |        |        |        |       |        | MA    |       |       |
| 180pF            |                       |      |        |        |        |        |       |        | MA    |       |       |
| 220pF            |                       |      |        |        |        | MA     |       |        | MA    |       |       |
| 270pF            |                       |      |        |        |        | MA     |       |        | MA    |       |       |
| 330pF            |                       |      |        |        |        | MA     |       |        | MA    |       |       |
| 390pF            |                       |      |        |        |        | MA     |       |        | MA    |       |       |
| 470pF            |                       |      |        |        |        | MA     |       |        | MA    |       |       |
| 560pF            |                       |      |        |        |        | MA     |       |        | MA    |       |       |
| 680pF            |                       |      |        |        |        | MA     |       |        | MA    |       |       |
| 820pF            |                       |      |        |        |        | MA     |       |        | MA    |       |       |
| 1nF              |                       |      | MA     |        |        | MA     |       |        | MA    |       |       |
| 1.2nF            |                       |      | MA     |        |        | MA     |       |        | MA    |       |       |
| 1.5nF            |                       |      | MA     |        |        | MA     |       |        | MA    |       | MA    |
| 1.8nF            |                       |      | MA     |        |        | MA     |       |        | MA    |       |       |
| 2.2nF            |                       |      | MA     |        |        | MA     |       | MA     | MA    | MA    |       |
| 2.7nF            |                       |      | MA     |        |        | MA     |       | MA     | MA    |       |       |
| 3.3nF            |                       |      | MA     | MA     | MA     | MA     |       | MA     | MA    |       |       |
| 3.9nF            |                       |      | MA     | MA     | MA     | MA     |       | MA     | MA    |       |       |
| 4.7nF            |                       |      | MA     | MA     | MA     | MA     |       | MA     | MA    |       |       |
| 5.6nF            |                       |      | MA     | MA     | MA     | MA     |       | MA     | MA    |       |       |
| 6.8nF            |                       |      | MA     | MA     | MA     | MA     |       | MA     | MA    |       |       |
| 8.2nF            |                       |      | MA     | MA     | MA     | MA     |       | MA     | MA    |       |       |
| 10nF             |                       |      | MA     | MA     | MA     | MA     |       | MA     | MA    |       |       |
| 12nF             |                       |      | MA     | MA     | MA     | MA     |       | MA     | MA    |       |       |
| 15nF             |                       |      | MA     | MA     | MA     | MA     |       | MA     | MA    |       |       |
| 18nF             |                       |      | MA     | MA     | MA     | MA     |       | MA     |       |       |       |
| 22nF             |                       |      | MA     | MA     | MA     | MA     |       | MA     |       |       |       |
| 33nF             |                       |      | MA     | MA     | MA     | MA     |       | MA/MB* |       |       |       |
| 47nF             |                       |      | MA     | MA     | MA     | MA     |       | MA     |       |       |       |
| 56nF             |                       |      | MA     | MA     | MA     | MA     |       | MA/MB* |       |       |       |
| 68nF             |                       |      | MA     | MA     | MA     | MA     |       | MA/MB* |       |       |       |
| 82nF             |                       |      | MA     | MA     | MA     | MA     |       | MA/MB* |       |       |       |
| 100nF            | MA                    |      | MA     | MA     | MA     | MA*/MB | MB    |        |       |       |       |
| 120nF            | MA                    |      | MA     | MA     | MA     | MB     |       |        |       |       |       |
| 150nF            | MA                    |      | MA     | MA     | MA     |        |       |        |       |       |       |
| 220nF            | MA                    |      | MA     | MA     | MA     |        |       |        |       |       |       |
| 330nF            | MA                    |      | MA     | MA     | MA     |        |       |        |       |       |       |
| 470nF            | MA                    | MA   | MA     | MA     | MA     |        |       |        |       |       |       |
| 680nF            | MA                    |      | MA     | MB     | MB     |        |       |        |       |       |       |
| 820nF            | MA                    |      | MA     | MB/MC* | MB/MC* |        |       |        |       |       |       |
| 1μF              | MA                    |      | MA*/MB | MC     | MC     |        |       |        |       |       |       |
| 1.2μF            | MA                    |      | MA*/MB |        |        |        |       |        |       |       |       |
| 1.5μF            | MA                    |      | MA*/MB |        |        |        |       |        |       |       |       |
| 1.8μF            | MA                    |      | MA*/MB |        |        |        |       |        |       |       |       |
| 2.2μF            | MB                    |      | MB     |        |        |        |       |        |       |       |       |
| 3.3μF            |                       |      |        |        |        |        |       |        |       |       |       |
| 4.7μF            |                       |      |        |        |        |        |       |        |       |       |       |
| 6.8μF            |                       |      |        |        |        |        |       |        |       |       |       |
| 10μF             |                       |      |        |        |        |        |       |        |       |       |       |

| 代码 Code | MA        | MB        | MC        | 备注 Note                                 |
|---------|-----------|-----------|-----------|-----------------------------------------|
| T       | 1.60±0.30 | 2.00±0.30 | 2.50±0.30 | 加“*”为特殊品<br>Add "*" as special product. |

## ◆ 中高压电容器介质耐电强度的测试方法:

### Measurement method of dielectric withstanding voltage for high voltage MLCC

| 额定电压范围<br>Rated voltage range | 耐电性能的测试方法<br>Measuring Method                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------|
| $V_r=100V$                    | 施加额定电压的 250%, 5 秒, 最大电流不超过 50mA<br>Force 200%Rated voltage for 5 second. Max..current should not exceed 50 mA.  |
| $100V < V_r \leq 500V$        | 施加额定电压的 200%, 5 秒, 最大电流不超过 50mA<br>Force 200%Rated voltage for 5 second. Max..current should not exceed 50 mA.  |
| $500V \leq V_r \leq 1000V$    | 施加额定电压的 150%, 5 秒, 最大电流不超过 50mA<br>Force 150%Rated voltage for 5 second. Max..current should not exceed 50 mA.  |
| $1000V < V_r \leq 2000V$      | 施加额定电压的 120%, 5 秒, 最大电流不超过 50mA<br>Force 120%Rated voltage for 5 seconds. Max..current should not exceed 50 mA. |
| $2000V < V_r \leq 5000V$      | 施加额定电压的 120%, 5 秒, 最大电流不超过 10mA<br>Force 120%Rated voltage for 5 seconds. Max..current should not exceed 10 mA. |

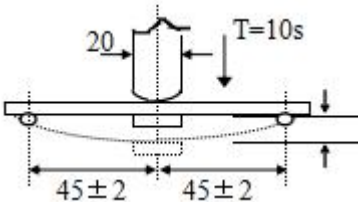
## ◆ 可靠性测试

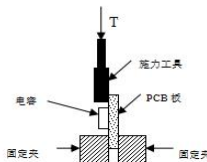
### Reliability Test

二类介质规格测量前需去老化处理: 测试温度:  $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , 测试湿度:  $<70\%\text{RH}$ . 电容器  $150^{\circ}\text{C}$  热处理  $1\text{h} \pm 10\text{min}$ , 放置  $24 \pm 2\text{h}$  后测量。

The second type of medium specification needs to be aged before measuring the capacity: test temperature:  $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , test humidity:  $<70\%\text{RH}$ . The capacitors were heat treated at  $150^{\circ}\text{C}$  for 1 hour  $\pm 10\text{minutes}$  and measured after  $24 \pm 2\text{ hours}$  of placement.

