L-KLS10-HV16-2KV-Y5V-223M-P10

样品规格清单
SAMPLE SPECIFICATION LIST

序 No	CUST. P/N	规格描述 Description			尺寸标准(mm) Dimension standard (mm)					标志 Marking
		产品规格 Specification	脚型 Lead style	包封 Coating	D max	T max	F ±0.8	L min	d ±0.1	
1	L-KLS10-HV16-2KV-Y5V-223M-P10	Y5V 223M 2KV	直脚 Straight	环氧 Exopy	14.0	4.5	10.0	20.0	0.50	223 2KV
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3										
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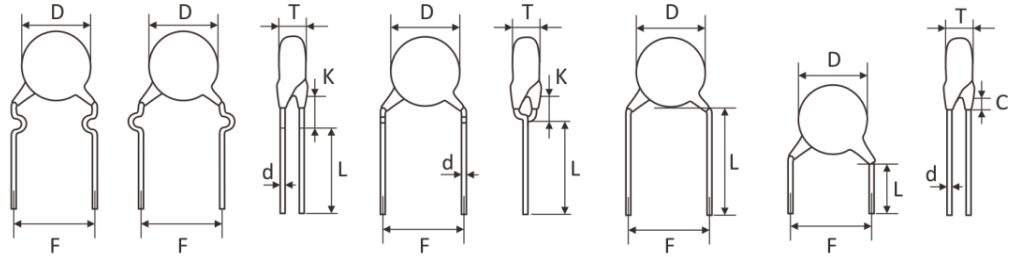


上图中，C 和 K 标准如下：
In the figure above, the C and K standards are as follows:

项目 Item	包封 Coating	额定电压 Rated Voltage	标准 Specification
C	环氧 Epoxy	/	≤3.0mm
	酚醛 Phenolic	<250V	≤1.5mm
		≥250V	≤2.0mm
K	/	/	≤5.0mm

编带产品的编带尺寸规格见第 9 节。
For the taping specifications of the tape product, see section 9.

1. 总则
General

1) 本规格书适用于纬迪生产的额定电压不超过直流 6 300V 的电子设备用二类瓷介固定电容器（高介电常数型瓷介电容器）。
This specification applies to the class 2 ceramic dielectric fixed capacitors (high dielectric constant type ceramic capacitors) for the electronic equipment with a rated voltage not exceeding 6,300 VDC.

2) 高介电常数型瓷介电容器是是适用于作旁路、耦合或用在对损耗和电容量稳定性要求不高的电路中的具有高介电常数的一种电容器。该类陶瓷介质是以在类别温度范围内电容量非线性变化来表征。
Capacitor which has a dielectric with a high permittivity and is suitable for by-pass and coupling applications or for frequency discriminating circuits where low losses and high stability of capacitance are not of major importance. The ceramic dielectric is characterized by the non-linear change of capacitance over the category temperature range.

表 — 温度特性优先值
Table – Preferred values of temperature characteristics

表中用X表示的施加和不施加直流电压时的电容量温度特性优先值，还给出了表示等级代码的方法；例如温度范围在-55℃～+125℃，不施加直流电压时电容量变化为±20%的介质被称为2C1级介质。
Table denotes with a cross the preferred values of temperature characteristics with and without d.c. voltage applied. The method of coding the subclass is also given; for example a dielectric with a percentage change of ±20% without d.c. voltage applied over the temperature range from -55°C to +125°C, will be defined as a dielectric of Class 2C1.

等级字码代码 Subclass letter code	施加和不施加直流电压时，在类别温度范围内，相对于 25°C 时测得的电容量最大相对变化(%) Maximum capacitance change in percent within the category temperature range with respect to the capacitance at 25°C measured with and without a d.c. voltage applied		类别温度范围和对应的数字代码 Category temperature range and corresponding number code				
			-55°C/ +125°C	-55°C/ +85°C	-40°C/ +85°C	-25°C/ +85°C	-10°C/ +85°C
	不施加直流电压 Without d.c. voltage applied	施加直流电压* With d.c. voltage applied *	1	2	3	4	5
2B	±10	按相关规范规定 As specified in the specification		X	X	X	
2C	±20		X	X	X		
2D	+20/-30					X	
2E	+22/-56			X	X	X	X
2F	+30/-80			X	X	X	X
2R	±15		X				
2X	±15	+15/-25	X				

*：施加直流电压是额定直流电压或按有关规范的规定。
The applied voltage is the rated d.c. voltage or as specified in the specification.

