

# 瓷片電容器產品承認書

## APPROVAL SPECIFICATIONS FOR DISC CERAMIC CAPACITORS

|                      |                            |                  |                 |
|----------------------|----------------------------|------------------|-----------------|
| 客戶<br>CUSTOMER       | 立創商城                       |                  |                 |
| 客戶料號<br>CUSTOMER P/N | C3148297                   |                  |                 |
| 產品編碼<br>PART NUMBER  | 3A470KC19-SL-ZNR           |                  |                 |
| 規格描述<br>DESCRIPTION  | 1KV/47PF/K/F5.08/L6/SL/ZNR |                  |                 |
| 日期<br>DATE           | 2022-07-05                 | 文件編號<br>DOC. NO. | DEC-WD-WI001(C) |

| 德爾創承認欄<br>APPROVED BY DERSONIC |                 |                     | 客戶承認欄<br>APPROVED BY CUSTOMER |                 |
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|                |                                                    |    |
|----------------|----------------------------------------------------|----|
| 目录<br>CONTENTS | 数据表<br>DATA SHEET                                  | 3  |
|                | 温度补偿型陶瓷电容器<br>TC TYPE CERAMIC CAPACITORS           | 4  |
|                | 高介电常数型陶瓷电容器<br>HI-K TYPE CERAMIC CAPACITORS        | 6  |
|                | 半导体型陶瓷电容器<br>SEMICONDUCTOR TYPE CERAMIC CAPACITORS | 8  |
|                | 低损耗型陶瓷电容器<br>LOW LOSS TYPE CERAMIC CAPACITORS      | 9  |
|                | 标准与试验方法<br>SPECIFICATIONS AND TESTING METHODS      | 10 |
|                | 包装<br>PACKAGING                                    | 12 |



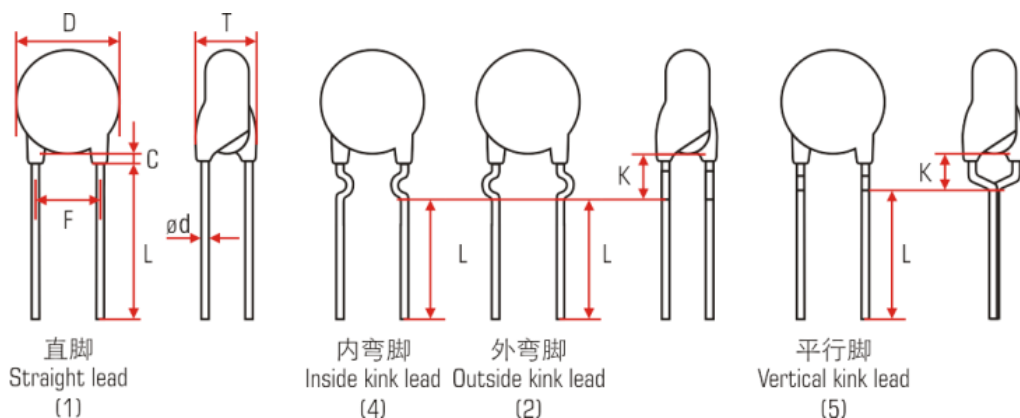
請確保我們的產品安裝到您的產品上前，已根據您的需求進行了評估。

Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.

請您在使用我們的產品時，不要偏離此標準。

You are requested not to use our product deviating from this specification.

数据表  
DATA SHEET



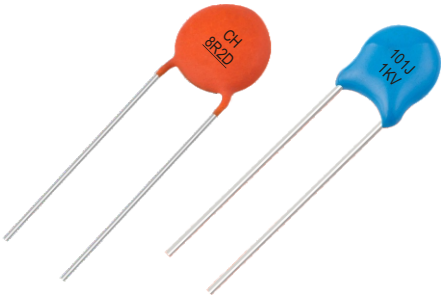
|                                     |                    |                                                    |
|-------------------------------------|--------------------|----------------------------------------------------|
| 产品编码<br>Part number                 |                    | 3A470KC19-SL-ZNR                                   |
| 规格描述<br>Description                 |                    | 1KV/47PF/K/F5.08/L6/SL/ZNR                         |
| 客户料号<br>Customer P/N                |                    |                                                    |
| 介质类别<br>Dielectric class            |                    | Class 1                                            |
| 额定电压<br>Rated voltage               |                    | 1KVDC                                              |
| 电容量<br>Capacitance                  |                    | 47pF ± 10% @ 1MHz 1Vrms 25°C                       |
| 损耗角正切<br>Tangent of loss angle      |                    | 0.0015 max @ 1MHz 1Vrms 25°C                       |
| 耐电压<br>Testing voltage              |                    | 2000VDC (Charge/discharge current 2mA max) 3s PASS |
| 绝缘电阻<br>Insulation resistance       |                    | 10GΩ min @ 500V 60s, RH < 70%                      |
| 温度特性<br>Temperature characteristics |                    | SL<br>ΔC/C: +140/-1000PPM/°C @ -25°C~125°C         |
| 尺寸<br>DIMENSIONS                    | D (Diameter)       | 5.6mm ± 0.8mm                                      |
|                                     | T (Thickness)      | 2.8mm ± 0.8mm                                      |
|                                     | F (Lead spacing)   | 5.08mm ± 0.8mm                                     |
|                                     | L (Lead length)    | 6mm ± 1.0mm                                        |
|                                     | ød (Lead diameter) | 0.55mm max                                         |
|                                     | C (Kink height)    | 3.0mm max                                          |
| 标志<br>Marking                       |                    | ZNR<br>47<br>1KV                                   |

# 温度补偿型陶瓷电容器

## TC TYPE CERAMIC CAPACITORS

### 特点 FEATURES

- 符合IEC 60384-8标准  
Comply with IEC 60384-8 standards
- 温度系数呈线性  
Linear temperature coefficient of capacitance
- 电容量稳定性高  
High stability of capacitance
- 应用频率范围广，损耗低  
Low loss at wide range of frequency
- 符合RoHS 2.0的要求  
RoHS 2.0 complied



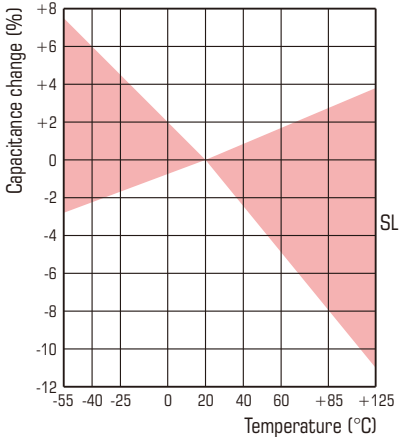
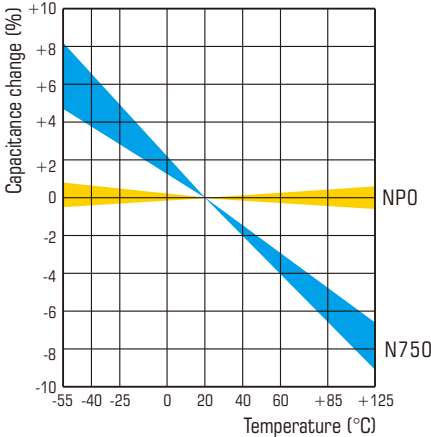
### 用途 APPLICATIONS

- 谐振电路  
Resonant circuit
- 高Q值需求电路  
High Q value requirement
- 电容量高稳定性电路  
High stability capacitance characteristics

### 特性 CHARACTERISTICS

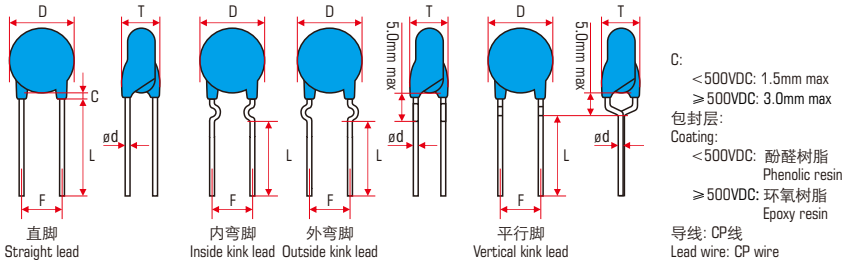
|                                                |                                                                                                                                                                                                                                                                               |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 工作温度范围<br>Operating temperature range          | -25°C ~ +125°C                                                                                                                                                                                                                                                                |
| 电容量<br>Capacitance<br>(C <sub>0</sub> )        | 0.5pF ~ 1 000pF<br>在25±1°C下使用1MHz(100kHz)、1.0Vrms进行测量，在允许偏差范围内。<br>Measured at 1MHz(100kHz), 1.0Vrms and 25°C ±1°C, within the specified tolerance.                                                                                                                           |
| Q值<br>Q value                                  | <30pF: Q ≥ 400+20C <sub>n</sub><br>≥30pF: Q ≥ 1000<br>Q = 1/tanδ                                                                                                                                                                                                              |
| 额定电压<br>Rated voltage<br>(U <sub>n</sub> ), DC | 50V ~ 6 300V<br>在两导线间施加下列电压，时间1s~5s(充/放电电流小于50mA)无异常：<br>The capacitor should not be damaged when the following voltage is applied between the lead wires for 1 to 5 sec (Charge / discharge current 50mA max).<br><630V, 2.5U <sub>n</sub><br>≥630V, 1.5U <sub>n</sub> +500V |
| 绝缘电阻<br>Insulation resistance<br>(IR)          | 10 000MΩ min<br>在两导线间施加额定电压（额定电压大于500V时，使用500V）进行测量，时间1分钟<br>The insulation resistance should be measured with a DC voltage not exceeding the rated voltage (above 500V rated voltage tested by 500V) at normal temperature and humidity and 1 min. of charging               |
| 温度系数<br>Temperature coefficient                | NPO, N750, SL, N3300 etc.                                                                                                                                                                                                                                                     |