| 项目<br>Item                                | 技术规格<br>Technical Specification |                                                         | 测 试 方 法<br>Test Method and Remarks                                                                                                                                                                                               |                                   |                           |
|-------------------------------------------|---------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------|
| 容量<br>Capacitance                         | I类<br>Class I                   | 应符合指定的误差级别<br>Should be within the specified tolerance. | 标称容量<br>Capacitance                                                                                                                                                                                                              | 测试频率<br>Measuring Frequency       | 测试电压<br>Measuring Voltage |
|                                           |                                 |                                                         | ≤1000pF                                                                                                                                                                                                                          | 1MHz±10%                          | 1.0±0.2Vrms               |
|                                           |                                 |                                                         | > 1000 pF                                                                                                                                                                                                                        | 1KHz±10%                          |                           |
|                                           | II类<br>Class II                 | 应符合指定的误差级别<br>Should be within the specified tolerance. | 测试温度: 25℃±3℃<br>测试频率: 1KHz±10%<br>测试电压: 1.0±0.2Vrms<br>Test Temperature: 25℃±3℃<br>Test Frequency: 1KHz±10%<br>Test Voltage: 1.0±0.2Vrms                                                                                         |                                   |                           |
| 损耗角正切<br>(DF, tanδ)<br>Dissipation Factor | I类<br>Class I                   | DF                                                      | 标称容量<br>Capacitance                                                                                                                                                                                                              | 测试频率<br>Measuring Frequency       | 测试电压<br>Measuring Voltage |
|                                           |                                 | ≤1/ (400+20C)                                           | C<30 pF                                                                                                                                                                                                                          | 1MHz±10%<br>(C>1000 pF, 1KHz±10%) | 1.0±0.2Vrms               |
|                                           |                                 | ≤0.1%                                                   | C≥30pF                                                                                                                                                                                                                           |                                   |                           |
|                                           | II类<br>Class II                 | DF                                                      | 标称容量<br>Capacitance                                                                                                                                                                                                              | 测试频率<br>Measuring Frequency       | 测试电压<br>Measuring Voltage |
|                                           |                                 | ≤250×10 <sup>-4</sup>                                   | C<1 uF                                                                                                                                                                                                                           | 1KHz±10%                          | 1.0±0.2Vrms               |
|                                           |                                 | ≤750×10 <sup>-4</sup>                                   | 1 uF≤C≤4.7 uF                                                                                                                                                                                                                    |                                   |                           |
| 绝缘电阻<br>(IR)<br>Insulation Resistance     | I类<br>Class I                   | C≤10 nF, Ri≥50000MΩ<br>C>10 nF, Ri•CR≥500S              | 测试电压: 额定电压 (最高 500V)<br>测试时间: 60±5 秒<br>测试湿度: ≤75%<br>测试温度: 25℃±3℃<br>测试充放电电流: ≤50mA<br>Measuring Voltage: Rated Voltage (Max 500V)<br>Duration: 60±5s<br>Test Humidity: ≤75%<br>Test Temperature: 25℃±3℃<br>Test Current: ≤50mA |                                   |                           |
|                                           | II类<br>Class II                 | C≤25nF, Ri≥10000MΩ<br>C>25nF, Ri•CR>100S                |                                                                                                                                                                                                                                  |                                   |                           |

| 项目<br>Item                                                                                                             | 技术规格<br>Technical Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            | 测 试 方 法<br>Test Method and Remarks                                                                                                                                                                                                                                                                                        |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|------|----------------------------------------------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------|-----------|---------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------|-------|---|-------------------------|--------|
| 可焊性<br>Solderability                                                                                                   | 上锡率应大于 95%<br>At least 95% of the terminal electrode is covered by new solder.<br>外观: 无可见损伤.<br>Visual Appearance: No visible damage.                                                                                                                                                                                                                                                                                                                                                   |            | 将电容在 80~120℃ 的温度下预热 10~30 秒.<br>无铅焊料:<br>浸锡温度: 245±5℃<br>浸锡时间: 2±0.5s<br>Preheating conditions: 80 to 120℃; 10~30s.<br>Lead-free soldering<br>Solder Temperature: 245±5℃<br>Duration: 2±0.5s                                                                                                                              |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| 耐焊接热<br>Resistance to Soldering Heat                                                                                   | <table><tr><td>项目<br/>Item</td><td>I 类</td><td>II 类</td></tr><tr><td>ΔC/C</td><td>≤±2.5%或±0.25pF, 取较大值<br/>≤±2.5% or ±0.25pF, whichever is larger</td><td>±15%</td></tr><tr><td>DF</td><td colspan="2">同初始标准<br/>Same to initial value.</td></tr><tr><td>IR</td><td colspan="2">同初始标准<br/>Same to initial value.</td></tr><tr><td colspan="3">外观: 无可见损伤 上锡率: ≥95%<br/>Appearance: No visible damage. At least 95% of the terminal electrode is covered by new solder.</td></tr></table> |            | 项目<br>Item                                                                                                                                                                                                                                                                                                                | I 类 | II 类 | ΔC/C | ≤±2.5%或±0.25pF, 取较大值<br>≤±2.5% or ±0.25pF, whichever is larger | ±15%       | DF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 同初始标准<br>Same to initial value. |                  | IR        | 同初始标准<br>Same to initial value. |                                             | 外观: 无可见损伤 上锡率: ≥95%<br>Appearance: No visible damage. At least 95% of the terminal electrode is covered by new solder. |   |                         | 将电容在 100~200℃ 的温度下预热 60~120 秒.<br>浸锡温度: 265±5℃<br>浸锡时间: 10±1s<br>然后取出溶剂清洗干净, 在 10 倍以上的显微镜底下观察.<br>放置时间: 24±2 小时 放置条件: 室温<br>Preheating conditions: 100 to 200℃; 60~120s.<br>Solder Temperature: 265±5℃<br>Duration: 10±1s<br>Clean the capacitor with solvent and examine it with a 10X(min.) microscope.<br>Recovery Time: 24±2h<br>Recovery condition: Room temperature |   |                                              |       |   |                         |        |
| 项目<br>Item                                                                                                             | I 类                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | II 类       |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| ΔC/C                                                                                                                   | ≤±2.5%或±0.25pF, 取较大值<br>≤±2.5% or ±0.25pF, whichever is larger                                                                                                                                                                                                                                                                                                                                                                                                                          | ±15%       |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| DF                                                                                                                     | 同初始标准<br>Same to initial value.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| IR                                                                                                                     | 同初始标准<br>Same to initial value.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| 外观: 无可见损伤 上锡率: ≥95%<br>Appearance: No visible damage. At least 95% of the terminal electrode is covered by new solder. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| 抗弯曲强度<br>Resistance to Flexure of Substrate (Bending Strength)                                                         | 外观: 无可见损伤.<br>Appearance: No visible damage.<br><br>ΔC/C:<br>I 类: ≤±5%或±0.5pF, 取两者中最大者<br>II 类: : ≤±10%<br>Class I: ≤±5% or ±0.5pF, whichever is larger.<br>Class II: : ≤±10%                                                                                                                                                                                                                                                                                                           |            | 试验基板: PCB 弯曲深度: 1mm (N 端头) 3mm (A 端头)<br>施压速度: 1mm/sec 应在弯曲状态下进行测量。<br>Test Board: PCB Warp: 1mm (N-terminal), 3mm (A-terminal) Speed: 1mm/sec.<br>The measurement should be made with the board in the bending position.<br><br>弯曲深度 |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| 温度循环<br>Temperature Cycle                                                                                              | <table><tr><td>项目<br/>Item</td><td>COG</td><td>X7R</td></tr><tr><td>ΔC/C</td><td>≤±1%或±1pF, 取较大值<br/>≤±1% or ±1pF, whichever is larger</td><td>-15% ~+15%</td></tr></table><br>外观无可见损伤<br>No visible damage.                                                                                                                                                                                                                                                                            |            | 项目<br>Item                                                                                                                                                                                                                                                                                                                | COG | X7R  | ΔC/C | ≤±1%或±1pF, 取较大值<br>≤±1% or ±1pF, whichever is larger           | -15% ~+15% | Recovery time: 24±1h<br>初始测量 Initial Measurement<br>循环次数: 5 次, 一个循环分以下 4 步:<br>Cycling Times: 5 times, 1 cycle, 4 steps: <table><tr><td>阶段<br/>Step</td><td>温度 (Temperature)</td><td>时间 (Time)</td></tr><tr><td>1</td><td>下限温度 (Low- category temp.): (C0GX7R: -55℃ )</td><td>30min</td></tr><tr><td>2</td><td>常温 (Normal temp.): +20℃</td><td>2~3min</td></tr><tr><td>3</td><td>上限温度 (Up- category temp.): (C0G/X7R: +125℃ )</td><td>30min</td></tr><tr><td>4</td><td>常温 (Normal temp.): +20℃</td><td>2~3min</td></tr></table><br>试验后放置 (恢复) 时间: 24±2h<br>Recovery time after test: 24±2h | 阶段<br>Step                      | 温度 (Temperature) | 时间 (Time) | 1                               | 下限温度 (Low- category temp.): (C0GX7R: -55℃ ) | 30min                                                                                                                  | 2 | 常温 (Normal temp.): +20℃ | 2~3min                                                                                                                                                                                                                                                                                                                                                                    | 3 | 上限温度 (Up- category temp.): (C0G/X7R: +125℃ ) | 30min | 4 | 常温 (Normal temp.): +20℃ | 2~3min |
| 项目<br>Item                                                                                                             | COG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | X7R        |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| ΔC/C                                                                                                                   | ≤±1%或±1pF, 取较大值<br>≤±1% or ±1pF, whichever is larger                                                                                                                                                                                                                                                                                                                                                                                                                                    | -15% ~+15% |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| 阶段<br>Step                                                                                                             | 温度 (Temperature)                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 时间 (Time)  |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| 1                                                                                                                      | 下限温度 (Low- category temp.): (C0GX7R: -55℃ )                                                                                                                                                                                                                                                                                                                                                                                                                                             | 30min      |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| 2                                                                                                                      | 常温 (Normal temp.): +20℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2~3min     |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| 3                                                                                                                      | 上限温度 (Up- category temp.): (C0G/X7R: +125℃ )                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30min      |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |
| 4                                                                                                                      | 常温 (Normal temp.): +20℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2~3min     |                                                                                                                                                                                                                                                                                                                           |     |      |      |                                                                |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                  |           |                                 |                                             |                                                                                                                        |   |                         |                                                                                                                                                                                                                                                                                                                                                                           |   |                                              |       |   |                         |        |