3) 本产品符合 RoHS 2.0 的环保标准，同时符合无卤与 REACH 要求。
This product complies with RoHS 2.0 environmental standards, while meeting halogen-free and REACH requirements

2. 符合标准
Complied with standard

本产品符合下列标准，且本规格书的相关内容引用以下标准，当双方对此存在争议时，可依以下标准进行仲裁。
This product complies with the following standards, and the relevant content of this specification refers to the following standards, when the two sides in dispute, the following criteria for arbitration.

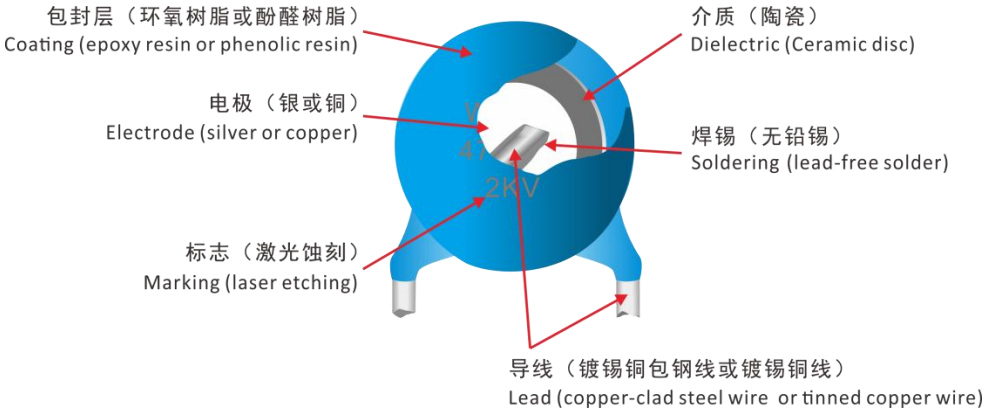
GB/T 2693-2001 电子设备用固定电容器 第 1 部分 总规范（idt IEC 60384-1）
Fixed capacitors for use in electronic equipmen — Part 1: Generic specification (idt IEC 60384-1)

GB/T 5968-2011 电子设备用固定电容器 第 9 部分 分规范 2 类瓷介固定电容器（idt IEC 60384-9）
Fixed capacitors for use in electronic equipmen — Part 9: Sectional specification: Fixed capacitors of ceramic dielectric, Class 2 (idt IEC 60384-9)

3. 结构
Structure

高介电常数型瓷介电容器是以被银瓷片作为芯片，镀锡铜包钢线为引线、环氧树脂（蓝色）或酚醛树脂（黄色）包封的陶瓷固定电容器，其结构如下图所示.

High dielectric constant type ceramic capacitors are made of silver disc as a chip, tinned copper clad steel wire for the lead, epoxy (blue) or phenolic resin (yellow) encapsulated fixed capacitor of ceramic dielectric.



4. 普通特性
General Specifications

操作温度范围 Operating temperature range	-25°C to +85°C (X7R：-55°C to +125°C)
电容量 Capacitance (C_R)	Range： 100pF to 0.1uF Tolerance： K(±10%), M(±20%), Z(+80/-20%) 在 25±1°C 下使用 1kHz 1.0Vrms 进行测量，在允许偏差范围内 Measured at 1kHz, 1.0Vrms and 25°C±1°C, within the specified tolerance
损耗角正切 Tangent of loss angle (tanδ)	≤0.035 测量条件同“电容量(C_R)” Measured condition see “Capacitance (C_R)”
额定电压，DC Rated Voltage, DC (U_R)	50V to 6 300V 在两导线间施加下列电压，时间 1s 到 5s（充/放电流小于 50mA） 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) <500V，2.5U_R ≥500V，1.5U_R
绝缘电阻 Insulation Resistance IR	>6 000MΩ 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，时间不超过 1 分钟 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 less than 1 min. of charging.
温度特性 Temperature characteristic (TC)	Y5P, Y5U, Y5V, X7R etc.

