



# 多层片式陶瓷电容器 产品目录书

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安徽省富捷电子科技有限公司  
ANHUI FOJAN TECHNOLOGY CO., LTD

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## 电容器及介质分类

### Types of Capacitor and Dielectric Material

**COG:** 此类介质材料的电容器为 I 类电容器，包括常规、中高压 COG 产品。此类产品电性能稳定，几乎不随温度、电压和时间的变化而变化。适用于低损耗，稳定性要求高的电路中，如滤波器、谐振器和计时电路中。

**COG:** The capacitor of this kind dielectric material is considered as Class I capacitor, including general capacitor and high frequency COG capacitor. The electrical properties of COG capacitor are the most stable one and have little change with temperature, voltage and time. They are suited for applications where low-losses and high-stability are required, such as filters, oscillators, and timing circuits.

**X7R、X5R、X6S、X7T:** 此类介质材料的电容器为 II 类电容器，具有较高的介电常数，容量比 I 类电容器高，具有较稳定的温度特性，适用于容量范围广，稳定性要求不高的电路中，如隔直、耦合、旁路、鉴频等电路中。

**X7R、X5R、X6S、X7T:** material is a kind of material has high dielectric constant. The capacitor made of this kind material is considered as Class II capacitor whose capacitance is higher than that of class I. These capacitors are classified as having a semi-stable temperature characteristic and used over a wide temperature range, such in these kinds of circuits, DC-blocking, decoupling, bypassing, frequency discriminating etc.

**Y5V:** 此类介质材料的电容器为 II 类电容器，是所有电容器中介电常数最大的电容器，但其容量稳定性较差，对温度、电压等条件较敏感，适用于要求大容量，温度变化不大的电路中。

**Y5V:** The capacitor made of this kind of material is the highest dielectric constant of all ceramic capacitors. They are used over a moderate temperature range in application where high capacitance is required because of its unstable temperature coefficient, but where moderate losses and capacitance changes can be tolerated. Its capacitance and dissipation factors are sensible to measuring conditions, such as temperature and voltage, etc

产品结构  
Product Frame



图示说明

- 1 ----- 陶瓷介质
- 2 ----- 内电极
- 3 ----- 外电极
- 4 ----- 镍层
- 5 ----- 锡层



## 产品规格型号命名规则

### General Product Parts Numbering System

例 [example] FCC0805F105M500DT

|                    |                                                                                                                                                                                                                                                                                     |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>F</b><br>公司名    | FOJAN                                                                                                                                                                                                                                                                               |
| <b>CC</b><br>产品别   | 陶瓷电容器代号 Code of Ceramic Capacitor                                                                                                                                                                                                                                                   |
| <b>0805</b><br>尺寸  | 规格 Chip Size Type=L×W<br>0201=0.60×0.30mm 0402=1.00×0.50mm 0603=1.60×0.80mm<br>0805=2.00×1.25mm 1206=3.20×1.60mm 1210=3.20×2.50mm                                                                                                                                                   |
| <b>F</b><br>温度特性   | 温度特性 Dielectrics<br>COG=N, X7R=B, X5R=X, Y5V=F, X7T=T, X6S=S                                                                                                                                                                                                                        |
| <b>105</b><br>电容值  | 电容值 Capacitance<br>105=10×10 <sup>5</sup> =1000,000pF 5 表示 10 <sup>5</sup><br>Two significant digits followed by no. of zero                                                                                                                                                        |
| <b>M</b><br>公差     | 容量容差 Capacitance Tolerance<br>A=±0.05pF B=±0.1pF C=±0.25pF D=±0.5pF F=±1.0% G=±2.0%<br>J=±5.0% K=±10% M=±20% Z=-20/+80%                                                                                                                                                             |
| <b>500</b><br>额定电压 | 额定电压 Rated Voltage<br>6R3=6.3V <sub>DC</sub> 100=10V <sub>DC</sub> 160=16V <sub>DC</sub> 250=25V <sub>DC</sub> 500=50V <sub>DC</sub> 101=100V <sub>DC</sub><br>201=200V <sub>DC</sub> 251=250V <sub>DC</sub> 501=500V <sub>DC</sub> 102=1000V <sub>DC</sub> 202=2000V <sub>DC</sub> |
| <b>D</b><br>厚度     | 厚度 Thickness<br>A:0.5±0.10mm B:0.60±0.10mm C:0.80±0.10mm D:0.85±0.10mm E:1.00±0.10mm<br>F:1.25±0.20mm H:1.6±0.20mm G:2.0±0.20mm M:2.5±0.30mm Z:0.3±0.03mm                                                                                                                           |
| <b>T</b><br>包装     | 包装 Packing<br>B:袋散装 B: bulk packaging in a bag T:编带 T:tape carrier packa                                                                                                                                                                                                            |
| <b>S</b><br>特殊码    | 特殊码 Specific<br>S:防断裂                                                                                                                                                                                                                                                               |

#### 产品的介质特性组别

| 材质      | 工作温度范围       | 温度系数或温度特性  |
|---------|--------------|------------|
| C0G (N) | -55°C~+125°C | 0±30ppm/°C |
| X7R (B) | -55°C~+125°C | ±15%       |
| X5R (X) | -55°C~+85°C  | ±15%       |
| X7T (T) | -55°C~+125°C | +22/-33%   |
| Y5V (F) | -30°C~+85°C  | +22/-82%   |
| X6S (S) | -55°C~+105°C | ±22%       |

## 产品容量范围 Product Capacitance Range

### ▪ 0201[0603]尺寸

| 尺寸                                                                                                                                                                                                                                                                                 |                 | 0201[0603] |   |    |    |         |     |    |    |         |     |    |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------|---|----|----|---------|-----|----|----|---------|-----|----|----|
| 系列<br>型号                                                                                                                                                                                                                                                                           | V <sub>DC</sub> | X5R (X)    |   |    |    | X6S (S) |     |    |    | X7T (T) |     |    |    |
|                                                                                                                                                                                                                                                                                    |                 | CP         |   | 25 | 16 | 10      | 6.3 | 25 | 16 | 10      | 6.3 | 16 | 10 |
|                                                                                                                                                                                                                                                                                    | 103             | Z          |   |    |    | Z       |     |    |    | Z       |     |    |    |
|                                                                                                                                                                                                                                                                                    | 223             | Z          | Z |    |    | Z       | Z   |    |    | Z       | Z   |    |    |
|                                                                                                                                                                                                                                                                                    | 473             |            | Z |    |    |         | Z   |    |    |         | Z   |    |    |
|                                                                                                                                                                                                                                                                                    | 683             |            | Z | Z  |    |         | Z   | Z  |    |         | Z   | Z  |    |
|                                                                                                                                                                                                                                                                                    | 104             |            | Z | Z  |    |         | Z   | Z  |    |         | Z   | Z  |    |
|                                                                                                                                                                                                                                                                                    | 224             |            |   |    | Z  |         |     |    | Z  |         |     |    | Z  |
| 说明                                                                                                                                                                                                                                                                                 |                 |            |   |    |    |         |     |    |    |         |     |    |    |
| <p>容量容差:<br/>X5R/X6S/X7T; K(±10%); M(±20%)<br/>厚度: Z: 0.30±0.03mm<br/>以上容量仅供参考, 具体容量取决于使用要求。</p> <p>Tolerance:<br/>X5R/X6S/X7T: K(±10%); M(±20%)<br/>Thickness: Z: 0.30±0.03mm ;<br/>Above capacitance for reference only, actual cap. Range depends on the standard products.</p> |                 |            |   |    |    |         |     |    |    |         |     |    |    |

▪ 0402[1005]尺寸

| 尺寸                 | 0402[1005] |            |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
|--------------------|------------|------------|--------|---------|--------|--------|-------------|---------|--------|--------|--------|-------------|--------|--------|--------|---------|-------------|--------|--------|---------|--------|-------------|--------|--------|--------|--------|-------------|---|
|                    | 系列<br>型号   | COG<br>(N) |        | X7R (B) |        |        |             | X6S (S) |        |        |        | X5R (X)     |        |        |        | X7T (T) |             |        |        | Y5V (F) |        |             |        |        |        |        |             |   |
| CP V <sub>DC</sub> | 5<br>0     | 2<br>5     | 5<br>0 | 2<br>5  | 1<br>6 | 1<br>0 | 6<br>·<br>3 | 5<br>0  | 2<br>5 | 1<br>6 | 1<br>0 | 6<br>·<br>3 | 5<br>0 | 2<br>5 | 1<br>6 | 1<br>0  | 6<br>·<br>3 | 5<br>0 | 2<br>5 | 1<br>6  | 1<br>0 | 6<br>·<br>3 | 5<br>0 | 2<br>5 | 1<br>6 | 1<br>0 | 6<br>·<br>3 |   |
| 0R5                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 1R0                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 2R0                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 3R0                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 4R0                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 5R0                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 6R0                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 7R0                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 8R0                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 9R0                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 100                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 120                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 150                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 180                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 200                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 220                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 270                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 300                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 330                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 390                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 470                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 560                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 680                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 820                | A          | A          |        |         |        |        |             |         |        |        |        |             |        |        |        |         |             |        |        |         |        |             |        |        |        |        |             |   |
| 101                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 121                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 151                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 181                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 201                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 221                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 271                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 331                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 391                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 471                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 561                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 681                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 821                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 102                | A          | A          | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 152                |            |            | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 182                |            |            | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 222                |            |            | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 272                |            |            | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 332                |            |            | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |
| 472                |            |            | A      | A       | A      | A      | A           | A       | A      | A      | A      | A           | A      | A      | A      | A       | A           | A      | A      | A       | A      | A           | A      | A      | A      | A      | A           | A |



|     |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 562 |  | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |   |
| 103 |  | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |   |
| 153 |  | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |   |
| 183 |  |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A | A | A | A | A | A | A |   |
| 223 |  |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A | A | A | A | A | A | A |   |
| 273 |  |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A | A | A | A | A | A | A |   |
| 333 |  |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A | A | A | A | A | A | A |   |
| 393 |  |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A | A | A | A | A | A | A |   |
| 473 |  |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A | A | A | A | A | A | A |   |
| 563 |  |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A | A |   |
| 683 |  |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A |   | A | A | A | A | A |   |
| 104 |  |   | A | A | A | A |   | A | A | A |   |   | A | A | A |   |   | A | A | A |   |   | A | A | A | A | A |   |
| 154 |  |   |   | A | A | A |   |   | A | A | A |   |   | A | A | A |   |   | A | A | A |   |   | A | A | A | A |   |
| 184 |  |   |   |   | A | A |   |   | A | A |   |   |   | A | A |   |   |   | A | A |   |   |   | A | A | A | A |   |
| 224 |  |   |   |   | A | A |   |   | A | A |   |   |   | A | A |   |   |   | A | A |   |   |   | A | A | A | A |   |
| 274 |  |   |   |   |   | A |   |   |   | A |   |   |   |   | A |   |   |   |   | A |   |   |   |   | A |   | A |   |
| 334 |  |   |   |   |   | A |   |   |   | A |   |   |   |   | A |   |   |   |   | A |   |   |   |   |   | A | A |   |
| 474 |  |   |   |   |   | A |   |   |   | A |   |   |   |   | A |   |   |   |   | A |   |   |   |   |   |   | A | A |
| 684 |  |   |   |   |   | A |   |   |   | A |   |   |   |   | A |   |   |   |   | A |   |   |   |   |   |   |   | A |
| 105 |  |   |   |   |   | A |   |   |   | A |   |   |   |   | A |   |   |   |   | A |   |   |   |   |   |   |   | A |

