

# CORPORATE

## 企业文化 Culture



### 公司使命：

把易利嘉打造成为国际知名电容器制造商。



### 公司核心价值观：

诚实守信，认真负责，敬业奉献，  
团队互爱，快乐向上。



### 质量方针：

最大限度地满足顾客的需求。



### 环境方针：

守法经营，爱护环境，持续改善，营造绿色企业。



### 市场理念：

以质量求信誉，以信誉求发展，为顾客创造价值。



### 服务理念：

顾客的需求就是我们的工作目标。



### 企业作风：

老老实实做人，踏踏实实做事。



### 公司经营理念：

品质，效率，成本，和谐。



### 公司管理理念：

重视细节，贯彻制度，执行到位，持续改进。

# CAPACITOR

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# COMPANY

## 公司简介 Profile

我公司成立于 1996 年。公司名称：东莞市易利嘉电子有限公司。公司地址：中国广东省东莞东城区桑园洋富工业园。公司占地面积 5000 平方米，工厂面积 3000 平方米，仓库 1500 平方米，办公室 500 平方米，员工生活区 3000 平方米。员工 250 人。

我公司主要产品包括(综合月生产能力)：

三个单元的安规电容器 (Y1/X1、Y2/X1 30000kpcs；X2 10000kpcs)

- 1) 安规抑制电磁干扰用交流瓷介电容器 Y1/X1 类 (CT7)；
- 2) 安规抑制电磁干扰用交流瓷介电容器 Y2/X1 类 (CT7)；
- 3) 安规抑制电磁干扰用交流金属化聚丙烯薄膜电容器 X2 类 (CBB62)。

各种瓷介电容器 (50000kpcs)。包括高频瓷介电容器 (CC1)、高介电常数瓷介电容器 (CT1)、半导体瓷介电容器 (CS1)、高压瓷介电容器 (CC81、CT81) 和超高压 (4KV~15KVDC) 瓷介电容器 (CC81、CT81)。

金属化薄膜电容器 (5000kpcs)。包括金属化聚丙烯薄膜电容器 (CBB21,MMKP82)、金属化聚酯薄膜电容器 (CL21)。

本公司产品广泛应用于各种商用设备、仪器仪表、家用电器、低压电源、通讯设备、计算机及周边产品、照明电器等产品上，是重要的基础电子元器件。

产品标准：本公司产品执行中华人民共和国 GB 标准及国际电工委员会 IEC 标准。



产品安全认证：安规产品通过美国 UL 、加拿大 CUL 、德国 VDE 、欧洲 ENEC 、中国 CQC 、瑞士 ESTI 、挪威 NEMKO 、韩国 KC 、丹麦 DEMKO 、芬兰 FIMKO 等国家及地区的产品安全认证。

质量体系：本公司质量管理体系执行 ISO9001：2015 标准，并已通过天祥集团（原摩迪英联）ISO9001：2015 质量管理体系认证，获取了含 UKAS 标志的认证证书。公司严格按照 ISO9001：2015 质量管理体系的各项要求全程控制产品生产的各个环节，严格执行各项标准，保证产品质量。

环保体系：本公司环境管理体系执行 ISO14001：2015 标准，并已通过天祥集团（原摩迪英联）ISO14001：2015 质量管理体系认证，获取了含 UKAS 标志的认证证书，实行对重大环境因素的全面管控。

## Firm and Location

Easy-Gather Electronic CO., LTD was founded in 1996 and is one of the most reliable ceramic capacitor suppliers in China. Easy-Gather Electronic locals a Sang Yuan Yang Fu Industrial Park in Dongcheng District, Dongguan, Guangdong Province. Our firm has 250 employees and occupies about 5,000m<sup>2</sup>, which includes a 3,000m<sup>2</sup> wide factory zone and a 1,500m<sup>2</sup> warehouse, as well as office of 500m<sup>2</sup> and living area of 3,000m<sup>2</sup>.

## Products Range

Our products have three main ranges, safety products range, ceramic capacitors range and metallized film capacitors range. They are very important basic electronic components and widely used in commercial equipment, instrument, large and small household appliances, low-voltage power supplies, communication equipments, computers and peripheral products, lightings and other products.

## Safety Products Range

There are three kinds of fixed capacitors for electromagnetic interference suppression and connection to the supply mains in Safety Standard Recognized Products range. They are: (1) AC ceramic capacitors Y1/X1; (2) AC ceramic capacitors Y2/X1; (3) AC polypropylene film capacitor X2. The integrated capacity of Y1/X1 and Y2/X1 capacitors is 30000kpcs per month. and X2 capacitors integrated capacity is 10000kpcs per month.

## Ceramic Capacitors and Metallized Film Capacitors Range

In addition, our company also manufactures two categories of products: ceramic capacitors and metallized film capacitors. Ceramic capacitors. high voltage ceramic capacitors and super high voltage ceramic capacitors (including the series of capacitors which we specially develop for negative ion generator). Integrated capacity is 50000kpcs per month. Metallized film capacitors. the varieties include metallized polyester film capacitors and metallized polypropylene film capacitors. The integrated capacity is 50000kpcs per month.

## Products Standard

Our products are fully compliant with the people's Republic GB standards and the International Electrotechnical Commission IEC standards.

## Products Safety Certification

The above three units safety products (Y1/X1, Y2/X1, X2) have been certified by the UL (United States), CUL (Canada), VDE (Germany), ENEC (Europe), CQC (China), ESTI (Switzerland), NEMKO (Norway), DEMKO (Denmark), KC (Korea), FIMKO (Finland) and also many other countries and regions certification.

## Quality System

The quality management system of our company adopts ISO9001:2015 Standards, which has been certificated by Intertek Group, therefore we obtained the certificate with the UKAS mark. In accordance with the requirements of the quality management system, we take full control of all aspects related products. strictly implement standards to ensure product quality.

## Environmental Protection System

The environmental management system of our company adopts ISO14001:2015 Standards, and it also has been certificated by Intertek Group, we get the certificate with UKAS mark, and full control major environmental factors.

有害物质管理体系：本公司依据 QC080000:2012 的要素建立了有害物质过程管理体系，对各种有害物质进行系统性的严格管控。

产品环保符合性：公司有害物质管理政策是：顺应并及时跟进、满足世界各主要国家、地区、行业、机构对环境保护及产品有害物质管理的要求。目前公司产品除 X2 类卤素项需客户指定满足外，全部符合欧盟 Rohs 指令、欧盟 Reach 法规要求、不含卤素、邻苯二甲酸盐及多环芳烃 (PAHS)。

公司的使命是：把易利嘉打造成为国际知名电容器制造商。

公司的质量方针是：最大限度地满足顾客的需求。

公司的环境方针是：守法经营，爱护环境，持续改进，营造绿色企业。

公司秉承“以质量求信誉，以信誉求发展，为顾客创造价值”的理念开拓市场；以“顾客的需求就是我们的工作目标”的服务理念服务顾客；以“质量、效率、成本、和谐”的经营理念，与众多顾客、供货商及本公司内部员工合作，努力实现自我完善、自我提升、自我发展的可持续发展之路。

科技创新：公司十分重视科技创新，对生产工艺进行大规模技术改造。从 2006 年起，本公司被东莞市科学技术局连续授予“民营科技企业”。到目前为止共拥有 3 项发明专利，十多项实用新型专利。

获得荣誉：本公司连续多年获得“员工满意企业”，“劳动关系和谐企业”，“先进基层工会”等多个荣誉称号。

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## Hazardous Substance Management System

Our company follows QC080000:2012 and has established a hazardous substance process management system which take strict control of various harmful substances systematically.

## Product Environmental Compliance

Company's Hazardous Substances Management Policy is: Comply with, timely follow up and meet the requirements for environmental protection of major countries, regions, industries and organizations. At present, apart from X2 capacitors whose halogen item could be satisfied when customers demand our products are all in compliance with EU Rohs Directive, EU Reach regulations and free from halogen, phthalates and polycyclic aromatic hydrocarbons (PAHs).

## Vision and mission

Our company's goals: Crafting Easy-Gather Electronic into internationally renowned capacitor manufacturers. Easy-Gather Electronic follows the motto "quality and credibility, reputation and development, creating value for customers." and relies on quality and credibility as our core value.

## Technology Innovation

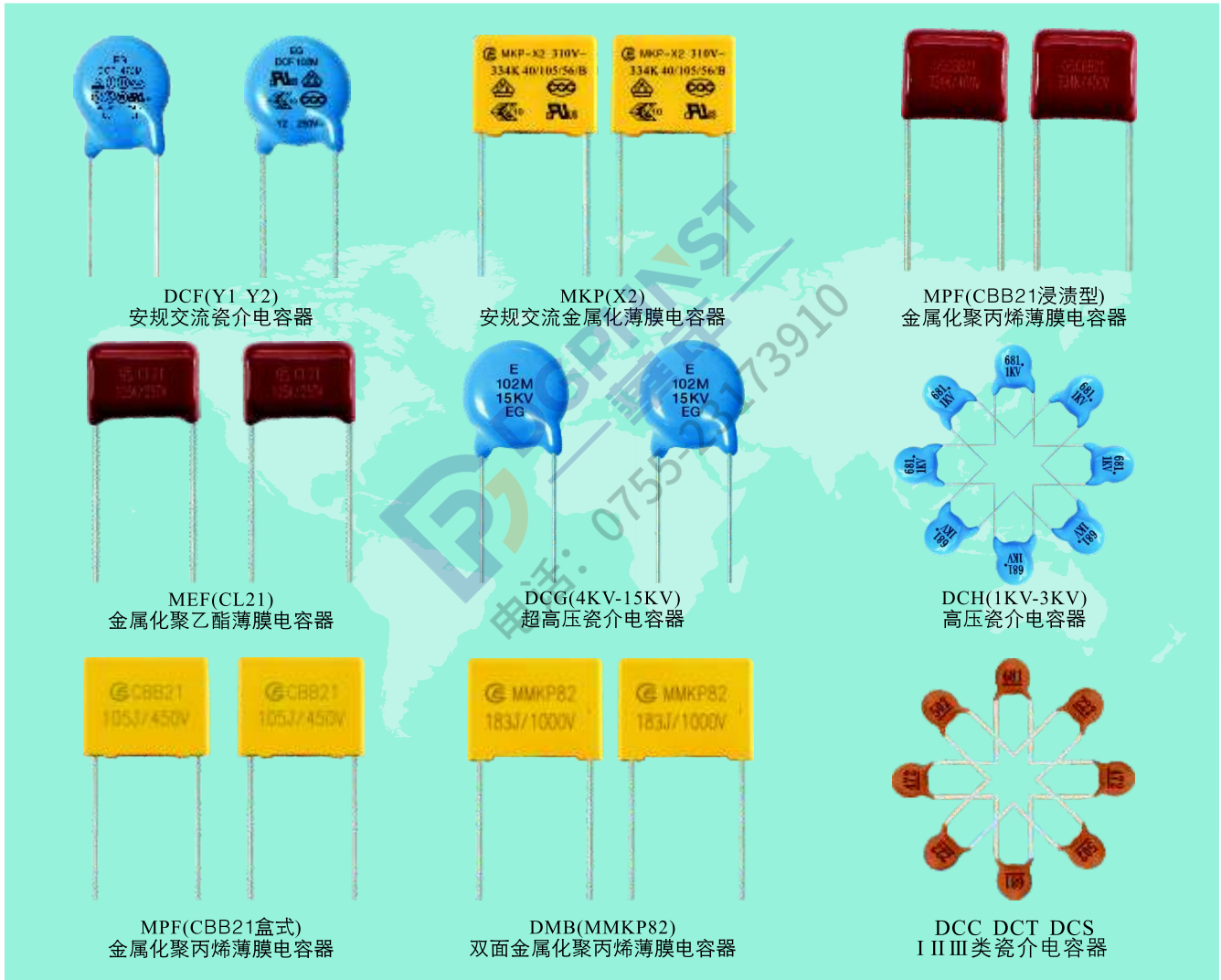
The Company attaches great importance to technological innovation, and has large-scale transformation of production process. Since 2006, our company has been awarded by the Dongguan Science and Technology Bureau "private technology enterprises." So far, we have a total of three invention patents and more than ten utility model patents.

## Honor

The company has the honorary title "Employee Satisfaction Enterprise", "harmonious labor relations in enterprises" and "advanced grass-roots trade unions", and so on, for many years.



# 典型产品展示



## 产品环保法规与指令符合情况一览表

电容器类型 法规或指令	法规或指令所 限制有害物质	Y 电容器	X 2 电容器	瓷介电容器	金属化薄膜 电容器	独石电容器	箔式聚乙 酯膜电容器
欧盟 2011/65/EC 指令 及其补充条款 (ROHS 指令)	ROHS 十项	符合	符合	符合	符合	符合	符合
化学品的注册、评估、 授权和限制法规	REACH 高度关 注物质 173 项	符合	符合	符合	符合	符合	符合
欧盟 2005/84/EC 指令	邻苯二甲酸盐 (17P)	符合	符合	符合	符合	符合	符合
GS认证 PAHS 要求	多环芳香烃 (PAHS)	符合	符合	符合	符合	符合	符合
IEC印刷板材料的法规 IEC61249-2-21	卤素	符合	按 需 可 提 供	符合	符合	符合	符合

本公司有害物质管理政策：紧跟法规，持续符合。

# 圆片瓷介电容器产品代码

## Ceramic Capacitors Part Number Code

(适用产品: DCF、DCC、DCT、DCS、DCH、DCG类)

DCT 471 K Y5P 050 F 2 L B 0 (--)

**产品类型:**  
 DCC: 温度补偿类  
 DCT: 高介电系数类  
 DCS: 半导体类  
 DCH: 高压类  
 DCG: 超高压类  
 DCF: Y电容类

**容量:**  
 前两位数为容量的实际数字,  
 最后一位为倍乘数  
 0=×1    1=×10    2=×100  
 3=×1000    4=×10000    9=×0.1

**容量允许偏差:**  
 C=±0.25pF    M=±20 %  
 D=±0.5pF    P=+100-0 %  
 J=±5 %    S=+50-20 %  
 K=±10 %    Z=+80-20 %  
 10pF及以上用百分比表示

**温度特性、温度系数:**  
 CH UJ SL DL  
 Y5P X7R Y5U Y5V  
 BN Y5R (含铅)

**额定电压:**  
 B=16VDC    E=25VDC    T=6KVDC    Z=8KVDC  
 F=50VDC    H=100VDC    V=10KVDC    S=12KVDC  
 J=250VDC    L=500VDC    X=15KVDC  
 N=1KVDC    P=2KVDC    Q=X1/Y2=400V/250VAC  
 R=3KVDC    W=4KVDC    G=X1/Y1=400V/250VAC  
 K=X1/Y1=400V/400VAC

**电容器使用素子直径代码**  
 (DCF类 此项不适用)  
 (使用0.5的倍数, 不够0.5mm时, 使用上一级数字)  
 D=040=3.5~4.0mm  
 D=050=4.5~5.0mm  
 D=120=11.5~12.0mm