圆板陶瓷电容器规格承认书
PRODUCT SPECIFICATIONS FOR DISC CERAMIC CAPACITOR

6. 电容量与尺寸规格表
Capacitance and Dimension Chart

额定电压，VDC Rated Voltage, VDC	50V ～ 200V				250V ～ 630V				1kV				2kV				3kV ～ 4kV				5kV ～ 6.3kV			
温度特性 T. C. 容量 Cap. (pF)	Y5P	X7R	Y5U Z5U	Y5V Z5V	Y5P	X7R	Y5U Z5U	Y5V Z5V	Y5P	X7R	Y5U Z5U	Y5V Z5V	Y5P	X7R	Y5U Z5U	Y5V Z5V	Y5P	X7R	Y5U Z5U	Y5V Z5V	Y5P	X7R	Y5U Z5U	Y5V Z5V
100 120 150 180					C C				C C C C				D D D D	D D D			D D D D	D D D			D D D D	D D D		
220 270 330 390	B B B B	B B B B			C C C C	C C C			C C C C				D D D D	D D D			D D D D	D D D			D D D F	D D F		
470 560 680 820	B B B B	B B B B			C C C C	C C C			C C D D	D D			D F F G	D F F G			E F G H	E F G H			F G H I	F G H I	D D E F	
1 000 1 200 1 500 1 800	B B B C	B B B C			C E E G	C D E F	C C C C		D F F I	D F F J	C C D D	C C C C	G I I K	G I I J	D E F H	D D D D	I	I	E F G H	E E E F	K	K	F H H K	D F F G
2 200 2 700 3 300 3 900	C E E F	C E E F	B B B B		G G I I	H H K K	C E E E	C C C E	I L L N	J K K L	D F F G	C C D G	K N O O	K L O O	H I J K	D F G H			I K K L	G H I J			L L N O	I J K L
4 700 5 600 6 800 8 200	G H J L	G H J L	B C D E		K L M N	K L M N	G H H K	E E G I	N O P S	N O O S	I K K N	G G I K	Q	O	K L N O	J K K N			L	K K L N			O	N
10 000 15 000 22 000 33 000	L	L	E	C G J	N	N	K	I N N O	S	S	N Q Q	L N O Q			O	O O Q				O				
47 000 68 000 100 000 150 000								P Q Q				Q												
误差（%） Tolerance (%)	±10 ±20		±20 +80/-20		±10 ±20		±20 +80/-20		±10 ±20		±20 +80/-20		±10 ±20		±20 +80/-20		±10 ±20		±20 +80/-20		±10 ±20		±20 +80/-20	
T, mm max.	3.0				3.5				4.0				4.5				5.0				6.0			
F, ±0.8mm	2.5 / 5.0				5.0				5.0 / 7.5				5.0 / 7.5 / 10.0				7.5 / 10.0				10.0			
d, ±0.05mm	0.40				0.45				0.45				0.50				0.50				0.55			
L, mm min.	脚长可以根据客户需求订制（没有要求时，酚醛包封脚长不小于 13mm；环氧树脂包封脚长不小于 20mm） Lead length by customer requirements (No requirement: 13mm min. by Phenolic resin coating; 20mm min. by Epoxy resin coating).																							
包封 Coating	酚醛树脂 Phenolic resin				酚醛或环氧树脂 Phenolic resin Epoxy resin				环氧树脂 Epoxy resin				环氧树脂 Epoxy resin				环氧树脂 Epoxy resin				环氧树脂 Epoxy resin			

代码 Code	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
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

7. 测量与试验
Measurement and testing

7.1. 测量前注意事项
Precautions before measurement

7.1.1. 标准大气条件
Standard atmospheric conditions

1) 除非另有规定，所有试验和测量应按在 IEC 60068-1 的 5.3 中规定的试验用标准大气条件下表进行。
Unless otherwise specified, all tests and measurements shall be made under standard atmospheric conditions for testing as given in 5.3 of IEC 60068-1.

温度，°C Temperature, °C	相对湿度，% Relative humidity, %	气压，kPa Air pressure, kPa
15～35	25～75	86～106

2) 在进行测量之前，电容器应在测量温度下存放足够时间，以使整个电容器都达到这一温度。为此目的，规定与试验后恢复时间同样的时间，通常是足够的。
Before the measurements are made, the capacitor shall be stored at the measuring temperature for a time sufficient to allow the entire capacitor to reach this temperature. The period as prescribed for recovery at the end of a test is normally sufficient for this purpose.