说明

容量容差:

COG(0.5pF~4.9pF): B/C; COG(5.0pF~9.9pF): D; COG( $\geq 10\text{pF}$ ): F( $\pm 1\%$ ), G( $\pm 2\%$ ), J( $\pm 5\%$ ), X7R/X5R/X6S/X7T: J( $\pm 5.0\%$ ); K( $\pm 10\%$ ); M( $\pm 20\%$ ); Y5V: M( $\pm 20\%$ ); Z(-20,+80%)

厚度: A:  $0.50\pm 0.10\text{mm}$ ;

以上容量仅供参考, 具体容量取决于使用要求。

Tolerance:

COG(0.5pF~4.9pF): COG(5.0pF~9.9pF): D; COG( $\geq 10\text{pF}$ ): F( $\pm 1\%$ ), G( $\pm 2\%$ ), J( $\pm 5\%$ )

X7R/X5R/X6S/X7T: J( $\pm 5.0\%$ ); K( $\pm 10\%$ ); M( $\pm 20\%$ )

Y5V: M( $\pm 20\%$ ); Z(-20,+80%)

Thickness: A:  $0.50\pm 0.10\text{mm}$  ;

Above capacitance for reference only, actual cap. Range depends on the standard products.





▪ 0603[1608]尺寸

| 尺寸                 | 0603[1608]       |                  |                  |                  |                  |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
|--------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------|------------------|------------------|-----------------------|------------------|------------------|-----------------------|------------------|-----------------------|---|------------------|------------------|-----------------------|-----------------------|-----------------------|---------|---|--|--|--|
| 系列<br>型号           | COG (N)          |                  |                  |                  |                  | X7R (B)          |                  |                  |                  |                  | X6S (S)     |                  |                  |                       |                  | X5R (X)          |                       |                  |                       |   | X7T (T)          |                  |                       |                       |                       | Y5V (F) |   |  |  |  |
| CP V <sub>DC</sub> | 2<br>5<br>0<br>0 | 2<br>0<br>0<br>0 | 1<br>0<br>0<br>0 | 5<br>0<br>0<br>0 | 2<br>5<br>0<br>0 | 2<br>5<br>0<br>0 | 1<br>0<br>0<br>0 | 5<br>0<br>0<br>0 | 2<br>5<br>6<br>0 | 1<br>1<br>0<br>0 | 6<br>·<br>3 | 5<br>0<br>5<br>6 | 2<br>1<br>1<br>6 | 1<br>1<br>6<br>·<br>3 | 5<br>0<br>5<br>6 | 2<br>1<br>1<br>6 | 1<br>1<br>6<br>·<br>3 | 2<br>5<br>6<br>0 | 1<br>1<br>6<br>·<br>3 | 4 | 5<br>0<br>5<br>6 | 2<br>1<br>1<br>6 | 1<br>1<br>6<br>·<br>3 | 1<br>1<br>6<br>·<br>3 | 1<br>1<br>6<br>·<br>3 |         |   |  |  |  |
| 0R5                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 1R0                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 2R0                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 3R0                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 4R0                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 5R0                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 6R0                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 7R0                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 8R0                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 9R0                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 100                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 120                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 150                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 180                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 200                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 220                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 270                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 300                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 330                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 390                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 470                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 560                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 680                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 820                | C                | C                | C                | C                | C                |                  |                  |                  |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 101                | C                | C                | C                | C                | C                | C                | C                | C                |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 121                | C                | C                | C                | C                | C                | C                | C                | C                |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 151                | C                | C                | C                | C                | C                | C                | C                | C                |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 181                | C                | C                | C                | C                | C                | C                | C                | C                |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 201                | C                | C                | C                | C                | C                | C                | C                | C                |                  |                  |             |                  |                  |                       |                  |                  |                       |                  |                       |   |                  |                  |                       |                       |                       |         |   |  |  |  |
| 221                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 271                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 331                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 391                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 471                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 561                |                  |                  | C                | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 681                |                  |                  | C                | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 821                |                  |                  | C                | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 102                |                  |                  |                  | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 152                |                  |                  |                  | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 182                |                  |                  |                  | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 222                |                  |                  |                  | C                | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 272                |                  |                  |                  |                  | C                | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 332                |                  |                  |                  |                  |                  | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 472                |                  |                  |                  |                  |                  | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 562                |                  |                  |                  |                  |                  | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 682                |                  |                  |                  |                  |                  | C                | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 103                |                  |                  |                  |                  |                  |                  | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 153                |                  |                  |                  |                  |                  |                  | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 183                |                  |                  |                  |                  |                  |                  | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 223                |                  |                  |                  |                  |                  |                  | C                | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |
| 273                |                  |                  |                  |                  |                  |                  |                  | C                | C                | C                | C           | C                | C                | C                     | C                | C                | C                     | C                | C                     | C | C                | C                | C                     | C                     | C                     | C       | C |  |  |  |





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| 尺寸                 | 0805[2012] |   |   |   |   |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
|--------------------|------------|---|---|---|---|---------|---|---|---|---|---------|----|---|---|---|---------|---|----|---|---|---------|---|---|----|---------|---|---|----|---|---|---|---|---|---|----|
| 系列<br>型号           | COG (N)    |   |   |   |   | X7R (B) |   |   |   |   | X6S (S) |    |   |   |   | X5R (X) |   |    |   |   | X7T (T) |   |   |    | Y5V (F) |   |   |    |   |   |   |   |   |   |    |
|                    | 2          | 1 | 5 | 2 | 1 | 2       | 1 | 5 | 2 | 1 | 1       | 6  | 5 | 2 | 1 | 1       | 6 | 5  | 2 | 1 | 1       | 6 | 2 | 1  | 1       | 6 | 4 | 5  | 2 | 1 | 1 | 6 |   |   |    |
| CP V <sub>DC</sub> | 5          | 0 | 0 | 5 | 6 | 5       | 0 | 0 | 5 | 6 | 0       | .3 | 5 | 0 | 5 | 6       | 0 | .3 | 5 | 0 | 5       | 6 | 0 | .3 | 5       | 6 | 0 | .3 |   | 5 | 0 | 5 | 6 | 0 | .3 |
| 0R5                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 1R0                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 2R0                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 3R0                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 4R0                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 5R0                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 6R0                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 7R0                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 8R0                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 9R0                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 100                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 120                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 150                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 180                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 200                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 220                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 270                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 300                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 330                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 390                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 470                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 560                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 680                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 820                | B          | B | B | B | B |         |   |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 101                | B          | B | B | B | B | B       | B |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 121                | B          | B | B | B | B | B       | B |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 151                | B          | B | B | B | B | B       | B |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 181                | B          | B | B | B | B | B       | B |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 201                | B          | B | B | B | B | B       | B |   |   |   |         |    |   |   |   |         |   |    |   |   |         |   |   |    |         |   |   |    |   |   |   |   |   |   |    |
| 221                | B          | B | B | B | B | D       | D | D | D | D | D       | D  | D | D | D | D       | D | D  | D | D | D       | D | D | D  | D       | D | D | D  | D | D | D | D |   |   |    |
| 271                | B          | B | B | B | B | D       | D | D | D | D | D       | D  | D | D | D | D       | D | D  | D | D | D       | D | D | D  | D       | D | D | D  | D | D | D | D |   |   |    |
| 331                | B          | B | B | B | B | /       | / | / | / | / | /       | /  | / | / | / | /       | / | /  | / | / | /       | / | / | /  | /       | / | / | /  | / | / | / | / |   |   |    |
| 391                | B          | B | B | B | B | D       | D | B | B | B | B       | B  | B | B | B | B       | B | B  | B | B | B       | B | B | B  | B       | B | B | B  | B | B | B | B |   |   |    |
| 471                | B          | B | B | B | B | /       | / | / | / | / | /       | /  | / | / | / | /       | / | /  | / | / | /       | / | / | /  | /       | / | / | /  | / | / | / | / |   |   |    |
| 561                | B          | B | B | B | B | D       | D | B | B | B | B       | B  | B | B | B | B       | B | B  | B | B | B       | B | B | B  | B       | B | B | B  | B | B | B | B |   |   |    |
| 681                | B          | B | B | B | B | /       | / | / | / | / | /       | /  | / | / | / | /       | / | /  | / | / | /       | / | / | /  | /       | / | / | /  | / | / | / | / |   |   |    |
| 821                | B          | B | B | B | B | D       | D | B | B | B | B       | B  | B | B | B | B       | B | B  | B | B | B       | B | B | B  | B       | B | B | B  | B | B | B | B |   |   |    |
| 102                | B          | B | B | B | B | /       | / | / | / | / | /       | /  | / | / | / | /       | / | /  | / | / | /       | / | / | /  | /       | / | / | /  | / | / | / | / |   |   |    |