#### ■ 典型温度系数曲线 Typical temperature coefficient curves



温度补偿型陶瓷电容器  
TC TYPE CERAMIC CAPACITORS

规格表  
SPECIFICATIONS LIST



| 额定电压, DC<br>Rated voltage, DC                                 | 50V (1H)        |              |            |               | 500V (2H)   |              |            |               | 1kV (3A)    |              |            |               | 2kV (3D)<br>3.15kV (3F) |              |            |               | 4kV<br>(3G) | 6.3kV<br>(3J) |
|---------------------------------------------------------------|-----------------|--------------|------------|---------------|-------------|--------------|------------|---------------|-------------|--------------|------------|---------------|-------------------------|--------------|------------|---------------|-------------|---------------|
| 温度系数<br>Temperature coefficient                               | NP0<br>(CH)     | N750<br>(UJ) | SL<br>(SL) | N3300<br>(DL) | NP0<br>(CH) | N750<br>(UJ) | SL<br>(SL) | N3300<br>(DL) | NP0<br>(CH) | N750<br>(UJ) | SL<br>(SL) | N3300<br>(DL) | NP0<br>(CH)             | N750<br>(UJ) | SL<br>(SL) | N3300<br>(DL) | SL<br>(SL)  | SL<br>(SL)    |
| 容量(pF)<br>Capacitance (pF)                                    | 误差<br>Tolerance |              |            |               |             |              |            |               |             |              |            |               |                         |              |            |               |             |               |
| 0.5 (0R5)                                                     |                 | A            |            |               | C           |              |            |               | C           |              |            |               | D                       |              |            |               |             |               |
| 1.0 (010)                                                     | ±0.25pF(C)      | A            |            |               | C           |              |            |               | C           |              |            |               | D                       |              |            |               |             |               |
| :                                                             | ±0.5pF(D)       | A            |            |               | C           |              |            |               | C           |              |            |               | D                       |              |            |               |             |               |
| 9.1 (9R1)                                                     |                 | A            |            |               | C           |              |            |               | C           |              |            |               | D                       |              |            |               |             |               |
| 10 (100)                                                      |                 | A            |            |               | C           |              |            |               | C           |              |            |               | D                       |              |            |               | E           | E             |
| 12 (120)                                                      | ±5% (J)         | A            |            |               | C           |              |            |               | C           |              |            |               | D                       |              |            |               | E           | E             |
| 15 (150)                                                      | ±10% (K)        | A            |            |               | C           |              |            |               | C           |              |            |               | D                       |              |            |               | E           | E             |
| 18 (180)                                                      |                 | A            | A          |               | C           | C            |            |               | C           | C            |            |               | D                       | D            |            |               | F           | G             |
| 20 (200)                                                      |                 | A            | A          |               | C           | C            |            |               | C           | C            |            |               | D                       | D            |            |               | F           | G             |
| 22 (220)                                                      | ±5% (J)         | A            | A          |               | C           | C            |            |               | C           | C            |            |               | D                       | D            |            |               | F           | G             |
| 24 (240)                                                      | ±10% (K)        | A            | A          |               | C           | C            |            |               | D           | C            |            |               | E                       | E            |            |               | G           | G             |
| 27 (270)                                                      |                 | A            | A          |               | C           | C            |            |               | D           | C            |            |               | E                       | E            |            |               | H           | H             |
| 30 (300)                                                      |                 | A            | A          |               | C           | C            |            |               | F           | C            |            |               | G                       | G            | D          |               | H           | J             |
| 33 (330)                                                      | ±5% (J)         | A            | A          |               | C           | C            |            |               | F           | C            |            |               | G                       | G            | D          |               | I           | J             |
| 36 (360)                                                      | ±10% (K)        | A            | A          |               | D           | C            |            |               | F           | D            |            |               | G                       | G            | D          |               | E           | F             |
| 39 (390)                                                      |                 | A            | A          |               | D           | C            |            |               | F           | D            |            |               | G                       | G            | D          |               | E           | F             |
| 43 (430)                                                      |                 | B            | A          |               | D           | D            |            |               | F           | F            |            |               | G                       | H            | D          |               | F           | G             |
| 47 (470)                                                      | ±5% (J)         | B            | A          |               | D           | D            |            |               | F           | F            |            |               | H                       | H            | D          |               | F           | G             |
| 51 (510)                                                      | ±10% (K)        | C            | A          |               | D           | E            | C          |               | G           | F            | C          |               | J                       | J            | D          |               | F           | G             |
| 56 (560)                                                      |                 | C            | A          |               | D           | E            | C          |               | G           | F            | C          |               | J                       | J            | D          |               | G           | H             |
| 62 (620)                                                      |                 | C            | C          | A             | G           | E            | C          |               | G           | H            | C          |               | J                       | F            |            |               | G           | H             |
| 68 (680)                                                      | ±5% (J)         | C            | C          | A             | G           | E            | C          |               | G           | H            | C          |               | J                       | F            |            |               | H           | I             |
| 75 (750)                                                      | ±10% (K)        | C            | C          | A             | G           | G            | C          |               | G           | J            | E          |               | K                       | H            |            |               | I           | J             |
| 82 (820)                                                      |                 | C            | C          | A             | G           | G            | C          |               | G           | J            | E          |               | K                       | H            |            |               | I           | J             |
| 91 (910)                                                      |                 | D            | D          | A             | H           | G            | C          |               | H           | J            | E          |               | K                       | H            |            |               | K           | L             |
| 100 (101)                                                     |                 | D            | D          |               | H           | G            | C          |               | H           | J            | E          |               | K                       | H            |            |               | K           | L             |
| 120 (121)                                                     | ±5% (J)         |              | E          | A             |             | I            | D          |               |             |              | G          | C             |                         | J            | J          | D             | D           |               |
| 150 (151)                                                     | ±10% (K)        |              | E          | B             |             | I            | D          | C             |             |              | G          | C             |                         | J            | J          | D             | D           |               |
| 180 (181)                                                     |                 |              | H          | B             |             | K            | F          | C             |             |              | G          | C             |                         | K            | K          | F             | F           |               |
| 200 (201)                                                     |                 |              | H          | B             |             | K            | F          | C             |             |              | I          | E             |                         |              | K          | F             |             |               |
| 220 (221)                                                     | ±5% (J)         |              | H          | B             |             | K            | G          | C             |             |              | I          | E             |                         |              | K          | F             |             |               |
| 240 (241)                                                     | ±10% (K)        |              | I          | B             |             |              | G          | C             |             |              | J          | E             |                         |              | L          | F             |             |               |
| 270 (271)                                                     |                 |              | J          | B             |             |              | H          | C             |             |              | J          | E             |                         |              | L          | F             |             |               |
| 300 (301)                                                     |                 |              | J          | F             | B           |              |            |               |             |              | J          | E             |                         |              |            |               |             |               |
| 330 (331)                                                     | ±5% (J)         |              | J          | F             | B           |              |            |               |             |              | J          | E             |                         |              |            |               |             |               |
| 360 (361)                                                     | ±10% (K)        |              |            | F             | B           |              |            |               |             |              | J          | E             |                         |              |            |               |             |               |
| 390 (391)                                                     |                 |              |            | G             | B           |              |            |               |             |              | J          | E             |                         |              |            |               |             |               |
| 430 (431)                                                     |                 |              |            | G             | B           |              |            |               |             |              | K          | G             |                         |              |            |               |             |               |
| 470 (471)                                                     | ±5% (J)         |              |            | H             | B           |              | J          | D             |             |              | K          | G             |                         |              |            |               | J           |               |
| 510 (511)                                                     | ±10% (K)        |              |            | I             | C           |              |            | E             |             |              |            | I             |                         |              |            |               | J           |               |
| 560 (561)                                                     |                 |              |            | I             | C           |              |            | E             |             |              |            | I             |                         |              |            |               | K           |               |
| 680 (681)                                                     |                 |              |            | J             | E           |              |            |               |             |              |            | I             |                         |              |            |               | L           |               |
| 820 (821)                                                     | ±10% (K)        |              |            | K             | E           |              |            |               |             |              |            | K             |                         |              |            |               | L           |               |
| 1000 (102)                                                    |                 |              |            | L             | E           |              |            |               |             |              |            | K             |                         |              |            |               | L           |               |
| 1200 (122)                                                    |                 |              |            |               |             |              |            |               |             |              |            | K             |                         |              |            |               |             |               |
| → 最大直径代码, 具体见下表<br>Maximum diameter code, see the table below |                 |              |            |               |             |              |            |               |             |              |            |               |                         |              |            |               |             |               |
| T, mm max                                                     | 3.0             |              |            |               | 3.5         |              |            |               | 4.0         |              |            |               | 4.0                     |              |            |               | 4.5         | 5.0           |
| F, mm±0.8mm                                                   | 2.5 / 5.0       |              |            |               | 5.0         |              |            |               | 5.0         |              |            |               | 5.0 / 7.5               |              |            |               | 7.5         | 10.0          |
| ød, mm±0.05mm                                                 | 0.40            |              |            |               | 0.45        |              |            |               | 0.45        |              |            |               | 0.50                    |              |            |               | 0.55        | 0.55          |
| L, mm min                                                     | 13.0            |              |            |               | 18.0        |              |            |               | 18.0        |              |            |               | 20.0                    |              |            |               | 20.0        | 20.0          |

最大直径代码表  
Maximum diameter code sheet

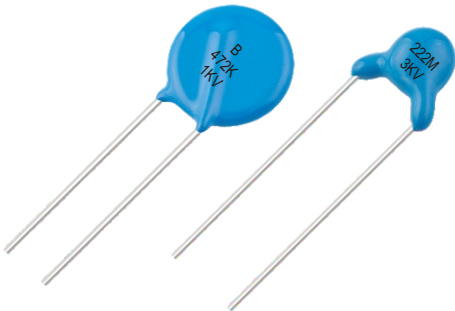
| 代码 Code   | A   | B   | C   | D   | E   | F   | G   | H   | I   | J    | K    | L    | M    | N    | O    | P    | Q    |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|
| D, mm max | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 18.0 |

备注: 所有的尺寸规格均可以定制, 但需要向我公司业务咨询。  
Note: All dimensions can be customized, but you need to consult with our sales staff.