3) 在标准大气条件下进行测量，其测量结果存在争议时应采用仲裁温度（见 7.1.3）重复测量。
Test and measurement shall be made under standard atmospheric conditions for testing, in the event of a dispute; the measurements shall be repeated using one of the referee temperatures (as given in 7.1.3).

4) 在测量期间，不应使电容器受到气流、阳光直射或可能引起误差的其他影响。
During measurements the capacitor shall not be exposed to draughts, direct sunlight or other influences likely to cause error.

7.1.2. 恢复条件
Recovery conditions

除非另有规定，恢复应在试验用标准大气条件（见 7.1.1）下进行。
Unless otherwise specified, recovery shall take place under the standard atmospheric conditions for testing (7.1.1).

如果恢复必须在严格控制的条件下进行，应采用 IEC 60068-1 中 5.4.1 的控制条件。
If recovery under closely controlled conditions is necessary, the controlled recovery conditions of 5.4.1 of IEC 60068-1 shall be used.

除非有关规范另有规定，恢复时间应为 1h～2h。
Unless otherwise specified in the relevant specification, a duration of 1 h to 2 h shall be used.

7.1.3. 仲裁条件
Referee conditions

在仲裁情况下，应选用 IEC 60068-1 中 5.2 中规定的仲裁试验用标准大气条件。
For referee purposes, one of the standard atmospheric conditions for referee tests taken from 5.2 of IEC 60068-1, as given in table 1 below, shall be selected:

温度，°C Temperature, °C	相对湿度，% Relative humidity, %	气压，kPa Air pressure, kPa
25±1	48～52	86～106

7.2. 专门预处理
Special preconditioning

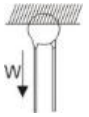
在本规格书内，试验和试验顺序前有规定时，应按下列条件进行专门预处理：即将电容器放置在上

限类别温度下或其它规范中可能规定的更高温度下经 1h 后，接着在试验的标准大气条件下恢复 24h±1h。

In this specifications, the special preconditioning, when specified in this document before a test or a sequence of tests, shall be made under the following conditions: exposure at upper category temperature or at such higher temperature as may be specified in the other specification during 1 h, followed by recovery during 24 h ± 1 h at standard atmospheric conditions for testing.

7.3. 测量与试验

Measurement and testing

序 No.	项目 Item	标准 Specifications	试验方法 Testing Method
1	外观与尺寸 Appearance (APP) and Dimension	外观形状没有明显的缺点，尺寸在标准范围内。 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。 The capacitor should be visually inspected for evidence of defect. 尺寸用游标卡尺测量。 Dimensions should be measured with slide calipers.
2	标志 Marking	清晰易于识别。 To be easily legible	目视检查。 The capacitor should be visually inspected.
3	容量（C_R） Capacitance (C_R)	在误差范围内。 Within specified tolerance	容量与损耗在25±1℃下，使用1kHz和1Vrms下测量。 The capacitance, tanδ should be measured at 25°C ± 1°C with 1kHz and AC1.0V (r.m.s.).
4	损耗角正切 Tangent of loss angle (tanδ)	≤0.035	
5	绝缘电阻 Insulation Resistance (IR)	>6 000MΩ	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，时间不超过 1 分钟（如果绝缘电阻达到要求值时，试验可以在更短的时间内结束）。 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 less than 1 min. of charging (The test may be terminated in a shorter time, if the required value of insulation resistance is reached). 测试电压应用在电容时必须通过1MΩ的电阻。 The voltage should be applied to the capacitor through a resistor of 1MΩ.
6	耐电压 Testing Voltage (TV)	没有不合格 No failure.	在电容器两导线间施加下表测试电压1到5s后不被破坏（充/放电流不大于50mA）。 The capacitor should not be damaged when test voltages of below the table are applied between the lead wires for 1 to 5 sec. (Charge/Discharge current ≤ 50mA) Rated Voltage 额定电压 / Testing Voltage 测试电压 < 500V : $2.5U_R$ 500V ~ 2kV : $1.5U_R$
7	温度特性 Temperature Characteristic (TC)	在误差范围内（见下表） Within the specified tolerance. (see follows Table) TC / ΔC/C Y5P / Within ±10% X7R / Within ±15% Y5U, Z5U / Within +22%/-56% Y5V, Z5V / Within +22%/-82%	电容器必须按照下表中的每一步骤进行测量。 The capacitance measurement should be made at each step specified in below the table. Step. 步骤 / Temperature (°C) 温度（°C） 1 : 25±2 2 : 下限类别温度±2 Lower category temperature ±2 3 : 25±2 4 : 上限类别温度±2 Upper category temperature ±2 5 : 25±2
8	导线抗张强度 Terminal Tensile Strength	引线不应断开，电容器不应破裂。 Lead wire should not be cut off capacitor should not be broken.	如右图所示，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。 As shown in the figure at right, 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. 