**包装及散装引线长度分类:**  
 T: 编带包装 1  
 S: 编带包装 2  
 B: 散件包装  
 35: 引线长度 3.5±0.5mm  
 50: 引线长度 5.0±0.5mm

内部管理代码

\* 环保产品指符合 Rohs, Reach, 多环芳烃, 邻苯二甲酸盐, 卤素等相关规定  
 0: 环保产品  
 2: ROHS 豁免

**引线形状:**  
 L: 直线型    K: 单外弯  
 M: 直线短脚    W: 双弯形  
 J: 单内弯    P: 直弯形

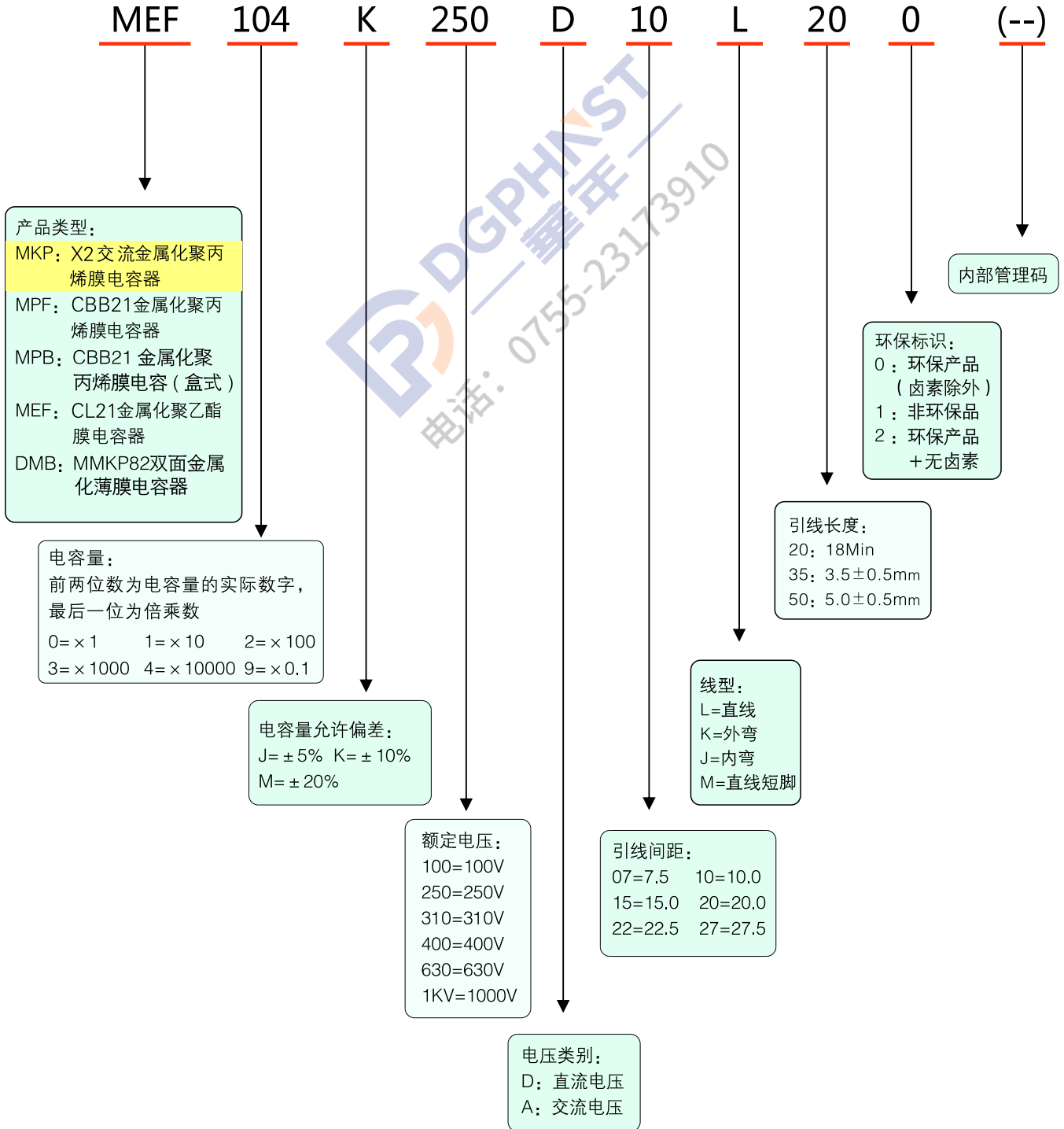
**引线间距:**  
 2=2.5mm  
 5=5.0mm  
 7=7.5mm  
 0=10mm

代码说明

# 金属化薄膜电容器产品代码

## Metallized Film Capacitors Part Number Code

(适用产品: MKP、MPF、MPB、MEF、DMB类)





# 瓷介电容器通用特性

## The Properties Of Ceramic Capacitors

I 类温度补偿型瓷介电容器 Class I Temperature Compensation Ceramic Capacitors

I 类温度特性表 Class I Temperature Characteristic Chart

代码 Code	电容器温度特性 Material Coefficient		标称电容量 Capacitance			
	组别 Series	温度系数 Coefficient ( $10^{-6} / ^\circ\text{C}$ )	0.5~2pF	2.1 ~3.9pF	4.0~9.9pF	> 10pF
			温度系数允许偏差 (25 °C —85 °C) Temperature Coefficient Tolerance			
C0	NP0	0	K (± 250)	J (± 120)	H (± 60)	G (± 30)
S1	N 033	-33	K (± 250)	J (± 120)	H (± 60)	G (± 30)
U1	N 075	-75	K (± 250)	J (± 120)	H (± 60)	G (± 30)
P2	N 150	-150	K (± 250)	J (± 120)	H (± 60)	G (± 30)
R2	N 220	-220	K (± 250)	J (± 120)	H (± 60)	G (± 30)
S2	N 330	-330	K (± 250)	J (± 120)	H (± 60)	H (± 60)
T2	N 470	-470	K (± 250)	J (± 120)	J (± 120)	H (± 60)
U2	N 750	-750	K (± 250)	J (± 120)	J (± 120)	J (± 120)
P3	N 1500	-1500	K (± 250)	K (± 250)	K (± 250)	K (± 250)
R3	N 2200	-2200	L (± 500)	L (± 500)	L (± 500)	L (± 500)
S3	N 3300	-3300	L (± 500)	L (± 500)	L (± 500)	L (± 500)
T3	N 4700	-4700	M (± 1000)	M (± 1000)	M (± 1000)	M (± 1000)

SL: 可使用从 P100 至 N1000 的任何 I 类材料 ( 不规定允许偏差 ) 。

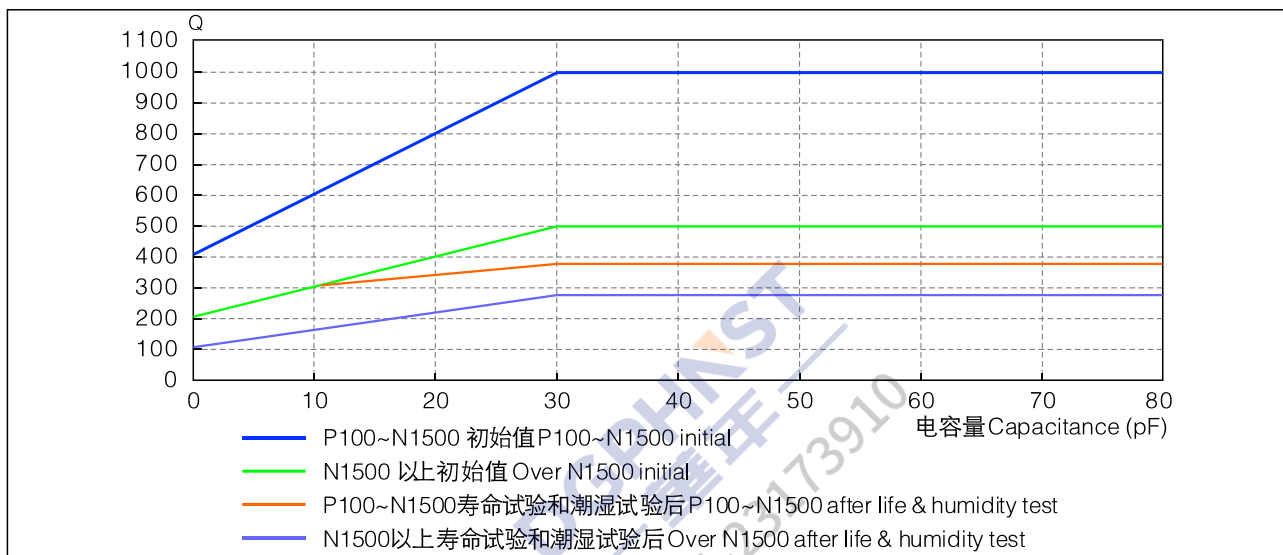
SL: Any Class I material from P100 to N1000 may be used(no tolerance specified).

DL: N3300 (S3L)



电容器编带机

### I 类 Q 值极限 Class I Q Limits



### II、III 类瓷介电容器 CLASS II&III Ceramic Capacitors

代码由三个字组成，第一个字表示最低温度，第二个字表示最高温度，第三个字表示在整个温度范围内相对于 25 °C 的电容量读数的最大变化率。

Codes consist of 3 digits, where the first 2 digits indicate the lowest temperature and the highest temperature separately, and the last digit indicates the maximum capacitance change over temperature range from 25 °C.

### II、III 类温度特性表 Class II & Class III Temperature Characteristic Chart

第一位字 (表示最低温度) First digit is the lowest temperature	第二位字 (表示最高温度) Second digit is the highest temperature	第三位字 (表示在整个温度范围内相对于 25 °C 的电容量读数的最大变化率) Last digit is MAX capacitance change over temperature range from 25°C
X -55°C Y -25°C Z +10°C	4 +65°C 5 +85°C 6 +105°C 7 +125°C 8 +150°C	A ± 1.0%
		B ± 1.5%
		C ± 2.2%
		D ± 3.3%
		E ± 4.7%
		F ± 7.5%
		P ± 10%
		R ± 15%
		S ± 22%
		T +22% -33%
U +22% -56%		
V +22% -82%		

### 常用温度特性代码对照表

EIA 代号 国际惯用代号	NP0	N150	N220	N470	N750	SL	N3300	Y5P	Y5U	Y5V
GB 代号	CH	PH	RH	TH	UJ	SL	DL	2B4	2E4	2F4

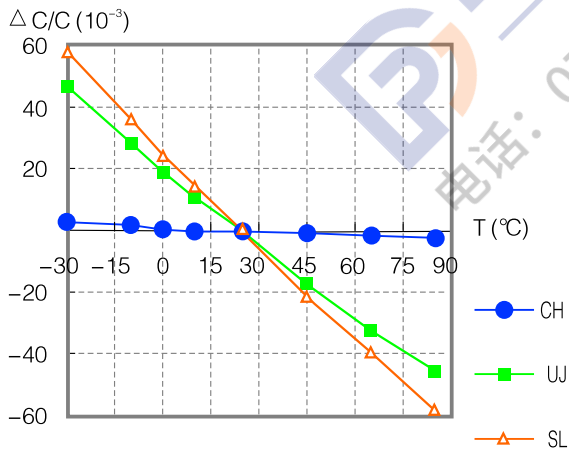
## 温度特性和电容量允许偏差优先值表

(适合于 DCT, DCS 类)

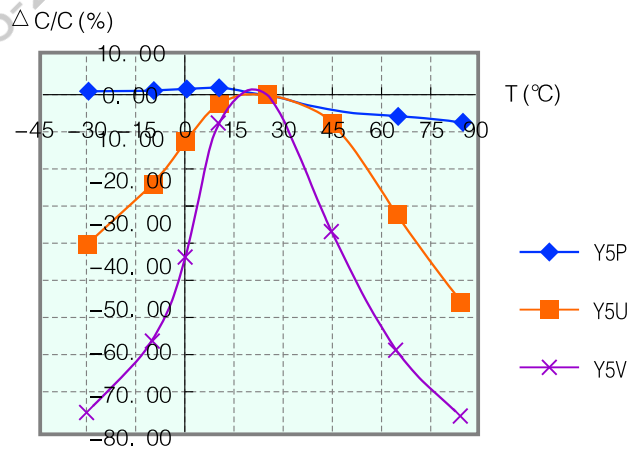
温度特性 Temperature Characteristic	电容量允许偏差 Capacitance Tolerance			
	K	M	S	Z(P)
X7R ,Y5P ,BN	√	×	×	×
Y5U	×	√	×	×
Y5V	×	×	√	√

## 温度系数 / 特性示意图 Temperature Characteristic Graph

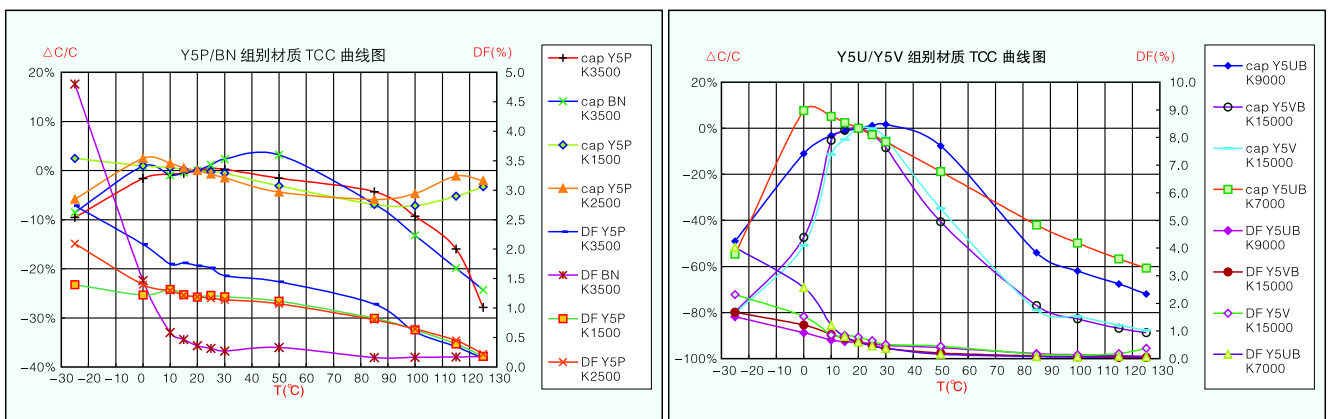
I类瓷介电容器温度系数  
Class I Ceramic Capacitor  
Temperature Coefficient



II、III类瓷介电容器温度特性  
Class II and III Ceramic Capacitor  
Temperature Coefficient



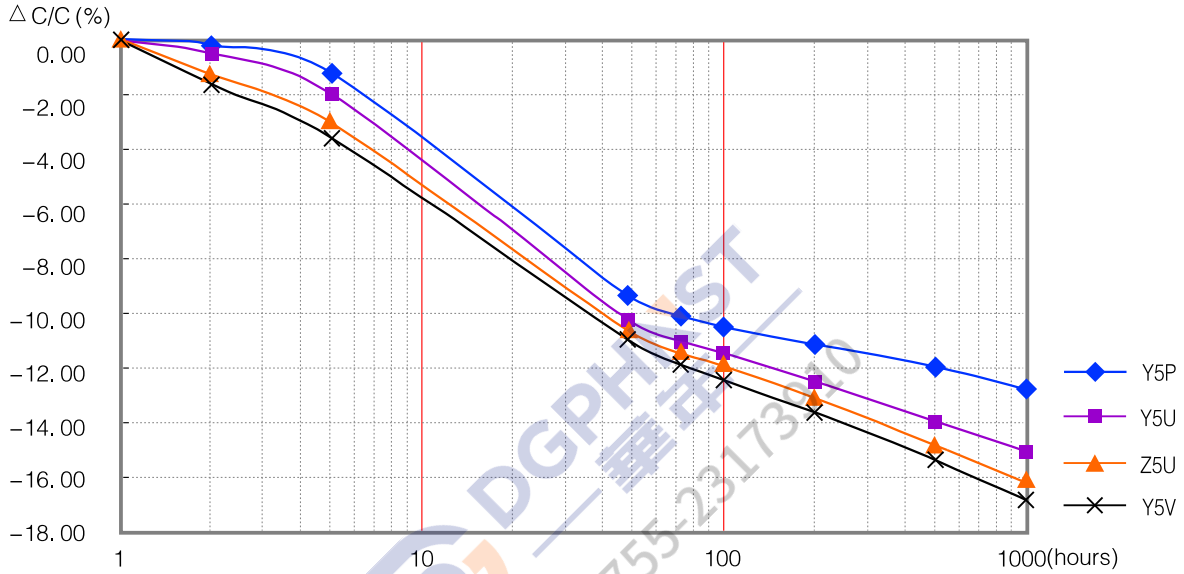
## 典型材料温度特性图 (实例) Typical Material Temperature Characteristic Graph (Instance)



(适合于 DCT, DCH, DCG, DCF 类别)

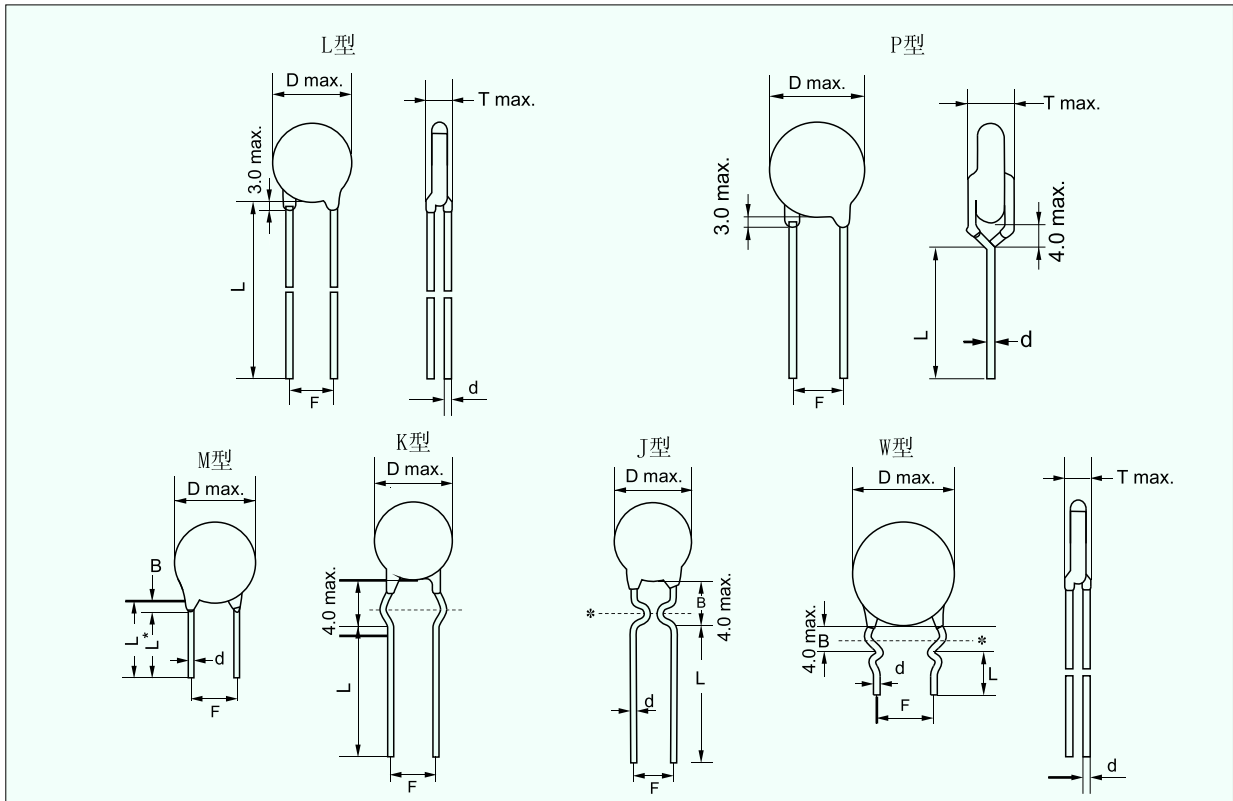


电容量老化规律 Capacitance Natural Attenuation (%)