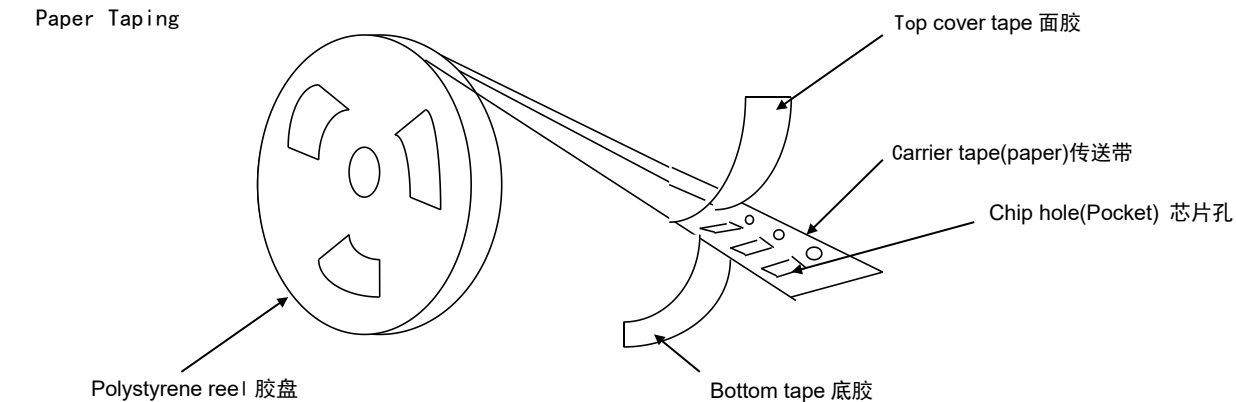
| 项目<br>Item                     | 技术规格<br>Technical Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |                                                                   | 测 试 方 法<br>Test Method and Remarks                                                                                                                                                                                                                                                                                                                                                                                                         |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------------------|---------------------------|---------------------------------------------------|----|-------|-----|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| 端头结合强度<br>Termination Adhesion | 外观无可见损伤<br>No visible damage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                   |                                                                   | <p>如图所示: 慢慢施加一个 T 的力到电容侧面瓷体上, 并保持 10+1 秒。</p> <p>As shown in the picture, Slowly apply a T force to the porcelain body on the side of the capacitor and hold for 10+1 seconds.</p> <table><tr><th>规 格<br/>Specifi<br/>cation</th><th>施加力 T<br/>Apply<br/>force T</th></tr><tr><td>≤0402</td><td>2N</td></tr><tr><td>≥0603</td><td>5N</td></tr></table>  |      | 规 格<br>Specifi<br>cation | 施加力 T<br>Apply<br>force T | ≤0402                                             | 2N | ≥0603 | 5N  |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
| 规 格<br>Specifi<br>cation       | 施加力 T<br>Apply<br>force T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                   |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
| ≤0402                          | 2N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                   |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
| ≥0603                          | 5N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                   |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
| 耐湿负荷<br>Humidity load          | <table><tr><td rowspan="2">ΔC<br/>/C</td><td>I 类</td><td>±7.5%或±0.75pF, 取两者之中较大者<br/>±7.5% or ±0.75pF, whichever is larger.</td></tr><tr><td>II 类</td><td>-12.5% ~ +12.5%</td></tr><tr><td>DF</td><td colspan="2">≤2 倍初始标准<br/>Not more than twice of initial value.</td></tr><tr><td rowspan="2">IR</td><td>I 类</td><td>Ri ≥5000MΩ 或 Ri•Cr ≥50S 取两者之中较小者.<br/>Ri≥5000MΩ or Ri•Cr≥50S whichever is smaller.</td></tr><tr><td>II 类</td><td>Ri ≥1000MΩ 或 Ri•Cr ≥10S 取两者之中较小者.<br/>Ri≥1000MΩ or Ri•Cr≥10S whichever is smaller.</td></tr></table> <p>外观: 无损伤<br/>Appearance: No visible damage.</p> | ΔC<br>/C                                                                          | I 类                                                               | ±7.5%或±0.75pF, 取两者之中较大者<br>±7.5% or ±0.75pF, whichever is larger.                                                                                                                                                                                                                                                                                                                                                                          | II 类 | -12.5% ~ +12.5%          | DF                        | ≤2 倍初始标准<br>Not more than twice of initial value. |    | IR    | I 类 | Ri ≥5000MΩ 或 Ri•Cr ≥50S 取两者之中较小者.<br>Ri≥5000MΩ or Ri•Cr≥50S whichever is smaller. | II 类 | Ri ≥1000MΩ 或 Ri•Cr ≥10S 取两者之中较小者.<br>Ri≥1000MΩ or Ri•Cr≥10S whichever is smaller. | <p>温度: 40±2℃<br/>湿度: 90~95%RH<br/>电压: 额定电压 Ur ≤1000V 时, 按 Ur 测试;<br/>额定电压 Ur &gt;1000V 时, 最高按 1000V 测试<br/>时间: 500 小时<br/>放置时间: 24±2h 小时;<br/>II 类: 0201 ≥47nF、0402 ≥33nF、0603 ≥1 μF、0805 ≥4.7 μF、1206 ≥10 μF 产品试验后需在 150℃ 温度下保持 1h , 再放置 24±2h 后测试电性能.<br/>Temperature: 40±2℃<br/>Humidity: 90~95%RH<br/>Voltage: Rated Voltage (Umax≤1000V)<br/>Duration: 500h<br/>Recovery Time: 24h±2h<br/>Class 2: 0201 ≥47nF、0402 ≥33nF、0603 ≥1 μF、0805 ≥4.7 μF、1206 ≥10 μF product need to keep in 150℃、1h after the test, and measurement to be made after being kept at room temperature for 24 ±2h.</p>                                                                                                                                                        |  |  |
| ΔC<br>/C                       | I 类                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                   | ±7.5%或±0.75pF, 取两者之中较大者<br>±7.5% or ±0.75pF, whichever is larger. |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
|                                | II 类                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -12.5% ~ +12.5%                                                                   |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
| DF                             | ≤2 倍初始标准<br>Not more than twice of initial value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
| IR                             | I 类                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ri ≥5000MΩ 或 Ri•Cr ≥50S 取两者之中较小者.<br>Ri≥5000MΩ or Ri•Cr≥50S whichever is smaller. |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
|                                | II 类                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ri ≥1000MΩ 或 Ri•Cr ≥10S 取两者之中较小者.<br>Ri≥1000MΩ or Ri•Cr≥10S whichever is smaller. |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
| 寿命试验<br>Life Test              | <table><tr><td rowspan="2">ΔC<br/>/C</td><td>I 类</td><td>≤ ±3%或±0.3pF, 取两者之中较大者<br/>≤ ±3% or ±0.3pF, whichever is larger.</td></tr><tr><td>II 类</td><td>-20% ~ +20%</td></tr><tr><td>DF</td><td colspan="2">≤2 倍初始标准<br/>Not more than twice of initial value.</td></tr><tr><td rowspan="2">IR</td><td>I 类</td><td>Ri ≥4000MΩ 或 Ri•Cr ≥40S 取两者之中较小者<br/>Ri≥4000MΩ or Ri•Cr≥40S whichever is smaller.</td></tr><tr><td>II 类</td><td>Ri ≥2000MΩ 或 Ri•Cr ≥50S 取两者之中较小者.<br/>Ri≥2000MΩ or Ri•Cr≥50S whichever is smaller.</td></tr></table> <p>外观: 无损伤<br/>Appearance: No visible damage.</p>        | ΔC<br>/C                                                                          | I 类                                                               | ≤ ±3%或±0.3pF, 取两者之中较大者<br>≤ ±3% or ±0.3pF, whichever is larger.                                                                                                                                                                                                                                                                                                                                                                            | II 类 | -20% ~ +20%              | DF                        | ≤2 倍初始标准<br>Not more than twice of initial value. |    | IR    | I 类 | Ri ≥4000MΩ 或 Ri•Cr ≥40S 取两者之中较小者<br>Ri≥4000MΩ or Ri•Cr≥40S whichever is smaller.  | II 类 | Ri ≥2000MΩ 或 Ri•Cr ≥50S 取两者之中较小者.<br>Ri≥2000MΩ or Ri•Cr≥50S whichever is smaller. | <p>电压:<br/>100V≤额定电压≤200V: 1.5Ur<br/>200V&lt;额定电压&lt;500V: 1.3Ur<br/>500V≤额定电压: 1.2Ur<br/>时间: 1000 小时<br/>温度: 125℃<br/>充电电流: 不应超过 50mA<br/>放置时间: 24±2h 小时;<br/>II 类: 0201 ≥47nF、0402 ≥33nF、0603 ≥1 μF、0805 ≥4.7 μF、1206 ≥10 μF 产品试验后需在 150℃ 温度下保持 1h , 再放置 24±2h 后测试电性能.<br/>Applied Voltage:<br/>100V≤Rated Voltage≤200V: 1.5 Multiple<br/>200V&lt;Rated Voltage&lt;500V: 1.3 Multiple<br/>500V≤Rated Voltage: 1.2 Multiple<br/>Duration: 1000h<br/>Temperature: 125℃ (C0G、X7R)<br/>Charge/Discharge Current:50mA max.<br/>Recovery Time: 24h±2h<br/>Class 2: 0201 ≥47nF、0402 ≥33nF、0603 ≥1 μF、0805 ≥4.7 μF、1206 ≥10 μF product need to keep in 150℃、1h after the test, and measurement to be made after being kept at room temperature for 24 ±2h.</p> |  |  |
| ΔC<br>/C                       | I 类                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                   | ≤ ±3%或±0.3pF, 取两者之中较大者<br>≤ ±3% or ±0.3pF, whichever is larger.   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
|                                | II 类                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -20% ~ +20%                                                                       |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
| DF                             | ≤2 倍初始标准<br>Not more than twice of initial value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
| IR                             | I 类                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ri ≥4000MΩ 或 Ri•Cr ≥40S 取两者之中较小者<br>Ri≥4000MΩ or Ri•Cr≥40S whichever is smaller.  |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
|                                | II 类                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ri ≥2000MΩ 或 Ri•Cr ≥50S 取两者之中较小者.<br>Ri≥2000MΩ or Ri•Cr≥50S whichever is smaller. |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                          |                           |                                                   |    |       |     |                                                                                   |      |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |

## ◆ 包装

### Package

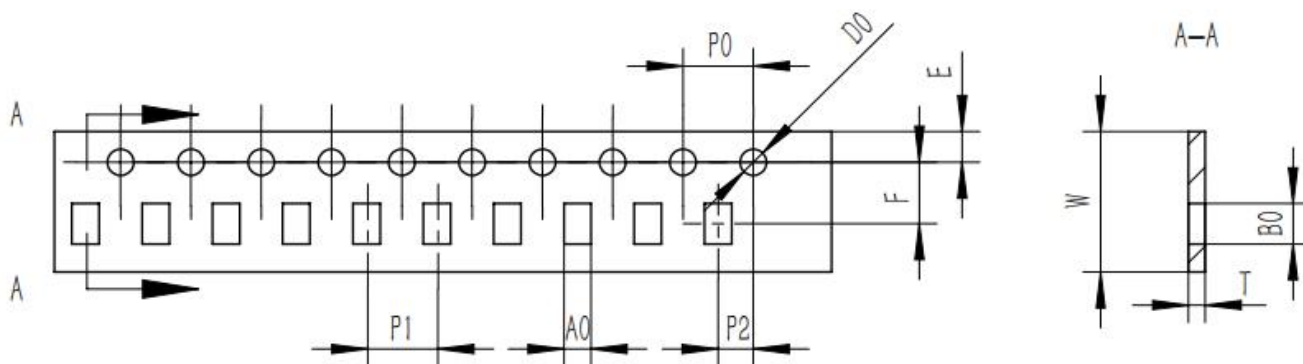
#### \* 纸带卷盘结构

Paper Taping



\* 适合 '0402, 0603, 0805, 1206' 常规尺寸产品的纸带尺寸

Dimensions of paper taping for 0402, 0603, 0805, 1206 types.



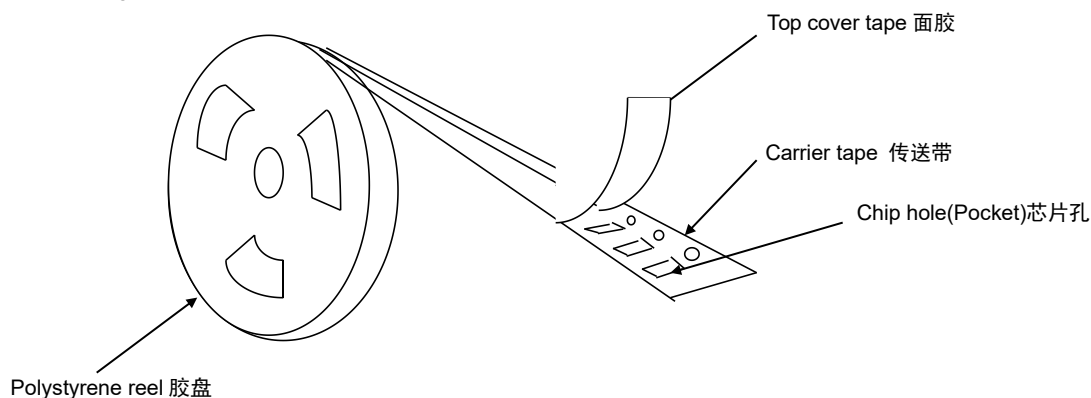
| 代号<br>Code | A0        | B0        | W     | F        | E        | P1     | P2     | P0    | D0        | T         |
|------------|-----------|-----------|-------|----------|----------|--------|--------|-------|-----------|-----------|
| 0402       | 0.59±0.03 | 1.12±0.03 | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 2±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 0.60±0.03 |
| 0603       | 0.95±0.05 | 1.9±0.05  | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 4±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 0.95±0.03 |
| 0603       | 1.05±0.05 | 1.85±0.05 | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 4±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 0.98±0.03 |
| 0603       | 1.10±0.05 | 1.90±0.05 | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 4±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 1.05±0.03 |
| 0805       | 1.55±0.05 | 2.3±0.05  | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 4±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 0.75±0.03 |
| 0805       | 1.55±0.05 | 2.3±0.05  | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 4±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 0.95±0.03 |
| 0603       | 1.10±0.05 | 1.90±0.05 | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 4±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 1.05±0.03 |
| 0805       | 1.55±0.05 | 2.3±0.05  | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 4±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 0.75±0.03 |
| 0805       | 1.55±0.05 | 2.3±0.05  | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 4±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 0.95±0.03 |
| 0805       | 1.55±0.05 | 2.3±0.05  | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 4±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 0.98±0.03 |
| 1206       | 1.85±0.05 | 3.45±0.05 | 8±0.1 | 3.5±0.05 | 1.75±0.1 | 4±0.05 | 2±0.05 | 4±0.1 | 1.55±0.05 | 0.95±0.03 |

注意: \*表示此处对尺寸的要求非常精确。

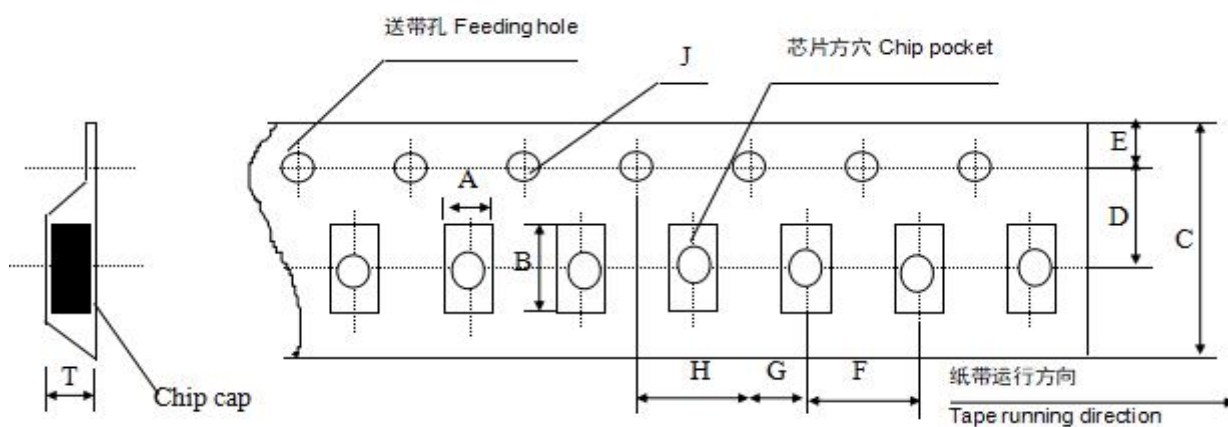
Note: The place with "\*" means where needs exactly dimensions.