备注：室温是指温度为 15-30°C、相对湿度为 45-75%、气压为 86-106Kpa 的条件

Remarks: "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

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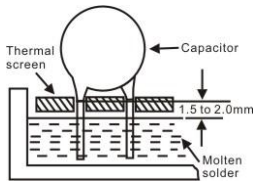
序 No.	项目 Item		标准 Specifications	试验方法 Testing Method
9	导线抗折强度 Terminal Bending Strength		引线不应断开，电容器不应破裂。 Lead wire should not be cut off capacitor should not be broken.	在引线出口处沿一个方向施加5N、90°的弯曲压力，然后恢复至原始状态。之后，在2至3秒内再以相反方向施加一次90°的弯曲压力。 Each lead wire should be subjected to 5N of weight and bent 90° at the 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 Solderability of Leads		导线必须有 3/4 以上的面积均匀附着焊锡 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。 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. 焊锡温度： 无铅焊(Sn-3Ag-0.5Cu) 245±5°C Temp. of solder: Lead Free Solder (Sn-3Ag-0.5Cu) 245±5°C 易溶解的H63号锡235±5°C H63 Eutectic Solder 235±5°C
11	焊锡 耐热性 Soldering Effect	APP	没有可见损伤 No marked defect	如图所示，导线浸入离导线根部1.5-2.0mm处、锡温为260±10°C中3.5±0.5秒。 As shown in figure, the lead wires should be immersed in solder of 260±5°C up to 1.5 to 2.0mm from the root of terminal for 3.5±0.5 sec. 预处理： Pre-treatment: 电容器必须先贮存在85±2°C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。 Capacitor should be stored at 85±2°C for 1 hr., then placed at room condition for 24±2 hrs. before initial measurements. 试验后处理： Post-treatment: 电容必须存放在室温下1-2小时。 Capacitor should be stored for 1 to 2 hrs. at room condition.
		ΔC/C	Y5P, X7R: Within ±10% Y5U, Z5U: Within ±15% Y5V: Within ±20%	
		IR	>2 000MΩ	
		TV	如第 6 节进行试验，没有不合格 Per Item 6.	
12	振动 Vibration Resistance	APP	没有可见损伤 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。 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. 总时间六个小时，每两小时在相互垂直方向来回三次。 Apply for a total of 6 hrs., 2 hrs. each in 3 mutually perpendicular directions.
		C_R	在误差范围内 Within the specified tolerance	
		tanδ	如第 4 节进行测试，并符合其标准 Per Item 4	
13	耐湿负荷 Humidity Loading	APP	没有可见损伤 No marked defect	施加额定电压的电容保持在温度为40±2°C、相对湿度为90-95%条件下500±12小时。 Apply the rated voltage for 500±12 hrs. at 40±2°C in 90 to 95% relative humidity. 试验后处理： Post-treatment: 电容必须贮存在室温条件下一至二小时。 Capacitor should be stored for 1 to 2 hrs. at room condition.
		ΔC/C	Y5P, X7R: Within ±10% Y5U, Z5U: Within ±15% Y5V: Within ±20%	
		tanδ	≤0.050	
		IR	>3 000MΩ	
		TV	如第 6 节进行试验，没有不合格 Per Item 6.	
14	高温负荷 High Temperature Load	APP	没有可见损伤 No marked defect	在 125±2°C、相对湿度不大于 50%条件下施加 1.5 倍额定电压（额定电压不小于 500V 者，使用 1.2 倍额定电压）1000+48/-0 小时（充/放电流小于 50mA） Apply a DC voltage of 150% of the rated voltage (Rated voltage not less than 500V, using 1.2 times the rated voltage) for 1000+48/-0 hours at 125 ± 2 °C with a relative humidity of 50% max. (Charge/discharge current ≤50mA) 试验后处理： Pre-treatment: 电容器应储存在 125±3°C 条件下 1 小时，然后在室温下存放 24±4 小时，再进行初始测量。 Perform a heat treatment at 125±3°C for one hour and then set for 24±4 hours at room temperature, perform the initial measurement.
		ΔC/C	Y5P, X7R: Within ±10% Y5U, Z5U: Within ±15% Y5V: Within ±20%	
		IR	>3 000MΩ	
		TV	如第 6 节进行试验，没有不合格 Per Item 6.	