瓷介电容器外形结构及引线样式  
Ceramic Capacitors Appearance Structure And Style Of Lead

引线式样 Lead Style



\*J、K、W型引线涂封脚在线之内

(Unit:mm)

MODEL	d(mm)	L(mm)	F(mm)
L	0.4~0.6 ± 0.05	18.0min	2.5 ± 0.8~10.0 ± 0.5
P	0.5~0.6 ± 0.05	20.0min	7.5~10.0 ± 0.5
M	0.5~0.6 ± 0.05	3.5, 5.0 ± 0.8*	2.5 ± 0.8~10.0 ± 0.5
J	0.5~0.6 ± 0.05	3.5, 5.0 ± 0.8*	5.0 ± 0.5~10.0 ± 0.5
K	0.5~0.6 ± 0.05	3.5, 5.0 ± 0.8*	5.0 ± 0.5~10.0 ± 0.5
W	0.5~0.6 ± 0.05	3.5, 5.0 ± 0.8*	5.0 ± 0.5~10.0 ± 0.5

可使用 3.0~9.0mm 中任意名义长度，允许误差 ± 0.5mm ~ ± 1.0mm。本公司推荐 3.5mm 及 5.0mm ± 0.5mm 标称长度，原则上不生产 3.0mm 以下产品。

## 瓷介电容器包装方式 Ceramic Capacitors Package

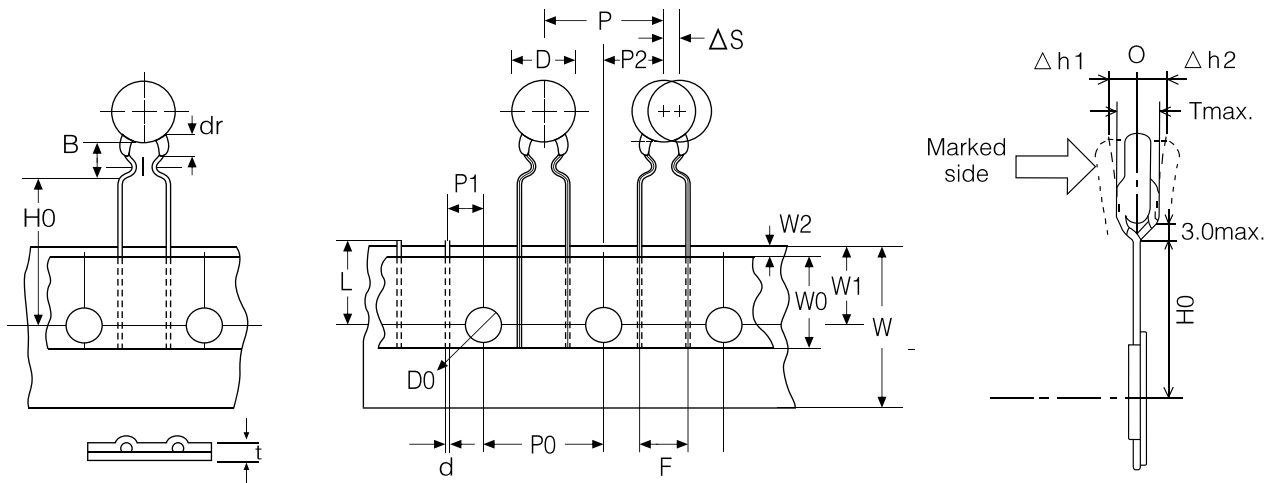
瓷介电容器使用两种包装方式

- ◆ 散装 (Bulk)
  - 用胶袋包装，最小包装数量 200pcs~1000pcs/bag。
- ◆ 编带包装 (Taping)

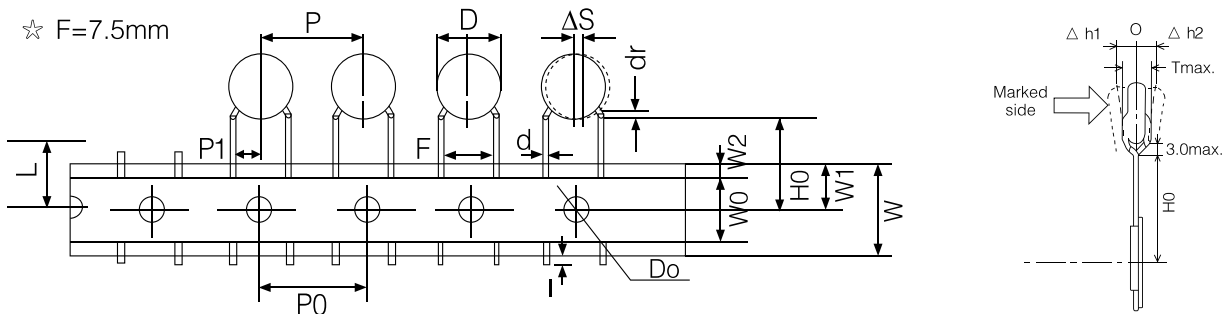
### 编带结构和尺寸 Taping Specification

编带产品代码 T：输送孔间距 Pitch of sprocket hole P0=12.7

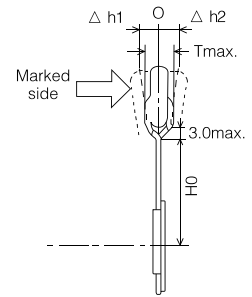
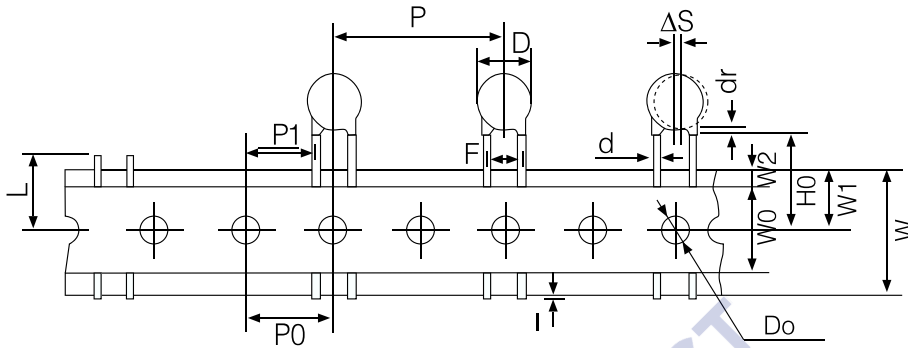
☆ F=5.0



☆ F=7.5mm

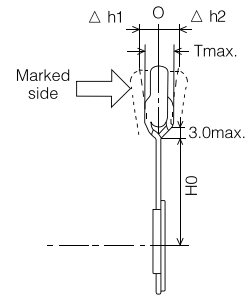
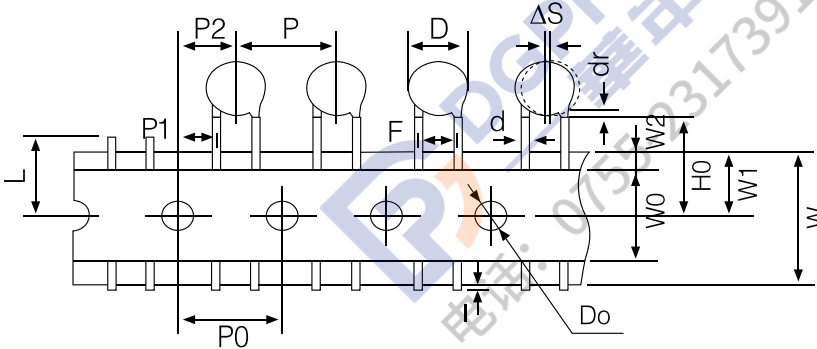


☆ F=10.0

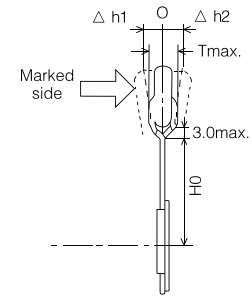
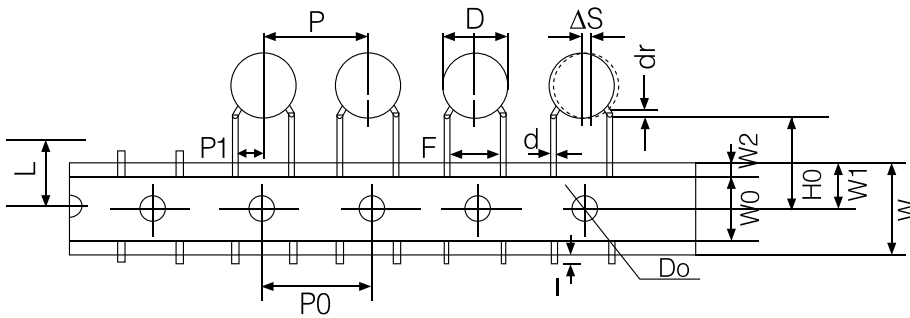


◆ 编带产品代码 S: 输送孔间距 Pitch of sprocket hole P0=15.0

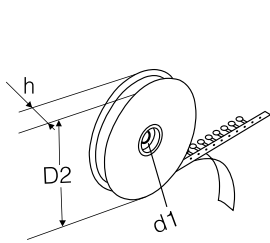
☆ F=7.5



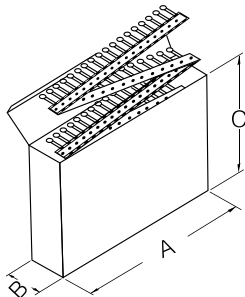
☆ F=10.0



◆ 编带的包装式样 Taping Packing Style



卷盘式 Taping/Reel



折叠式 Taping/Ammo

A	B	C
335mm	45mm	255mm
335mm	58mm	255mm

h	D2	d1
40mm	340mm	30mm
51mm	340mm	30mm

◆ 包装数量: 1000pcs~2000pcs (F=5.0mm)  
200pcs~1000pcs (F=7.5/10.0mm)

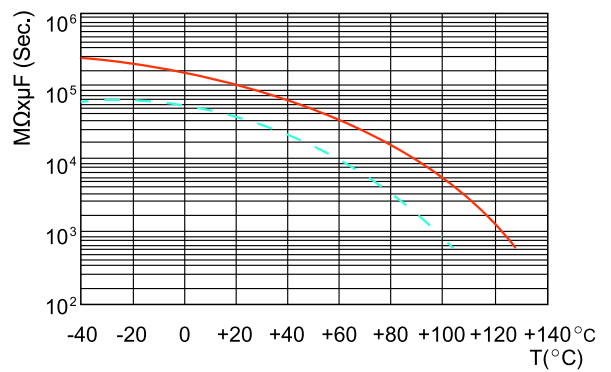
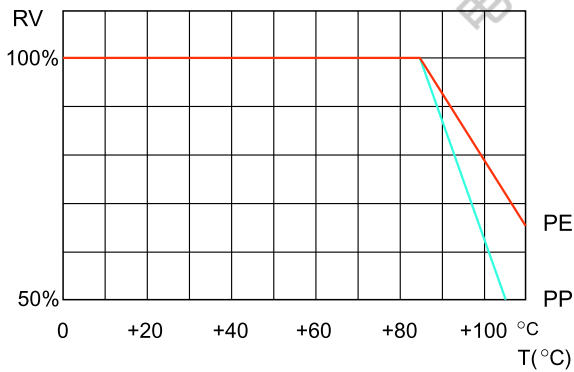
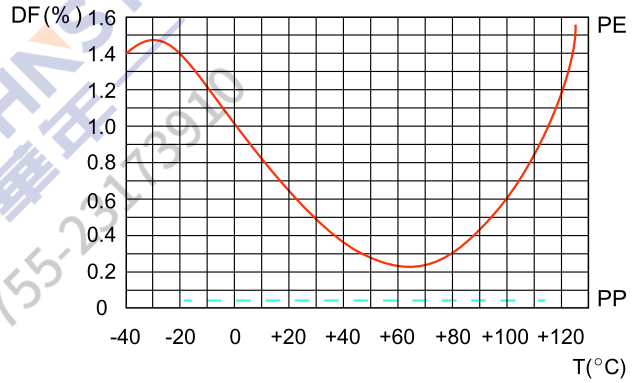
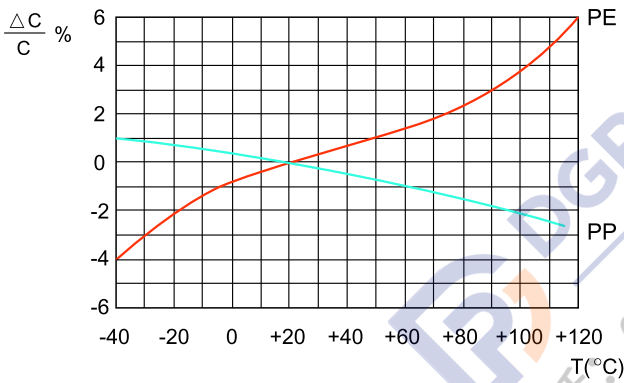


分类	符号	名称	S型编带尺寸要求		T型编带尺寸要求		
产品本体	F	引线间距 Lead spacing	7.5-0.2+0.8	10.0-0.2+0.8	5.0-0.2+0.8	7.5-0.2+0.8	10.0-0.2+0.8
	D	本体直径 Body diameter	见规格表		见规格表		
	T	产品本体厚度Body thickness	见规格表		见规格表		
	dr	包封脚长 Coating extension	3.0Max				
	l	引线内弯最短距离 Shortest distance of leads inside crimped	/	/	2.5/1.5	/	/
	d	引线直径 Lead diameter	0.50/0.56±0.05	0.56±0.05	0.50±0.05	0.50/0.56±0.05	0.56±0.05
产品载体	W	载带宽度 Carrier tape width	18.0±0.5				
	t	编带总厚度 Total tape thickness	0.6±0.2				
	W0	粘带宽度 Hold down tape width	10.0±0.5		8.0±0.5		
	W2	粘带边距 Hold down tape position	1.5±1.5				
	P0	输送孔间距Pitch of sprocket hole	15.0±0.3		12.7±0.3		
	W1	对输送孔的偏移 Position of sprocket hole	9.0±0.5				
	D0	输送孔直径 Diameter of sprocket hole	4.0±0.3				
产品本体和载体结合	P	编带间距 Pitch of component	15.0±1.0		12.7±1.0		25.4±1.0
	P1	对输送孔的偏移 Length from hole center to lead wire center	3.75±0.7	5.0±0.7	3.85±0.7		7.7±0.7
	P2	对输送孔的偏移 Length from hole center to componet center	7.5±1.3	/	6.35±1.3		/
	H0	引线弯曲位置高度 Lead distance between reference (L型引线到产品底部高度)	L型引线:20.0±0.5 Kink引线:16.0±0.5				
	△S	本体偏斜 Deviation along tape	0±2.0				
	△h1	本体倾斜 Deviation across tape	2.0Max				
	△h2	本体倾斜 Deviation across tape	2.0Max				
	L	废品切断高度 Portion to cut in case of defect	11.0 Max				
	B	产品本体底部与装配定位处距离	Kink引线 4.0 Max				
	I	突出长度 Protrusion length	0.5~-1.0		/		

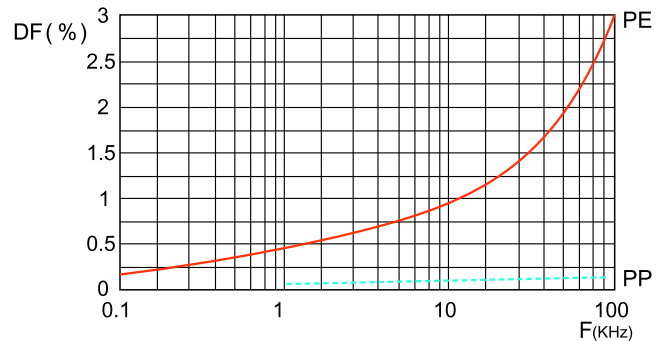
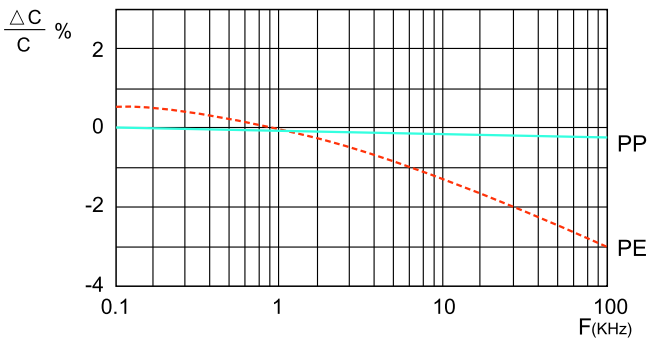
# 金属化薄膜电容器通用特性

## The Properties of Metallized Film Capacitors

### 温度特性 Temperature Characteristics



### 频率特性 Frequency Characteristic



# 安规交流瓷介电容器

## Class DCF Y1,X1

### 用途 Applications

用作电源滤波、抑制电源电磁干扰、初次级耦合、开关电源、电源适配器等。也用作直 - 交流隔离及无变压器数据存取装置的噪音吸收等。

Ideal for use as X/Y capacitors for AC line filter, electromagnetic interference suppression and primary-secondary coupling on switching power supplies and AC adapters. Ideal for use on D-A isolation and noise absorption for DAA modems without transformers.