### \* 塑胶卷盘结构

## Embossed taping



\* 塑胶带尺寸结构(适合‘0805~1812’型产品)



### Dimensions of embossed taping for 0805~1812 type

备注：\*表示此处对尺寸的要求非常精确。

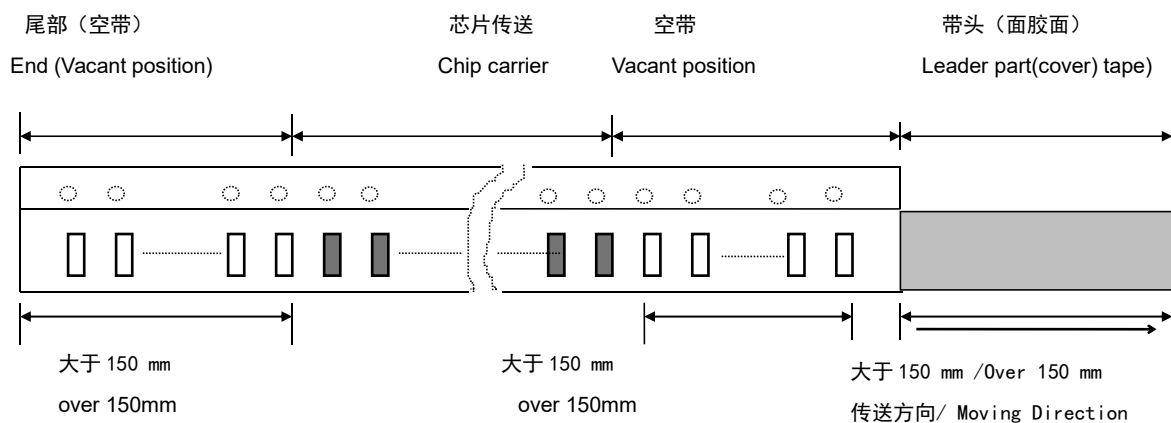
Note: The place with “\*” means where needs exactly dimensions

| 代号<br>Code<br>规格<br>Tape size | A                   | B                   | C                   | D* | E              | F | G* | H | J | T                  |
|-------------------------------|---------------------|---------------------|---------------------|----|----------------|---|----|---|---|--------------------|
| 0805                          | 1.50<br>± 0.10      | 2.34<br>± 0.10      | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.22 +<br>0.1-0.03 |
| 0805                          | 1.40 +<br>0.10-0.05 | 2.25<br>± 0.10      | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.35 +<br>0.1-0.03 |
| 0805                          | 1.55<br>± 0.10      | 2.28<br>± 0.10      | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.45 +<br>0.1-0.03 |
| 0805                          | 1.55 +<br>0.10-0.03 | 2.35<br>± 0.10      | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.55 +<br>0.1-0.03 |
| 1206                          | 1.77 +<br>0.10-0.03 | 3.40 +<br>0.10-0.05 | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.04 +<br>0.1-0.03 |
| 1206                          | 1.88<br>± 0.10      | 3.50<br>± 0.10      | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.27 +<br>0.1-0.03 |
| 1206                          | 1.85<br>± 0.10      | 3.50<br>± 0.10      | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.35 +<br>0.1-0.03 |
| 1206                          | 1.88<br>± 0.10      | 3.53<br>± 0.10      | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.80 +<br>0.1-0.03 |
| 1206                          | 2.00 +<br>0.10-0.03 | 3.55<br>± 0.10      | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.95 +<br>0.1-0.03 |
| 1210                          | 2.76<br>± 0.10      | 3.42<br>± 0.10      | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.55 +<br>0.1-0.03 |
| 1210                          | 2.85<br>± 0.10      | 3.56<br>± 0.10      | 8.00 +<br>0.10-0.03 | /  | 1.75<br>± 0.10 | / | /  | / | / | 1.80 +<br>0.1-0.05 |

|      |                     |                     |                     |   |                |   |   |   |   |                    |
|------|---------------------|---------------------|---------------------|---|----------------|---|---|---|---|--------------------|
| 1210 | 2.80<br>± 0.10      | 3.60<br>± 0.10      | 8.00 +<br>0.10-0.03 | / | 1.75<br>± 0.10 | / | / | / | / | 2.30 +<br>0.1-0.03 |
| 1210 | 2.65 +<br>0.10-0.03 | 3.45 +<br>0.10-0.03 | 8.00 +<br>0.10-0.03 | / | 1.75<br>± 0.10 | / | / | / | / | 2.65 +<br>0.1-0.03 |
| 1808 | 2.20 +<br>0.10-0.03 | 4.95 ± 0.10         | 12.00 ± 0.1         | / | 1.75<br>± 0.10 | / | / | / | / | 1.80 +<br>0.1-0.03 |
| 1808 | 2.30 +<br>0.10-0.03 | 5.16 ± 0.10         | 12.00 ± 0.1         | / | 1.75<br>± 0.10 | / | / | / | / | 2.30 +<br>0.1-0.03 |
| 1812 | 3.66<br>± 0.10      | 4.95 ± 0.10         | 12.00 ± 0.1         | / | 1.75<br>± 0.10 | / | / | / | / | 1.85 ± 0.1         |
| 1812 | 3.60<br>± 0.10      | 5.10<br>± 0.10      | 12.00 ± 0.1         | / | 1.75<br>± 0.10 | / | / | / | / | 2.80 ± 0.1         |
| 2220 | 5.70<br>± 0.10      | 6.20<br>± 0.10      | 12.00 ± 0.1         | / | 1.75<br>± 0.10 | / | / | / | / | 2.0 +<br>0.15-0.03 |
| 2211 | 3.0 ± 0.1           | 6.0 ± 0.1           | 12.00 ± 0.1         | / | 1.75<br>± 0.10 | / | / | / | / | 1.8 ± 0.1          |
| 2225 | 6.30 +<br>0.10-0.03 | 6.80 +<br>0.10-0.03 | 12.00 ± 0.1         | / | 1.75<br>± 0.10 | / | / | / | / | 2.0 +<br>0.10-0.03 |
| 2225 | 6.20 +<br>0.10-0.03 | 6.70 +<br>0.10-0.03 | 12.00 ± 0.1         | / | 1.75<br>± 0.10 | / | / | / | / | 2.4 +<br>0.10-0.03 |

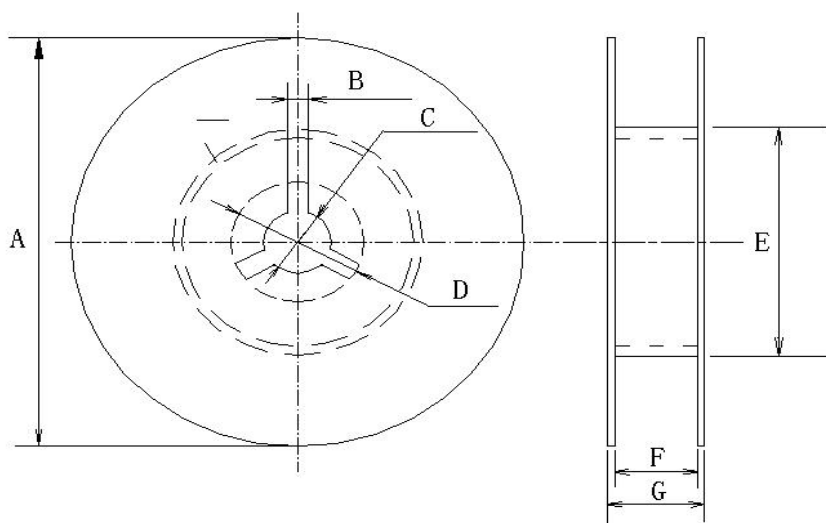
\* 传送带的前后结构

Structure of leader part and end part of the carrier paper



\* 卷盘尺寸

Reel dimensions (unit: mm)