|     |   |   |   |   |   |             |             |             |             |             |   |   |             |   |   |             |             |   |             |   |             |             |   |   |             |   |   |   |
|-----|---|---|---|---|---|-------------|-------------|-------------|-------------|-------------|---|---|-------------|---|---|-------------|-------------|---|-------------|---|-------------|-------------|---|---|-------------|---|---|---|
| 152 | B | B | B | B | B | D<br>/<br>F | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 182 |   | B | B | B | B | D<br>/<br>F | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 222 |   | B | B | B | B | D<br>/<br>F | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 272 |   |   | B | B | B | D<br>/<br>F | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 332 |   |   |   | D | D | D<br>/<br>F | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 472 |   |   |   | D | D | D<br>/<br>F | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 562 |   |   |   | D | D | D<br>/<br>F | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 682 |   |   |   | D |   | D<br>/<br>F | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 103 |   |   |   |   |   | D<br>/<br>F | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 153 |   |   |   |   |   | F           | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 183 |   |   |   |   |   | F           | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 223 |   |   |   |   |   | F           | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 273 |   |   |   |   |   | F           | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 333 |   |   |   |   |   | F           | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 393 |   |   |   |   |   | F           | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 473 |   |   |   |   |   | F           | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 563 |   |   |   |   |   |             | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 683 |   |   |   |   |   |             | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 104 |   |   |   |   |   |             | D<br>/<br>F | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 154 |   |   |   |   |   |             |             | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 184 |   |   |   |   |   |             |             | D           | D           | D           | D | D | D           | D | D | D           | D           | D | D           | D | D           | D           | D | D | D           | D | D |   |
| 224 |   |   |   |   |   |             |             | D<br>/<br>F | D           | D           | D | D | D<br>/<br>F | D | D | D           | D<br>/<br>F | D | D           | D | D<br>/<br>F | D           | D | D | D<br>/<br>F | D | D | D |
| 274 |   |   |   |   |   |             |             | D<br>/<br>F | D           | D           | D | D | D<br>/<br>F | D | D | D           | D<br>/<br>F | D | D           | D | D<br>/<br>F | D           | D | D | D<br>/<br>F | D | D | D |
| 334 |   |   |   |   |   |             |             | D<br>/<br>F | D           | D           | D | D | D<br>/<br>F | D | D | D           | D<br>/<br>F | D | D           | D | D<br>/<br>F | D           | D | D | D<br>/<br>F | D | D | D |
| 474 |   |   |   |   |   |             |             | D<br>/<br>F | D<br>/<br>F | D<br>/<br>F | D | D | D<br>/<br>F | D | D | D<br>/<br>F | D           | D | D<br>/<br>F | D | D           | D<br>/<br>F | D | D | D<br>/<br>F | D | D | D |



|     |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|--|--|--|--|--|--|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 684 |  |  |  |  |  |  |  | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |
|     |  |  |  |  |  |  |  | F | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |
| 105 |  |  |  |  |  |  |  | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |
| 225 |  |  |  |  |  |  |  | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |
| 475 |  |  |  |  |  |  |  | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |
| 106 |  |  |  |  |  |  |  | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |
| 226 |  |  |  |  |  |  |  | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |
| 476 |  |  |  |  |  |  |  | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |

说明

容量容差:

COG(0.5pF~4.9pF): B/C; COG(5.0pF~9.9pF): D; COG(≥10pF): F(±1%), G(±2%), J(±5%),K(±10%)

X7R/X5R/X6S/X7T: J(±5.0%); K(±10%); M(±20%); Y5V: M(±20%); Z(-20,+80%)

厚度: B: 0.60±0.1mm、D: 0.85±0.1mm、F: 1.25±0.2mm;

以上容量仅供参考, 具体容量取决于使用要求。

Tolerance:

COG(0.5pF~4.9pF): B/C; COG(5.0pF~9.9pF): D; COG(≥10pF): F(±1%), G(±2%), J(±5%)

X7R/X5R/X6S/X7T: J(±5.0%); K(±10%); M(±20%); Y5V: M(±20%); Z(-20,+80%)

Thickness: B: 0.60±0.1mm、D: 0.85±0.1mm、F: 1.25±0.2mm;

Above capacitance for reference only, actual cap. Range depends on the standard products.

▪ 1206[3216]尺寸

| 尺寸                 | 1206[3216]            |   |   |   |   |   |   |   |         |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------------------|-----------------------|---|---|---|---|---|---|---|---------|---|---|---|---|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 系列                 | COG (N)               |   |   |   |   |   |   |   | X7R (B) |   |   |   |   |   |   |   | X6S (S) |   |   |   | X5R (X) |   |   |   | X7T (T) |   |   |   | Y5V (F) |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 型号                 |                       |   |   |   |   |   |   |   |         |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CP V <sub>DC</sub> | 2                     | 1 | 6 | 5 | 2 | 1 | 5 | 2 | 1       | 2 | 1 | 6 | 5 | 2 | 1 | 5 | 2       | 1 | 6 | 5 | 2       | 1 | 1 | 6 | 5       | 2 | 1 | 1 | 6       | 5 | 2 | 1 | 1 | 6 | 5 | 2 | 1 | 1 | 6 | 5 | 2 | 1 | 1 | 6 | 5 | 2 | 1 | 1 | 6 | 5 |
|                    | 0                     | 0 | 3 | 0 | 5 | 0 | 0 | 5 | 6       | 0 | 0 | 3 | 0 | 5 | 0 | 0 | 5       | 6 | 0 | 0 | 0       | 3 | 0 | 5 | 0       | 0 | 5 | 6 | 0       | 0 | 0 | 3 | 0 | 5 | 0 | 0 | 5 | 6 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 0 | 5 | 6 | 0 |   |
|                    | 0                     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0       | 0 | 3 | 0 | 0       | 0 | 0 | 0 | 0       | 0 | 0 | 3 | 0       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |   |   |
| 0R5                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1R0                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2R0                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3R0                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4R0                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5R0                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6R0                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7R0                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8R0                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9R0                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 100                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 120                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 150                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 180                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 200                | D                     | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 220                | D<br>/<br>E<br>/<br>F | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 270                | D<br>/<br>E<br>/<br>F | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 300                | D<br>/<br>E<br>/<br>F | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 330                | D<br>/<br>E<br>/<br>F | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 390                | D<br>/<br>E<br>/<br>F | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 470                | D<br>/<br>E<br>/<br>F | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 560                | D<br>/<br>E           | D | D | D | D | D | D | D | D       |   |   |   |   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |





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|-----|--|--|--|--|--|--|--|--|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 683 |  |  |  |  |  |  |  |  |  | F | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |   |   |
| 104 |  |  |  |  |  |  |  |  |  | F | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |   |
| 154 |  |  |  |  |  |  |  |  |  |   | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |   |
| 184 |  |  |  |  |  |  |  |  |  |   | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |   |
| 224 |  |  |  |  |  |  |  |  |  |   | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |   |
| 274 |  |  |  |  |  |  |  |  |  |   | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |   |
| 334 |  |  |  |  |  |  |  |  |  |   | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |   |
| 474 |  |  |  |  |  |  |  |  |  |   | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |   |
| 684 |  |  |  |  |  |  |  |  |  |   | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |   |
|     |  |  |  |  |  |  |  |  |  |   | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |   |
| 105 |  |  |  |  |  |  |  |  |  |   | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |   |
|     |  |  |  |  |  |  |  |  |  |   | F | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H |   |
| 205 |  |  |  |  |  |  |  |  |  |   | F | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E |   |
| 225 |  |  |  |  |  |  |  |  |  |   | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |
| 475 |  |  |  |  |  |  |  |  |  |   |   | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H |   |
| 106 |  |  |  |  |  |  |  |  |  |   |   | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H |
| 226 |  |  |  |  |  |  |  |  |  |   |   | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H |
| 476 |  |  |  |  |  |  |  |  |  |   |   | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H |

说明

**容量容差:**  
 COG(0.5pF~4.9pF): B/C; COG(5.0pF~9.9pF): D; COG( $\geq 10$ pF): F( $\pm 1\%$ ), G( $\pm 2\%$ ), J( $\pm 5\%$ ), K( $\pm 10\%$ )  
 X7R/X5R/X6S/X7T: J( $\pm 5.0\%$ ); K( $\pm 10\%$ ); M( $\pm 20\%$ );  
 Y5V: M( $\pm 20\%$ ); Z(-20,+80%)  
**厚度:** D: 0.85 $\pm$ 0.1mm、E: 1.00 $\pm$ 0.1mm、F: 1.25 $\pm$ 0.2mm、H: 1.60 $\pm$ 0.2mm、1.60 $\pm$ 0.3\*mm;  
 以上容量仅供参考, 具体容量取决于使用要求。

**Tolerance:**  
 COG(0.5pF~4.9pF): C ;COG(5.0pF~9.9pF): D; COG( $\geq 10$ pF): F( $\pm 1\%$ ), G( $\pm 2\%$ ), J( $\pm 5\%$ )  
 X7R/X5R/X6S/X7T: J( $\pm 5.0\%$ ); K( $\pm 10\%$ ); M( $\pm 20\%$ );  
 Y5V: M( $\pm 20\%$ ); Z(-20,+80%)  
**Thickness:** D: 0.85 $\pm$ 0.1mm、E: 1.00 $\pm$ 0.1mm、F: 1.25 $\pm$ 0.2mm、H: 1.60 $\pm$ 0.2mm、1.60 $\pm$ 0.3\*mm;  
 Above capacitance for reference only, actual cap. Range depends on the standard products.





▪ 1210[3225]尺寸

| 尺寸       | 1210[3225] |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
|----------|------------|-------|-------|-------|-------|---------|-------|-------|-------|-------|---------|-------|-------|-------|---------|-------|-------|---------|-------|-------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--|
|          | COG (N)    |       |       |       |       | X7R (B) |       |       |       |       | X6S (S) |       |       |       | X5R (X) |       |       | X7T (T) |       |       | Y5V (F) |       |       |       |       |       |       |       |       |  |
| 系列<br>型号 | 20000      | 10000 | 50000 | 20000 | 15000 | 20000   | 10000 | 63000 | 50000 | 20000 | 15000   | 20000 | 10000 | 10000 | 63000   | 50000 | 20000 | 10000   | 10000 | 63000 | 20000   | 10000 | 10000 | 63000 | 50000 | 20000 | 10000 | 10000 | 63000 |  |
| 100      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 120      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 150      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 180      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 200      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 220      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 270      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 300      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 330      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 390      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 470      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 560      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 680      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 820      | D          |       |       |       |       |         |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 101      | D          | D     | D     | D     |       | D       |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 121      | F          | D     | D     | D     |       | D       |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 151      | F          | D     | D     | D     |       | D       |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 181      | F          | D     | D     | D     |       | D       |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 201      | F          | D     | D     | D     |       | D       |       |       |       |       |         |       |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 221      | F          | D     | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 271      |            | D     | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 331      |            | D     | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 391      |            | D     | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 471      |            | D     | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 561      |            | F     | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 681      |            | F     | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 821      |            | F     | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 102      |            | F     | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 152      |            |       | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 182      |            |       | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 222      |            |       | D     | D     |       | D       | F     | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 272      |            |       | F     | D     |       | D       |       | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 332      |            |       |       | D     |       | D       |       | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 472      |            |       |       | D     |       |         |       | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 562      |            |       |       |       |       |         |       | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 682      |            |       |       |       |       |         |       | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 103      |            |       |       |       |       |         |       | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 153      |            |       |       |       |       |         |       | F     | F     | F     | F       | F     | F     | F     |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 223      |            |       |       |       |       |         |       |       | H     | H     | F       | F     |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 333      |            |       |       |       |       |         |       |       | H     | H     | F       | F     |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 473      |            |       |       |       |       |         |       |       | G     | G     | F       | F     |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 563      |            |       |       |       |       |         |       |       |       |       | F       | F     |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 683      |            |       |       |       |       |         |       |       |       |       | F       | F     |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 104      |            |       |       |       |       |         |       |       |       |       | F       | F     |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |
| 154      |            |       |       |       |       |         |       |       |       |       | H       | H     |       |       |         |       |       |         |       |       |         |       |       |       |       |       |       |       |       |  |