高介电常数型陶瓷电容器  
HI-K TYPE CERAMIC CAPACITORS

特点  
FEATURES

- 符合IEC 60384-9的要求  
Comply with IEC 60384-9 standards
- 非线性温度特性  
Nonlinear temperature coefficient of capacitance
- 小尺寸大容量  
Large capacitance in small sizes
- 符合RoHS 2.0的要求  
RoHS 2.0 complied



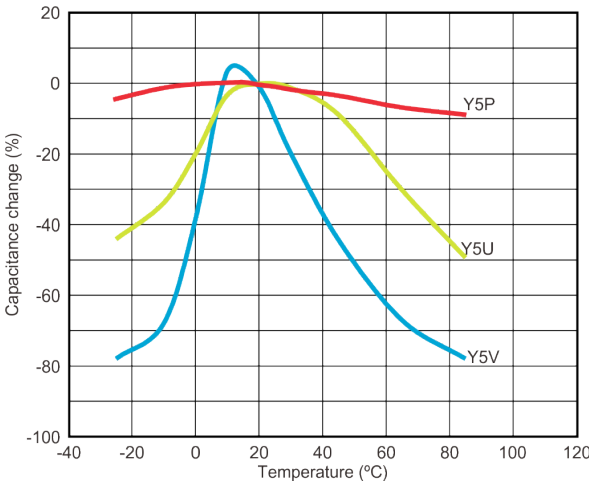
用途  
APPLICATIONS

- 旁路和耦合电路  
By-pass and coupling
- 对电容量稳定性和损耗要求不高的电路  
Frequency discriminating circuits where Q and stability of capacitance characteristic are not major importance

特性  
CHARACTERISTICS

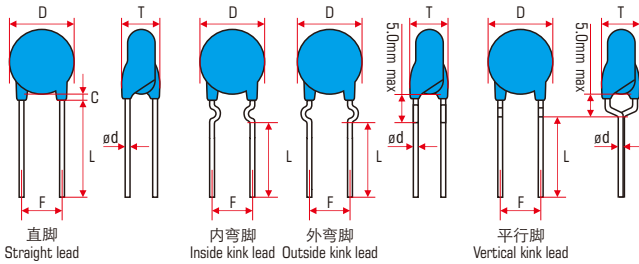
|                                                |                                                                                                                                                                                                                                                                                 |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 工作温度范围<br>Operating temperature range          | -25°C ~ +85°C                                                                                                                                                                                                                                                                   |
| 电容量<br>Capacitance<br>(C <sub>a</sub> )        | 100pF ~ 0.1μF (100 000pF)<br>在25±1°C下使用1kHz、1.0Vrms进行测量，在允许偏差范围内。<br>Measured at 1kHz, 1.0Vrms and 25±1°C, within the specified tolerance.                                                                                                                                      |
| 损耗角正切<br>Tangent of loss angle<br>(tanδ)       | 0.035 max                                                                                                                                                                                                                                                                       |
| 额定电压<br>Rated voltage<br>(U <sub>a</sub> ), DC | 50V ~ 6300V<br>在两导线间施加下列电压，时间1s~5s(充/放电电流小于50mA)无异常：<br>The capacitor should not be damaged when the following voltage is applied between the lead wires for 1 to 5 sec (Charge / discharge current 50mA max).<br>< 630V, 2.5U <sub>a</sub><br>≥ 630V, 1.5U <sub>a</sub> + 500V |
| 绝缘电阻<br>Insulation resistance<br>(IR)          | 6 000MΩ min<br>在两导线间施加额定电压（额定电压大于500V时，使用500V）进行测量，时间1分钟<br>The insulation resistance should be measured with a DC voltage not exceeding the rated voltage (above 500V rated voltage tested by 500V) at normal temperature and humidity and 1 min. of charging                  |
| 温度特性<br>Temperature characteristic             | Y5P, Y5U, Y5V etc.                                                                                                                                                                                                                                                              |

- 典型温度特性曲线  
Typical temperature characteristic curves



高介电常数型陶瓷电容器  
HI-K TYPE CERAMIC CAPACITORS

规格表  
SPECIFICATIONS LIST



| 额定电压, DC<br>Rated voltage, DC | 50V<br>(1H) |             |             | 500V<br>(2H) |             |             | 1kV<br>(3A) |             |             | 2kV<br>(3D) |             |             | 3.15kV<br>(3F) |             |             | 4kV<br>(3G) |             |             | 6.3kV<br>(3J) |             |             |
|-------------------------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------|-------------|-------------|-------------|-------------|-------------|---------------|-------------|-------------|
| 温度特性<br>Temp. characteristic  | Y5P<br>(B4) | Y5U<br>(E4) | Y5V<br>(F4) | Y5P<br>(B4)  | Y5U<br>(E4) | Y5V<br>(F4) | Y5P<br>(B4) | Y5U<br>(E4) | Y5V<br>(F4) | Y5P<br>(B4) | Y5U<br>(E4) | Y5V<br>(F4) | Y5P<br>(B4)    | Y5U<br>(E4) | Y5V<br>(F4) | Y5P<br>(B4) | Y5U<br>(E4) | Y5V<br>(F4) | Y5P<br>(B4)   | Y5U<br>(E4) | Y5V<br>(F4) |
| 容量(pF)<br>Capacitance (pF)    |             |             |             |              |             |             |             |             |             |             |             |             |                |             |             |             |             |             |               |             |             |
| 100 (101)                     |             |             |             |              |             |             | C           |             |             | D           |             |             | D              |             |             | E           |             |             | E             |             |             |
| 120 (121)                     |             |             |             |              |             |             | C           |             |             | D           |             |             | D              |             |             | E           |             |             | E             |             |             |
| 150 (151)                     |             |             |             | C            |             |             | C           |             |             | D           |             |             | D              |             |             | E           |             |             | E             |             |             |
| 180 (181)                     |             |             |             | C            |             |             | C           |             |             | D           |             |             | D              |             |             | E           |             |             | E             |             |             |
| 220 (221)                     | B           |             |             | C            |             |             | C           |             |             | D           |             |             | D              |             |             | E           |             |             | E             |             |             |
| 270 (271)                     | B           |             |             | C            |             |             | C           |             |             | D           |             |             | D              |             |             | E           |             |             | F             |             |             |
| 330 (331)                     | B           |             |             | C            |             |             | C           |             |             | D           |             |             | D              |             |             | E           |             |             | G             |             |             |
| 390 (391)                     | B           |             |             | C            |             |             | C           |             |             | D           |             |             | D              |             |             | E           |             |             | G             |             |             |
| 470 (471)                     | B           |             |             | C            |             |             | C           |             |             | D           |             |             | E              | D           |             | F           | E           |             | H             | E           |             |
| 560 (561)                     | B           |             |             | C            |             |             | C           |             |             | F           |             |             | F              | D           |             | G           | E           |             | I             | E           |             |
| 680 (681)                     | B           |             |             | C            |             |             | C           |             |             | F           |             |             | G              | D           |             | H           | E           |             | J             | F           |             |
| 820 (821)                     | B           |             |             | C            |             |             | D           |             |             | G           |             |             | H              | D           |             | I           | E           |             | J             | G           |             |
| 1000 (102)                    | B           |             |             | C            | C           |             | D           | C           |             | G           | D           | D           | I              | E           | D           | J           | F           | E           | K             | H           | E           |
| 1200 (122)                    | B           |             |             | D            | C           |             | F           | C           |             | I           | D           | D           | J              | F           | D           | K           | G           | E           | I             | I           | F           |
| 1500 (152)                    | B           |             |             | E            | C           |             | F           | D           |             | I           | F           | D           | K              | G           | E           | L           | H           | F           | J             | J           | G           |
| 1800 (182)                    | B           |             |             | F            | C           |             | I           | D           |             | J           | H           | D           | L              | I           | M           | M           | I           | F           | J             | H           | H           |
| 2200 (222)                    | B           | B           |             | G            | C           | C           | I           | D           | C           | K           | H           | D           | M              | I           | N           | I           | L           | G           | K             | L           | I           |
| 2700 (272)                    | D           | B           |             | H            | C           | C           | D           | F           | C           | L           | I           | F           |                | J           | G           | L           | I           | I           | L             | M           | J           |
| 3300 (332)                    | D           | B           |             | J            | E           | C           | K           | F           | E           | N           | J           | F           |                | J           | G           | L           | I           | J           | O             | J           | K           |
| 3900 (392)                    | E           | B           |             | J            | E           | E           | K           | G           | E           | N           | J           | H           |                | K           | J           | L           | J           |             |               |             |             |
| 4700 (472)                    | F           | B           | K           | G            | E           | E           | L           | I           | E           | P           | K           | J           | L              | K           |             | N           | K           |             | P             | L           |             |
| 5600 (562)                    | G           | C           | L           | H            | E           | E           | N           | I           | G           | L           | J           | J           | N              | K           |             | P           | L           |             |               |             |             |
| 6800 (682)                    | I           | D           | B           | M            | H           | G           | N           | J           | G           | M           | K           | N           | N              | L           |             | Q           | L           |             |               |             |             |
| 8200 (822)                    | K           | D           | B           | M            | J           | I           | P           | J           | J           | N           | K           | N           | P              | N           |             | Q           | L           | N           |               |             |             |
| 10000 (103)                   | K           | D           | D           | O            | K           | I           | Q           | K           | K           | O           | M           |             | P              | N           |             | R           | O           |             |               |             |             |
| 15000 (153)                   | H           | F           | F           | M            | M           | L           |             | M           | M           | Q           | N           |             |                |             |             |             |             |             |               |             |             |
| 22000 (223)                   | K           | H           | H           |              | O           | L           |             | O           | N           | R           | N           |             |                |             |             |             |             |             |               |             |             |
| 33000 (333)                   |             | K           | K           |              |             | O           |             | Q           | Q           |             |             |             |                |             |             |             |             |             |               |             |             |
| 47000 (473)                   |             |             | M           |              |             | Q           |             |             |             |             |             |             |                |             |             |             |             |             |               |             |             |
| 68000 (683)                   |             |             |             |              |             | Q           |             |             |             |             |             |             |                |             |             |             |             |             |               |             |             |
| 100000 (104)                  |             |             |             |              |             | Q           |             |             |             |             |             |             |                |             |             |             |             |             |               |             |             |
| 150000 (154)                  |             |             |             |              |             | Q           |             |             |             |             |             |             |                |             |             |             |             |             |               |             |             |
| 误差<br>Tolerance               | ±10%<br>(K) | ±20%<br>(M) |             | ±10%<br>(K)  | ±20%<br>(M) |             | ±10%<br>(K) | ±20%<br>(M) |             | ±10%<br>(K) | ±20%<br>(M) |             | ±10%<br>(K)    | ±20%<br>(M) |             | ±10%<br>(K) | ±20%<br>(M) |             | ±10%<br>(K)   | ±20%<br>(M) |             |
| T, mm max                     | 3.0         |             |             | 3.5          |             |             | 4.0         |             |             | 4.5         |             |             | 4.5            |             |             | 5.0         |             |             | 5.5           |             |             |
| F, mm±0.8mm                   | 2.5 / 5.0   |             |             | 5.0          |             |             | 5.0 / 7.5   |             |             | 5.0 / 7.5   |             |             | 5.0 / 7.5      |             |             | 7.5         |             |             | 10.0          |             |             |
| ød, mm±0.05mm                 | 0.40        |             |             | 0.45         |             |             | 0.45        |             |             | 0.50        |             |             | 0.50           |             |             | 0.55        |             |             | 0.55          |             |             |
| L, mm min                     | 13.0        |             |             | 18.0         |             |             | 18.0        |             |             | 20.0        |             |             | 20.0           |             |             | 20.0        |             |             | 20.0          |             |             |