产品有害物质法规符合性: 产品符合 ROHS; REACH; PAHS; HF; 邻苯二甲酸盐等法规。

Hazardous Substances Compliance: All products pass following compliance or standard: ROHS: REACH; PAHS; HF; and Phthalates-Phthalates Regulation.

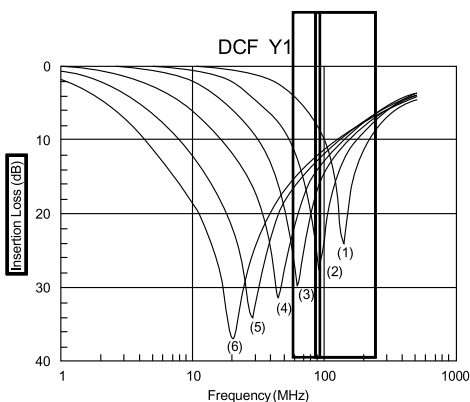
### 技术指标 Specifications

项目 Item	标准要求 Specification	
气候类别 Climatic Category 阻燃等级 Passive Flammability Class	25/125/21/C	
使用温度范围 Operating Temperature	-25°C ~ +125°C	
容量、损耗测试条件 Capacitance(C), Dissipation(tgδ) Testing at	1) 标准大气环境* Standard atmospheric condition	
	2) 1Vr.m.s, 1KHz/100KHz	
介质损耗 Dissipation Factor (tgδ)	NP0、SL: ≤2.5‰ (Cr ≥ 50pF); ≤5‰ (5pF ≥ Cr < 50pF) Y5P、Y5U、Y5V : ≤2.5%	
系列产品容量范围 Capacitance Range	5pf ~ 4700pF	
容量偏差 Capacitance Tolerance	J: ±5%、K: ±10%、M: ±20%	
额定电压 Rated Working Voltage	Series 1 Y1/X1	Series 2 Y1/X1
	250VAC/400VAC ( 50/60Hz )	400VAC/400VAC ( 50/60Hz )
端子间耐压 Withstand Voltage Between	4000VAC	
绝缘电阻 Insulation Resistance (I.R)	≥10000MΩ (500VDC)	
温度特性 Temperature Characteristic	NP0、SL、Y5P、Y5U、Y5V	
阻燃环氧树脂封装 Flame Retardant Epoxy Resin (coating)	符合 UL94V-0 标准 Conforming to UL94V-0 standards	

\*Standard atmospheric condition is as follows:

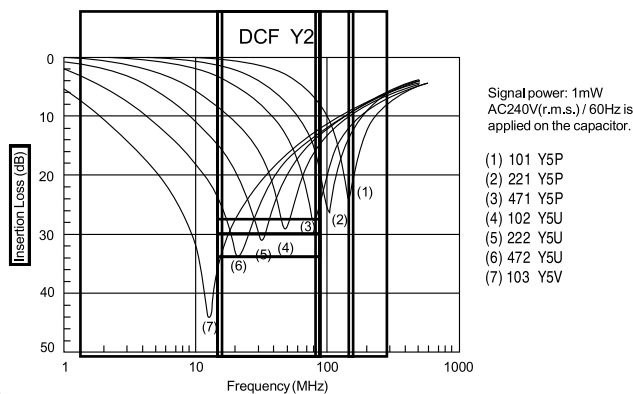
- 1) Temperature: 25 ± 2 °C
- 2) Relative humidity: 45~75%
- 3) Atmospheric pressure: 86~106kPa (860~1060 mbar)

### Insertion Loss-Frequency Characteristics



Signal power: 1mW  
AC240V(r.m.s.) / 60Hz is applied on the capacitor.

- (1) 101 Y5P
- (2) 221 Y5P
- (3) 471 Y5P
- (4) 102 Y5U
- (5) 222 Y5U
- (6) 472 Y5U



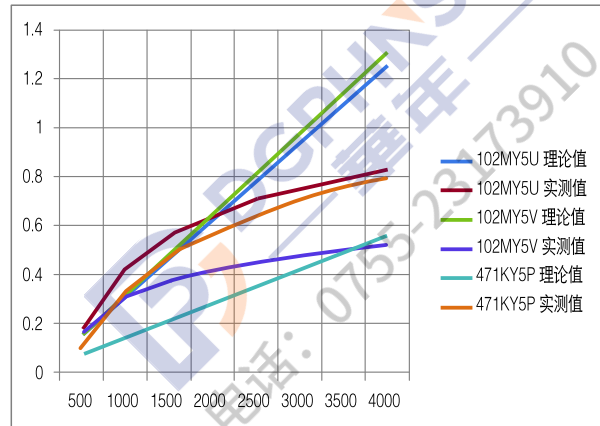
Signal power: 1mW  
AC240V(r.m.s.) / 60Hz is applied on the capacitor.

- (1) 101 Y5P
- (2) 221 Y5P
- (3) 471 Y5P
- (4) 102 Y5U
- (5) 222 Y5U
- (6) 472 Y5U
- (7) 103 Y5V

## Leakage Current Characteristics

理论上，在纯电容电路中，电流、电量、施加电压的关系为  $I=2\pi fcu$ ，但陶瓷电容器在电场中晶体结构变化会导致 K 值变化，致使施加电压时电容器实际电容量和其静态容量出现显著差异。用户在选用电容器时，应该充分考虑这种差异。典型规格图示如下：

In theory, the relationship between current, capacitance and applied voltage is  $I=2\pi fcu$  in pure capacitor circuit. But the crystal structure of ceramic capacitor would change in electric field, which leads to the change of K value. So it has a significant difference between the actual capacitance and its static capacitance when applying voltage. User should take a full consideration of the difference when choosing capacitors. Ideal format shown below:




## 标准及认证 Approval, Standard, Rated Voltage and File No.

DCF - X1/Y1 安规认证 (X1/Y1=400VAC/250VAC)

安规机构 Safety Organization	标准编号 Standard No.	证书编号 File No.	额定电压 Rated Voltage	安规符号及国家(地区) Approved Monogram	
UL/CUL	UL 60384-14	E252221	Y1 400VAC/250VAC X1 440VAC/400VAC		USA/Canada
CQC	GB/T6314.14-2015	CQC04001011968	Y1 400VAC/250VAC X1 440VAC/400VAC		China
VDE	EN 60384-14(VDE 0565 -1-1):2014-04 EN60384-14:13-08 IEC60384-14(ed.4)	40022942	Y1 400VAC X1 400VAC		Germany
ENEC					European Economic Community
ESTI	EN60384-14:13	16.0311	Y1 400VAC X1 400VAC		Switzerland
DEMKO	EN60384-14:2013	D-05351	Y1 400VAC/250VAC X1 440VAC/400VAC		Denmark
NEMKO	EN60384-14:2013	P11213665	Y1 400VAC/250VAC X1 440VAC/400VAC		Norway
SEMKO	EN60384-14:2013	1616558	Y1 400VAC/250VAC X1 440VAC/400VAC		Sweden
FIMKO	EN60384-14:2013	NCS/FI 29418	Y1 400VAC X1 400VAC		Finland

DCF- X1/Y1 安规认证 (X1/Y1=400VAC/400VAC)

安规机构 Safety Organization	标准编号 Standard No.	证书编号 File No.	额定电压 Rated Voltage	安规符号及国家(地区) Approved Monogram
UL/CUL	UL 60384-14	E252221	Y1 400VAC/250VAC X1 440VAC/400VAC	 USA/Canada
CQC	GB/T6314.14-2015	CQC04001011968	Y1 400VAC/250VAC X1 440VAC/400VAC	 China
VDE	EN 60384-14(VDE 0565 -1-1):2014-04 EN60384-14:13-08 IEC60384-14(ed.4)	40022942	Y1 400VAC X1 400VAC	 Germany
ENEC				 10 European Economic Community

DCF-Y1/X1 标准品规格表 Normal Specification Form of DCF-Y1/X1

本表仅列G额定电压系列规格,K系列规格仅额定电压值不同(下表同)。  
The table lists only G rated voltage series, K series shares all the features except the rated voltage.  
(also applies to the following table)

EG产品代码 EG P/N	额定容量 Rated Capacitance (pf)	温度特性 Temperature Characteristic	容量误差 Capacitance Tolerance	素子尺寸 Plate Size	尺寸 Dimension(mm)		间距 Spacing F (mm)	线径 Diameter d (mm)
					直径 D max	厚度 T max		
DCF101KY5PG0--	100	Y5P	K	48210	7.0	5.5	10.0	0.56
DCF151KY5PG0--	150		K	48200	7.0	5.5	10.0	0.56
DCF181KY5PG0--	180		K	48200	7.0	5.5	10.0	0.56
DCF221KY5PG0--	220		K	48200	7.0	5.5	10.0	0.56
DCF271KY5PG0--	270		K	48200	7.0	5.5	10.0	0.56
DCF331KY5PG0--	330		K	58200	8.0	5.5	10.0	0.56
DCF391KY5PG0--	390		K	58200	8.0	5.5	10.0	0.56
DCF471KY5PG0--	470		K	62200	9.0	5.5	10.0	0.56
DCF561KY5PG0--	560		K	68200	9.5	5.5	10.0	0.56
DCF681KY5PG0--	680		K	76210	10.0	5.5	10.0	0.56
DCF102KY5PG0--	1000		K	90200	11.0	5.5	10.0	0.56
DCF122KY5PG0--	1200		K	10021	12.0	5.5	10.0	0.56
DCF152KY5PG0--	1500		K	11521	13.5	5.5	10.0	0.56
DCF222KY5PG0--	2200		K	14020	16.0	5.5	10.0	0.56
DCF471KY5UG0---	470		Y5U	M	48220	7.5	5.5	10.0
DCF681KY5UG0---	680	M		52200	7.5	5.5	10.0	0.56
DCF102MY5UG0--	1000	M		58200	9.0	5.5	10.0	0.56
DCF122MY5UG0--	1200	M		68200	9.5	5.5	10.0	0.56
DCF152MY5UG0--	1500	M		73200	10.0	5.5	10.0	0.56
DCF182MY5UG0--	1800	M		82200	10.0	5.5	10.0	0.56
DCF222MY5UG0--	2200	M		82190	11.0	5.5	10.0	0.56
DCF272MY5UG0--	2700	M		95200	11.5	5.5	10.0	0.56
DCF332MY5UG0--	3300	M		10020	13.0	5.5	10.0	0.56
DCF392MY5UG0--	3900	M		11520	13.5	5.5	10.0	0.56
DCF472MY5UG0--	4700	M		12020	15.0	5.5	10.0	0.56



DCF102MY5VG0---	1000	Y5V	M	48220	7.0	5.5	10.0	0.56
DCF152MY5VG0---	1500		M	58220	9.0	5.5	10.0	0.56
DCF182MY5VG0---	1800		M	62220	9.0	5.5	10.0	0.56
DCF222MY5VG0---	2200		M	65210	10.0	5.5	10.0	0.56
DCF272MY5VG0---	2700		M	78220	10.0	5.5	10.0	0.56
DCF332MY5VG0---	3300		M	82210	12.0	5.5	10.0	0.56
DCF392MY5VG0---	3900		M	88210	12.5	5.5	10.0	0.56
DCF472MY5VG0---	4700		M	96210	13.0	5.5	10.0	0.56

DCF-Y1/X1 小型化产品规格表 Reduce Specification Form of DCF-Y1/X1

EG产品代码 EG P/N	额定容量 Rated Capacitance (pf)	温度特性 Temperature Characteristic	容量误差 Capacitance Tolerance	素子尺寸 Plate Size	尺寸 Dimension(mm)		间距 Spacing F (mm)	线径 Diameter d (mm)
					直径 D <sub>max</sub>	厚度 T <sub>max</sub>		
DCF101KY5PG0---	100	Y5P	K	48120	7.0	5.5	10.0	0.56
DCF221KY5PG0---	220		K	48170	7.0	5.5	10.0	0.56
DCF331KY5PG0---	330		K	52170	8.0	5.5	10.0	0.56
DCF471KY5PG0---	470		K	58155	9.0	5.5	10.0	0.56
DCF681KY5PG0---	680		K	72170	10.0	5.5	10.0	0.56
DCF102KY5PG0---	1000		K	82170	11.0	5.5	10.0	0.56
DCF152MY5VG0---	1500	Y5V	M	52180	7.0	5.5	10.0	0.56
DCF222MY5VG0---	2200		M	58180	10.0	5.5	10.0	0.56
DCF332MY5VG0---	3300		M	72180	12.0	5.5	10.0	0.56
DCF472MY5VG0---	4700		M	88190	13.0	5.5	10.0	0.56

本表产品仅为满足(1)部分客户因受产品安装空间限制及(2)部分追求较低采购单价的客户而设计,相对标准产品,小型化产品安全边际有限,对质量要求较高的客户不建议使用。

The products in the above table are designed only for customers that are (1) limited by the room of product installation; (2) after lower purchasing unit price. Compared with the standardized products, reduce specification products have limited safety margin. Therefore, customers who have higher demand in quality are not recommended to refer to it.

更高可靠性的 DCF-Y1/X1 系列电容器规格表

Higher Reliability Specification Form of DCF -Y1/X1

EG产品代码 EG P/N	额定容量 Rated Capacitance (pf)	温度特性 Temperature Characteristic	容量误差 Capacitance Tolerance	素子尺寸 Plate Size	尺寸 Dimension(mm)		间距 Spacing F (mm)	线径 Diameter d (mm)
					直径 D <sub>max</sub>	厚度 T <sub>max</sub>		
DCF101KY5PG0--(LY)	100	Y5P	K	52240	8.0	7.0	10.0	0.56
DCF221KY5PG0--(LY)	220	Y5P	K	48220	7.5	7.0	10.0	0.56
DCF331KY5PG0--(LY)	330	Y5P	K	58220	8.5	7.0	10.0	0.56
DCF471KY5PG0--(LY)	470	Y5P	K	68210	9.5	7.0	10.0	0.56
DCF681KY5UG0--(LY)	680	Y5U	K	58260	8.5	7.0	10.0	0.56
DCF102MY5UG0--(LY)	1000	Y5U	M	65260	9.5	7.0	10.0	0.56
DCF222MY5UG0--(LY)	2200	Y5U	M	95250	12.5	7.0	10.0	0.56
DCF222MY5VG0--(LY)	2200	Y5V	M	73260	10.0	7.0	10.0	0.56

为了满足客户对电容器更高抗冲击性能要求(能通过 6KV 浪涌实验)及抗电强度(耐压 6KVAC)要求,我们设计制造该系列安规电容器。

To meet customer's requirements for higher shock resistance which could pass the surge test of 6KV and higher dielectric strength (6KVAC withstand voltage), we design and manufacture the series of safety capacitor.

## 标志 Marking

类型 Type	Y1 /X1 250VAC/400VAC	Y1 /X1 400VAC/400VAC
标志 Marking		
制造厂商标 Logo Mark	EG	EG
产品型号 Type Designation	DCF	DCF
标称容量、偏差 Capacitance and Tolerance	102M	102M
类别、额定电压 Sub-Class Code and Rated Voltage	X1 400V~ Y1 250V~	X1 400V~ Y1 400V~



 ROHS检测中

# 安规交流瓷介电容器

## Class DCF Y2,X1

### 用途 Applications





用作电源滤波、抑制电源电磁干扰、初次级耦合、开关电源、电源适配器等。也用作直 - 交流隔离及无变压器数据存取装置的噪音吸收等。

Ideal for use as X/Y capacitors for AC line filter, electromagnetic interference suppression and primary-secondary coupling on switching power supplies and AC adapters. Ideal for use on D-A isolation and noise absorption for DAA modems without transformers.