## 产品尺寸 Dimensions

规格: 0201、0402、0603、0805、1206、1210。  
Chip Size: 0201,0402,0603,0805, 1206 and 1210



| 规格<br>Type | L<br>(mm)   | W<br>(mm)   | e<br>(mm) | g min<br>(mm) | T<br>(mm)   |           |           |             |           |
|------------|-------------|-------------|-----------|---------------|-------------|-----------|-----------|-------------|-----------|
| 0201       | 0.60±0.03   | 0.30±0.03   | 0.1~0.2   | 0.2           | 0.30±0.03   |           |           |             |           |
| 0402       | 1.00±0.10   | 0.50±0.10   | 0.15~0.3  | 0.4           | 0.50±0.10   | —         | —         | —           | —         |
| 0603       | 1.60±0.10   | 0.80±0.10   | 0.2~0.6   | 0.5           | 0.80±0.10   | —         | —         | —           | —         |
| 0603*1     | 1.60±0.20*1 | 0.80±0.20*1 | 0.2~0.6   | 0.5           | 0.80±0.20*1 | —         | —         | —           | —         |
| 0805       | 2.00±0.10   | 1.25±0.10   | 0.2~0.7   | 0.7           | 0.60±0.10   | 0.85±0.10 | 1.25±0.20 | —           | —         |
| 0805*1     | 2.00±0.20*1 | 1.25±0.20*1 | 0.2~0.7   | 0.7           | 0.60±0.10   | 0.85±0.10 | 1.25±0.20 | —           | —         |
| 1206       | 3.20±0.20   | 1.60±0.20   | 0.3~0.8   | 1.6           | 0.85±0.10   | 1.00±0.10 | 1.25±0.20 | 1.60±0.20   | —         |
| 1206*1     | 3.20±0.30*1 | 1.60±0.30*1 | 0.3~0.8   | 1.6           | 0.85±0.10   | 1.00±0.10 | 1.25±0.20 | 1.60±0.30*1 | —         |
| 1210       | 3.20±0.30   | 2.5±0.20    | 0.3~0.8   | 1.6           | 0.85±0.10   | 1.25±0.20 | 1.60±0.20 | 2.00±0.20   | 2.50±0.30 |
| 1210*1     | 3.20±0.40*1 | 2.5±0.30*1  | 0.3~0.8   | 1.6           | 0.85±0.10   | 1.25±0.20 | 1.60±0.20 | 2.00±0.20   | 2.50±0.30 |

\*1 标识该规格型号标识为 1uF 及以上规格产品尺寸。

## 技术要求和测试条件

### Specification and Test Condition

#### ■ 外观 Appearance

| 类型 Dielectrics                  | 技术要求 Specification                                                                                                              | 测试条件 Testing Condition     |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| COG/X7R/X5R/Y<br>5V<br>/X7T/X6S | 1/10L < L≤1/8L, 1/10W < W≤1/8W,<br>1/10T < t≤1/8T (L、W、T 任意一项不符合, 均判定不合格)<br>(L、W、T None is acceptable, All judged unqualified) | 目视检查<br>Visual inspection. |

#### ■ 尺寸 Dimensions

| 类型 Dielectrics               | 技术要求 Specification                         | 测试条件 Testing Condition               |
|------------------------------|--------------------------------------------|--------------------------------------|
| COG/X7R/X5R/Y<br>5V/ X7T/X6S | 在要求的范围内<br>Within the specified dimensions | 用千分尺<br>Using calipers on micrometer |

#### ■ 容量 Capacitance

| 类型 Dielectrics      | 技术要求 Specification                                                                                | 测试条件 Testing Condition                                           |
|---------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| COG                 | 在要求的容值容差范围内<br>Within the specified tolerance<br>A:±0.05pF; B:±0.1pF; C:±0.25pF; D:±0.5pF; J: ±5% | 1.0±0.2Vrms, 1MHz±10%<br>(C>1000pF, 1.0±0.2Vrms,<br>1KHz±10% , ) |
| X7R/X5R/X7T<br>/X6S | 在要求的容值容差范围内 Within the specified<br>tolerance J: ±5%; K: ±10%; M: ±20%                            | 1.0±0.2Vrms, 1KHz±10%<br>(Cp > 10uF, 0.5±0.1Vrms,<br>120±24Hz)   |
| Y5V                 | 在要求的容值容差范围内<br>Within the specified tolerance<br>M: ±20%; Z: -20%, +80%                           | 1.0±0.2Vrms, 1KHz±10%<br>(Cp > 10uF, 0.5±0.1Vrms,<br>120±24Hz)   |

备注:

测试温度: 25°C±3°C, 测试湿度: < 70%RH. 针对二类介质规格需去老化处理, 条件: 电容器在 150°C热处理 1 小时, 放置 48h 后进行测量。

■ 损耗 Dissipation Factor

| 类型<br>Dielectrics                                                                        | 技术要求 Specification                      |           |                                                                                  |        | 测试条件 Testing<br>Condition                                                 |
|------------------------------------------------------------------------------------------|-----------------------------------------|-----------|----------------------------------------------------------------------------------|--------|---------------------------------------------------------------------------|
| COG                                                                                      | Cp<30pF, Q≥400+20Cp;<br>Cp≥30pF, Q≥1000 |           |                                                                                  |        | 1.0±0.2Vrms,<br>1MHz±10% ,25 °C<br>(Cp>1000pF, 1.0±0.2Vrms,<br>1K Hz±10%) |
| X7R/X5R/X7T<br>/X6S                                                                      | 0201                                    | ≤25v      | C≤0.22 μF                                                                        | ≤10.0% | 1.0±0.2Vrms, 1KHz±10%<br>( Cp > 10uF,0.5±0.1Vrms,<br>120±24Hz)            |
|                                                                                          | 0402                                    | ≤25v      | C≤0.47 μF                                                                        | ≤7.0%  |                                                                           |
|                                                                                          |                                         |           | C > 0.47 μF                                                                      | ≤10.0% |                                                                           |
|                                                                                          |                                         | > 25v     | C≤0.1 μF                                                                         | ≤7.0%  |                                                                           |
|                                                                                          |                                         |           | C > 0.1 μF                                                                       | ≤10.0% |                                                                           |
|                                                                                          | 0603                                    | ≤25v      | C≤0.47 μF                                                                        | ≤7.0%  |                                                                           |
|                                                                                          |                                         |           | C > 0.47 μF                                                                      | ≤10.0% |                                                                           |
|                                                                                          |                                         | > 25v     | C≤0.1 μF                                                                         | ≤5.0%  |                                                                           |
|                                                                                          |                                         |           | 0.1 μF < C ≤ 0.22 μF                                                             | ≤7.0%  |                                                                           |
|                                                                                          | 0805                                    | ≤25v      | C≤1 μF                                                                           | ≤7.0%  |                                                                           |
|                                                                                          |                                         |           | C > 1 μF                                                                         | ≤10.0% |                                                                           |
|                                                                                          |                                         | > 25v     | C≤0.47 μF                                                                        | ≤7.0%  |                                                                           |
|                                                                                          |                                         |           | C > 0.47 μF                                                                      | ≤10.0% |                                                                           |
|                                                                                          | 1206                                    | ≤25v      | C < 2.2 μF                                                                       | ≤7.0%  |                                                                           |
|                                                                                          |                                         |           | 2.2 μF ≤ C < 47 μF                                                               | ≤10.0% |                                                                           |
|                                                                                          |                                         | > 25v     | C > 1 μF                                                                         | ≤7.0%  |                                                                           |
|                                                                                          |                                         |           | 1 μF ≤ C < 47 μF                                                                 | ≤10.0% |                                                                           |
|                                                                                          | 1210                                    | ≤25v      | C < 2.2 μF                                                                       | ≤7.0%  |                                                                           |
| 2.2 μF ≤ C < 47 μF                                                                       |                                         |           | ≤10.0%                                                                           |        |                                                                           |
| Y5V                                                                                      | <b>UR</b>                               | <b>DF</b> | <b>备注</b>                                                                        |        |                                                                           |
|                                                                                          | UR≥50v                                  | DF≤7.0%   |                                                                                  |        |                                                                           |
|                                                                                          | UR=25v                                  | DF≤7.0%   | 683 > 0402≥473,474 > 0603≥104<br>105 > 0805≥334,475 > 1206≥684<br>106 > 1210≥105 |        |                                                                           |
|                                                                                          |                                         | DF≤9.0%   | 0402≥683, 0603≥474 0805≥105<br>1206≥475, 1210≥106                                |        |                                                                           |
|                                                                                          | UR=16v                                  | DF≤9.0%   |                                                                                  |        |                                                                           |
|                                                                                          |                                         | DF≤12.5%  | 0402≥224, 0603≥225, 0805≥335<br>1206≥106,1210≥226, 1812≥476                      |        |                                                                           |
|                                                                                          | UR=10v                                  | DF≤12.5%  |                                                                                  |        |                                                                           |
| UR=6.3v                                                                                  | DF≤15.0%                                |           |                                                                                  |        |                                                                           |
| 备注: 测试温度: 25°C±3°C, 测试湿度: < 70%RH. 针对二类介质规格需去老化处理, 条件: 电容器在 150°C热处理 1 小时, 放置 48h 后进行测量。 |                                         |           |                                                                                  |        |                                                                           |

## ■ 绝缘电阻 Insulation Resistance

| 类型 Dielectrics                                                           | 技术要求 Specification                                                                                                                                                                   | 测试条件 Testing Condition                                                                                                                                                                               |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COG/X7R/<br>X5R/Y5V/X7T/X6S                                              | $U_R \leq 50V$ , 大于 $10\text{ G}\Omega$ 或 $100\Omega \cdot F / CR$ (大于其中较小的数值)<br>$U_R \leq 50V$ , More than $10\text{ G}\Omega$ or $100\Omega \cdot F / CR$ , whichever is smaller. | $U_R \leq 50V$ $U_{\text{测}} = U_R$ ;<br>充电时间: $60 \pm 5$ 秒<br>温度: $25^\circ\text{C}$<br>Charge Time: $60 \pm 5\text{sec}$<br>Temperature: $25^\circ\text{C}$                                        |
| COG/X7R/X7T/X6S                                                          | $U_R > 50V$ , 大于 $4\text{ G}\Omega$ 或 $100\Omega \cdot F / CR$ (大于其中较小的数值)<br>$U_R > 50V$ , More than $4\text{ G}\Omega$ or $100\Omega \cdot F / CR$ , whichever is smaller.         | $U_R \leq 400V$ $U_{\text{测}} = U_R$<br>$U_R > 400V$ $U_{\text{测}} = 400V$ ;<br>充电时间: $60 \pm 5$ 秒<br>温度: $25^\circ\text{C}$<br>Charge Time: $60 \pm 5\text{sec}$<br>Temperature: $25^\circ\text{C}$ |
| 备注: 测试温度: $25^\circ\text{C} \pm 3^\circ\text{C}$ , 测试湿度: $\leq 70\%RH$ . |                                                                                                                                                                                      |                                                                                                                                                                                                      |