Remarks: "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa
备注：室温是指温度为 15-30°C、相对湿度为 45-75%、气压为 86-106Kpa 的条件

⇲ 接上页 Continued from the preceding page

序 No.	项目 Item		标准 Specifications	试验方法 Testing Method
15	温度循环 Temperature and Immersion Cycle	APP	没有可见损伤 No marked defect	电容器应承受五次温度循环。 The capacitor should be subjected to 5 temperature cycles. 步骤 Step / 温度(°C) Tempature. (°C) / 时间(分钟) Time (min.) 1 / 下限类别温度±2 Lower category temperature ±2 / 30 2 / 室温 Room Temp. / 3 3 / 125±2 / 30 4 / 室温 Room Temp. / 3 预处理 Pre-treatment: 电容器必须先贮存在125±2°C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。 Capacitor should be stored at 125±2°C for 1 hr., then placed at room condition for 24±2 hrs. 试验后处理 Post-treatment: 电容必须贮存在室温条件下24±4小时。 Capacitor should be stored for 24±4 hrs. at room condition.
		ΔC/C	Y5P, X7R: Within ±10% Y5U, Z5U: Within ±15% Y5V: Within ±20%	
		tanδ	≤0.050	
		IR	>3 000MΩ	
		TV	如第 6 节进行试验，没有不合格 Per Item 6.	

Remarks: "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa
备注：室温是指温度为 15-30°C、相对湿度为 45-75%、气压为 86-106Kpa 的条件

7.4. 补充说明
Additional remarks

(1) 额定电压
Rated voltage

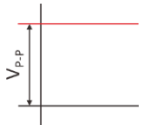
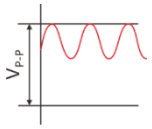
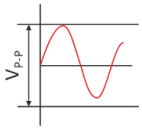
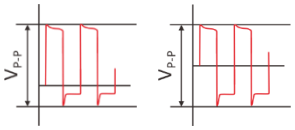
向电容器施加的电压切勿超过额定电压。
The voltage applied to the capacitor must not exceed the rated voltage.

1) 工作电压
Operating Voltage

在交流电路或纹波电流电路中使用直流额定电压电容器时，请务必将外加电压的 Vp-p 值或包含直流偏置电压的 Vo-p 值维持在额定电压范围内。
When DC-rated capacitors are to be used in AC or ripple current circuits, be sure to maintain the Vp-p value of the applied voltage or the Vo-p which contains DC bias within the rated voltage range.

若向电路施加电压，开始或停止时可能会因谐振或切换产生暂时的异常电压。请务必使用额定电压范围包含这些异常电压的电容器。
When the voltage is applied to the circuit, starting or stopping may generate irregular voltage for a transit period because of resonance or switching. Be sure to use a capacitor with a rated voltage range that includes these irregular voltages.

施加到电容器典型电压曲线
Applied to the capacitor typical voltage curve

电压 Voltage	直流电压 DC Voltage	直流+交流电压 DC+AC Voltage	交流电压 AC Voltage	脉冲电压 Pulse Voltage
测量位置 Positional Measurement				

(Vo-p、Vp-p：可能施加的最大电压, Possible maximum voltage applied)

2) 过电压影响

Overvoltage effects

施加到电容器的过电压可能会导致电容器内部介质层击穿而引起电路短路。

The overvoltage applied to the capacitor may cause the dielectric layer of the capacitor to break down and cause a short circuit

击穿前的可持续时间取决于施加电压和周围温度。

The duration before the breakdown depends on the applied voltage and the ambient temperature.

(2) 温度特性试验

Temperature characteristic test

在温度特性试验过程中，测量电容量时应注意电容器达到热稳定后方可进行。

In the temperature characteristics of the test process, capacitance measurements shall be made at each of the temperatures specified above, after the capacitor has reached thermal stability.