### 技术指标 Specification

项目 Item	标准要求 Specification	
气候类别 Climatic Category 阻燃等级 Passive Flammability Class	25/125/21/C	
使用温度范围 Operating Temperature	-25℃ ~ +125℃	
容量、损耗测试条件 Capacitance(C), Dissipation(tgδ) Testing at	1) 标准大气环境* Standard atmospheric condition	
	2) 1Vr.m.s, 1KHz/100KHz	
介质损耗 Dissipation Factor (tgδ)	NPO、SL: ≤2.5‰ (C <sub>R</sub> ≥ 50pF); ≤5‰ (5pF ≤ C <sub>R</sub> < 50pF) Y5P、Y5U、Y5V : ≤2.5%	
系列产品容量范围 Capacitance Range	5pf ~ 10000pF	
容量偏差 Capacitance Tolerance	J: ±5%、K: ±10%、M: ±20%	
额定电压 Rated Working Voltage	Y2/X1: 250VAC/400VAC	
端子间耐压 Withstand Voltage Between Terminals	引线间距 (Lead space) ≥7.5mm	引线间距 (Lead space) 5.0mm
	2600VAC	2000VAC
绝缘电阻 Insulation Resistance (I.R)	≥10000MΩ(500VDC)	
温度特性 Temperature Characteristic	NPO、SL、Y5P、Y5U、Y5V	
阻燃环氧树脂封装 Flame Retardant Epoxy Resin (coating)	符合 UL94V-0 标准 Conforming to UL94V-0 standards	

### 安规认证及标准 Safety Standards and File No.

安规机构 Safety Organization	标准编号 Standard No.	证书编号 File No.	额定电压 Rated Voltage	安规符号及国家(地区) Approved Monogram	
				符号	国家(地区)
UL/CUL	UL 60384-14	E252221	Y2 250VAC X1 400VAC		USA/Canada
CQC	GB/T6314.14-2015	CQC04001011969	Y2 250VAC X1 400VAC		China
VDE	EN 60384-14(VDE 0565 -1-1):2014-04	40015758	Y2 250VAC		Germany
ENEC	EN60384-14:13-08 IEC60384-14(ed.4)				European Economic Community

DCF-Y2 标准品规格表 Normal Specification Form of DCF-Y2

安规抑制电磁干扰用固定电容器

EG产品代码 EG P/N	额定容量 Rated Capacitance (pf)	温度特性 Temperature Characteristic	容量误差 Capacitance Tolerance	素子尺寸 Plate Size	尺寸 Dimension(mm)		间距 Spacing F (mm)	线径 Diameter d (mm)
					直径 D max	厚度 T max		
DCF101KY5PQ---	100	Y5P	K	48130	6.5	5.0	5.0/7.5	0.56
DCF151KY5PQ---	150		K	48140	6.5	5.0	5.0/7.5	0.56
DCF181KY5PQ---	180		K	48140	6.5	5.0	5.0/7.5	0.56
DCF221KY5PQ---	220		K	48140	6.5	5.0	5.0/7.5	0.56
DCF271KY5PQ---	270		K	48140	6.5	5.0	5.0/7.5	0.56
DCF331KY5PQ---	330		K	48140	6.5	5.0	5.0/7.5	0.56
DCF391KY5PQ---	390		K	48140	6.5	5.0	5.0/7.5	0.56
DCF471KY5PQ---	470		K	52140	7.0	5.0	5.0/7.5	0.56
DCF561KY5PQ---	560		K	58140	7.5	5.0	5.0/7.5	0.56
DCF681KY5PQ	680		K	62140	8.0	5.0	5.0/7.5	0.56
DCF821KY5PQ---	820		K	68140	8.5	5.0	5.0/7.5	0.56
DCF102KY5PQ---	1000		K	72140	9.0	5.0	7.5/10.0	0.56
DCF122KY5PQ---	1200		K	82140	10.0	5.0	7.5/10.0	0.56
DCF152KY5PQ---	1500		K	95150	11.5	5.0	7.5/10.0	0.56
DCF222KY5PQ---	2200		K	120160	14.0	5.0	7.5/10.0	0.56
DCF471KY5UQ---	470	Y5U	M	48150	6.5	5.0	5.0/7.5	0.56
DCF681KY5UQ	680		M	48150	6.5	5.0	5.0/7.5	0.56
DCF102MY5UQ---	1000		M	52140	7.0	5.0	5.0/7.5	0.56
DCF122MY5UQ---	1200		M	58140	7.5	5.0	5.0/7.5	0.56
DCF152MY5UQ---	1500		M	62140	8.0	5.0	5.0/7.5	0.56
DCF182MY5UQ---	1800		M	68140	8.5	5.0	5.0/7.5	0.56
DCF222MY5UQ---	2200		M	72140	9.0	5.0	7.5/10.0	0.56
DCF272MY5UQ---	2700		M	82140	10.0	5.0	7.5/10.0	0.56
DCF332MY5UQ	3300		M	88140	11.5	5.0	7.5/10.0	0.56
DCF392MY5UQ	3900		M	100140	12.0	5.0	7.5/10.0	0.56
DCF472MY5UQ	4700		M	100140	12.0	5.0	10.0	0.56
DCF102MY5VQ---	1000		Y5V	M	48140	6.5	5.0	5.0/7.5
DCF152MY5VQ---	1500	M		52140	7.0	5.0	5.0/7.5	0.56
DCF182MY5VQ	1800	M		52140	7.0	5.0	5.0/7.5	0.56
DCF222MY5VQ---	2200	M		58140	7.5	5.0	5.0/7.5	0.56
DCF272MY5VQ---	2700	M		68140	8.5	5.0	5.0/7.5	0.56
DCF332MY5VQ---	3300	M		68140	8.5	5.0	5.0/7.5	0.56
DCF392MY5VQ	3900	M		78140	9.5	5.0	7.5/10.0	0.56
DCF472MY5VQ---	4700	M		78140	9.5	5.0	7.5/10.0	0.56
DCF682MY5VQ---	6800	M		105160	12.5	5.0	10.0	0.56
DCF103MY5VQ---	10000	M		120160	14.0	5.0	10.0	0.56



## 标志 Marking

Marking Item		Example
Manufacturer Marking	EG	
Type Designation	DCF	
Capacitance, Tolerance	102M	
Sub-Class Code and Rated Voltage	Y2 250V~	
Safety Organization Approved Marking	VDE	
	ENEC	
	UL/CUL	
	CQC	



电容器测量车间



# 安规交流金属化聚丙烯薄膜电容器

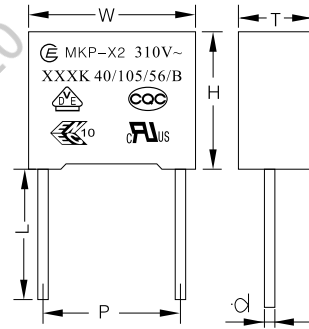
## Class MKP X2

### 结构 Construction

- ◆ Dielectric: polypropylene
- ◆ Plastic case (UL94V-0)
- ◆ Epoxy resin sealing (UL94V-0)

MKP 电容系列是由金属化聚丙烯膜无感结构卷绕而成，采用镀锡铜包钢线，塑胶壳体以及阻燃环氧树脂封装而成。

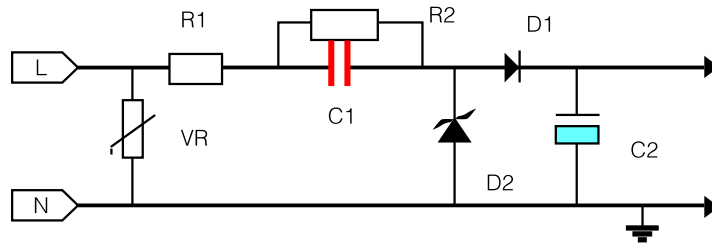
MKP series are wound with metallized polypropylene film dielectric, non-inductive construction, CP wire and encapsulated in plastic case with flame retardant epoxy resin sealed.



### 用途 Applications

- ◆ 抑制电磁干扰 X2 class for electromagnetic interference suppression
- ◆ 跨接线路 “across the line” applications
- ◆ 适用于电表、LED 驱动、控制器等串联在电路中阻容降压。  
Capacitance divider where seriesed with the mains in energy meters, LED drivers and conyrol boards in white goods and home appliances.

Typical divider circuit



### 特性 Features

- |               |  |
|---------------|--|
| ◆ 金属化聚丙烯、无感结构 | Metallized polypropylene non-induction construction    |
| ◆ 优良的耐湿性      | High moisture-resistance                               |
| ◆ 自愈性         | Self-healing property                                  |
| ◆ 优异的阻燃性能     | Excellent active and passive flame resistant abilities |
| ◆ 能够承受过压冲击    | Withstanding overvoltage stressing                     |

电气特性 Electrical Specifications

项目 Item	标准要求 Specification
气候类别 Climatic Category 阻燃等级 Passive Flammability Class	40/105/56/B (C)
工作温度 Operating Temperature	-40℃ ~ +105℃
容量范围 Capacitance Range	0.0047μF ~ 2.2μF
容量偏差 Capacitance Tolerance	J: ±5% K: ±10%
最大连续直流电压 Maximum Continuous DC Voltage	630VDC
最大连续交流电压 Maximum Continuous AC Voltage	310VAC (50/60Hz)
额定交流电压 Rated AC Voltage (IEC60384-14)	300VAC、310VAC (50/60Hz)
介质损耗 Dissipation Factor (tgδ)	≤0.1% (1KHz at 20~25℃)
绝缘电阻 Insulation Resistance (I.R)	≥15000MΩ for C <sub>R</sub> ≤0.33μF; ≥5000S for C <sub>R</sub> >0.33μF (Measured at 100±10VDC/60s/20~25℃)
端子间耐压 Withstand Voltage Between Terminals	标准品,施加测试电压 1600VDC/1 分钟, 无击穿或飞弧。(电压上升时间 5~10sec,漏电流 10mA,ARC=OFF) 1600VDC/1min,no breakdown or flashover.(Voltage raising time 5-10sec,cut off current 10mA ARC=OFF)
端子与壳体间耐压 Withstand Voltage Between Terminals and Case	施加测试电压 2100VAC/1 分钟, 无击穿或飞弧。 2100VAC1min,no breakdown or flashover.

◆ Pulse handling capability

“dv/dt” represents the maximum permissible voltage change per unit of time for non-sinusoidal voltages, expressed in V/ S.

“k<sub>0</sub>” represents the maximum permissible pulse characteristic of the waveform applied to the capacitor, expressed in V<sup>2</sup>/ S.

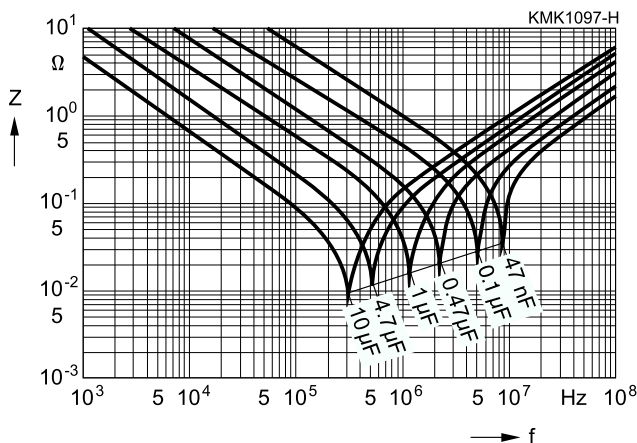
Note :

The values of dv/dt and k<sub>0</sub> provided below must not be exceeded in order to avoid damaging the capacitor.

dv/dt and k<sub>0</sub> values

Lead spacing	10mm	15mm	22.5mm	27.5mm
dV/dt in V/μS	475	340	170	120
k <sub>0</sub> in V <sup>2</sup> /μS	408500	292400	146200	103200

Impedance Z versus frequency f  
(typical values)



规格表 Normal Specification form

本表仅列310VAC额定电压系列规格，300VAC系列规格仅额定电压值不同(下表同)。  
The table lists only 310VAC rated voltage series, 300VAC series shares all the features except the rated voltage.  
(also applies to the following table)

EG 产品代码 EG P/N	CAP 容量(μF)	Dimension 尺寸(mm)					
		间距(mm) P	宽(mm) W	高(mm) H	厚(mm) T	线径 Φd (mm)	
MKP472K310A07L---(12)	0.0047	7.5	10	9	4	0.6	
MKP562K310A07L---(12)	0.0056		10	9	4	0.6	
MKP682K310A07L---(12)	0.0068		10	10	5	0.6	
MKP822K310A07L---(10)	0.0082		10	10	5	0.6	
MKP103K310A07L---(80)	0.01		10	9	4	0.6	
MKP223K310A07L---(80)	0.022		10	9	4	0.6	
MKP333K310A07L---(60)	0.033		10	11	5	0.6	
MKP473K310A07L---(60)	0.047		10	11	5	0.6	
MKP563K310A07L---(60)	0.056		10	12	6	0.6	
MKP683K310A07L---(60)	0.068		10	12	6	0.6	
MKP472K310A10L---(12)	0.0047		10	13	9	4	0.6
MKP562K310A10L---(12)	0.0056			13	9	4	0.6
MKP682K310A10L---(12)	0.0068	13		9	4	0.6	
MKP103K310A10L---(10)	0.01	13		9	4	0.6	
MKP153K310A10L---(80)	0.015	13		9	4	0.6	
MKP183K310A10L---(80)	0.018	13		9	4	0.6	
MKP223K310A10L---(80)	0.022	13		9	4	0.6	
MKP273K310A10L---(80)	0.027	13		9	4	0.6	
MKP333K310A10L---(80)	0.033	13		11	5	0.6	
MKP473K310A10L---(60S)	0.047	13		9	4	0.6	
MKP473K310A10L---(60)	0.047	13		11	5	0.6	
MKP563K310A10L---(60)	0.056	13		11	5	0.6	
MKP683K310A10L---(60)	0.068	13		12	6	0.6	
MKP823K310A10L---(60)	0.082	13		12	6	0.6	
MKP104K310A10L---(60)	0.1	13		12	6	0.6	
MKP154K310A10L---(60)	0.15	13		14	8	0.6	
MKP103K310A15L---(12)	0.01	15		18	11	5	0.8
MKP473K310A15L---(80)	0.047			18	11	5	0.8
MKP563K310A15L---(70)	0.056		18	11	5	0.8	
MKP683K310A15L---(70)	0.068		18	11	5	0.8	
MKP823K310A15L---(60)	0.082		18	11	5	0.8	
MKP104K310A15L---(60S)	0.1		18	11	5	0.8	
MKP154K310A15L---(60)	0.15		18	12	6	0.8	
MKP224K310A15L---(60S)	0.22		18	13.5	6	0.8	
MKP224K310A15L---(60)	0.22		18	13.5	7.5	0.8	
MKP334K310A15L---(60S)	0.33		18	14.5	8.5	0.8	
MKP334K310A15L---(60)	0.33		18	16	10	0.8	
MKP394K310A15L---(60)	0.39		18	16	10	0.8	
MKP474K310A15L---(60)	0.47		18	16	10	0.8	
MKP564K310A15L---(60)	0.56		18	18.5	11.1	0.8	
MKP684K310A15L---(60)	0.68		18	18.5	11.1	0.8	
MKP224K310A22L---(60)	0.22		22.5	26.5	15	6	0.8
MKP334K310A22L---(60)	0.33			26.4	16.5	7	0.8
MKP474K310A22L---(60)	0.47			26.4	16.5	7	0.8
MKP564K310A22L---(60)	0.56	26.5		17	8.5	0.8	
MKP684K310A22L---(60)	0.68	26.5		17	8.5	0.8	
MKP824K310A22L---(60)	0.82	26.5		19	10	0.8	
MKP105K310A22L---(60)	1.0	26.0		20	11	0.8	
MKP155K310A22L---(60)	1.5	26.5		23	13	0.8	
MKP474K310A27L---(60)	0.47	27.5	32	18	9	0.8	
MKP564K310A27L---(60)	0.56		32	18	9	0.8	
MKP684K310A27L---(60)	0.68		32	18	9	0.8	
MKP105K310A27L---(60)	1.0		31.5	20	11	0.8	
MKP155K310A27L---(60)	1.5		31.5	22	13	0.8	
MKP225K310A27L---(60)	2.2		31.0	24.5	15	0.8	

安规抑制电磁干扰用固定电容器

小型化产品规格表 Reduce Size Specification form

EG 产品代码 EG P/N	容量(μF) CAP	尺寸(mm) Dimension				
		间距(mm) P	宽(mm) W	高(mm) H	厚(mm) T	线径 Φd (mm)
MKP154K310A10L---(48)	0.15	10	13	12	6	0.6
MKP224K310A10L---(48S)	0.22		13	16	6.5	0.6
MKP224K310A10L---(48)	0.22		13	14	8	0.6
MKP224K310A15L---(48)	0.22	15	18	12	6	0.8
MKP334K310A15L---(48)	0.33		18	13.5	7.5	0.8
MKP474K310A15L---(50)	0.47		18	14	10	0.8
MKP474K310A15L---(48)	0.47		18	14.5	8.5	0.8
MKP684K310A15L---(48)	0.68		18	16.5	8.4	0.8
MKP105K310A22L---(48)	1.0		22.5	26.5	19	10
MKP155K310A22L---(48)	1.5	26.5		21.5	12	0.8
MKP225K310A22L---(48)	2.2	26.5		23	13	0.8

小型化产品为顾客定制品，建议谨慎选择使用。

These are customer-made items, please choose discretely.