## ■ 耐电压 Dielectric Strength

| 类型 Dielectrics          | 额定电压范围<br>Rated voltage range | 耐电压性能测试方法 Measuring Method                                                                                      |
|-------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------|
| COG                     | $U_R \leq 50V$                | 施加额定电压的 300%, 5 秒, 最大电流不超过 50mA<br>Force 300% Rated voltage for 5second. Max..current should not exceed 50 mA.  |
| X7R/X5R/Y5V/X7T/<br>X6S | $U_R \leq 50V$                | 施加额定电压的 250%, 5 秒, 最大电流不超过 50mA<br>Force 250% Rated voltage for 5second. Max..current should not exceed 50 mA.  |
| COG/X7R/X7T             | $100V \leq U_R < 500V$        | 施加额定电压的 200%, 5 秒, 最大电流不 超过 50mA<br>Force 200% Rated voltage for 5second. Max..current should not exceed 50 mA. |
|                         | $500V \leq U_R < 1000V$       | 施加额定电压的 150%, 5 秒, 最大电流不 超过 50mA<br>Force 150% Rated voltage for 5second. Max..current should not exceed 50 mA. |
|                         | $1000V \leq U_R < 2000V$      | 施加额定电压的 150%, 5 秒, 最大电流不 超过 50mA<br>Force 150% Rated voltage for 5second. Max..current should not exceed 50 mA. |
|                         | $U_R \geq 2000V$              | 施加额定电压的 120%, 5 秒, 最大电流不 超过 30mA<br>Force 120% Rated voltage for 5second. Max..current should not exceed 30 mA. |

■ 静电容量温度特性 Temperature Coefficient of Capacitance

| 类型<br>Dielectrics | 技术要求<br>Specification                                                                                                         | 测试条件<br>Testing Condition                                                                                                                                                                                                                    |                 |       |       |       |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------|-------|-------|
| COG               | 容量变化在±30ppm/°C以内<br>容量漂移在±0.2%或±0.05p F 以内<br>Temperature coefficient within<br>±30ppm/°C;<br>Cp drift within ±0.2% or±0.05pF | 按系列温度顺序测试电容容量<br>Measure capacitance under follow table list temperature: 在 140~150°C预处理 1 小时, 放置24h 后进行测量。                                                                                                                                  |                 |       |       |       |
|                   |                                                                                                                               | 步骤<br>STEP                                                                                                                                                                                                                                   | COG,<br>X7R,X7T | X6S   | X5R   | Y5V   |
|                   |                                                                                                                               | 1                                                                                                                                                                                                                                            | 25 ±2           | 25 ±2 | 25 ±2 | 25 ±2 |
|                   |                                                                                                                               | 2                                                                                                                                                                                                                                            | -55±3           | -55±3 | -55±3 | -30±3 |
|                   |                                                                                                                               | 3                                                                                                                                                                                                                                            | 25 ±2           | 25 ±2 | 25 ±2 | 25 ±2 |
| X7R/X5R           | 容量变化在±15%以内<br>Capacitance change within<br>±15%                                                                              | 4                                                                                                                                                                                                                                            | 125±3           | 105±3 | 85±3  | 85±3  |
|                   |                                                                                                                               | 5                                                                                                                                                                                                                                            | 25 ±2           | 25 ±2 | 25 ±2 | 25 ±2 |
|                   |                                                                                                                               | 1) COG<br>容量漂移的计算方法为: 用步骤 3 测量的电容容量除以在第 1、3 和 5 步骤测量得到的误差的最大值和最小值的差。<br>温度系数的计算以第 3 步骤测量电容容量为参考。                                                                                                                                             |                 |       |       |       |
| X6S               | 容量变化在±22%以内<br>Capacitance change within<br>±22%                                                                              | The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1,3 and 5.<br>The temperature coefficient is determined using the Capacitance measured in step 3 as a reference. |                 |       |       |       |
| Y5V               | 容量变化在+22%, -82%以内<br>Capacitance change within<br>+22%, -82%                                                                  | 2) X7R、X5R、X7T、X6S 和 Y5V<br>与 25°C时的电容容量相比较, 电容容量在温度范围内的变化在要求的范围之内。<br>X7R、X5R、X7T、X6S and Y5V<br>The ranges of capacitance change compared within the above 25°C value over the temperature ranges shall be within the specified ranges.    |                 |       |       |       |

■ 附着力 Adhesion

| 类型 Dielectrics              | 技术要求 Specification                                                                 | 测试条件 Testing Condition                                                                                                                                                                                            |
|-----------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COG/X7R/X5R/<br>Y5V/X7T/X6S | 端电极无松动, 也无其它不良现象<br>No removal of the terminations or<br>other defect shall occur. | 施加6N 的压力, 并保持 10±1 秒<br>The pressurizing force shall be 6N (=600g*f) and the<br>duration of application shall be 10±1sec.<br> |

■ 可焊性 Solder ability of Termination

| 类型 Dielectrics          | 技术要求 Specification                                                                                                               | 测试条件 Testing Condition                                                                                                                                        |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X7R/X5R/X7T<br><br>/X6S | 端电极挂锡面积不小于 95%，针孔或粗糙面积小于 5%<br><br>95% min. coverage of both terminal electrodes and less than 5% have pin holes or rough spots. | 锡炉温度： 245±5℃<br>浸入时间： 2±1 秒<br>两侧端电极完全浸入焊锡炉<br>Solder temperature: 245±5℃<br>Dipping time: 2±1 seconds.<br>Completely soak both terminal electrodes in solder |

■ 耐焊性 Resistance to leaching

| 类型 Dielectrics          | 技术要求 Specification                                                                                                                                                         | 测试条件 Testing Condition                                                                                                                                                                                                |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X7R/X5R/X7T<br><br>/X6S | 端电极挂锡面积不小于 95%，针孔或粗糙面积小于 5%，外观无开裂<br><br>95% min. coverage of both terminal electrodes and less than 5% have pin holes or rough spots.<br><br>No remarkable visual damage. | 预热： 120℃~ 150℃/60 秒<br>锡炉温度： 270±5℃<br>浸入时间： 10±1 秒<br>两侧端电极完全浸入焊锡炉<br>Solder temperature: 270±5℃<br>preheated: 120℃~ 150℃/60sec<br>Dipping time: 10±1 seconds.<br>Completely soak both terminal electrodes in solder |

■ 端电极结合强度 Bending

| 类型 Dielectrics          | 技术要求 Specification                                                                                                   | 测试条件 Testing Condition                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COG                     | 无可见损伤；容量变化小于等于±5%或±0.5pF（取较大值）<br>No remarkable visual damage Cp change within ±5.0% or ±0.5pF, whichever is larger. | <p>将片状电容器安装在测试夹具上，按图所示方向以 1.0mm/s 的速率施加压力，弯曲 1mm。Solder the capacitor on testing substrate and put it on testing stand. The middle part of substrate shall successively be pressurized by pressuring rod at a rated of about 1.0mm/sec. Until the deflection become means of the 1.0mm.)</p>  |
| X7R/X5R/X7T<br><br>/X6S | 无可见损伤；<br>容量变化小于等于±10%<br>No remarkable visual damage Cp change ≤ ±10%                                               |                                                                                                                                                                                                                                                                                                                                                                                   |
| Y5V                     | 无可见损伤；<br>容量变化小于等于 ±30%<br>No remarkable visual damage Cp change ≤ ±30%                                              |                                                                                                                                                                                                                                                                                                                                                                                   |



■ 耐焊接热 Resistance to Soldering Heat

| 类型<br>Dielectrics       | 技术要求 Specification                                                                                                                                                                                                                                                                  | 测试条件 Testing Condition                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COG                     | 无明显可见损伤<br>容量变化在 $\pm 2.5\%$ 或 $\pm 0.25\text{pF}$ (取较大值) 以内<br>DF 满足产品初始值的要求<br>IR 满足产品初始值的要求<br>No remarkable visual damage<br>Cp change within $\pm 2.5\%$ or $\pm 0.25\text{pF}$ , whichever is larger.<br>DF meets initial standard value.<br>IR meets initial standard value. | 焊接温度: $270\pm 5^\circ\text{C}$<br>预热: $120\sim 150^\circ\text{C}$ 60 秒<br>浸入时间 : $10\pm 1$ 秒<br>在室温下放置 $24\pm 2$ (COG) 或<br>$48\pm 4$ (X7R、X5R、Y5V、X7T、X6S) 小<br>时以后测量 试验后在标准条件下恢复                                                                                                                                                                                             |
| X7R/X5R/X7T<br><br>/X6S | 无明显可见损伤<br>容量变化在 $\pm 7.5\%$ 以内<br>DF 满足产品初始值的要求<br>IR 满足产品初始值的要求<br>No remarkable visual damage<br>Cp change within $\pm 7.5\%$<br>DF meets initial standard value.<br>IR meets initial standard value.                                                                            | *高介电常数电容器的初始值测量<br>在 $140\sim 150^\circ\text{C}$ 进行 1 小时的热处理后在室<br>温下放置 $48\pm 4$ 小时<br>测量初始值<br>Soldering temperature: $270\pm 5^\circ\text{C}$<br>Preheating: $120\sim 150^\circ\text{C}$ 60sec.<br>Dipping time: $10\pm 1$ seconds.<br>Measurement to be made after<br>being kept at room temperature<br>for $24\pm 2$ (COG) or<br>$48\pm 4$ (X7R, X5R, Y5V、X7T、X6S) hours. |
| Y5V                     | 无明显可见损伤<br>容量变化在 $\pm 20\%$ 以内<br>DF 满足产品初始值的要求<br>IR 满足产品初始值的要求<br>No remarkable visual damage<br>Cp change within $\pm 20\%$<br>DF meets initial standard value.<br>IR meets initial standard value                                                                               | Recovery for the following period<br>under the standard condition after test.<br>*Initial measurement for high dielectric<br>constant type<br>Perform a heat treatment at $140\sim 150^\circ\text{C}$ for<br>1hr and let sit for $48\pm 4$ hrs at room<br>temperature. Perform the initial<br>measurement.                                                                     |