最大直径代码表  
Maximum diameter code sheet

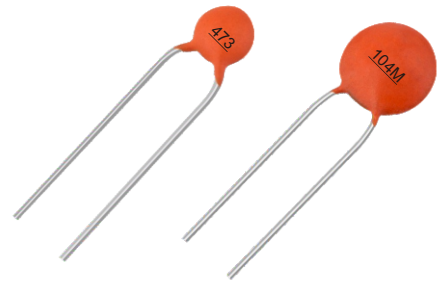
| 代码 Code   | B   | C   | D   | E   | F   | G   | H   | I   | J    | K    | L    | M    | N    | O    | P    | Q    | R    |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|
| D, mm max | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 18.0 | 20.0 |

备注: 所有的尺寸规格均可以定制, 但需要向我公司业务咨询。  
Note: All dimensions can be customized, but you need to consult with our sales staff.

# 半导体型陶瓷电容器 SEMICONDUCTOR TYPE CERAMIC CAPACITORS

## 特点 FEATURES

- 介质表面绝缘  
Dielectric surface layer insulation
- 非线性温度特性  
Non linear temperature coefficient of capacitance
- 小尺寸大容量  
Large capacitance in small sizes
- 符合RoHS 2.0的要求  
RoHS 2.0 complied



## 用途 APPLICATIONS

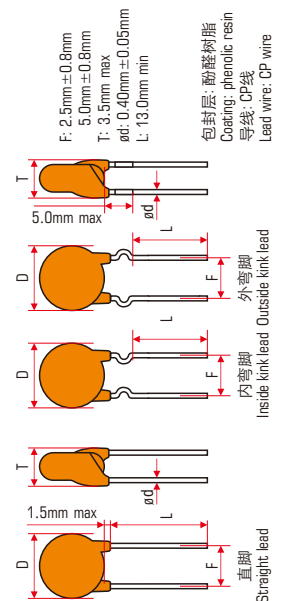
- 晶体管化  
Transistorized
- 低压旁路、耦合电路  
Low voltage electronic circuits for by-pass, coupling
- 可使用在对容量稳定性、绝缘电阻与损耗要求不高的电路  
Frequency determination, in which dielectric losses, Hi-IR and capacitance stability are not major importance

## 特性 CHARACTERISTICS

|                                                |                                                                                                                                                                                                                                   |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 工作温度范围<br>Operating temperature range          | -25°C ~ +85°C                                                                                                                                                                                                                     |
| 电容量<br>Capacitance<br>(C <sub>0</sub> )        | 4700pF to 0.47μF<br>在25±1°C下使用1KHz、0.1Vrms进行测量，在允许偏差范围内<br>Measured at 1kHz, 0.1Vrms and 25±1°C, within the specified tolerance                                                                                                   |
| 损耗角正切<br>Tangent of loss angle                 | tanδ: 0.050 max                                                                                                                                                                                                                   |
| 额定电压<br>Rated Voltage<br>(U <sub>0</sub> ), DC | 16V to 100V<br>在两导线间施加1.5倍额定电压，时间1s到5s（充/放电流小于50mA）<br>The capacitor should not be damaged when 1.5 times rated voltage is applied between the lead wires for 1 to 5 sec (Charge / discharge current 50mA max).                   |
| 绝缘电阻<br>Insulation resistance                  | > 1 000MΩ or 25ΩF（取较小值，whichever is smaller）<br>在两导线间施加额定电压进行测量，时间1分钟<br>The insulation resistance should be measured with a DC voltage not exceeding the rated voltage at normal temperature and humidity and 1 min. of charging |
| 温度特性<br>Temperature characteristic             | Y5P, Y5U, Y5V                                                                                                                                                                                                                     |

## 规格表 SPECIFICATIONS LIST

| 温度特性<br>Temp. characteristic  | Y5P (3B)                                                   |             |                             | Y5U (3E)    |             |                             | Y5V (3F)    |             |                             |              |
|-------------------------------|------------------------------------------------------------|-------------|-----------------------------|-------------|-------------|-----------------------------|-------------|-------------|-----------------------------|--------------|
| 额定电压, DC<br>Rated voltage, DC | 16V<br>(1B)                                                | 25V<br>(1E) | 50V<br>(1H)/<br>63V<br>(1J) | 16V<br>(1B) | 25V<br>(1E) | 50V<br>(1H)/<br>63V<br>(1J) | 16V<br>(1B) | 25V<br>(1E) | 50V<br>(1H)/<br>63V<br>(1J) | 100V<br>(2A) |
| 容量(pF)<br>Capacitance (pF)    | 最大直径代码，具体见下表<br>Maximum diameter code, see the table below |             |                             |             |             |                             |             |             |                             |              |
| 4700 (472)                    | B                                                          | B           | B                           |             |             |                             |             |             |                             |              |
| 5600 (562)                    | C                                                          | C           | C                           |             |             |                             |             |             |                             |              |
| 6800 (682)                    | C                                                          | C           | C                           |             |             |                             |             |             |                             |              |
| 8200 (822)                    | C                                                          | C           | C                           |             |             |                             |             |             |                             |              |
| 10000 (103)                   | C                                                          | C           | C                           | B           | B           | B                           |             | B           | B                           |              |
| 12000 (123)                   | C                                                          | C           | C                           | B           | B           | B                           |             | B           | B                           |              |
| 15000 (153)                   | C                                                          | C           | C                           | B           | B           | B                           |             | B           | B                           |              |
| 18000 (183)                   | E                                                          | E           | E                           | B           | C           | C                           |             | B           | B                           |              |
| 22000 (223)                   | E                                                          | E           | E                           | B           | C           | C                           | B           | B           | B                           | C            |
| 27000 (273)                   | E                                                          | E           | G                           | B           | C           | C                           | B           | B           | B                           | C            |
| 33000 (333)                   | G                                                          | G           | G                           | C           | C           | C                           | B           | B           | C                           | C            |
| 39000 (393)                   | G                                                          | G           | I                           | C           | C           | E                           | B           | C           | C                           | C            |
| 47000 (473)                   | G                                                          | G           | I                           | C           | C           | E                           | B           | C           | C                           | C            |
| 56000 (563)                   | I                                                          | I           | I                           | E           | E           | E                           | C           | C           | D                           | E            |
| 68000 (683)                   | I                                                          | I           | I                           | E           | E           | E                           | C           | C           | D                           | E            |
| 82000 (823)                   | J                                                          | J           | J                           | E           | G           | G                           | C           | C           | D                           | E            |
| 100000 (104)                  | L                                                          | L           | O                           | E           | G           | I                           | C           | D           | F                           | I            |
| 220000 (224)                  |                                                            |             |                             | J           | J           | L                           | J           | J           | L                           | M            |
| 330000 (334)                  |                                                            |             |                             |             |             |                             | M           | M           |                             |              |
| 470000 (474)                  |                                                            |             |                             |             |             |                             | M           |             |                             |              |
| 误差<br>Tolerance               | ±10% (K)                                                   |             |                             | ±20% (M)    |             |                             | ±20% (M)    |             |                             |              |



最大直径代码表  
Maximum diameter code sheet

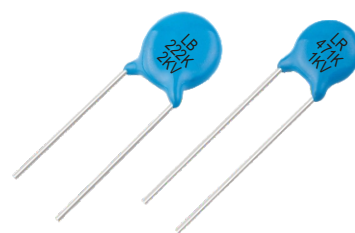
| 代码 Code   | B   | C   | D   | E   | F   | G   | H   | I   | J    | K    | L    | M    | N    | O    | P    | Q    | R    |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|
| D, mm max | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 18.0 | 20.0 |

备注：所有的尺寸规格均可以定制，但需要向我公司业务咨询。  
Note: All dimensions can be customized, but you need to consult with our sales staff.