为满足市场对产品在高温高湿环境下使用这种高严酷度使用需求，将产品设计细分出下两小类：外型尺寸参照上述规格表。





In order to satisfy the usage of such capacitor under damp heat environment, two sub classes are designed as below

(1) U (MKP-X2/U) 产品小类：该小类为耐高湿热产品类别：该产品相对于普通 X2 类产品而言，对湿热条件属于较高技术级别（较高的严酷度）产品，能在相对高温高湿条件下使用。对应技术标准项目为稳态湿热，严酷度值为 85℃，85%RH，21D。


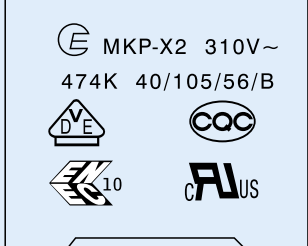




(2) D (MKP-X2/D) 产品小类：该小类电容量稳定性特别高，容降小（即使是用于高温高湿环境）。适用于对电容量容降要求高的用途。但不适宜用于跨接线路、抑制电磁干扰。

- (1) U (MKP-X2/U) sub class: stands for a category for high moisture and temperature products. Those products have higher resistance to moisture and temperature (withstanding harsher conditions) compared to normal products, so they can be used in relatively higher temperature and more humid conditions. The corresponding technicality standard project test is the steady state damp heat test. Severity value is 85℃, 85%RH, 21D.
- (2) For the purpose of RC voltage divider, please choose "D" mark sub class model. (This "D" mark sub class model has the features of high stability in capacity and smaller in capacity drop, however it does not suitable for using crossing the line or as an EMI suppression filter)

标准及认证 Class MKP X2 Approval, Standard, Rated Voltage and File No.

Safety Organization	Standard NO.	Recognition NO.	Rated Voltage	Approved Monogram	
UL/CUL	UL60384-14	E252221	310VAC 300VAC		USA/Canada
CQC	GB/T6346.14-2015	CQC15001123582 CQC07001021816	310VAC 300VAC		China
VDE	EN 60384-14(VDE 0565 -1-1):2014-04 EN60384-14:13-08 IEC60384-14(ed.4)	40022258	310VAC 300VAC		Germany
ENEC			310VAC 300VAC		European Economic Community

## 标志 Marking

Marking Item		Example
Manufacturer Marking		
Type Designation	MKP	
Sub-Class Code	X2	
Capacitance, Tolerance	474K	
Rated Voltage	310V~	
Climatic category	40/105/56/B(C)	
Safety Organization Approved Marking	VDE 	
	ENEC 	
	UL/CUL 	
	CQC 	

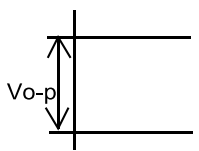
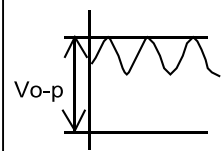
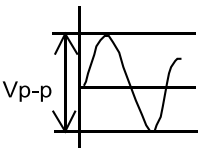
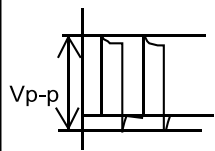
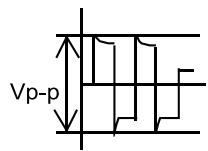


### 注意 CAUTION

#### 1. 使用温度 OPERATING VOLTAGE

当直流电容器被用于交流或纹波电路中时，一定要保持所施加电压的峰值或者包含直流偏压的峰值在额定电压之内。当开始施加电压或者停止施加电压在电路上时，因为共振或整流，会出现一个产生不规则电压的时间段。使用电容器时一定要确定所施加电压值（包括那些不规则的电压）不超过额定电压。

When DC-rated capacitors are to be used in AC or ripple current circuits, be sure to maintain the  $V_{p-p}$  value of the applied voltage or the  $V_{o-p}$  which contains DC bias within the rated voltage range. When the voltage is started to apply to the circuit or it is stopped applying, the irregular voltage may be generated for a transit period because of resonance or switching. Be sure to use a capacitor within rated voltage containing these irregular voltage.

Voltage	DC Voltage	DC+AC Voltage	AC Voltage	Pulse Voltage(1)	Pulse Voltage(2)
Positional Measurement					



## 2. 使用温度和自发产生的热量 OPERATING TEMPERATURE AND SELF-GENERATED HEAT

保持电容器表面温度低于额定使用温度的上限值。一定要考虑电容自身产生的热量。

当电容器用于高频电流、脉冲电流等诸如此类的电路中，它自身会因为介电损耗而产生热量。施加的电压导致自身产生的热量应当在 20 °C 内（在大气温度 25 °C 的条件下）。测量时，使用直径为 0.1mm 小热容量值的热电偶，并且符合下列条件：电容器不会被其它元件和周围环境的热辐射所影响。过热可能会导致电容器特性退化、可靠性降低。

Keep the surface temperature of a capacitor below the upper limit of its rated operating temperature range. Be sure to take into account the heat generated by the capacitor itself. When the capacitor is used in a high-frequency current, pulse current or the like, it may have the self-generated heat due to dielectric-loss. Applied voltage should be the load such as self-generated heat is within 20°C on the condition of atmosphere temperature 25°C. When measuring, use a thermocouple of small thermal capacity-K of  $\varnothing$ 0.1mm and be in the condition where capacitor is not affected by radiant heat of other components and wind of surroundings. Excessive heat may lead to deterioration of the capacitor's characteristics and reliability.

## 3. 耐电压测试条件 TEST CONDITION FOR WITHSTANDING VOLTAGE

### 1) 测试设备 TEST EQUIPMENT

测量交流耐电压的仪器，其输出电压波形特性为和 50/60HZ 正弦波相似波形。如果施加扭曲的正弦波或者过载超过了规定的电压值，可能会导致缺陷发生。

Test equipment for AC withstanding voltage shall be used with the performance of the wave similar to 50/60 Hz sine wave. If the distorted sine wave or over load exceeding the specified voltage value is applied, the defective may be caused.

### 2) 电压施加方法 VOLTAGE APPLIED METHOD

施加耐电压时，电容器引线应当牢固地连接测试装备的输出端，然后电压从 0 附近开始增加到测试电压。

如果测试电压没有从 0 附近开始增加而是直接施加到电容器上，那么应当在 0 交叉点处施加。测试后期，测试电压应当逐渐减小至 0，再把电容器引线从测试装备的输出端移开。

如果测试时，实验电压不是从 0 附近开始增加而是直接将试验电压施加到电容器上，就会激起浪涌电压，从而可能会导致缺陷发生。交流耐压试验必须在干燥的大气环境中进行。被试验电容器也应在干燥的大气环境中放置至少 2 小时，以除去电容器表面的潮气。

对于 Y1 电容器，在进行耐电压试验 (4000VAC) 前，确保电容器在相对湿度不大于 75% 空气中放置 24 小时。

When the withstanding voltage is applied, capacitor's lead or terminal shall be firmly connected to the out-put of the withstanding voltage test equipment, and then the voltage shall be raised from near zero to the test voltage.

If the test voltage without the raise from near zero voltage would be applied directly to capacitor, test voltage should be applied with the \*zero cross. At the end of the test time, the test voltage shall be reduced to near zero, and then capacitor's lead or terminal shall be taken off the out-put of the withstanding voltage test equipment.

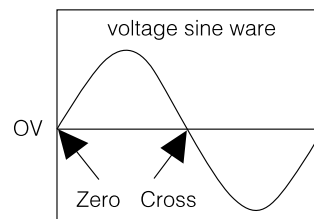
If the test voltage without the raise from near zero voltage would be applied directly to capacitor, the surge voltage may arise, and therefore, the defective may be caused.

AC withstand voltage test must be carried out in dry atmospheric environment. Before the test, capacitors should be placed in dry atmospheric environment for 2 hours to make the moisture on the surface of the capacitors disappear. Before the withstand voltage test of Y1 capacitor (4000VAC), make sure capacitors are placed in air whose relative humidity do not exceed 75% for 24 hours.

\*0 交叉点就是正弦电压变成 0V 的点。如右图：

\*ZERO CROSS is the point where voltage sine wave pass 0V.

- See the right figure



## 4. 故障 – 安全 FAIL-SAFE

当电容器被破坏时，失效可能会引起短路。失效可能会导致触电、起火或者冒烟，所以产品上一定要有合适的类似于保险丝那样的自动防失效功能，保证安全。

When capacitor would be broken, failure may result in a short circuit. Be sure to provide an appropriate fail-safe function like a fuse on your product if failure would follow an electric shock, fire or fume.

## 5. 使用和储存环境 OPERATING AND STORAGE ENVIRONMENT

电容器的绝缘涂层不可能完全密封。因此，不要在下列大气环境下使用或者储存电容器：含有腐蚀性气体，特别是放置有含氯气体、含硫气体的地方，放置有酸、碱、盐等物质的地方。也要尽量避免将电容器暴露在潮湿的空气中。在清洗、焊接或者成型产品前，要确认这些过程不会影响产品的品质，这种确认可以通过使用特定装备来测试清洗过、焊接过或者成型过的产品来核实。电容器储存温度为  $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ ，相对湿度为 15%~75%。

长时间暴露在空气中会导致引线焊接性能衰减。

请在 12 个月内使用电容器（以包装标签日期为准）。如超期，应进行性能确认再使用。

The insulating coating of capacitors dose not form a perfect seal; therefore, do not use or store capacitors in a corrosive atmosphere, especially where chloride gas, sulfide gas, acid,alkali, salt or the like are presnt. And avoid exposure to moisture.Before cleaning, bonding, or molding this product, verify that these processes do not affect product quality by testing the performance of a cleaned, bonded or molded product in the intended equipment. Store the capacitors where the temperature and relative humidity do not exceed  $-10$  to  $40^{\circ}\text{C}$  and 15 to 75%.

Being exposed in air for too long may result in attenuation of leads' welding performance.

Please use capacitors within 12 months and the date on packaging label should prevail. If overdue, the capacitors should be confirmed the performance before use.

## 6. 振动和撞击 VIBRATION AND IMPACT

使用时，避免电容器及电容器引线受到过多的撞击或者振动。

Do not expose a capacitor or its leads to excessive shock or vibration during use.

## 7. 焊接 SOLDERING

焊接条件：

(1) 波峰焊： $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 、焊接时间小于 5S（焊接严酷度不能超过 1)  $260^{\circ}\text{C}$ , 8S； 2)  $270^{\circ}\text{C}$ , 3S）

(2) 使用烙铁焊接：烙铁尖端温度不超过  $350^{\circ}\text{C}$ ，焊接时间小于 5S。

在把产品焊接到印刷电路板过程中，不要超过电容器规格书中有关耐焊接热的规定。如果产品超过耐焊接热可能会熔化用于内部连接的焊料，产生热冲击而导致陶瓷材料破裂。

上述原因导致产品在使用时出现下列最严重的失效现象：短路引起冒烟或者局部碎裂。

When soldering this product to a PCB/PWB, do not exceed the solder heat resistance specification of the capacitor. Subjecting this product to excessive heating could melt the internal junction solder and may result in thermal shocks that can crack the ceramic element.

Failure to follow the above cautions may result, worst case, in a short circuit and cause fuming or partial dispersion when the product is used.

Welding condition:

(1) Wave-soldering  $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ , at most 5 seconds.

(The severe degree of welding do not exceed: 1)  $260^{\circ}\text{C}$ , 8 seconds; 2)  $270^{\circ}\text{C}$ , 3 seconds.)

(2) Solder with the soldering bit: temperature of the tip of soldering iron do not exceed  $350^{\circ}\text{C}$  and time should be less than 5 seconds.

## 8. 应用限制 LIMITATION OF APPLICATIONS

当把产品应用在如下需要高可靠性的领域中时，请提前联系我们，以防止不合格品可能对第三方的生命财产造成的伤害。

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property.

- |                         |   |
|-------------------------|---|
| (1) 飞机设备                | (1) Aircraft equipment  |
| (2) 航空设备                | (2) Aerospace equipment   |
| (3) 海底设备                | (3) Undersea equipment  |
| (4) 电厂控制设备              | (4) Power plant control equipment   |
| (5) 医疗设备                | (5) Medical equipment   |
| (6) 运输设备（车辆、火车、轮船等）     | (6) Transportation equipment (vehicles, trains, ships, etc.)  |
| (7) 交通信号设备              | (7) Traffic signal equipment  |
| (8) 防灾防犯罪设备             | (8) Disaster prevention / crime prevention equipment  |
| (9) 对社会造成影响的数据分析设备      | (9) Data-processing equipment exerting influence on public  |
| (10) 其他需要相似复杂性或者可靠性的领域。 | (10) Application of similar complexity and/or reliability requirements to the applications listed in the above. |

## 注意 NOTICE

### 1. 清洗 ( 超声波清洗 ) CLEANING (ULTRASONIC CLEANING)

超声波清洗请遵守下列条件：  
洗涤槽容量：输出量每升不少于 20 瓦特。  
洗涤时间：5 分钟。  
不要直接摇动印刷电路板、印刷线路板。  
过度的超声波清洗可能会对引线造成伤害。

To perform ultrasonic cleaning, observe the following conditions.  
Rinse bath capacity : Output of 20 watts per liter or less.  
Rinsing time : 5 min maximum.  
Do not vibrate the PCB/PWB directly.  
Excessive ultrasonic cleaning may lead to fatigue destruction of the lead wires.

### 2. 电容量变化 CAPACITANCE CHANGE OF CAPACITORS

#### ◆ X2 电容器

电容量会随实际使用时间延长而变小 (10000 小时, 下降 10%)。使用在对电容量有较高要求的电路时 ( 如降压电路等 ), 要充分考虑这一特性。

#### ◆ Y 电容器

I 类陶瓷介质电容器 (NP0、SL) :

电容量可能会随环境温度或者施加电压而有少量变化。若电容器使用在严格的时间常数电路中时请联系我们。

II 类陶瓷介质电容器 (Y5P、Y5U、Y5V):

- (1) II 类陶瓷介质电容器电容量具有老化特性。
- (2) 长时间通电, 电容量会逐渐、缓慢地降低。
- (3) 电容量受周围环境温度影响变化 (Y5U、Y5V 受影响很大) – 温度特性。
- (4) 电容量因施加电压影响变化。

所以, 它不能够使用在时间常数等对电容量依赖很高的电路中。如果你需要详细信息, 请联系我们。

#### ◆ X2 capacitors:

Capacitance would decrease with the extension of time actual used and it might decline 10% per 10000 hours.  
When you use for the circuit of high request on capacitance, such as step-down circuit, please take the characteristic into account.

#### ◆ Y capacitors:

Class 1 capacitors:

Capacitance might change a little depending on a surrounding temperature or an applied voltage.  
Please contact us if you use for the strict time constant circuit.

Class 2 capacitors:

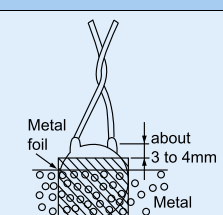
Class 2 capacitors like temperature characteristic Y5P, Y5U and Y5V have an aging characteristic, whereby the capacitor continually decreases its capacitance slightly if the capacitor leaves for a long time. Moreover, capacitance might change greatly depending on a surrounding temperature or an applied voltage. So, it is not likely to be able to use for the time constant circuit. Please contact us if you need a detail information.

# 安规认证 AC 电容规格以及测试方法

## Safety Standard Recognized AC Capacitors Specifications and Test Methods

外观, 尺寸, 标志, 电性能以及测试方法

Appearance, dimensions marking, electrical characteristics and test methods

No	项目 Item	试验方法 Test method	技术参数 Specification		
1	外观 Appearance	用肉眼检查外观 The appearance shall be inspected by naked eyes.	外观无显著缺陷 No marked defect on appearance		
2	尺寸 Dimensions	用游标卡尺测量尺寸 The dimensions shall be measured with slide calipers	电容器的尺寸和编带应满足规定 Dimensions of capacitor and taping shall satisfy specified requirement.		
3	标志 Marking	用 4 倍放大镜检查标志 The marking shall be checked by 4x magnifying glass.	标志清晰易辨认 Legible marking		
4	容量和误差 Capacitance and tolerance	电容量测量条件: 25°C, 1KHz 1±0.2 Vrms The capacitance shall be measured at 25°C with 1KHz 1±0.2 Vrms.			
5	介质损耗 Dissipation factor (tgδ)	介质损耗测量条件: 25°C, 1KHz 1±0.2 Vrms. The dissipation factor shall be measured at 25°C with 1KHz 1±0.2 Vrms.	Y NP0、SL: ≤2.5‰ (C <sub>R</sub> ≥ 50pF); ≤5‰ (5pF ≤ C <sub>R</sub> < 50pF) Y5P、Y5U、Y5V: ≤2.5%		
			X ≤0.1%		
6	绝缘电阻 Insulation resistance	绝缘电阻测量条件: 500VDC, 充电 60±5 秒 (Y) 100VDC, 充电 60±5 秒 (X) The insulation resistance shall be measured with 500VDC (Y) or 100VDC (X) within 60 ± 5 sec of charging.	Test A		
			Test B or Test C		
			Y R (MΩ)		
			X R (MΩ)		
7	引线之间 Between Lead Wires	在引线之间施加下表所示试验电压, 施加时间 60s, 电容器不会损坏。 The capacitor should not be damaged when test voltages of table below are applied between the lead wires for 60 sec.			
		类型 Type	试验电压 Test Voltage		
		Y2	F=5.0mm	F ≥ 7.5mm	
			AC2000V(r.m.s.)	AC2600V(r.m.s.)	
		Y1/X1	AC4000V(r.m.s.)		
	X2	DC1600V(r.m.s.)			
	耐电压 Dielectric Strength (Voltage Proof)	本体绝缘 Body Insulation	首先, 电容器引线终端应连接在一起。然后将金属箔紧密缠绕在电容器本体上距各个引出端大约 3 到 4mm 的地方。并将电容器插入充满直径 1mm 金属球的容器内 (如下图所示)。最后, 在电容器引线和金属球之间施加如下表所示的交流电压, 时间 60s。 First, the terminals of the capacitor should be connected together. Then, as shown in figure below, a metal foil should be closely wrapped around the body of the capacitor to the distance of about 3 to 4mm from each terminal. Then, the capacitor should be inserted into a container filled with metal balls of about 1mm diameter. Finally, ac voltage of table below is applied for 60 sec between the capacitor lead wires and metal balls		
			类型 Type	试验电压 Test Voltage	
			Y1/X1	AC4000V(r.m.s.)	
			Y2	AC2500V(r.m.s.)	
X2			AC2100V(r.m.s.)		