■ 温度快速循环 Temperature Cycle

| 类型<br>Dielectrics   | 技术要求 Specification                                                                                                                                                                                                                    | 测试条件 Testing Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COG                 | <p>无明显可见损伤</p> <p>容量变化在<math>\pm 2.5\%</math>或 <math>\pm 0.25\text{pF}</math> (取较大值) 以内</p> <p>No remarkable visual damage</p> <p>Cp change within <math>\pm 2.5\%</math> or <math>\pm 0.25\text{pF}</math>, whichever is larger.</p> | <p>按下列步骤进行 5 次循环:<br/>To perform 5 cycles of the stated environment</p> <p>步骤温度<br/>Step Temperature</p> <p>下限类别温度<br/><math>+0/-3^\circ\text{C}</math></p> <p><math>25^\circ\text{C}</math></p> <p>上限类别温度<br/><math>+3/-0^\circ\text{C}</math></p> <p><math>25^\circ\text{C}</math></p>                                                                                                                                                                                                                                                                                                                                                       |
| X7R/X5R/X7T<br>/X6S | <p>无明显可见损伤</p> <p>容量变化在<math>\pm 7.5\%</math>以内</p> <p>No remarkable visual damage</p> <p>Cp change within <math>\pm 7.5\%</math></p>                                                                                                 | <p>在室温下放置 <math>48\pm 4</math> (X7R, X5R, Y5V、X7T、X6S) 小时以后测量</p> <p>*高介电常数电容器的初始值测量在 <math>140\sim 150^\circ\text{C}</math> 进行 1 小时的热处理后在室温下放置 <math>48\pm 4</math> 小时测量初始值</p> <p>Measurement to be made after being kept at room temperature for <math>24\pm 2\text{hrs}</math> (COG) or <math>48\pm 4\text{hrs}</math> (X7R, X5R, Y5V、X7T、X6S) at room temperature, then measure.</p> <p>*Initial measurement for high dielectric constant type</p> <p>Perform a heat treatment at <math>140\sim 150^\circ\text{C}</math> for 1hr and let sit for <math>48\pm 4\text{hrs}</math> at room temperature. Perform the initial measurement.</p> |
| Y5V                 | <p>无明显可见损伤</p> <p>容量变化在<math>\pm 20\%</math>以内</p> <p>No remarkable visual damage</p> <p>Cp change within <math>\pm 20\%</math></p>                                                                                                   | <p>Measurement to be made after being kept at room temperature for <math>24\pm 2\text{hrs}</math> (COG) or <math>48\pm 4\text{hrs}</math> (X7R, X5R, Y5V、X7T、X6S) at room temperature, then measure.</p> <p>*Initial measurement for high dielectric constant type</p> <p>Perform a heat treatment at <math>140\sim 150^\circ\text{C}</math> for 1hr and let sit for <math>48\pm 4\text{hrs}</math> at room temperature. Perform the initial measurement.</p>                                                                                                                                                                                  |

■ 温度快速循环 Temperature Cycle

| 类型<br>Dielectrics   | 技术要求 Specification                                                                                                                                                                                                                                                                                                                                                                                  | 测试条件 Testing Condition                                                                                                                                                                                                                                                                        |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COG                 | <p>外观无明显可见损伤</p> <p>容量变化在±5%或 ±0.5pF (取较大值) 以内<br/>Cp&lt;10pF, Q≥200+10Cp;<br/>10≤Cp&lt;30pF, Q≥275+2.5Cp<br/>Cp≥30pF, Q≥350</p> <p>IR: 大于 1000MΩ或 10Ω·F(取较小值)</p> <p>No remarkable visual damage</p> <p>Cp change within ±5% or ±0.5pF, whichever is larger.</p> <p>Cp&lt;10pF, Q≥200+10Cp;<br/>10≤Cp&lt;30pF, Q≥275+2.5Cp<br/>Cp≥30pF, Q≥350</p> <p>R*C≥1000MΩ or 10Ω·F, whichever is smaller</p> | <p>测试温度: 40±2℃</p> <p>湿度: 90~95% RH</p> <p>测试时间: 500 ±12hrs</p> <p>在室温下放置 24±2 (COG) 或<br/>48±4(X7R、X5R、Y5V、X7T、X6S) 小时以<br/>后测量*高介电常数电容器的初始值测量在<br/>140~ 150℃进行 1 小时的热处理后在室温下<br/>放置 48±4 小时测量初始值</p>                                                                                        |
| X7R/X5R/X7T<br>/X6S | <p>外观无明显可见损伤</p> <p>容量变化在±12.5%以内</p> <p>DF 为初始值的 2 倍以下</p> <p>IR:大于 1000MΩ或 10Ω·F(取较小值)</p> <p>Cp change within ±12.5%</p> <p>DF:Not more than 2 times of initial value<br/>R*C≥1000MΩ or 10Ω·F, whichever is smaller</p>                                                                                                                                                                          | <p>Test temperature: 40±2℃</p> <p>Humidity: 90~95% RH</p> <p>Testing time: 500 ±12hrs</p> <p>Measurement to be made after being kept<br/>at room temperature for 24±2hrs (COG) or<br/>48±4hrs (X7R, X5R, Y5V, X7T, X6S)</p> <p>*Initial measurement for high dielectric<br/>constant type</p> |
| Y5V                 | <p>外观无明显可见损伤</p> <p>容量变化在±30%以内</p> <p>DF 为初始值的 1.5 倍以下</p> <p>IR:大于 1000MΩ或 10Ω·F(取较小值)</p> <p>No remarkable visual damage</p> <p>Cp change within ±30%</p> <p>DF :Not more than 1.5 times of initial value<br/>R*C≥1000MΩ or 10Ω·F, whichever is smaller</p>                                                                                                                                      | <p>Perform a heat treatment at 140~ 150 °C<br/>for 1hr and let sit for 48±4hrs at room<br/>temperature. Perform the initial<br/>measurement. Perform the initial<br/>measurement.</p>                                                                                                         |

■ 耐湿负荷 Damp heat with load

| 类型<br>Dielectrics               | 技术要求 Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 测试条件 Testing Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COG                             | 外观无明显可见损伤<br>容量变化在 $\pm 7.5\%$ 或 $\pm 0.75\text{pF}$ (取较大值) 以内<br>$C_p < 30\text{pF}$ , $Q \geq 100 + 10/3 \cdot C_p$<br>$C_p \geq 30\text{pF}$ , $Q \geq 200$<br>IR: 大于 $500\text{M}\Omega$ 或 $5\Omega \cdot F$ (取较小值)<br>No remarkable visual damage<br>$C_p$ change $\leq \pm 7.5\%$ or $\pm 0.75\text{pF}$ , whichever is larger.<br>$C_p < 30\text{pF}$ , $Q \geq 100 + 10/3 \cdot C_p$<br>$R \cdot C \geq 500\text{M}\Omega$ or $5\Omega \cdot F$ , whichever is smaller | 测试温度: $40 \pm 2^\circ\text{C}$<br>湿度: 90~95% RH<br>电压: 额定电压<br>测试时间: $500 \pm 12\text{hrs}$                                                                                                                                                                                                                                                                                                                                                                               |
| X7R/X5R/X7T<br><br>/X6S         | 外观无明显可见损伤<br>容量变化在 $\pm 12.5\%$ 以内<br>DF 为初始值的 2 倍以下<br>IR: 大于 $500\text{M}\Omega$ 或 $5\Omega \cdot F$ (取较小值)<br>No remarkable visual damage<br>$C_p$ change $\leq \pm 12.5\%$<br>DF :Not more than 2 times of initial value<br>$R \cdot C \geq 500\text{M}\Omega$ or $5\Omega \cdot F$ , whichever is smaller                                                                                                                                                                 | 在室温下放置 $24 \pm 2$ (COG) 或 $48 \pm 4$ (X7R、X5R、Y5V、X7T、X6S) 小时以后测量 *在 $40 \pm 2^\circ\text{C}$ 温度下, 将电容器加额定直流电压 1hrs.<br>去掉电压, 将电容器在室温下放置 $48 \pm 4\text{hrs}$ 测量初始电容值。<br>Test temperature: $40 \pm 2^\circ\text{C}$<br>Humidity: 90~95% RH<br>Voltage: 100% of the rated voltage<br>Testing time: $500 \pm 12\text{hrs}$<br>Measurement to be made after being kept at room temperature for $24 \pm 2\text{hrs}$ (COG) or $48 \pm 4\text{hrs}$ (X7R, X5R, Y5V, X7T, X6S) |
| Y5V                             | 外观无明显可见损伤<br>容量变化在 $\pm 30\%$ 以内<br>DF 为初始值的 1.5 倍以下<br>IR: 大于 $500\text{M}\Omega$ 或 $5\Omega \cdot F$ (取较小值)<br>No remarkable visual damage<br>$C_p$ change $\leq \pm 30\%$<br>DF:Not more than 1.5 times of initial value<br>$R \cdot C \geq 500\text{M}\Omega$ or $5\Omega \cdot F$ , whichever is smaller                                                                                                                                                                  | *Apply the rated DC voltage for 1 hour at $40 \pm 2^\circ\text{C}$ .<br>Remove and let sit for $48 \pm 4\text{hrs}$ at room temperature.<br>Perform the initial measurement.                                                                                                                                                                                                                                                                                              |
| 备注: 该项可靠性试验仅适用于常规产品, 不适用于中高压产品。 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