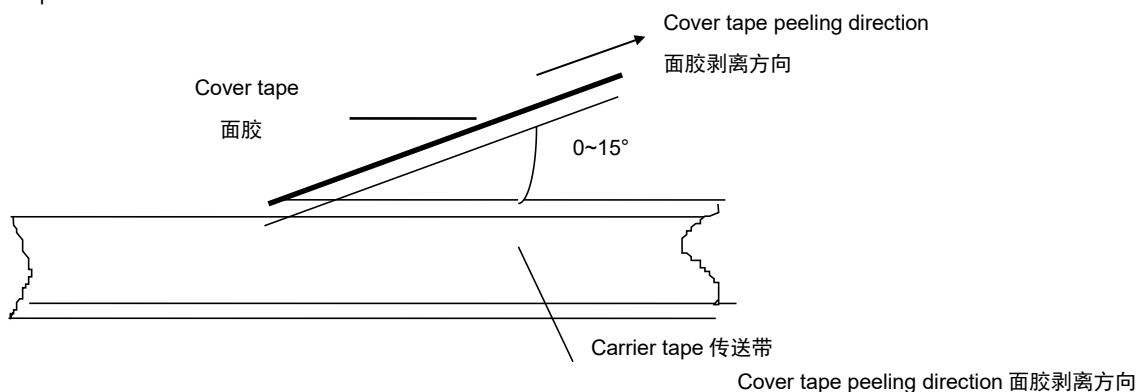


| 卷盘型号    | A                  | B   | C                 | D                 | E                                  | F              | G     |
|---------|--------------------|-----|-------------------|-------------------|------------------------------------|----------------|-------|
| 7'REEL  | $\phi 178 \pm 2.0$ | 3.0 | $\phi 13 \pm 0.5$ | $\phi 21 \pm 0.8$ | $\phi 50$ 或更大<br>$\phi 50$ or more | $10.0 \pm 1.5$ | 12max |
| 13'REEL | $\Phi 330 \pm 2.0$ | 3.0 | $\phi 13 \pm 0.5$ | $\phi 21 \pm 0.8$ | 92-100                             | $10.0 \pm 1.5$ | 12max |

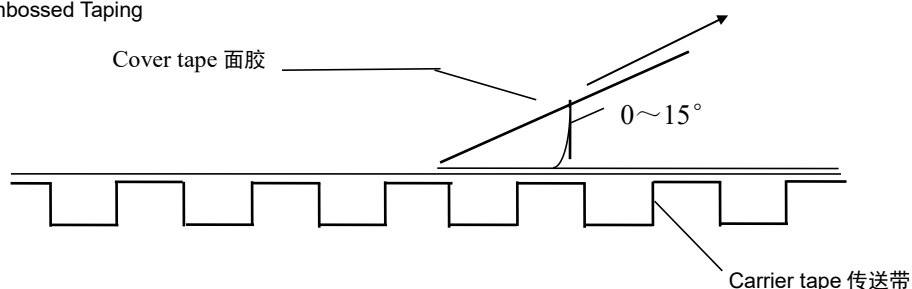
\* 关于卷带的说明：面胶剥离强度

Taping specification: top tape peeling strength

\* 纸带 Paper Taping



塑料胶盘 Embossed Taping



标准:  $0.1N < \text{剥离强度} < 0.7N$

Standard:  $0.1N < \text{peeling strength} < 0.7N$

在剥离时，纸带不能有纸碎，也不能粘在底、面胶上。

No paper dirty remains on the scotch when peeling, and sticks to top and bottom tape.

\* 包装数量

Packing Quantity

| 尺寸代码<br>SizeCode | 厚度 (T)<br>Thickness | 7 寸纸带卷盘 (PT) | 7 寸胶带卷盘 (ET)                                            | 13 寸纸带卷盘 (PT) | 13 寸胶带卷盘 (ET) |
|------------------|---------------------|--------------|---------------------------------------------------------|---------------|---------------|
| 0402             | $0.50 \pm 0.05$     | 10000        | —                                                       | 50000         | —             |
| 0603             | $0.80 \pm 0.10$     | 4000         | —                                                       | 15000         | —             |
| 0805             | $0.80 \pm 0.20$     | 4000         | —                                                       | 15000         | —             |
|                  | $1.25 \pm 0.25$     | —            | $T \leq 1.35\text{mm}$ 3000<br>$T > 1.35\text{mm}$ 2000 | —             | 10000         |
| 1206             | $0.80 \pm 0.20$     | 4000         | —                                                       | 15000         | —             |
|                  | $1.25 \pm 0.25$     | —            | $T \leq 1.35\text{mm}$ 3000<br>$T > 1.35\text{mm}$ 2000 | —             | 10000         |
|                  | $1.60 \pm 0.30$     | —            | 2000                                                    | —             | 8000          |
| 1210             | $1.25 \pm 0.25$     | —            | 2000                                                    | —             | 8000          |
|                  | $1.60 \pm 0.30$     | —            | 2000                                                    | —             | 8000          |
|                  | $2.00 \pm 0.30$     | —            | 2000/1000                                               | —             | 8000          |
|                  | $2.50 \pm 0.30$     | —            | 1000                                                    | —             | 8000          |
| 1808             | $1.60 \pm 0.30$     | —            | 2000                                                    | —             | 8000          |
|                  | $2.00 \pm 0.30$     | —            | 1000                                                    | —             | 8000          |
| 1812             | $1.25 \pm 0.25$     | —            | 1000                                                    | —             | 3000          |
|                  | $1.60 \pm 0.30$     | —            | $T \leq 1.85\text{mm}$ 1000<br>$T > 1.85\text{mm}$ 500  | —             | 3000          |

|      |           |     |     |     |      |
|------|-----------|-----|-----|-----|------|
|      | 2.00±0.30 | --- | 500 | --- | 3000 |
|      | 2.50±0.30 | --- | 500 | --- | ---  |
| 1825 | 1.60±0.30 | --- | 500 | --- | ---  |
|      | 2.00±0.30 | --- | 500 | --- | ---  |
|      | 2.50±0.30 | --- | 500 | --- | ---  |
| 2211 | 1.60±0.30 | --- | 500 | --- | ---  |
|      | 2.00±0.30 | --- | 500 | --- | ---  |
| 2220 | 1.60±0.30 | --- | 500 | --- | ---  |
|      | 2.00±0.30 | --- | 500 | --- | ---  |
|      | 2.50±0.30 | --- | 500 | --- | ---  |
| 2225 | 1.60±0.30 | --- | 500 | --- | ---  |
|      | 2.00±0.30 | --- | 500 | --- | ---  |
|      | 2.50±0.30 | --- | 500 | --- | ---  |

注意：包装的形式和数量可根据客户的要求来定。

Note: We can choose packing style and quantity can be according to the customer's requirement.

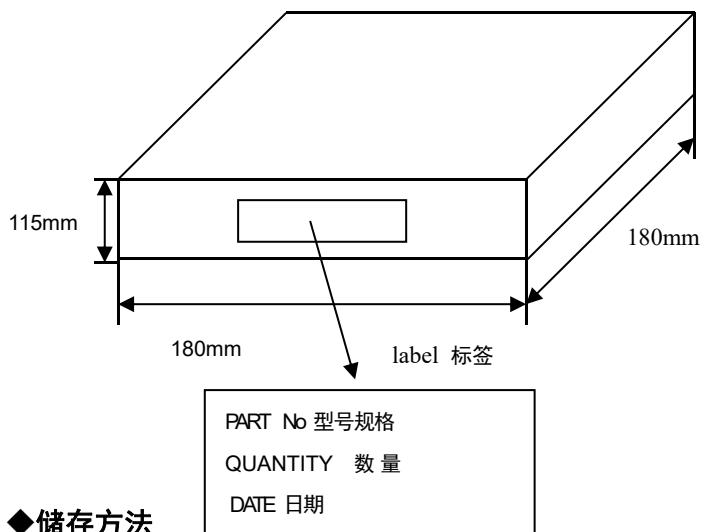
### \* 外包装

#### Outer packing

小包装 The first package

Quantity: 10 reels

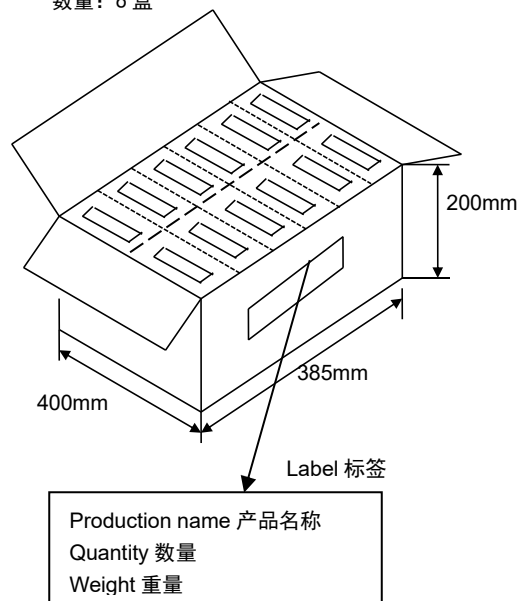
数量：10 卷



大包装 The second package

Quantity: 6 cases

数量：6 盒



### ◆储存方法

#### Storage Methods

\* 确保芯片可焊性良好的贮存期限为 12 个月(在包装好已交付的情况下)。

The guaranteed period for solderability is 12 months (Under deliver package condition).