# 低损耗型陶瓷电容器 LOW LOSS TYPE CERAMIC CAPACITORS

## 特点 FEATURES

- 高频特性好  
Good high frequency characteristics
- 损耗小发热低  
Low loss, less heat.
- 介质耐压强度高  
High dielectric voltage withstanding strength.
- 有铅，但符合ROHS标准豁免条款  
Have a lead, but comply with RoHS standard exemption clause.



## 用途 APPLICATIONS

- 广泛使用于平板电视、监控电路、节能灯、电子整流器及其它高压高频电路  
Widely used in FPTV, monitoring circuit, CFL, electronic ballast. and other high voltage, high frequency circuit.

## 特性 CHARACTERISTICS

|                                                |                                                                                                                                                                                                                                    |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 工作温度范围<br>Operating temperature range          | -25°C ~ +125°C                                                                                                                                                                                                                     |
| 电容量<br>Capacitance<br>(C <sub>p</sub> )        | 100pF to 0.01μF<br>在25±1°C下使用1KHz、1.0Vrms进行测量，在允许偏差范围内<br>Measured at 1kHz, 1.0Vrms and 25±1°C, within the specified tolerance                                                                                                     |
| 损耗角正切<br>Tangent of loss angle                 | Y5P (Bn), tanδ: 0.005 max;<br>Y5R, tanδ: 0.002 max.                                                                                                                                                                                |
| 额定电压<br>Rated Voltage<br>(U <sub>R</sub> ), DC | 500V to 6 300V<br>在两导线间施加1.5倍额定电压再加500V，时间1s到5s（充/放电流小于50mA）<br>The capacitor should not be damaged when 1.5 times rated voltage plus 500V is applied between the lead wires for 1 to 5 sec (Charge / discharge current 50mA max). |
| 绝缘电阻<br>Insulation resistance                  | 10 000MΩ min<br>在两导线间施加500V进行测量，时间1分钟<br>The insulation resistance should be measured with 500V voltage at normal temperature and humidity and 1 min. of charging                                                                  |
| 温度特性<br>Temperature characteristic             | Y5P(Bn), Y5R                                                                                                                                                                                                                       |

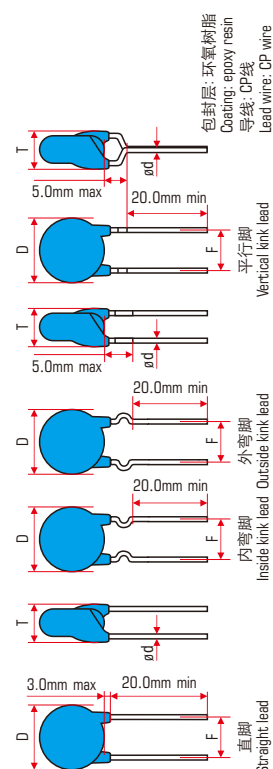
## 规格表 SPECIFICATIONS LIST

| 温度特性<br>Temp. characteristic  | Y5P (Bn)    |             |             |               | Y5R (R4)     |             |             |
|-------------------------------|-------------|-------------|-------------|---------------|--------------|-------------|-------------|
| 额定电压, DC<br>Rated voltage, DC | 1kV<br>(3A) | 2kV<br>(3D) | 4kV<br>(3G) | 6.3kV<br>(3J) | 500V<br>(2H) | 1kV<br>(3A) | 2kV<br>(3D) |
| 容量(pF)<br>Capacitance (pF)    |             |             |             |               |              |             |             |
| 100 (101)                     |             |             | E           | G             |              |             |             |
| 120 (121)                     |             |             | E           | G             |              |             |             |
| 150 (151)                     |             | E           | E           | G             |              | E           | E           |
| 180 (181)                     |             | E           | E           | G             |              |             |             |
| 220 (221)                     | E           | E           | G           | G             |              | E           | E           |
| 270 (271)                     | E           | E           | G           | G             |              | E           | E           |
| 330 (331)                     | E           | E           | G           | G             |              | E           | E           |
| 390 (391)                     | E           | E           | G           | I             | D            | E           | F           |
| 470 (471)                     | E           | E           | I           | J             | D            | E           | G           |
| 560 (561)                     | E           | E           | J           | K             | D            | G           | H           |
| 680 (681)                     | E           | G           | J           | K             | E            | G           | I           |
| 820 (821)                     | E           | H           | K           | L             | F            | I           | J           |
| 1000 (102)                    | F           | H           | L           | M             | F            | I           | L           |
| 1500 (152)                    | H           | J           | M           | N             | H            | J           | M           |
| 2200 (222)                    | J           | L           | O           | P             | J            | M           | N           |
| 3300 (332)                    | K           | O           | P           |               | L            | N           | P           |
| 4700 (472)                    | N           | P           |             |               | M            | P           | T           |
| 5600 (562)                    | P           |             |             |               |              |             |             |
| 6800 (682)                    | P           |             |             |               |              |             |             |
| 10000 (103)                   | R           |             |             |               |              |             |             |
| 误差<br>Tolerance               | ±10% (K)    |             |             |               | ±10% (K)     |             |             |
| T, mm max                     | 4.0         | 4.5         | 5.0         | 5.5           | 3.5          | 4.0         | 4.5         |
| F, mm±0.8mm                   | 5.0         | 5.0 / 7.5   | 7.5         | 10.0          | 5.0          | 5.0         | 5.0 / 7.5   |
| ød, mm±0.05mm                 | 0.50        | 0.50        | 0.55        | 0.55          | 0.50         | 0.50        | 0.50        |

最大直径代码表  
Maximum diameter code sheet

| 代码 Code   | D   | E   | F   | G   | H   | I   | J    | K    | L    | M    | N    | O    | P    | Q    | R    | S    | T    |
|-----------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|
| D, mm max | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 18.0 | 20.0 | 22.0 | 25.0 |

备注：所有的尺寸规格均可以定制，但需要向我公司业务咨询。  
Note: All dimensions can be customized, but you need to consult with our sales staff.



# 圆板陶瓷电容器试验方法

## TESTING METHODS FOR DISC CERAMIC CAPACITORS

### 标准与试验方法

### SPECIFICATIONS AND TESTING METHODS

测量与试验前，请注意“测量与使用注意事项”中“测量”章节规定的内容。

Before measurement and testing, please note "MEASURING AND APPLICATION NOTICE" content "Measurement" of the provisions of section.