■ 耐久性 Life Test

| 类型<br>Dielectrics       | 技术要求 Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 测试条件 Testing Condition                                                                                                                                                                                                                                                                                     |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COG                     | 外观无明显可见损伤<br>容量变化在±3%或±0.3pF (取较大值) 以内<br>容量在 30pF 以上, $Q \geq 350$<br>容量在 10pF 以上且小于 30 pF , $Q \geq 275 + (2.5 * C_p)$<br>容量小于 10pF, $Q \geq 200 + 10 * C_p$<br>IR: 大于 1000MΩ 或 5Ω·F (取较小值)<br>No remarkable visual damage<br>Cp change ≤ ±3% or ±0.3pF, whichever is larger.<br>$Q \geq 350$ ( $C_p \geq 30$ pF)<br>$Q \geq 275 + (2.5 * C_p)$ (10 pF ≤ $C_p$ < 30 pF)<br>$Q \geq 200 + 10 * C_p$ ( $C_p$ < 10 pF)<br>$R * C \geq 1000M\Omega$ or 5Ω·F, whichever is smaller | 测试温度: 上限类别温度±3℃<br>电压: $U_R < 100V$ 1.5 倍额定电压<br>测试时间: 1000 小时<br>在室温下放置 24±2 (COG) 或 48±4 (X7R、X5R、Y5V、X7T、X6S) 小时以后测量<br>*高介电常数电容器的初始值测量<br>在上限类别温度±3℃, 将电容器加 1.5 倍额定直流电压 1 小时<br>去掉电压, 将电容器在室温下放置 48±4hrs<br>测量初始电容值                                                                                    |
| X7R/X5R/X7T<br><br>/X6S | 外观无明显可见损伤<br>容量变化在±12.5%以内<br>DF 为初始值的 2 倍以下<br>IR: 大于 1000MΩ 或 5Ω·F (取较小值) No remarkable visual damage<br>Cp change ≤ ±12.5%<br>DF: Not more than 2 times of initial value<br>$R * C \geq 1000M\Omega$ or 5Ω·F, whichever is smaller                                                                                                                                                                                                                                           | Test temperature:<br>Max. Operating Temp. ±3℃<br>Voltage: $U_R < 100V$ 150% of the rated voltage<br>Testing time: 1000 hrs<br>Measurement to be made after being kept at room temperature for 24±2hrs (COG) or 48±4hrs (X7R, X5R, Y5V, X7T, X6S)<br>*Initial measurement for high dielectric constant type |
| Y5V                     | 外观无明显可见损伤<br>容量变化在±30%以内<br>DF 为初始值的 1.5 倍以下<br>IR: 大于 1000MΩ 或 5Ω·F (取较小值) No remarkable visual damage<br>Cp change ≤ ±30%<br>DF: Not more than 1.5 times of initial value<br>$R * C \geq 1000M\Omega$ or 5Ω·F, whichever is smaller                                                                                                                                                                                                                                           | Apply 150% of the rated DC voltage for one hour at the maximum operating temperature ±3℃.<br>Remove and let sit for 48±4hrs at room temperature.<br>Perform the initial measurement                                                                                                                        |

备注: 该项可靠性试验仅适用于常规产品, 不适用于中高压产品。

## 产品包装 Packing

### ■ 袋式散装 Bulk Packing

10000 个/袋或按客户要求。Standard packing 10Kpcs/bag; others are according to customer request.

### ■ 编带式包装 Tape Packing

| 规格<br>Type | 尺寸 Size (mm) |      |       | 编带数量(个/盘 pcs/reel) |                  |
|------------|--------------|------|-------|--------------------|------------------|
|            | 长度L          | 宽度W  | 厚度T   | 纸带 Paper Tape      | 塑料带 Plastic Tape |
| 0201       | 0.6          | 0.3  | 0.3   | 15,000             | N/A              |
| 0402       | 1.0          | 0.5  | 0.5   | 10,000             | N/A              |
| 0603       | 1.6          | 0.8  | 0.8   | 4,000              | N/A              |
| 0805       | 2.0          | 1.25 | ≤0.85 | 4,000              | N/A              |
|            |              |      | >0.85 | N/A                | 2,000 (或3,000)   |
| 1206       | 3.2          | 1.6  | ≤0.85 | 4,000              | N/A              |
|            |              |      | >0.85 | N/A                | 2,000 (或3,000)   |
| 1210       | 3.2          | 2.5  | ≤1.25 | N/A                | 2,000            |
|            |              |      | >1.25 | N/A                | 2,000            |

### ■ 纸带尺寸 Dimensions of Packing Paper

| Type | A         | B         | C        | D        | T       |
|------|-----------|-----------|----------|----------|---------|
| 0201 | 0.36±0.03 | 0.67±0.03 | 2.0±0.10 | 2.0±0.05 | 0.42max |
| 0402 | 0.65±0.10 | 1.15±0.10 | 2.0±0.05 | 2.0±0.05 | 0.8max  |
| 0603 | 1.05±0.10 | 1.85±0.10 | 4.0±0.10 | 2.0±0.10 | 1.1max  |
| 0805 | 1.55±0.15 | 2.3±0.15  | 4.0±0.10 | 2.0±0.10 | 1.1max  |
| 1206 | 1.95±0.15 | 3.5±0.15  | 4.0±0.10 | 2.0±0.10 | 1.1max  |

单位unit:毫米mm

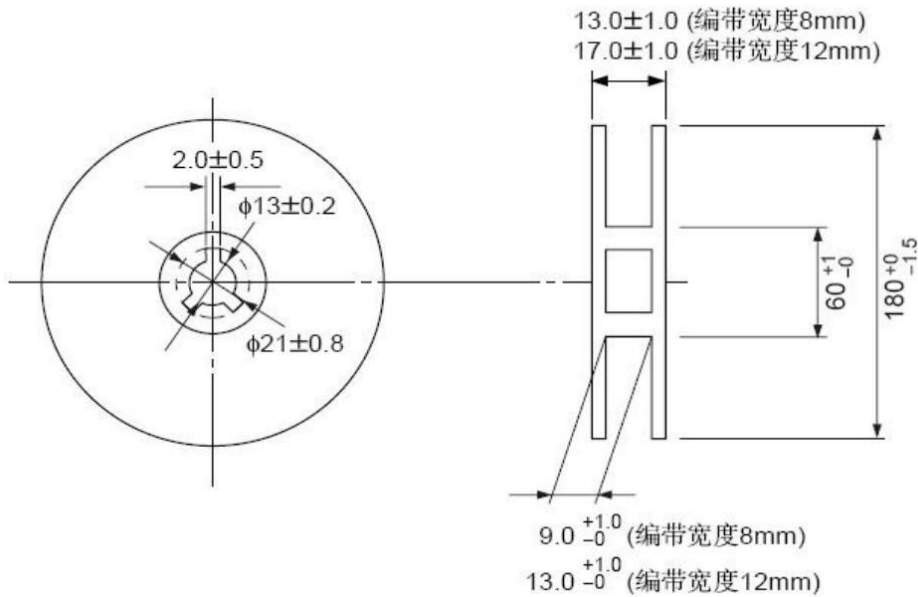
■ 塑料带尺寸 Dimensions of Embossed Packing



A:  $1.45 \pm 0.20$     B:  $2.25 \pm 0.20$  (0805)    A:  $1.95 \pm 0.20$     B:  $3.50 \pm 0.20$  (1206)  
 A:  $2.90 \pm 0.20$     B:  $3.60 \pm 0.20$  (1210)

单位unit:毫米mm

■ 编带盘尺寸 Dimensions of Reel



## ■ 编带方式 Taping Figure



空白部分 Empty section 产品装入部分 Chip insertion section 空白部分 Empty section



## ■ 编带方法 Taping Method

- 1 包装电容器的编带是顺时针卷绕的，由上往下的方向拉出编带时，传送孔处于编带的右侧。
- 2 在编带的前端，至少留出 5 个间距的引出带。
- 3 在编带时，必须上图留出引带部分或空白部分。
- 4 在盘带的安装中的产品装错的数量每盘必须小于表示数量的 0.1% 或 1 个为限，不连续发生错误。
- 5 上胶带和下胶带不应超出编带的边缘，不能挡住传送孔。
- 6 传送孔的累计误差为 10 个间距：±0.3 毫米以内。
- 7 上胶带的剥离力矩应在 0.1 至 0.6 牛顿以内，其方向如下图所示。

① Tapes for capacitors are wound clockwise. The sprocket holes are to the right as the tape is pulled toward the user.

② The top tape and base tape are not attached at the end of the tape for a minimum of 5 pitches.

③ Part of the leader and part of the empty tape shall be attached to the end of the tape as follows.

④ Missing capacitors number within 0.1% of the number per reel or 1pc, whichever is greater, and are not continuous.



- ⑤ The top tape and bottom tape shall not protrude beyond the edges of the tape and shall not cover sprocket holes.
- ⑥ Cumulative tolerance of sprocket holes, 10 pitches:  $\pm 0.3\text{mm}$ .
- ⑦ Peeling off force: 0.1 to 0.6N in the direction shown down.



■ 产品标签 Reel Label



标签内容 The Contents of Label

(1) FCC    1206    B            104            K            500            D            T                  
           ①            ②            ③            ④            ⑤            ⑥            ⑦            ⑧            ⑨

- ① 陶瓷电容器代号 Code of Ceramic Capacitor
- ② 尺寸 chip size, ③ 温度特性 dielectrics, ④ 容量 capacitance, ⑤ 容量容差 tolerance,
- ⑥ 额定电压 rated voltage, ⑦ 厚度 thickness, ⑧ 包装 packing ⑨ 特殊码
- (2) 产品批号 Lot: K20211170131
- (3) 数量 Qty: 4000pcs
- (4) RoHS: GREEN PARTS 绿色物料

- 外包装 Package
- 包装箱 Carton
- 包装箱尺寸 Carton Size

| L      | W      | H      |
|--------|--------|--------|
| 41.0cm | 38.5cm | 20.2cm |

■ 数量： 240Kpcs /箱 The Quantity: 240Kpcs /one carton

1 内包装盒=40,000PCS            1 INNER BOX=40,000PCS

1 包装箱 =40,000PCS × 6 包装盒=240,000PCS        1 CARTON=40,000PCS × 6 INNER BOX  
=240,000PCS RoHS 标识(根据客户要求张贴)        according to customer request

- 内包装盒 Inner Box
- 包装盒尺寸 Size

| L      | W     | H    |
|--------|-------|------|
| 18.5cm | 6.5cm | 19cm |

■ 数量： 40Kpcs /盒

1 盘=4000PCS            1 REEL=4,000PCS

1 包装盒=4,000PCS × 10 盘 =40,000PCS            1 INNER BOX=4,000PCS × 10REEL =40,000PC

## MLCC 使用注意事项 Precautions on the use of MLCC

- 电路板设计 PCB Design
- 电路板图案设计 Design of Land-patterns

下面图和表格给出了部分推荐的设计图案，可以防止安装时焊锡量过多。

同时也给出了不正确的图案。

The following diagrams and tables show some examples recommended patterns to prevent excessive solder amounts (larger fillets which above the component end terminations)

Examples of improper pattern designs are also shown.