\* 储存条件 Storage conditions:

储存温度/Temperature 5~40℃

储存相对湿度/Relative Humidity 20~70%

### ◆使用前的注意事项

#### Precautions For Use

多层片式瓷介电容器 (MLCC) 在短路或开路的电路中都有可能失效, 在超出本承诺书或相关说明书中所述使用频率的恶劣工作环境, 或外界机械力超压作用下, 电容芯片都有可能着火、燃烧甚至爆炸, 所以在使用的时候, 首先应考虑按本承诺书的有关说明来进行, 如有不明之处, 请联系我们技术部、品管部或生产部。

The Multi-layer Ceramic Capacitors (MLCC) may fail in a short circuit modern in an open circuit mode when subjected to severe conditions of electrical environment and / or mechanical stress beyond the specified "rating" and specified "conditions" in the specification, which will result in burn out, flaming or glowing in the worst case. Following "precautions for "safety" and Application Notes shall be taken in

your major consideration. If you have a question about the precautions for handling, please contact our engineering section or factory.

## \* 焊接的条件与相关图表

### Soldering Profile

为避免因温度的突然变化而引起的芯片开裂或局部爆炸的现象发生, 请按有关温度曲线图表来进行。(请参考附页中的图表)

To avoid the crack problem by sudden temperature change, follow the temperature profile in the adjacent graph (refer to the graph in the enclosure page).

## \* 手工焊接

### Manual Soldering

手工焊接很容易因为芯片局部受热不均而引起瓷体微裂或局部爆炸的现象, 在焊接时, 如果操作者不小心, 会使烙铁头直接同电容芯片的瓷体部分接触, 这样很容易使电容芯片因热冲击而受损或出现其他意外. 因此, 使用电烙铁手工焊接时应仔细操作, 并对电烙铁的尖端的选择和尖端温度控制应多加小心.

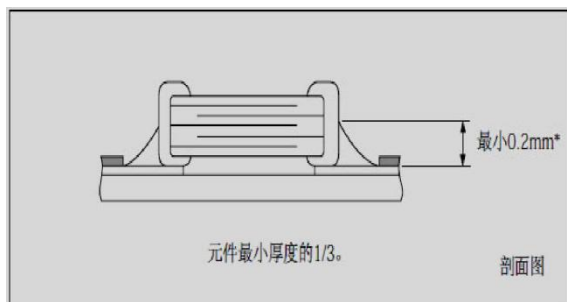
Manual soldering can pose a great risk of creating thermal cracks in capacitors. The hot soldering iron tip comes into direct contact with the end terminations, and operator's careless may cause the tip of the soldering iron to come into direct contact with the ceramic body of the capacitor. Therefore the soldering iron must be handled carefully, and pay much attention to the selection of the soldering iron tip and temperature contact of the tip.

## \* 推荐焊料用量

### Recommended Soldering amounts

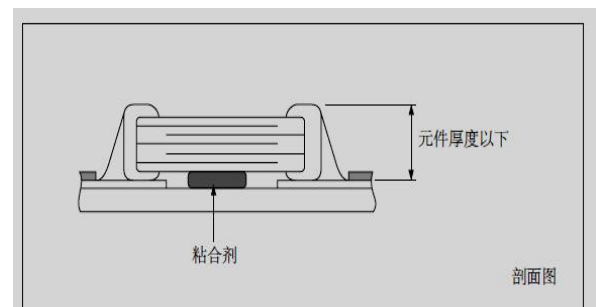
#### 回流焊接的最佳焊料用量

The optimal solder fillet amounts for re-flow soldering



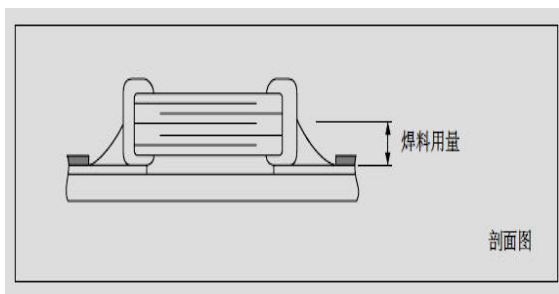
#### 波峰焊接的最佳焊料用量

The optimal solder fillet amounts for wave soldering



#### 使用烙铁返修时的最佳焊料量

The optimal solder fillet amounts for reworking by using soldering iron



\* 推荐焊接方式

Recommended Soldering Method

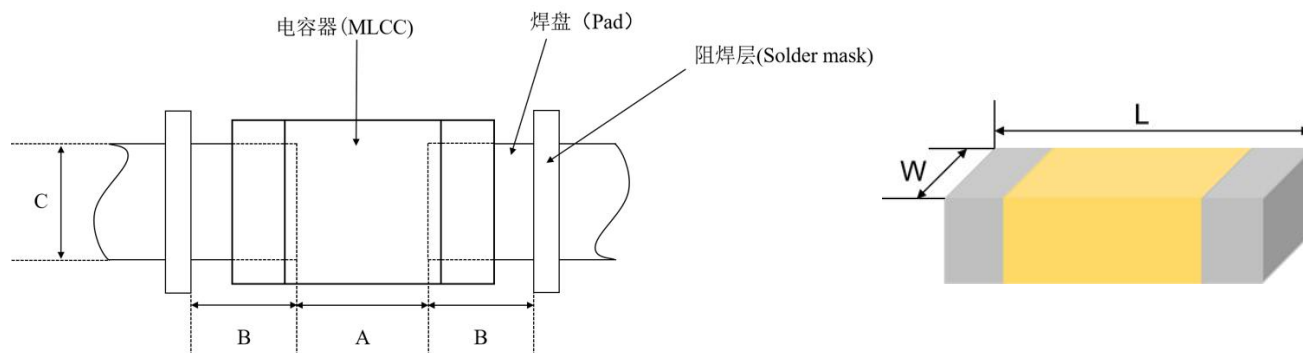
| 规格尺寸<br>Size | 温度特性<br>Temperature Characteristics | 容量范围<br>Capacitance | 焊接方式<br>Soldering Method |
|--------------|-------------------------------------|---------------------|--------------------------|
| 0402         | X7R                                 | /                   | R                        |
| 0603         | C0G                                 | /                   | R/W                      |
|              | X7R                                 | $C \geq 1\mu f$     | R                        |
|              |                                     | $C < 1\mu f$        | R/W                      |
| 0805         | C0G                                 | /                   | R/W                      |
|              | X7R                                 | $C \geq 2.2\mu f$   | R                        |
|              |                                     | $C < 2.2\mu f$      | R/W                      |
| 1206         | C0G                                 | /                   | R/W                      |
|              | X7R                                 | $C \geq 4.7\mu f$   | R                        |
|              |                                     | $C < 4.7\mu f$      | R/W                      |
| $\geq 1210$  | C0G                                 | /                   | R                        |
|              | X7R                                 | /                   | R                        |

焊接方式 Soldering method: R—回流焊 Reflow Solering W—波峰焊 Wave Soldering

\*推荐回流焊焊盘尺寸（单位：mm）

Recommended reflow pad size (Unit: mm)