| 序<br>No.                                                 | 试验项目<br>Item                                                    |                                   | 标准 Specifications                                                                                                                          |                                                                     |                                        | 试验方法<br>Testing methods                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
|----------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------|------------------|----------------------------------------------------------|--------------|--------------|-------------------------|-------------------|-----------------------------------|---------|----------------------|---------|
|                                                          |                                                                 |                                   | Class 1                                                                                                                                    | Class 2 / Low-DF                                                    | Class 3                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 1                                                        | 外观与尺寸<br>Appearance (APP)<br>and dimension                      |                                   | 外观形状没有明显的缺点，尺寸在标准范围内。<br>No marked defect on appearance form and dimensions are within specified range.                                    |                                                                     |                                        | 电容必须用目视检查其明显的缺点。<br>The capacitor should be visually inspected for evidence of defect.<br>尺寸用游标卡尺测量。<br>Dimensions should be measured with slide calipers.                                                                                                                                                                                                                                                                                                                                                                  |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 2                                                        | 标志<br>Marking                                                   |                                   | 清晰易于识别。<br>To be easily legible                                                                                                            |                                                                     |                                        | 目视检查。<br>The capacitor should be visually inspected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 3                                                        | 容量<br>Capacitance<br>(C <sub>0</sub> )                          |                                   | 在误差范围内。<br>Within specified tolerance                                                                                                      |                                                                     |                                        | 容量与损耗(tanδ或Q值)在25±1℃下，使用表1条件进行下测量。<br>The capacitance, loss (tanδ or Q value) should be measured at 25±1℃ with test conditions of the table 1.                                                                                                                                                                                                                                                                                                                                                                              |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 4                                                        | 损耗角正切<br>Tangent of loss angle<br>(tanδ)                        |                                   | > 30pF, Q≥1000<br>≤30pF, Q≥400+20×C <sub>0</sub><br>Q=1/tanδ                                                                               | Class 2: tanδ≤0.035<br>Low-DF<br>Y5P: tanδ≤0.005<br>Y5R: tanδ≤0.002 | tanδ≤0.035                             | 表1<br>Table 1 <table><tr><td>类别 Type</td><td>Class 1</td><td>Class 2 / Low-DF</td><td>Class 3</td></tr><tr><td>频率 Frequency</td><td>1MHz(100KHz)</td><td>1kHz</td><td>1kHz</td></tr><tr><td>电压 Voltage</td><td>1.0Vrms</td><td>1.0Vrms</td><td>0.1Vrms</td></tr></table>                                                                                                                                                                                                                                                    | 类别 Type | Class 1                    | Class 2 / Low-DF | Class 3                                                  | 频率 Frequency | 1MHz(100KHz) | 1kHz                    | 1kHz              | 电压 Voltage                        | 1.0Vrms | 1.0Vrms              | 0.1Vrms |
| 类别 Type                                                  | Class 1                                                         | Class 2 / Low-DF                  | Class 3                                                                                                                                    |                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 频率 Frequency                                             | 1MHz(100KHz)                                                    | 1kHz                              | 1kHz                                                                                                                                       |                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 电压 Voltage                                               | 1.0Vrms                                                         | 1.0Vrms                           | 0.1Vrms                                                                                                                                    |                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 5                                                        | 绝缘电阻<br>Insulation resistance<br>(IR)                           |                                   | > 10 000MΩ                                                                                                                                 | Class 2: > 6 000MΩ<br>Low-DF: > 10 000MΩ                            | ≤25nF<br>> 1 000MΩ<br>>25nF<br>>25MΩμF | 在室温下，两导线间施加额定电压(额定电压大于500V时使用500V)进行测量，时间不超过1分钟。<br>The insulation resistance should be measured with a DC voltage not exceeding the rated voltage (above 500V rated voltage tested by 500V) at room condition and less than 1 min. of charging.                                                                                                                                                                                                                                                                            |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 6                                                        | 耐电压<br>Testing voltage<br>(TV)                                  |                                   | 没有不合格<br>No failure.                                                                                                                       |                                                                     |                                        | 在电容器两导线间施加表2测试电压1到5s后不被破坏(充/放电流不大于50mA)<br>The capacitor should not be damaged when test voltages of the table 2 are applied between the lead wires for 1 to 5 sec (Charge/Discharge current ≤50mA).<br>表2<br>Table 2 <table><tr><td>类别 Type</td><td>Class 1 / Class 2 / Low-DF</td><td>Class 3</td></tr><tr><td>额定电压(U<sub>0</sub>)<br/>Rated Voltage (U<sub>0</sub>)</td><td>≤500V</td><td>&gt; 500V</td></tr><tr><td>测试电压<br/>Testing Voltage</td><td>2.5U<sub>0</sub></td><td>1.5U<sub>0</sub>+500V</td></tr></table>   | 类别 Type | Class 1 / Class 2 / Low-DF | Class 3          | 额定电压(U <sub>0</sub> )<br>Rated Voltage (U <sub>0</sub> ) | ≤500V        | > 500V       | 测试电压<br>Testing Voltage | 2.5U <sub>0</sub> | 1.5U <sub>0</sub> +500V           |         |                      |         |
| 类别 Type                                                  | Class 1 / Class 2 / Low-DF                                      | Class 3                           |                                                                                                                                            |                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 额定电压(U <sub>0</sub> )<br>Rated Voltage (U <sub>0</sub> ) | ≤500V                                                           | > 500V                            |                                                                                                                                            |                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 测试电压<br>Testing Voltage                                  | 2.5U <sub>0</sub>                                               | 1.5U <sub>0</sub> +500V           |                                                                                                                                            |                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 7                                                        | 温度特性<br>Temperature characteristic                              | 无偏置<br>No bias                    | 在误差范围内(见表A)<br>Within the specified tolerance (see Table A).                                                                               | 在误差范围内 (见表B)<br>Within the specified tolerance (see Table B)        |                                        | 电容器必须按照表3中的步骤进行测量。<br>The capacitance measurement should be made at each step specified in the table 3.<br>表3<br>Table 3 <table><tr><td>步骤 Step</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>温度 Temperature (±1℃)</td><td>20℃</td><td>-25℃<br/>(X7*: -55℃;<br/>Z5*: +10℃)</td><td>20℃</td><td>+85℃<br/>(X7*: +125℃)</td><td>20℃</td></tr></table><br>*为2、3类瓷温度特性的前两码<br>*: The first two codes of the temperature characteristics of class 2, 3 ceramic dielectric                                    | 步骤 Step | 1                          | 2                | 3                                                        | 4            | 5            | 温度 Temperature (±1℃)    | 20℃               | -25℃<br>(X7*: -55℃;<br>Z5*: +10℃) | 20℃     | +85℃<br>(X7*: +125℃) | 20℃     |
|                                                          |                                                                 | 步骤 Step                           | 1                                                                                                                                          | 2                                                                   | 3                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4       | 5                          |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 温度 Temperature (±1℃)                                     | 20℃                                                             | -25℃<br>(X7*: -55℃;<br>Z5*: +10℃) | 20℃                                                                                                                                        | +85℃<br>(X7*: +125℃)                                                | 20℃                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 容量<br>漂移<br>Cap. drift                                   | α>-150,<br>≤18pF, ±0.05pF<br>>18pF, ±0.3%<br>α≤-150 & SL: ±1.0% | .....                             |                                                                                                                                            |                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 8                                                        | 导线抗张强度<br>Terminal tensile strength                             |                                   | 引线不应断开，电容器不应破裂。<br>Lead wire should not be cut off capacitor should not be broken.                                                         |                                                                     |                                        | 固定住电容器，在引线上逐步施加径向拉力直至10N，并保持10±1秒钟。<br>Fix the body of the capacitor and apply a tensile weight gradually to each lead wire in the radial direction of the capacitor up to 10N and keep it for 10±1 sec.                                                                                                                                                                                                                                                                                                                    |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 9                                                        | 导线抗折强度<br>Terminal bending strength                             |                                   | 引线不应断开，电容器不应破裂。<br>Lead wire should not be cut off capacitor should not be broken.                                                         |                                                                     |                                        | 在引线出口处沿一个方向施加5N、90°的弯曲压力，然后恢复至原始状态。之后，在2至3秒内再以相反方向施加一次90°的弯曲压力。<br>Each lead wire should be subjected to 5N of weight and bent 90° at the point of egress, in one direction, then returned to its original position and bent 90° in the opposite direction at the rate of one bent in 2 to 3 sec.                                                                                                                                                                                                                           |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 10                                                       | 可焊性<br>Solderability of leads                                   |                                   | 导线必须有3/4以上的面积均匀附着焊锡<br>Lead wire should be soldered with uniform coating on the axial direction over 3/4 of the circumferential direction. |                                                                     |                                        | 电容器的导线必须浸入焊料中3±0.5秒钟，浸入深度离导线根部1.5-2.0mm。<br>The lead wire of a capacitor should be dipped into molten solder for 3±0.5 sec. The depth of immersion is up to about 1.5 to 2.0mm from the root of lead wires.<br>焊锡温度：无铅焊(Sn-3Ag-0.5Cu) 245±5℃<br>Temp. of solder: Lead Free Solder (Sn-3Ag-0.5Cu) 245±5℃<br>易溶解的H63号锡235±5℃<br>H63 Eutectic Solder 235±5℃                                                                                                                                                                    |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
| 11                                                       | 焊锡<br>耐热性<br>Soldering effect                                   | APP                               | 没有可见损伤<br>No marked defect.                                                                                                                |                                                                     |                                        | 导线浸入离导线根部1.5-2.0mm处、锡温为260±10℃中3.5±0.5秒。<br>The lead wires should be immersed in solder of 260±5℃ up to 1.5 to 2.0mm from the root of terminal for 3.5±0.5 sec.<br>预处理：<br>Pre-treatment:<br>电容器必须先贮存在125±2℃条件下1小时，然后在室温下存放24±2小时，再进行初始测量。<br>Capacitor should be stored at 125±2℃ for 1 hr., and then placed at room condition for 24±2 hrs. before initial measurements.<br>试验后处理：<br>Post-treatment:<br>电容必须存放在室温下12小时(1类瓷：1~2小时)。<br>Capacitor should be stored for 12 hrs. (Class 1 type: 1~2 hrs.) at room condition. |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
|                                                          |                                                                 | ΔC/C                              | α≥-750:<br>≤100pF, ±0.5pF<br>>100pF, ±0.5%<br>α<-750 & SL:<br>≤100pF, ±1.0pF<br>>100pF, ±1.0%                                              | Y5P: ±10%<br>X7R, Y5R: ±15%<br>Y5U, Z5U: ±20%<br>Y5V, Z5V: ±20%     | Y5P: ±15%<br>Y5U, Y5V: ±30%            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
|                                                          |                                                                 | IR                                | 大于初始测量标准的50%<br>More than 50% Initial specified value.                                                                                     |                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |
|                                                          |                                                                 | TV                                | 如第6节进行试验，没有不合格<br>Per Item 6.                                                                                                              |                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                            |                  |                                                          |              |              |                         |                   |                                   |         |                      |         |