不允许有失败  
No failure

机械特性以及测试方法 Mechanical characteristics and test methods

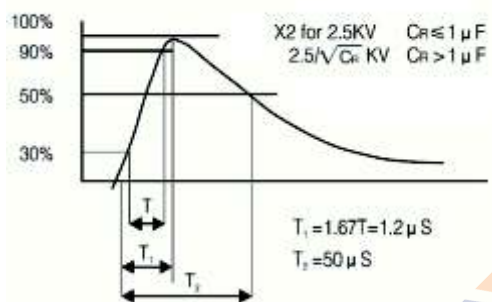
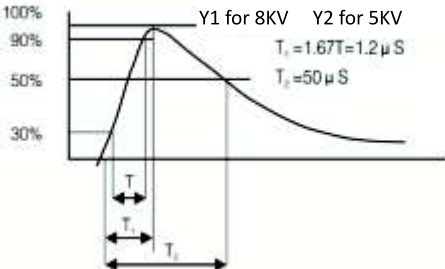
No	项目 Item	试验方法 Test method	技术参数 Specification
1	引出端强度 Robustness of Termination	<p>使用某种方式固定电容器的本体，并使引线的轴心与本体垂直。为使引线脱离电容器本体，在本体反向引线端沿轴心施加 10N 的拉力（引线直径为 0.56mm~0.8mm），持续 10±1s。</p> <p>The capacitor body shall be held in such a manner so that the axis of the lead is vertical.</p> <p>The tensile force of 10N(for lead of Ø0.6~Ø0.8mm)shall be applied to the lead in a direction of its axis and acting in a direction away from the body of the capacitor for 10±1 seconds.</p>	<p>电容器未损坏，引线未松动或者断开</p> <p>The capacitor shall be no broken and the lead shall be no loosened or cut off.</p>

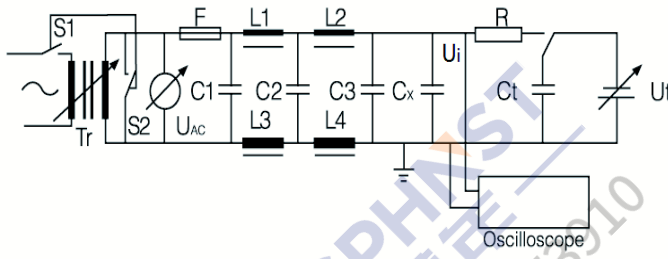
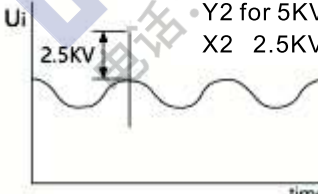
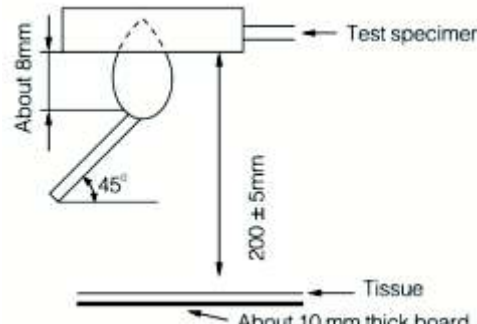
耐用特性以及测试方法 Endurance characteristics and test methods

1	引线可焊性 Solderability of leads	<p>引线应浸入熔融的焊料里 2±0.5 秒，浸入深度大约为 1.5~2mm（从引线底端算起）</p> <p>焊料温度： 无铅焊料（锡-3 银-0.5 铜） 245±5°C H63 共晶焊料 235±5°C</p> <p>The lead wire of a capacitor should be dipped into molten solder for 2±0.5sec.</p> <p>The depth of immersion is up to about 1.5 to 2.0mm from the root of lead wires.</p> <p>Temp.of solder: Lead Free solder(Sn-3Ag-0.5Cu) 245±5°C H63 Eutectic Solder 235±5°C</p>	<p>新的焊料层应均匀覆盖至少 3/4 被浸入表面</p> <p>A new uniform coating of solder shall cover a minimum of 3/4 of the surface being immersed</p>	
2	耐焊接热 Resistance to Soldering heat	<p>焊浴温度：260±5°C。引线浸入深度：离底座 2-0.5mm。使用绝热板（厚度为 1.5±0.5mm）。浸入时间：10±1 秒。</p> <p>后处理：电容器应在标准大气压条件下放置 1-2 小时。</p> <p>Temperature of solder bath 260±5°C.</p> <p>The immersing depth of lead shall be a position 2-0.5mm from the seating plane,using a thermal screen. The thickness of the screen is 1.5±0.5mm. The immersion time shall be 10±1 seconds. Post-treatment:The capacitor shall be preserved at the standard atmospheric condition for 1 to 2 hours</p>	外观 Appearance	没有明显损坏 No visible damage
			介质损耗 Dissipation Factor	参照规格书 As spec.
			电容量变化 (ΔC/C0) Capacitance Change	Y X
3	耐溶剂性 Solvent Resistance	<p>电容器应浸入异丙醇中 30±5 秒</p> <p>The capacitor shall be immersed into isopropyl alcohol for 30±5 seconds.</p>	耐电压 (引线之间) Voltage proof (between leads)	不允许有失败 No failure
			外观 Appearance	<p>无明显损坏 No visible damage</p> <p>标志清晰 Legible marking</p>



4	稳态湿热 Damp heat steady state	<p>在 40°C±2°C、相对湿度(93±3)%条件下储存电容器 56 天(1350±8 小时)。 预处理: 在温度 85°C±2°C 下储存电容器 1 小时, 然后电容器恢复 24±2 小时。 后处理: 在标准大气压下储存电容器 1-2 小时。(温度: 15-35°C, 相对湿度: 45-75%, 大气压力: 86-106 千帕)</p> <p>The capacitor shall be stored for 56days (1350±8hours) at a temperature of 40°C±2°C and a relative humidity of (93±3)%.</p> <p>Pre-treatment:The capacitor shall be stored at a temperature of 85°C±2°C for 1 hour ,and then the capacitor shall be recovered for 24±2 hours.</p> <p>Post-treatment:The capacitor shall be stored for 1 to 2 hours at the standard atmospheric condition.</p> <p>(Temperature:15 to 35°C,Relative humidity:45 to 75%,Atmospheric pressure:86 to 106kPa) (only X)</p>	电容量变化 Capacitance Change ( $\Delta C/C_0$ )	低于±5% Within ±5%			
			介质损耗 Dissipation Factor	技术参数 Specifications $\Delta tg\delta \leq 0.008 (C_R \leq 1\mu F)$ $\Delta tg\delta \leq 0.005 (C_R > 1\mu F)$			
			I.R.	Test A		Test B or Test C	
				$C_R > 0.33\mu F$ RC S	$C_R \leq 0.33\mu F$ R M $\Omega$	R M $\Omega$	
				3000	8000	15000	
			耐电压 (引线之间) Voltage proof (between leads)	不允许有失败 No failure			
			电容量变化 ( $\Delta C/C_0$ ) Capacitance Change	低于±10% Within ±10%			
			介质损耗 Dissipation Factor	技术参数 Specifications $\Delta tg\delta \leq 0.008$			
I.R.	Test A		Test B or C				
	R (M $\Omega$ )		R (M $\Omega$ )				
	10000		10000				
耐电压 (引线之间) Voltage proof (between leads)	不允许有失败 No failure						
5	加负荷湿热 Damp heat with load (only Y)	<p>在 85°C±2°C、相对湿度 85%±5%条件下, 对电容器施加额定电压 21 天(500±8 小时)。 预处理: 在温度 85°C±2°C 下储存电容器 1 小时, 然后电容器恢复 24±2 小时。后处理: 在标准大气压下储存电容器 1-2 小时。(温度: 15-35°C, 相对湿度: 45-75%, 大气压力: 86-106 千帕)</p> <p>The rated voltage shall be applied continuously to the capacitor for 21 days (500±8 hours) at a temperature of 85°C±2°C and a relative humidity of 85%±5%.</p> <p>Pre-treatment:The capacitor shall be stored at a temperature of 85°C±2°C for 1 hour ,and then the capacitor shall be recovered for 24±2 hours.</p> <p>Post-treatment:The capacitor shall be stored for 1 to 2 hours at the standard atmospheric condition.</p> <p>(Temperature:15 to 35°C,Relative humidity:45 to 75%,Atmospheric pressure:86 to 106kPa)</p>	电容量变化 Capacitance Change	低于±10% Within ±10%			
			介质损耗 ( $\Delta C/C_0$ ) Dissipation Factor	技术参数 Specifications $\Delta tg\delta \leq 0.008$			
			I.R.	Test A		Test B or C	
				R (M $\Omega$ )		R (M $\Omega$ )	
				6000		6000	
			介电强度 Dielectric Strength	不允许有失败 No failure			

6	Endurance test (life) 耐久性试验 (寿命) (MKP-X2)	<p>电容器应经受 3 次脉冲，如下图。 The capacitor shall be subjected to three impulses as shown below.</p>  <p>然后将电容器放置在105°C下实验 1000小时。在整个实验过程中，持续对电容器施加 50Hz/60Hz 1.25UR 电压，每间隔一小时应将电压升高到 1000 Vrms，且持续时间 0.1 秒 后处理：在标准大气压下，电容器恢复 24±2 小时。 Then the capacitors are placed at a temperature of 105°C for 1000 hours. Throughout the test, the capacitors are subjected 50Hz/60Hz, 1.25UR voltages, except that once each hour the voltage is increased to 1000 Vrms for 0.1sec. Post-treatment: the capacitor shall be preserved for 24±2 hours at standard atmospheric condition.</p>	外观 Appearance	无明显损伤 No visible damage												
	<p>电容量变化 (<math>\Delta C/C_0</math>) Capacitance Change</p> <p>介质损耗 Dissipation Factor</p> <p>绝缘电阻 Insulation resistance</p> <p>耐电压 Voltage proof</p>	<p>低于±10% Within±10%</p> <p><math>\Delta tg\delta \leq 0.005 (C_R &gt; 1\mu F)</math> <math>\Delta tg\delta \leq 0.008 (C_R \leq 1\mu F)</math></p> <table border="1"> <tr> <td colspan="2">Test A</td> <td>Test B or C</td> </tr> <tr> <td><math>C_R &gt; 0.33\mu F</math></td> <td><math>C_R \leq 0.33\mu F</math></td> <td>R</td> </tr> <tr> <td>RC</td> <td>R</td> <td>MΩ</td> </tr> <tr> <td>S</td> <td>MΩ</td> <td></td> </tr> <tr> <td>3000</td> <td>8000</td> <td>15000</td> </tr> </table> <p>不允许有失败 No failure</p>	Test A		Test B or C	$C_R > 0.33\mu F$	$C_R \leq 0.33\mu F$	R	RC	R	MΩ	S	MΩ		3000	8000
Test A		Test B or C														
$C_R > 0.33\mu F$	$C_R \leq 0.33\mu F$	R														
RC	R	MΩ														
S	MΩ															
3000	8000	15000														
Endurance test (life) 耐久性试验 (寿命) (DCF-Y)	<p>电容器应经受 3 次脉冲，如下图。 The capacitor shall be subjected to three impulses as shown below.</p>  <p>然后将电容器放置在 125°C下实验 1000小时。在整个实验过程中，持续对电容器施加 50Hz/60Hz 1.7UR 电压，每间隔一小时应将电压升高到 1000 Vrms，且持续时间 0.1 秒 后处理：在标准大气压下，电容器恢复 24±2 小时。 Then the capacitors are placed at a temperature of 125°C for 1000 hours. Throughout the test, the capacitors are subjected 50Hz/60Hz, 1.7UR voltages, except that once each hour the voltage is increased to 1000 Vrms for 0.1sec. Post-treatment: the capacitor shall be preserved for 24±2 hours at standard atmospheric condition.</p>	外观 Appearance	无明显损伤 No visible damage													
<p>电容量变化 Capacitance Change (<math>\Delta C/C_0</math>)</p> <p>介质损耗 Dissipation Factor</p> <p>绝缘电阻 Insulation resistance</p> <p>耐电压 Voltage proof</p>	<p>低于±10% Within±10%</p> <p><math>\Delta tg\delta \leq 0.008</math></p> <table border="1"> <tr> <td>Test A</td> <td>Test B or C</td> </tr> <tr> <td>R ( MΩ )</td> <td>R ( MΩ )</td> </tr> <tr> <td>10000</td> <td>10000</td> </tr> </table> <p>不允许有失败 No failure</p>	Test A	Test B or C	R ( MΩ )	R ( MΩ )	10000	10000									
Test A	Test B or C															
R ( MΩ )	R ( MΩ )															
10000	10000															

<p>7</p>	<p>自燃性 Active Flammability ( Y2、X2 )</p>	<p>电容器应单独缠绕在粗棉布上至少 1 圈但不超过 2 圈。电容器应经受 20 次放电。放电间隔为 5 秒。在最后一次放电后，<math>U_{ac}</math> 应持续 2 分钟。 The capacitor should be individually wrapped in at least one but not more than two complete layers of cheese-cloth. The capacitor should be subjected to 20 discharges. The interval between successive discharges should be 5 sec. The <math>U_{ac}</math> should be maintained for 2 min. after the last discharge.</p>  <p><math>C_{1,2}: 1\mu f \pm 10\%</math>      <math>C_3: 0.033\mu f \pm 5\%</math> 10kV  <math>L_1</math> to <math>L_4: 1.5mH \pm 20\%</math> 16A Rod core choke  <math>C_t: 3\mu f \pm 5\%</math> 10kV      <math>R: 100\Omega \pm 2\%</math>  <math>C_x</math>: Capacitor under test <math>U_{AC}: U_R \pm 5\%</math>  <math>F</math>: Fuse, Rated 10A      <math>U_R</math>: Rated Voltage  <math>U_t</math>: Voltage applied to <math>C_t</math></p> 	<p>粗棉布不会着火。 The cheese-cloth should not be on fire</p>																		
<p>8</p>	<p>阻燃性 Passive flammability</p>	 <p>火焰长度: 12mm Length of flame: 12mm          煤气燃烧器: 至少 35mm Gas burner: Length 35mm min.          内径: <math>0.5 \pm 0.1mm</math> Inside diameter: <math>0.5 \pm 0.1mm</math>          外径: 最小值 0.9mm Outside diameter: 0.9mm min.          气体: 丁烷气纯度至少 95% Gas: Butane gas purity 95% min.</p>	<p>严酷度等级和要求 Severity and Requirements</p> <table border="1"> <thead> <tr> <th rowspan="2">有焰燃烧等级 Flaming Ratings</th> <th colspan="3">严酷等级 Severity Level</th> <th rowspan="2">最大燃烧时间 (S) Maximum flaming time (S)</th> </tr> <tr> <th>250 &lt; Volumes 体积 ≤ 500</th> <th>500 &lt; Volumes 体积 ≤ 1750</th> <th>Volumes 体积 &gt; 1750</th> </tr> </thead> <tbody> <tr> <td>B</td> <td>20</td> <td>30</td> <td>60</td> <td>10</td> </tr> <tr> <td>C</td> <td>10</td> <td>20</td> <td>30</td> <td>30</td> </tr> </tbody> </table> <p>针对电容器体积范围 (mm) 施加火焰时间 (S) Flame is applied for a time (S) against the capacitor volumes range (mm)</p>	有焰燃烧等级 Flaming Ratings	严酷等级 Severity Level			最大燃烧时间 (S) Maximum flaming time (S)	250 < Volumes 体积 ≤ 500	500 < Volumes 体积 ≤ 1750	Volumes 体积 > 1750	B	20	30	60	10	C	10	20	30	30
有焰燃烧等级 Flaming Ratings	严酷等级 Severity Level				最大燃烧时间 (S) Maximum flaming time (S)																
	250 < Volumes 体积 ≤ 500	500 < Volumes 体积 ≤ 1750	Volumes 体积 > 1750																		
B	20	30	60	10																	
C	10	20	30	30																	