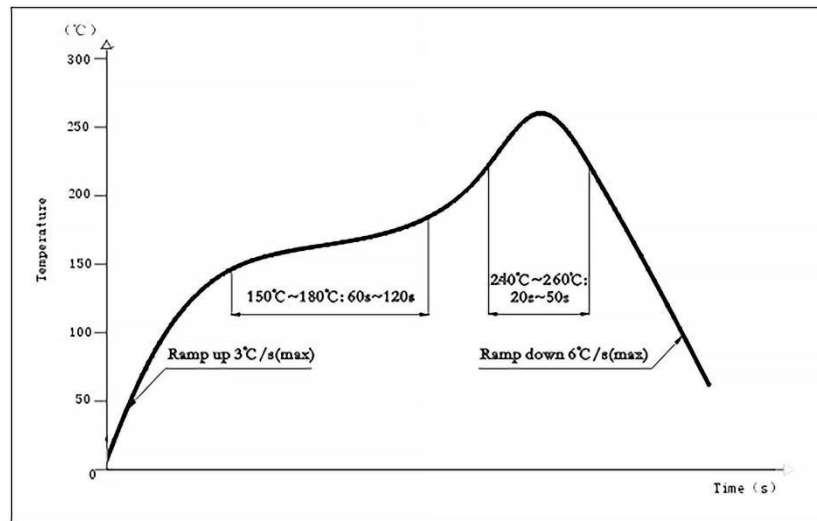
| 电容产品尺寸 Capacitor product size |           |           | 焊盘尺寸 Pad size |           |           |
|-------------------------------|-----------|-----------|---------------|-----------|-----------|
| 规格代码<br>SizeCode              | L         | W         | A             | B         | C         |
| 0402                          | 1.00±0.05 | 0.50±0.05 | 0.30~0.50     | 0.35~0.45 | 0.40~0.60 |
|                               | 1.00±0.15 | 0.50±0.15 | 0.40~0.60     | 0.40~0.50 | 0.50~0.70 |
|                               | 1.00±0.20 | 0.50±0.20 |               |           |           |
| 0603                          | 1.60±0.10 | 0.80±0.10 | 0.60~0.80     | 0.60~0.70 | 0.60~0.80 |
|                               | 1.60±0.20 | 0.80±0.20 | 0.70~0.90     | 0.70~0.80 | 0.80~1.00 |
| 0805                          | 2.00±0.20 | 1.25±0.25 | 1.00~1.40     | 0.60~0.80 | 1.20~1.40 |
| 1206                          | 3.20±0.30 | 1.60±0.30 | 1.90~2.10     | 1.00~1.30 | 1.60~1.90 |
| 1210                          | 3.20±0.30 | 2.50±0.30 | 2.00~2.40     | 1.00~1.30 | 2.50~2.80 |
| 1808                          | 4.50±0.40 | 2.00±0.20 | 2.50~3.50     | 1.00~1.80 | 2.30~3.50 |
| 1812                          | 4.50±0.40 | 3.20±0.30 | 2.50~3.50     | 1.00~1.80 | 2.30~3.50 |



◆ 推荐焊接温度曲线图

The temperature profile for soldering

\* 回流焊接 (Re-flow soldering)



回流焊要求：器件回流焊要求满足 J-STD-020 无铅回流焊。

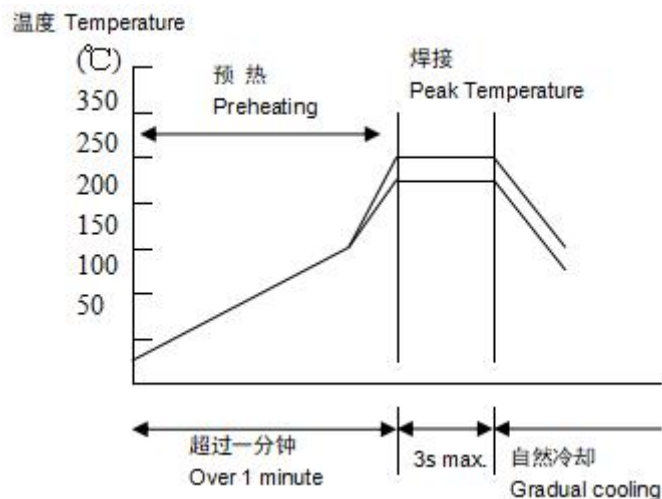
Reflow soldering requirements: The device reflow soldering requirements meet the J-STD-020 lead-free reflow soldering.

在预热时，请将焊接温度与芯片表面温度之间的温差维持在  $T \leq 150^{\circ}\text{C}$ 。

While in preheating, please keep the temperature difference between soldering temperature and surface temperature of chips as:  $T \leq 150^{\circ}\text{C}$ .

\* 波峰焊接

(Wave soldering)



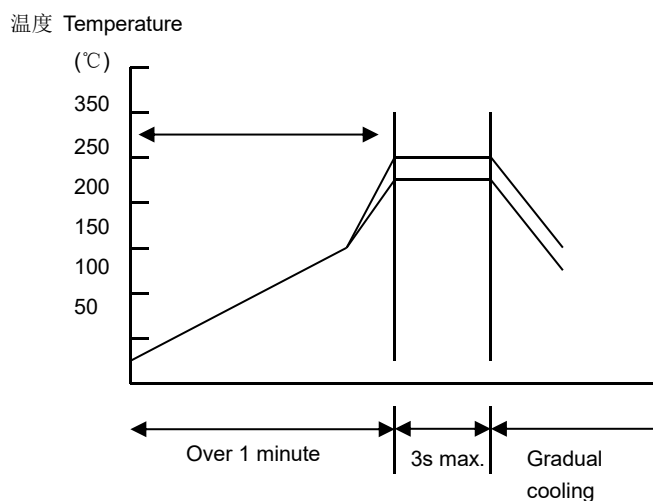
|                          |                             |
|--------------------------|-----------------------------|
|                          | 无铅焊接<br>Lead-free soldering |
| 尖峰温度<br>Peak temperature | 240°C~270°C                 |

在预热时，请将焊接温度与芯片表面温度之间的温差维持在  $T \leq 150^{\circ}\text{C}$ 。

While in preheating, please keep the temperature difference between soldering temperature and surface temperature of chips as:  $T \leq 150^{\circ}\text{C}$ .

\* 手工焊接

Hand soldering



条件 Conditions:

| 预热<br>Preheating                  | 烙铁头温度<br>Temperature of<br>soldering iron<br>head | 烙铁功率<br>Power of<br>soldering<br>iron | 烙铁头直径<br>Diameter of<br>soldering iron<br>head | 焊接时间<br>Soldering<br>time     | 锡膏量<br>Solder paste<br>amount                   | 限制条件<br>Restricted conditions                                                                               |
|-----------------------------------|---------------------------------------------------|---------------------------------------|------------------------------------------------|-------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| $\Delta \leq 130^{\circ}\text{C}$ | 最高 350°C<br>Highest<br>temperature: 350°C         | 最大 20W<br>20W at the<br>highest       | 建议 1mm<br>1mm<br>recommended                   | 最长 3s<br>3s at the<br>longest | $\leq 1/2$ 芯片厚度<br>$\leq 1/2$ chip<br>thickness | 请勿使用烙铁头直接接触陶瓷元件<br>Please avoid the direct contact<br>between soldering iron head and<br>ceramic components |

\* 备注：产品规格书仅供设计选型参考用，不作为交货依据。

Note: The product specification is for design and selection reference only and shall not serve as a basis for delivery.

## ■修订履历 Revision History

[illegible]

注：1.上述所提供之内容为产品规格说明。在产品未变更时，风华保有修改此内容不另行通知之所有权利，任何产品变更将会以 P C N 通知客户。

1. The content provided above is the produce specification, if the product is not changed, FENGHUA reserves all the right to modify this content without prior notice. any product change will be notified to the customer by PCN.

2.产品规格书中,同规格同容量同温度特性可交付的高电压型号规格,可以完全覆盖低压;同规格同容量同电压产品,温度特性 X7R 产品可覆盖 X7S,X7T,X6S,X5R (如 0402B104K101NT 可以覆盖 0402BS104K101NT,0402BT104K101NT, 0402DS104K101NT, 0402X/104K101NT)。规格书中就不再列出详细型号规格。

2. In this product specification, the high voltage model specifications that can be delivered with the same specification and the same capacity and temperature characteristics can completely cover the low voltage; Same specifications, same capacity, same voltage products ,Temperature characteristic X7R products covering X7S,X7T,X6S,X5R( such as 0402B/104K101NT can cover 0402BS104K101NT,0402BT104K101NT,0402DS104K101NT,0402X/104K101NT ) , The specification is no longer listed in this product specification.