# 圆板陶瓷电容器试验方法

## TESTING METHODS FOR DISC CERAMIC CAPACITORS



—— 德信立業 創新開拓 ——

### 标准与试验方法

### SPECIFICATIONS AND TESTING METHODS

■适用于WC1、WWC2、WC3和WCL  
Suitable for WC1, WWC2, WC3 and WCL

| 序<br>No.                                                                                                                                                                                                                                                                                                         | 试验项目<br>Item                                     |                         | 标准 Specifications                                                                               |                                                                 |                             | 试验方法<br>Testing methods                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|-------------------|-------|-------------------------|-------|------------------------|------------|--------|---------|--------|---------|
|                                                                                                                                                                                                                                                                                                                  |                                                  |                         | Class 1                                                                                         | Class 2 / Low-DF                                                | Class 3                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
| 12                                                                                                                                                                                                                                                                                                               | 振动<br>Vibration<br>resistance                    | APP                     | 没有可见损伤<br>No marked defect                                                                      |                                                                 |                             | 将电容器导线焊稳和调整振动频率范围为10-55Hz、总振幅为1.5mm，振动从10Hz到55Hz，然后再回到10Hz，大约一分钟。<br>The capacitor should be firmly soldered to the supporting lead wire and vibrated at a frequency range of 10 to 55Hz, 1.5mm in total amplitude, with about a 1 minute rate of vibration change from 10Hz to 55Hz and back to 10Hz.<br>总时间六个小时，每两小时在相互垂直方向来回三次。<br>Apply for a total of 6 hrs., 2 hrs. each in 3 mutually perpendicular directions.                                                                                                                                                                            |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | C <sub>R</sub>          | 如第3节进行试验，没有不合格<br>Per Item 3.                                                                   |                                                                 |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | tanδ<br>(Q)             | 如第4节进行试验，没有不合格<br>Per Item 4.                                                                   |                                                                 |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
| 13                                                                                                                                                                                                                                                                                                               | 耐湿负荷<br>Humidity<br>loading                      | APP                     | 没有可见损伤<br>No marked defect                                                                      |                                                                 |                             | 施加额定电压的电容保持在温度为40±2℃、相对湿度为90-95%条件下500±12小时。<br>Apply the rated voltage for 500±12 hrs. at 40±2℃ in 90 to 95% relative humidity.<br><br>试验后处理：<br>Post-treatment:<br>电容必须贮存在室温条件下12小时(1类瓷：1~2小时)。<br>Capacitor should be stored for 12 hrs. (Class 1 type: 1~2 hrs.) at room condition.                                                                                                                                                                                                                                                                                                           |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | ΔC/C                    | ≤33pF, ±1.0pF<br>>33pF, ±3.0%                                                                   | Y5P: ±10%<br>X7R, Y5R: ±15%<br>Y5U, Z5U: ±20%<br>Y5V, Z5V: ±20% | Y5P: ±15%<br>Y5U, Y5V: ±30% |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | tanδ<br>(Q)             | 大于初始标准的50%<br>More than 50% initial specified value                                             | 小于2倍的初始标准值<br>Less than 200% Initial specified value.           |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | IR                      | 大于初始测量标准的25%<br>More than 25% Initial specified value.                                          |                                                                 |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | TV                      | 如第6节进行试验，没有不合格<br>Per Item 6.                                                                   |                                                                 |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
| 14                                                                                                                                                                                                                                                                                                               | 高温负荷<br>High<br>temperature<br>load              | APP                     | 没有可见损伤<br>No marked defect                                                                      |                                                                 |                             | 在85±2℃(X7R: 125±2℃)、相对温度不大于50%条件下施加1.5倍(3类瓷为1.2倍)额定电压1000+48/-0小时（充/放电流小于50mA）<br>Apply a DC voltage of 150% (Class 3 type: 120%) of the rated voltage for 1000+48/-0 hours at 85±2℃ (X7R: 125±2℃) with a relative humidity of 50% max. (Charge/discharge current ≤50mA)<br><br>预处理<br>Pre-treatment:<br>电容器应储存在125℃条件下1小时，然后在室温下存放24小时，再进行初始测量。<br>Perform a heat treatment at 125℃ for one hour and then set for 24 hours at room condition, perform the initial measurement.<br><br>试验后处理<br>Post-treatment:<br>电容必须贮存在室温条件下24小时。<br>Capacitor should be stored for 24 hrs. at room condition. |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | ΔC/C                    | ≤20pF, ±1.0pF<br>>20pF, ±5.0%                                                                   | Y5P: ±10%<br>X7R, Y5R: ±15%<br>Y5U, Z5U: ±20%<br>Y5V, Z5V: ±30% | Y5P: ±15%<br>Y5U, Y5V: ±30% |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | tanδ<br>(Q)             | 大于初始标准的50%<br>More than 50% initial specified value                                             | 小于2倍的初始标准值<br>Less than 200% Initial specified value.           |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | IR                      | 大于初始测量标准的25%<br>More than 25% Initial specified value.                                          |                                                                 |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | TV                      | 如第6节进行试验，没有不合格<br>Per Item 6.                                                                   |                                                                 |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
| 15                                                                                                                                                                                                                                                                                                               | 温度循环<br>Temperature<br>and<br>immersion<br>cycle | APP                     | 没有可见损伤<br>No marked defect                                                                      |                                                                 |                             | 电容器应表4规定的步骤与条件承受五次温度循环。<br>The capacitor should be subjected to 5 temperature cycles according to the step and conditions in the table 4.<br><br>表4<br>Table 4                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | ΔC/C                    | α≥ -750:<br>≤100pF, ±0.5pF<br>>100pF, ±0.5%<br>α< -750 & SL:<br>≤100pF, ±1.0pF<br>>100pF, ±1.0% | Y5P: ±10%<br>X7R, Y5R: ±15%<br>Y5U, Z5U: ±20%<br>Y5V, Z5V: ±20% | Y5P: ±15%<br>Y5U, Y5V: ±30% |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | tanδ<br>(Q)             | 大于初始标准的50%<br>More than 50% initial specified value                                             | 小于2倍的初始标准值<br>Less than 200% Initial specified value.           |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | IR                      | 大于初始测量标准的50%<br>More than 50% Initial specified value.                                          |                                                                 |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  | TV                      | 如第6节进行试验，没有不合格<br>Per Item 6.                                                                   |                                                                 |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
|                                                                                                                                                                                                                                                                                                                  |                                                  |                         |                                                                                                 |                                                                 |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
| <table><tr><th>步骤<br/>Step</th><th>1</th><th>2</th><th>3</th><th>4</th></tr><tr><td>温度<br/>Temperature</td><td>5~35℃</td><td>-25±2℃<br/>(X7R: -55±2℃)</td><td>5~35℃</td><td>85±2℃<br/>(X7R: 125±2℃)</td></tr><tr><td>时间<br/>Time</td><td>5±2min</td><td>30±2min</td><td>5±2min</td><td>30±2min</td></tr></table> |                                                  |                         |                                                                                                 |                                                                 |                             | 步骤<br>Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1 | 2 | 3 | 4 | 温度<br>Temperature | 5~35℃ | -25±2℃<br>(X7R: -55±2℃) | 5~35℃ | 85±2℃<br>(X7R: 125±2℃) | 时间<br>Time | 5±2min | 30±2min | 5±2min | 30±2min |
| 步骤<br>Step                                                                                                                                                                                                                                                                                                       | 1                                                | 2                       | 3                                                                                               | 4                                                               |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
| 温度<br>Temperature                                                                                                                                                                                                                                                                                                | 5~35℃                                            | -25±2℃<br>(X7R: -55±2℃) | 5~35℃                                                                                           | 85±2℃<br>(X7R: 125±2℃)                                          |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |
| 时间<br>Time                                                                                                                                                                                                                                                                                                       | 5±2min                                           | 30±2min                 | 5±2min                                                                                          | 30±2min                                                         |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |   |                   |       |                         |       |                        |            |        |         |        |         |

■表A—1类瓷产品容量变化率表  
Table A—Capacitance change of Class 1 type products

| 温度系数<br>Temperature<br>coefficient<br>( $\alpha$ ) | 标称值<br>Nominal<br>value<br>(10 $^3$ /K) | 相对20 $^\circ\text{C}$ 时的容量变化率<br>Capacitance change from 20 $^\circ\text{C}$ (%) |                      |                      |                       |
|----------------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------------|----------------------|----------------------|-----------------------|
|                                                    |                                         | -55 $^\circ\text{C}$                                                             | -25 $^\circ\text{C}$ | +85 $^\circ\text{C}$ | +125 $^\circ\text{C}$ |
| NPO                                                | 0 $\pm 60$                              | -0.45~-0.819                                                                     | -0.27~-0.491         | -0.39~-0.39          | -0.63~-0.63           |
| N80                                                | -75 $\pm 30$                            | 0.338~1.23                                                                       | 0.203~0.738          | -0.683~-0.293        | -1.10~-0.473          |
| N150                                               | -150 $\pm 60$                           | 0.675~2.19                                                                       | 0.405~1.31           | -1.37~-0.585         | -2.21~-0.945          |
| N220                                               | -220 $\pm 60$                           | 1.20~2.83                                                                        | 1.70~0.72            | -1.82~-1.04          | -2.94~-1.68           |
| N330                                               | -330 $\pm 60$                           | 2.03~3.84                                                                        | 1.22~2.30            | -2.54~-1.76          | -4.10~-2.84           |
| N470                                               | -470 $\pm 60$                           | 3.08~5.12                                                                        | 1.85~3.07            | -3.45~-2.67          | -5.57~-4.31           |
| N750                                               | -750 $\pm 120$                          | 4.73~8.23                                                                        | 2.84~4.94            | -5.66~-4.10          | -9.14~-6.62           |

■表B—2、3类瓷及低损耗类产品容量变化率表  
Table B—Capacitance change of Class 2, Class 3 and Low-DF type products

| 温度特性<br>Temperature<br>characteristic<br>(TC) | 下限类别温度<br>Lower category<br>temperature<br>(LCT) | 上限类别温度<br>Upper category<br>temperature<br>(UCT) | 容量变化率<br>Capacitance<br>change<br>( $\Delta C/C$ ) |
|-----------------------------------------------|--------------------------------------------------|--------------------------------------------------|----------------------------------------------------|
| Y5P                                           | -25 $^\circ\text{C}$                             | +85 $^\circ\text{C}$                             | $\pm 10\%$                                         |
| Y5R                                           |                                                  |                                                  | $\pm 15\%$                                         |
| Y5U                                           |                                                  |                                                  | +22%/-56%                                          |
| Y5V                                           |                                                  |                                                  | +22%/-82%                                          |
| Z5U                                           | +10 $^\circ\text{C}$                             | +85 $^\circ\text{C}$                             | +22%/-56%                                          |
| Z5V                                           |                                                  |                                                  | +22%/-82%                                          |
| X7R                                           |                                                  | +125 $^\circ\text{C}$                            | $\pm 15\%$                                         |