在不小于 5 分钟的时间间隔所取得的两次电容量的读数之差不大于认为由测量仪表所引起的误差时，才可判定为达到了热稳定状态。

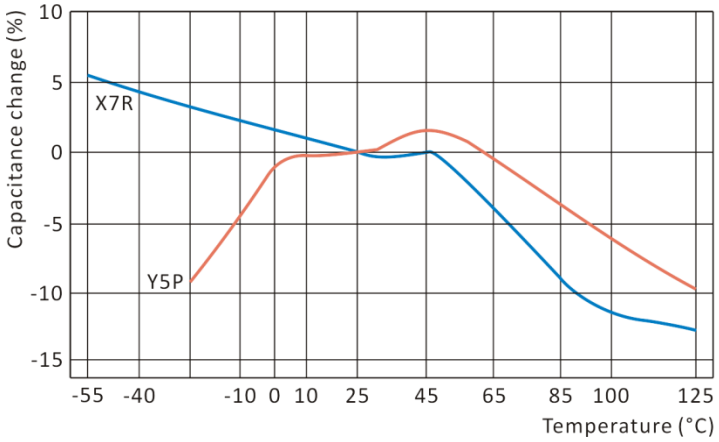
The condition of thermal stability is judged as having been reached when two readings of capacitance taken at an interval of not less than 5 min do not differ by an amount greater than that which can be attributed to the measuring apparatus.

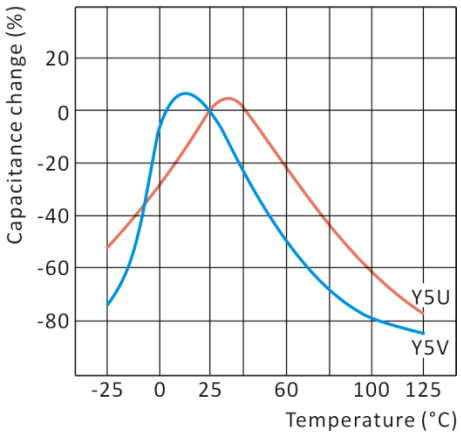
在测量期间必须注意防止电容器表面上凝露或结霜。

Care must be taken during measurements to avoid condensation or frost on the surface of the capacitors.

(3) 几种常见的温度系数曲线图，如下图所示。

several common temperature coefficient curve, as shown below.





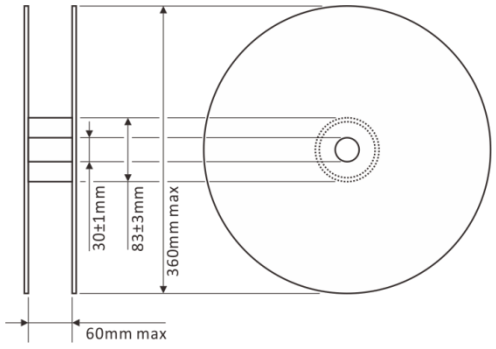
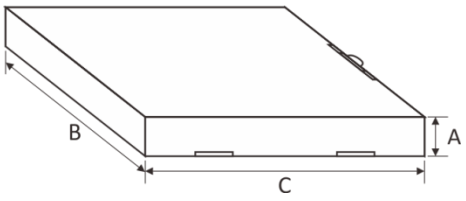
8. 包装与储存
Packaging and storage

8.1. 包装
Packing specifications

1) 散件包装 Bulk packing

额定电压 Rated voltage	脚长 Lead Length	产品直径 Body diameter	最小包装数量 Minimum packaging quantity
<4kV	≤16mm	All	1 000
	>16mm	≤8.5mm	1 000
		>8.5mm	500
≥4kV	≤16mm	All	500
	>16mm	≤8.5mm	1 000
		>8.5mm	500

2) 编带包装 Taping packing

包装方式 Packaging Format	卷盘包装(每卷) Reel Packing (per Reel)	折叠包装(每盒) Ammo Packing (per Box)
尺寸(mm)与示图 Dimensions (mm) and Drawing		
		A: 43±2mm; B: 256±5mm; C: 333±5mm
包装数量(pcs) Quantity (pcs)	2 000 2 500	2 000 1 500

8.2. 储存
Storage

电容器应存放在温度及相对湿度分别不超出-10～40°C 及 15～85%范围的场所。

Store the capacitors where the temperature and relative humidity do not exceed -10 to 40 degrees centigrade and 15 to 85%.