电路板设计推荐图案尺寸：|

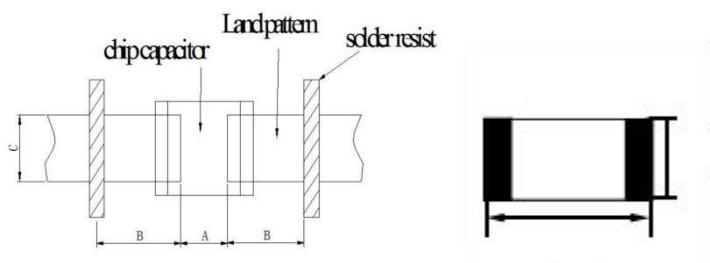
Recommended land dimensions for a typical chip capacitor land patterns for PCBs

波峰焊接时推荐设计的尺寸 (单位: mm):

Recommended land dimensions for wave-soldering (unit: mm)

回流焊接时推荐设计的尺寸 (单位: mm)

| 规格 SIZE |   | 0603    | 0805    | 1206    |
|---------|---|---------|---------|---------|
| 尺寸      | L | 1.6     | 2.0     | 3.2     |
|         | W | 0.8     | 1.25    | 1.6     |
| A       |   | 0.8~1.0 | 1.0~1.4 | 1.8~2.5 |
| B       |   | 0.5~0.8 | 0.8~1.5 | 0.8~1.7 |
| C       |   | 0.6~0.8 | 0.9~1.2 | 1.2~1.6 |



Recommended land dimensions for reflow-soldering (unit: mm)

| 规格 SIZE |   | 0201      | 0402      | 0603    | 0805    | 1206    | 1210    |
|---------|---|-----------|-----------|---------|---------|---------|---------|
| 尺寸      | L | 0.6       | 1.0       | 1.6     | 2.00    | 3.2     | 3.2     |
|         | W | 0.3       | 0.5       | 0.8     | 1.25    | 1.6     | 2.5     |
| A       |   | 0.20~0.25 | 0.35~0.45 | 0.6~0.8 | 0.8~1.2 | 1.8~2.5 | 1.8~2.5 |
| B       |   | 0.20~0.30 | 0.40~0.50 | 0.6~0.8 | 0.8~1.2 | 1.0~1.5 | 1.0~1.5 |
| C       |   | 0.25~0.35 | 0.45~0.55 | 0.6~0.8 | 0.9~1.6 | 1.2~2.0 | 1.6~3.2 |

过量的焊锡会影响产品抵抗机械应力的能力，因此在设计图案时应引起注意。

Excess solder can affect the ability of chips to withstand mechanical stresses. Therefore, please take proper precautions when designing land-patterns.

在应用中一些焊接好与坏的情况:

Examples of good and bad solder application

| 项目 Item                                                                        | 不推荐结构 Not recommended                                                               | 推荐结构 Recommended                                                                      |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 片状元件和带引线的元件的混合焊接<br>Mixed mounting of SMD and leaded component                 |    |    |
| 靠近底座的焊接<br>Component placement close to the chassis                            |    |    |
| 在片状元件附近带引线元件的焊接<br>Hand-soldering of leaded components near mounted components |  |  |

## ■ 图案结构 Pattern configurations

下面是电容器安装好与坏的例子。选择贴装位置，应尽可能减小电路板在弯曲时受到的机械应力。

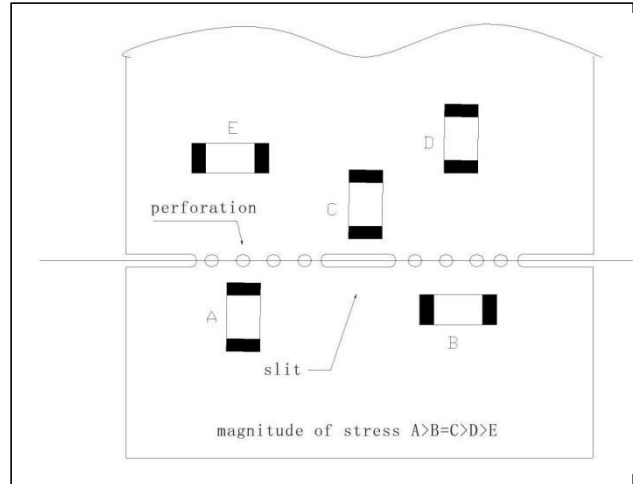
The following are examples of good and bad capacitor layout, SMD capacitors should be located to minimize any possible mechanical stresses from board warp or deflection.

|                                  | 不推荐结构 Not recommended                                                               | 推荐结构 Recommended                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 电路板弯曲<br>Deflection of the board |  |  |

对于电路板分拨的电容器，在分拨时受到的机械应力大小与电容器的安装有关。下面推荐了一些好的设计。

To layout the capacitors for the breakaway PC board, it should be noted that the amount of mechanical stresses given depending on capacitor layout. The example below shows recommendations for better design.

在沿着分拨线分拨电路板时，对产品施加的机械应力与使用的方法关系很大。分折电路板时片状元件受到的疲劳按照如下顺序增大：分折、剪切、V 型槽、穿孔。因此，贴装时应该考虑电路板的分拨过程。When breaking PC boards along their perforations, the amount of mechanical stress on the capacitors can vary according to the method used. The following methods are listed in order from least stressful to most stressful: push-back, silt, -grooving, and perforation. Thus, any ideal SMD capacitor layout must also consider the PCB splitting procedure.



- 自动贴装注意事项 Considerations for automatic placement
- placement 贴装机的调整 Adjustment of mounting machine

- ①.产品在电路板贴装时，不应该受到过大的冲击。
- ②.必须定期对吸头和定位爪进行检查、维修和更换
- ①.Excessive impact load should not be imposed on the capacitors when mounting the PC boards.
- ②.The maintenance and inspection of the mounters should be conducted periodically.

|                               | 不推荐结构 Not recommended | 推荐结构 Recommended |
|-------------------------------|-----------------------|------------------|
| 单面贴装<br>Single-sided mounting | crack                 | supporting pin   |
| 双面贴装<br>Double-sided mounting | solder peeling crack  | supporting pin   |

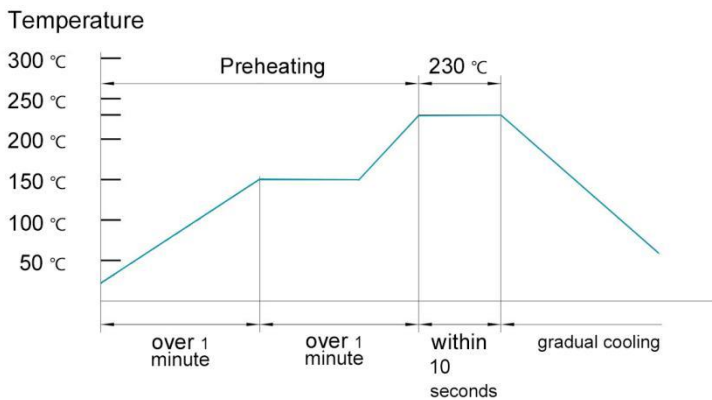
■ 推荐焊接曲线 Recommended soldering profile

■ 说明

- ①.产品推荐使用回流焊接工艺;
- ②.大尺寸产品适用于回流焊接工艺
- ①.flow Soldering is recommended;
- ②.flow soldering is suitable for bigger size MLCC

■ 锡铅焊接曲线 Recommended Sn&Pb soldering profile

回流焊 Reflow soldering



注意 Caution

- ①.理想状况的焊锡高度为电容器厚度的 1/3 ~ 1/2 , 如右图所示:
- ②.过长的焊接时间会影响端头的可焊性, 焊接时间尽可能保持与推荐时间一致。
- ①.The ideal condition is to have solder mass (fillet) controlled to 1/2 to 1/3of the thickness of the capacitor, as shown below:
- ②.Because excessive dwell times can detrimentally affect solder ability, soldering duration should be kept as close to recommended times as possible.

波峰焊 Wave solder profile



### 注意 Caution

- ①. 确保电容器充分预热。
  - ②. 产品预热和焊接温度差不超过 100~130℃。
  - ③. 焊接后尽可能慢速冷却。
- ①. Make sure the capacitors are preheated sufficiently.
  - ②. The temperature difference between the capacitor and melted solder should not be greater than 100 to 130℃.
  - ③. Cooling after soldering should be gradual as possible.

### 手工焊接 Hand soldering

条件:

| 预热                                | 烙铁头温度   | 烙铁功率   | 烙铁头直径  | 焊接时间  | 锡膏量                     | 限制条件            |
|-----------------------------------|---------|--------|--------|-------|-------------------------|-----------------|
| $\Delta \leq 130^{\circ}\text{C}$ | 最高 350℃ | 最大 20w | 建议 1mm | 最长 5s | $\leq \frac{1}{2}$ 芯片厚度 | 请勿使用烙铁头直接接触陶瓷原件 |

### 注意 Caution

- ①. 用尖端最大直径 1.0mm 功率 20W 的焊接烙铁。
  - ②. 焊接烙铁不要直接接触产品。
- ①. Use a 20w soldering iron with a maximum tip diameter of 1.0mm.
  - ②. The soldering iron should not directly touch the capacitor.

### ■ 无铅焊接曲线 Recommended Pb-Free soldering profilee

### 回流焊 Reflow solderin



## 波峰焊 Wave solder profile



### 分拨电路板 Handling

Breakaway PC boards (splitting along perforations)

①.在电容器或其它贴装后，必须注意因电路板弯曲或变形带来的应力。

②.分拨电路板时必须使用专用的夹具，不可以用手拨断。

① .When splitting the PC board after mounting capacitors and other components, care is required so as not to give any stresses of deflection or twisting to the board.

②.Board separation should not be done manually, but by using the appropriate devices.

### 保存 Storage

①.在下列环境中保存产品：温度 5~40°C；湿度 ≤70% RH

②.产品自生产之日保存期为一年，产品使用之前请勿拆开编带。

③.编带拆开后，产品应在三个月内使用。

④.高介电常数电容器 (X7R,X5R,Y5V、X7T、X6S) 的容值随时间会逐渐减小，所以在电路设计时应充分考虑这一现象。容值减小的电容器在 150°C热处理 1 小时后容值会恢复到初始值。

①. Keep the storage environment conditions as following: Temperature: 5~40°C； Humidity: ≤70% RH

②. Don't open the tape until the parts are to be used, and store them within one year since the date printed on the reel.

③. Use the chips within 3 months after the tape is opened.

④. The capacitance value of high dielectric constant capacitors (X7R,X5R,Y5V、X7T、X6S) will gradually decrease with the passage of time, so this should be taken into consideration in the circuit design. If such a capacitance reduction occurs, a heat treatment of 150°C for 1 hour will return the capacitance to its initial level.





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[CL10C0R8BB8ANNC](#) [M55342H06B20G0R-T/R](#) [C1005X5R0G225M](#) [C2012X7R2E223K](#) [C3216C0G2J272J](#) [D55342E07B35E7R-T/R](#)  
[CDR34BX563BKUS](#) [CDR34BX563BKWS](#) [NMC0402NPO220F50TRPF](#) [NMC0402X7R562J25TRPF](#) [NMC0603NPO102J25TRPF](#)  
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