包装  
PACKAGING

■ 散件包装  
Bulk packing

散件包装最小包装为PE袋，其包装数量如下表所示；一定数量的最小包装装入内盒中，最后4个小盒或10个小盒，装入大箱中，具体由产品规格确定。

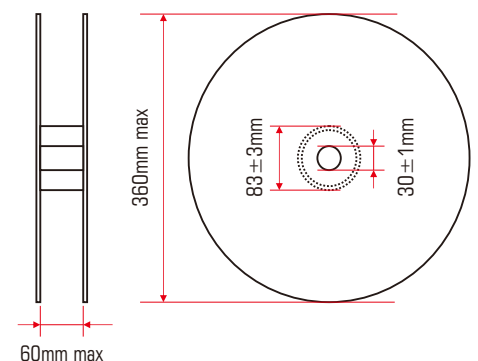
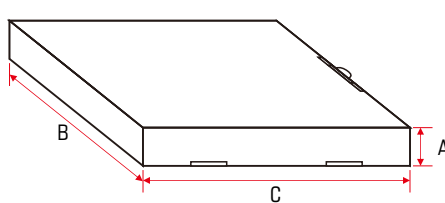
The minimum packing of bulk packaging is PE bag, the packing quantity is shown in the following table; a certain number of minimum packaging into the inner box, the last 4 inner boxes or 10 inner boxes, loaded into the outer box, specifically determined by the product specifications.

| 额定电压<br>Rated voltage | 脚长<br>Lead length | 产品直径<br>Body diameter | 最小包装数量<br>Minimum packaging quantity |
|-----------------------|-------------------|-----------------------|--------------------------------------|
| <4kVdc                | ≤16mm             | All                   | 1 000                                |
|                       | >16mm             | ≤8.5mm                | 1 000                                |
|                       |                   | >8.5mm                | 500                                  |
| 4kVdc<br>(Y2)         | ≤16mm             | All                   | 500                                  |
|                       | >16mm             | ≤8.5mm                | 1 000                                |
|                       |                   | >8.5mm                | 500                                  |
| >4kVdc<br>(Y1)        | ≤16mm             | All                   | 500                                  |
|                       | >16mm             | ≤8.5mm                | 1 000                                |
|                       |                   | >8.5mm                | 500                                  |

■ 编带包装  
Taping packing

编带尺寸规格见下一页，其包装盒或卷盘尺寸，及最小包装数量如下表所示

The taping specifications are shown on the next page, the dimensions of the ammo or reel, and minimum packaging quantity are shown in the following table

| 包装方式<br>Packaging format                    | 卷盘包装<br>Reel packaging                                                              | 折叠包装<br>Ammo packaging                                                                                                                                                                              |   |   |   |        |         |         |
|---------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--------|---------|---------|
| 尺寸(mm)与图示<br>Dimensions (mm)<br>and drawing |  |  <table><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>43±2mm</td><td>256±5mm</td><td>335±5mm</td></tr></table> | A | B | C | 43±2mm | 256±5mm | 335±5mm |
| A                                           | B                                                                                   | C                                                                                                                                                                                                   |   |   |   |        |         |         |
| 43±2mm                                      | 256±5mm                                                                             | 335±5mm                                                                                                                                                                                             |   |   |   |        |         |         |
| 包装数量(pcs)<br>Quantity (pcs)                 | 500~2 500 per reel                                                                  | 500~2000 per ammo                                                                                                                                                                                   |   |   |   |        |         |         |

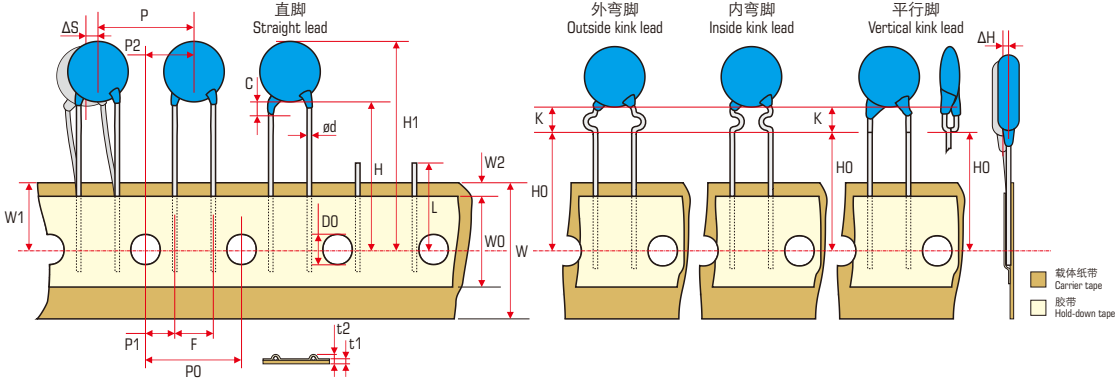
卷盘包装一盘装四盒，每盒二盘；折叠包装一盒装十盒。

Reel packaging 4 boxes per carton, 2 reels per boxed; Ammo packaging 10 boxes per carton.

编带规格  
TAPING SPECIFICATIONS

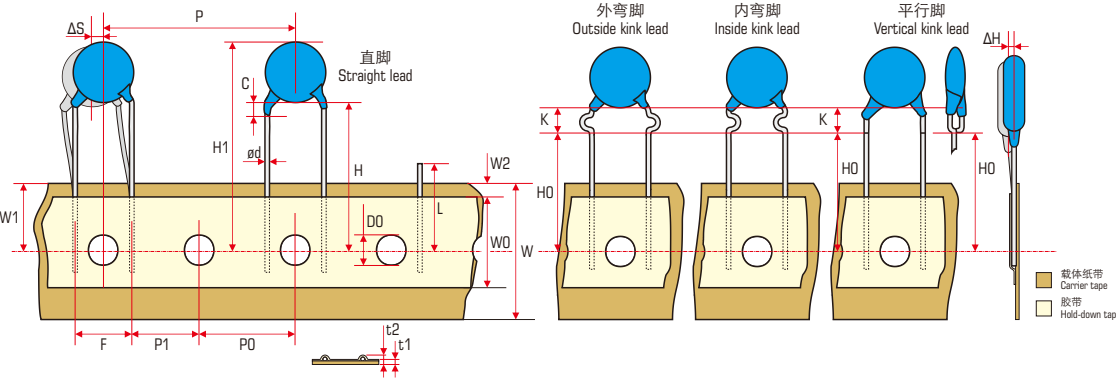
方式1  
Method 1

如下图所示:  
As shown in the following figure:



方式2  
Method 2

如下图所示:  
As shown in the following figure:



尺寸规格(mm)  
Dimensions (mm)

| 项目<br>Item                                   | 代码<br>Symbol | 方式一<br>Method 1 | 方式二<br>Method 2 | 误差<br>Tolerance | 项目<br>Item                                         | 代码<br>Symbol | 标准<br>Specification | 公差<br>Tolerance |
|----------------------------------------------|--------------|-----------------|-----------------|-----------------|----------------------------------------------------|--------------|---------------------|-----------------|
|                                              |              |                 |                 |                 |                                                    |              |                     |                 |
| 进料孔与元件间距离<br>Hole center to component center | P2           | 6.35            | —               | ±1.3            | 导线直径<br>Lead wire diameter                         | ad           | 0.55                | ±0.1            |
| 进料孔与导线间距离<br>Feed hole center to lead        | P1           | 3.75            | —               | ±0.7            | 元件沿编带偏离，左或右<br>Deviation along tape, left or right | ΔS           | 1.3                 | max             |
| 进料孔间距<br>Feed hole pitch                     | P0           | 12.7            | 12.7            | ±0.3            | 元件沿编带偏离，前或后<br>Deviation along tape, front or back | Δh           | 2.0                 | max             |
| 元件间距<br>Component pitch                      | P            | 12.7            | 12.7            | ±0.3            | 纸带宽<br>Tape width                                  | W            | 18.0                | +1.0<br>-0.5    |
| 脚距<br>Lead-to-lead distance                  | F            | 5.0             | 7.5             | ±0.8            | 胶带宽<br>Hold-down tape width                        | W0           | 7.0                 | min             |
|                                              |              | 7.5             | 10.0            | ±0.8            | 孔位<br>Hole position                                | W1           | 9.0                 | +0.75<br>-0.5   |
|                                              |              | 15.0            | 25.4            | ±1.0            | 胶带位置<br>Hole - down tape position                  | W2           | 3.0                 | max             |
|                                              |              | 25.4            | —               | ±1.0            | 元件高度<br>Height of component                        | H            | 18.0                | +2.0<br>-0      |
|                                              |              | —               | —               | ±1.0            | 直脚类型<br>Straight lead type                         | H0           | 16.0                | ±0.5            |
|                                              |              |                 |                 |                 | 弯脚类型<br>Kinked lead type                           | H1           | 40.0*               | max             |
|                                              |              |                 |                 |                 | 元件直径<br>Feed hole diameter                         | D0           | 4.0                 | ±0.3            |
|                                              |              |                 |                 |                 | 总厚度<br>Total tape thickness                        | t1           | 0.9                 | max             |
|                                              |              |                 |                 |                 | 编带厚度<br>Total thickness, tape and lead wire        | t2           | 1.5                 | max             |
|                                              |              |                 |                 |                 | 剪刃长度<br>Snipped length                             | L            | 11.0                | max             |
|                                              |              |                 |                 |                 | 涂装脚长度<br>Coating run down on leads                 | C            | 3.0**               | max             |
|                                              |              |                 |                 |                 | 高度<br>Height of kink                               | K            | 5.0                 | max             |

\*: 根据产品直径大小会变化。  
It varies according to the diameter of the product.  
\*\*: 酚醛包封产品其最大值为1.5mm，CC、CY等环氧包封产品其最大值为2.0mm。  
Phenolic coating product are 1.5mm max., epoxy coating product of CC, CY type are 2.0mm max.