储存环境应避免日照、灰尘、温度急剧变化、腐蚀性气体或高温和高湿等可能会影响其可焊性的环境因素。

Storage environment should avoid sunshine, dust, sudden changes in temperature, corrosive gases or high temperature and high humidity may affect its solderability of environmental factors.存放电容器时不要打开原包装，即使存放时间很短，也不要超过规定的环境条件。

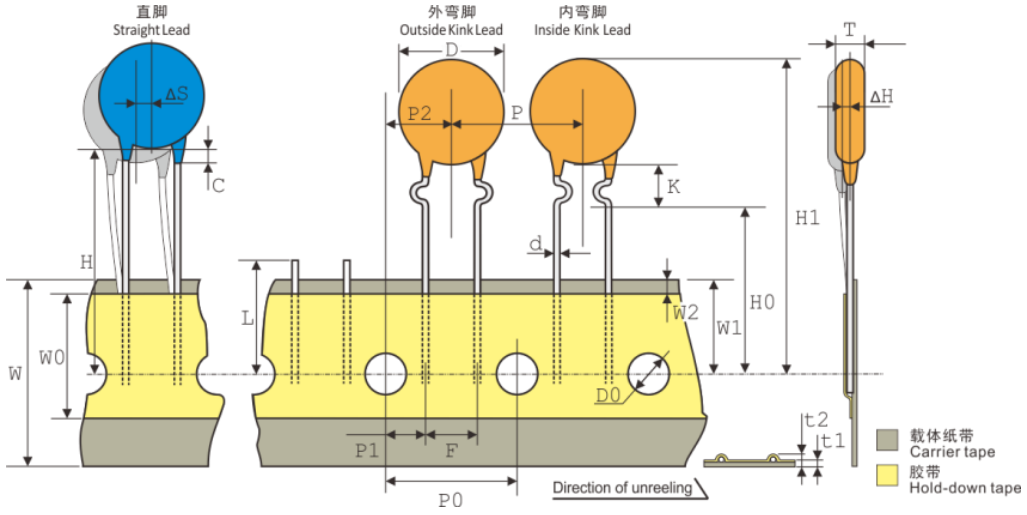
Do not open the original packaging when the capacitor is stored, even if the storage time is very short; do not exceed the specified environmental conditions.

请在 6 个月内使用电容器。超过 6 个月，在使用前确认其可焊性。

Use capacitors within 6 months after delivered. for more than 6 months, confirm the solderability before use.

9. 编带标准

Taping specifications



瓷片电容器的径向型编带是专为自动插件设计的。
These radial taped disc ceramic capacitors are designed especially for automatic insertion.
适用于瓷片直径小于 φ11.0mm 径向型编带。
The available types for radial taped disc are diameters φ11.0mm and under.

项目 Item		代码 Symbol	标准（mm） Specification (mm)	备注 Remarks
导线直径 Lead-wire diameter		d	0.6±0.1	
元件间间距 Pitch of component		P	12.7±1.0	
进料孔间距 Feed hole pitch		P0	12.7±0.3	间距累积误差：每 20 孔 1.0mm Cumulative pitch error: 1.0mm/20 pitch
进料孔与导线垂直距离 Feed hole center to lead		P1	3.85±0.7	
进料孔与元件垂直距离 Hole center to component center		P2	6.35±1.3	
脚距 Lead-to-lead distance		F	5.0±0.8	
元件偏移 Component alignment		Δh	≤2.0	
元件沿编带偏离，左或右 Deviation along tape, Left or right		ΔS	≤1.3	
纸带宽 Tape width		W	18.0+1.0/-0.5	
胶带宽 Hold-down tape width		W0	≥7.0	
孔位 Hole position		W1	9.0+0.75/-0.5	
胶带位置 Hole-down tape position		W2	≤3.0	
元件到纸带的高度 Height of component from tape center	直脚类型 For straight lead type	H	18.0+2/-0	
	弯脚类型 For kinked lead type	H0	16.0±0.5	
元件高度 Component height		H1	≤32.25	
进料孔直径 Feed hole diameter		D0	4.0±0.3	
编带厚度 Total tape thickness		t1	≤0.9	纸带厚度：0.5±0.1mm Ground paper: 0.5±0.1mm
编带厚度（含导线） Total thickness, tape and lead wire		t2	≤1.5	
剪切长度 Length of snipped		L	≤11.0	