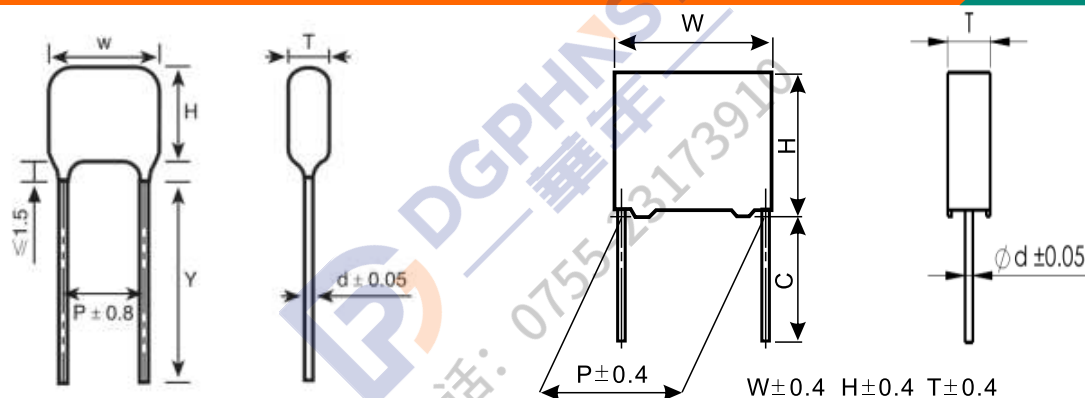
# MPF 金属化聚丙烯薄膜电容器 (CBB21)

## Metallized Polypropylene Film Capacitor (CBB21)

金属化聚丙烯膜无感结构卷绕而成，采用镀锡铜包钢线、阻燃环氧树脂粉末包封或塑料外壳，阻燃环氧树脂填充而成。

With metallized polypropylene film dielectric, non-inductive construction, CP wire and encapsulated in plastic case with flame retardant epoxy resin powder coating or plastic case ,epoxy resin sealing

### 外形图 Outline Drawing



### 特点 Features

- ◆ 金属化聚丙烯膜、无感结构 Metallized polypropylene film non-inductive wound construction
- ◆ 高频损耗小 Low loss at high frequency
- ◆ 内部温升小 Small inherent temperature rise
- ◆ 优异的阻燃性能(符合UL94V-0) Excellent active and passive flame resistant abilities (conforming to UL94-0)

### 主要用途 Typical Applications

- ◆ 广泛应用于高频、直流、交流和脉冲电路中 Widely used in high frequency、DC、AC and pulse circuits
- ◆ 适用于要求体积小，性能优异的彩电S校正电路  
Suitable for TV S-correction circuit of small volume and high performance requirement
- ◆ 电子设备谐振、应急灯之功率因素补偿、开关电源之耦合、定时、振荡回路  
Resonance of an electronic device, power factor compensation of Emergency Light, coupling circuit, timing circuit and oscillator circuit for power switches

### 技术指标 Specifications

Item项目	Specification标准要求
气候类别 Climatic Category	40/105/21
额定温度 Rated Temperature	85°C
工作温度 Operating Temperature Range	- 40°C ~ +105°C (+85°C to +105°C: decreasing factor 1.25% per °C for U <sub>R</sub> )
容量范围 Capacitance Range	0.0047μF ~ 4.7μF
容量偏差 Capacitance Tolerance	J: ±5%、K: ±10%
额定电压 Rated Voltage	250V、400V/450V、630V
损耗角正切 Dissipation Factor	≤ 0.1% (1KHz at 20~25°C)

项目 Item		标准要求 Specification				
绝缘电阻 Insulation Resistance (20℃, 100V, 1min)	标准品	小型化品				
	$C_R \leq 0.33\mu F \geq 100G\Omega$ $C_R > 0.33\mu F \geq 30000S$	$C_R \leq 0.33\mu F \geq 25G\Omega$ $C_R > 0.33\mu F \geq 7500S$				
耐电压 Voltage Proof	1.6U <sub>R</sub> (5S)			1.4U <sub>R</sub> (5S)		
最大脉冲爬升速率 Maximum Pulse Rise Time(dV/dt): 若实际工作电压U比额定电压U <sub>R</sub> 低, 电容器可工作在更高的dV/dt场合, 这样dV/dt允许值应为右表值乘以U <sub>R</sub> /U。 If the working voltage(U) is lower than the rated voltage(U <sub>R</sub> ), the capacitor can be worked at a higher dV/dt, In this case, the maximum allowed dV/dt is obtain by multiplying the right value with U <sub>R</sub> /U。	U <sub>R</sub> (V)	dV/dt (V/us)				
		P=7.5	P=10.0	P=15.0	P=22.5	P=27.5
	250	660	560	310	130	110
	400/450	900	780	600	300	180
	630	1500	1200	900	400	220

浸渍型标准品外形尺寸 Dimensions (mm)

250Vdc (160Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
472	0.0047	10.5	8.5	4.5	7.5	0.6
103	0.010	10.5	8.5	4.5	7.5	0.6
223	0.022	10.5	9.5	5.0	7.5	0.6
333	0.033	10.5	9.5	5.0	7.5	0.6
473	0.047	10.5	10.5	6.0	7.5	0.6
683	0.068	10.5	11.5	7.0	7.5	0.6
104	0.10	10.5	11.5	7.0	7.5	0.6
154	0.15	10.5	11.0	6.0	7.5	0.6
224	0.22	10.5	11.5	7.0	7.5	0.6
472	0.0047	13.0	10.0	5.5	10.0	0.6
103	0.010	13.0	10.0	5.5	10.0	0.6
223	0.022	13.0	9.5	5.0	10.0	0.6
333	0.033	13.0	10.0	5.5	10.0	0.6
473	0.047	13.0	10.0	5.0	10.0	0.6
683	0.068	13.0	11.0	6.0	10.0	0.6
104	0.10	13.0	11.0	5.0	10.0	0.6
154	0.15	13.0	11.0	6.0	10.0	0.6
224	0.22	13.0	11.5	7.0	10.0	0.6
334	0.33	13.0	13.0	8.5	10.0	0.6
474	0.47	13.0	17.0	8.0	10.0	0.6
334	0.33	18.0	12.0	5.5	15.0	0.8
474	0.47	18.0	13.0	6.5	15.0	0.8
684	0.68	18.0	14.0	7.0	15.0	0.8
105	1.0	18.0	18.0	7.5	15.0	0.8
155	1.5	18.0	19.0	10.5	15.0	0.8
105	1.0	23.0	14.0	7.5	20.0	0.8
155	1.5	23.0	16.0	9.0	20.0	0.8
225	2.2	23.0	18.0	10.5	20.0	0.8

400/450Vdc (200Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
472	0.0047	10.5	8.5	4.5	7.5	0.6
103	0.010	10.5	8.5	4.5	7.5	0.6
223	0.022	10.5	9.5	5.0	7.5	0.6
333	0.033	10.5	9.5	5.0	7.5	0.6
473	0.047	10.5	10.5	6.0	7.5	0.6
683	0.068	10.5	11.5	7.0	7.5	0.6
104	0.10	10.5	11.5	7.0	7.5	0.6
472	0.0047	13.0	10.0	5.5	10.0	0.6
103	0.010	13.0	10.0	5.5	10.0	0.6
223	0.022	13.0	9.5	5.0	10.0	0.6
333	0.033	13.0	10.0	5.5	10.0	0.6
473	0.047	13.0	10.0	5.0	10.0	0.6
683	0.068	13.0	11.0	6.0	10.0	0.6
104	0.10	13.0	11.0	6.0	10.0	0.6
154	0.15	13.0	11.5	6.5	10.0	0.6
224	0.22	13.0	13.0	8.5	10.0	0.6
334	0.33	13.0	16.0	9.0	10.0	0.6
224	0.22	18.0	11.5	6.0	15.0	0.8
334	0.33	18.0	13.0	7.0	15.0	0.8
474	0.47	18.0	14.0	8.0	15.0	0.8
684	0.68	18.0	16.5	9.0	15.0	0.8
105	1.0	23.0	16.5	9.5	20.0	0.8
225	1.5	23.0	20.0	11.5	20.0	0.8



浸渍型标准品外形尺寸 Dimensions (mm)

630Vdc (310Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
472	0.0047	10.5	8.5	4.5	7.5	0.6
103	0.010	10.5	8.5	4.5	7.5	0.6
223	0.022	10.5	9.5	5.0	7.5	0.6
333	0.033	10.5	9.5	5.0	7.5	0.6
473	0.047	10.5	10.5	6.0	7.5	0.6
683	0.068	10.5	11.5	7.0	7.5	0.6
472	0.0047	13.0	10.0	5.5	10.0	0.6
103	0.010	13.0	10.0	5.5	10.0	0.6
223	0.022	13.0	9.5	5.0	10.0	0.6
333	0.033	13.0	10.0	5.5	10.0	0.6
473	0.047	13.0	10.0	5.0	10.0	0.6
683	0.068	13.0	11.0	6.0	10.0	0.6
104	0.10	13.0	12.5	6.5	10.0	0.6
154	0.15	13.0	12.5	8.5	10.0	0.6
104	0.10	18.0	10.0	5.5	15.0	0.8
154	0.15	18.0	12.5	6.5	15.0	0.8
224	0.22	18.0	13.5	6.5	15.0	0.8
334	0.33	18.0	14.5	8.0	15.0	0.8
474	0.47	18.0	16.0	10.0	15.0	0.8
334	0.33	23.0	12.5	7.0	20.0	0.8
474	0.47	23.0	15.5	8.0	20.0	0.8
684	0.68	23.0	17.0	9.5	20.0	0.8
105	1.0	23.0	19.5	12.0	20.0	0.8
105	1.0	31.0	19.0	12.0	27.5	0.8
225	2.2	31.0	22.0	14.0	27.5	0.8

浸渍型小型化外形尺寸 Dimensions (mm)

400/450Vdc (200Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
224	0.22	13.0	11.5	6.5	10.0	0.6
334	0.33	13.0	12.5	8.0	10.0	0.6
474	0.47	13.0	17.0	7.5	10.0	0.6
334	0.33	18.0	13.0	5.5	15.0	0.8
474	0.47	18.0	13.0	6.5	15.0	0.8
684	0.68	18.0	14.5	7.5	15.0	0.8
105	1.0	18.0	18.0	8.5	15.0	0.8
155	1.5	18.0	19.0	11.0	15.0	0.8
105	1.0	23.0	14.0	8.0	20.0	0.8
155	1.5	23.0	16.0	9.0	20.0	0.8
225	2.2	23.0	18.0	11.0	20.0	0.8
225	2.5	31.0	18.5	8.0	27.5	0.8
335	3.3	31.0	21.0	10.5	27.5	0.8
475	4.7	31.0	23.5	12.5	27.5	0.8

630Vdc (220Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
154	0.15	13.0	11.5	7.0	10.0	0.6
224	0.22	13.0	13.0	8.0	10.0	0.6
154	0.15	18.0	11.0	5.0	15.0	0.8
224	0.2	18.0	13.0	6.0	15.0	0.8
334	0.3	18.0	13.0	7.0	15.0	0.8
474	0.47	18.0	14.0	8.0	15.0	0.8
684	0.68	18.0	16.5	9.0	15.0	0.8
105	1.0	23.0	18.0	9.5	20.0	0.8
155	1.5	23.0	19.5	11.5	20.0	0.8

盒式外形尺寸 Dimensions (mm)

250Vdc (160Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
273	0.027	10.5	9.0	4.0	7.5	0.6
333	0.033	10.5	9.0	4.0	7.5	0.6
393	0.039	10.5	9.0	4.0	7.5	0.6
473	0.047	10.5	9.0	4.0	7.5	0.6
563	0.056	10.5	9.0	4.0	7.5	0.6
683	0.068	10.5	9.0	4.0	7.5	0.6
823	0.082	10.5	11.0	5.0	7.5	0.6
104	0.10	10.5	11.0	5.0	7.5	0.6
124	0.12	10.5	11.0	5.0	7.5	0.6
154	0.15	10.5	12.0	6.0	7.5	0.6
184	0.18	10.5	12.0	6.0	7.5	0.6
333	0.033	13.0	9.0	4.0	10.0	0.6
393	0.039	13.0	9.0	4.0	10.0	0.6
473	0.047	13.0	9.0	4.0	10.0	0.6
563	0.056	13.0	9.0	4.0	10.0	0.6
683	0.068	13.0	9.0	4.0	10.0	0.6
823	0.082	13.0	9.0	4.0	10.0	0.6
104	0.10	13.0	11.0	5.0	10.0	0.6
124	0.12	13.0	11.0	5.0	10.0	0.6
154	0.15	13.0	11.0	5.0	10.0	0.6
184	0.18	13.0	12.0	6.0	10.0	0.6
224	0.22	13.0	12.0	6.0	10.0	0.6
104	0.10	18.0	11.0	5.0	15.0	0.8
124	0.12	18.0	11.0	5.0	15.0	0.8
154	0.15	18.0	11.0	5.0	15.0	0.8
184	0.18	18.0	11.0	5.0	15.0	0.8
224	0.22	18.0	11.0	5.0	15.0	0.8
274	0.27	18.0	12.0	6.0	15.0	0.8
334	0.33	18.0	12.0	6.0	15.0	0.8
394	0.39	18.0	13.5	7.5	15.0	0.8
474	0.47	18.0	13.5	7.5	15.0	0.8
564	0.56	18.0	13.5	7.5	15.0	0.8
684	0.68	18.0	14.5	8.5	15.0	0.8
824	0.82	18.0	16.0	10.0	15.0	0.8
105	1.0	18.0	16.0	10.0	15.0	0.8
125	1.2	18.0	19.0	11.0	15.0	0.8
394	0.39	26.5	15.0	6.0	22.5	0.8
474	0.47	26.5	15.0	6.0	22.5	0.8
564	0.56	26.5	15.0	6.0	22.5	0.8

250Vdc (160Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
684	0.68	26.5	15.0	6.0	22.5	0.8
824	0.82	26.5	15.0	6.0	22.5	0.8
105	1.0	26.5	16.0	7.0	22.5	0.8
125	1.2	26.5	17.0	8.5	22.5	0.8
155	1.5	26.5	17.0	8.5	22.5	0.8
185	1.8	26.5	18.5	10.0	22.5	0.8
225	2.2	26.5	20.0	11.0	22.5	0.8
275	2.7	26.5	22.0	12.0	22.5	0.8
824	0.82	32.0	18.0	9.0	27.5	0.8
105	1.0	32.0	18.0	9.0	27.5	0.8
125	1.2	32.0	18.0	9.0	27.5	0.8
155	1.5	32.0	18.0	9.0	27.5	0.8
185	1.8	32.0	18.0	9.0	27.5	0.8
225	2.2	32.0	18.0	9.0	27.5	0.8
275	2.7	32.0	20.0	11.0	27.5	0.8
335	3.3	32.0	20.0	11.0	27.5	0.8
395	3.9	32.0	22.0	13.0	27.5	0.8

400Vdc (220Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
184	0.18	26.5	15.0	6.0	22.5	0.8
224	0.22	26.5	15.0	6.0	22.5	0.8
274	0.27	26.5	15.0	6.0	22.5	0.8
334	0.33	26.5	15.0	6.0	22.5	0.8
394	0.39	26.5	16.0	7.0	22.5	0.8
474	0.47	26.5	16.0	7.0	22.5	0.8
564	0.56	26.5	17.0	8.5	22.5	0.8
684	0.68	26.5	17.0	8.5	22.5	0.8
824	0.82	26.5	18.5	10.0	22.5	0.8
105	1.0	26.5	20.0	11.0	22.5	0.8
125	1.2	26.5	22.0	12.0	22.5	0.8
155	1.5	26.5	22.0	12.0	22.5	0.8
564	0.56	32.0	18.0	9.0	27.5	0.8
684	0.68	32.0	18.0	9.0	27.5	0.8
824	0.82	32.0	18.0	9.0	27.5	0.8
105	1.0	32.0	18.0	9.0	27.5	0.8
125	1.2	32.0	20.0	11.0	27.5	0.8
155	1.5	32.0	20.0	11.0	27.5	0.8
185	1.8	32.0	22.0	13.0	27.5	0.8

盒式外形尺寸 Dimensions (mm)

400Vdc (220Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
103	0.010	10.5	9.0	4.0	7.5	0.6
123	0.012	10.5	9.0	4.0	7.5	0.6
153	0.015	10.5	9.0	4.0	7.5	0.6
183	0.018	10.5	9.0	4.0	7.5	0.6
223	0.022	10.5	9.0	4.0	7.5	0.6
273	0.027	10.5	9.0	4.0	7.5	0.6
333	0.033	10.5	11.0	5.0	7.5	0.6
393	0.039	10.5	11.0	5.0	7.5	0.6
473	0.047	10.5	11.0	5.0	7.5	0.6
563	0.056	10.5	12.0	6.0	7.5	0.6
683	0.068	10.5	12.0	6.0	7.5	0.6
153	0.015	13.0	9.0	4.0	10.0	0.6
183	0.018	13.0	9.0	4.0	10.0	0.6
223	0.022	13.0	9.0	4.0	10.0	0.6
273	0.027	13.0	9.0	4.0	10.0	0.6
333	0.033	13.0	9.0	4.0	10.0	0.6
393	0.039	13.0	9.0	4.0	10.0	0.6
473	0.047	13.0	11.0	5.0	10.0	0.6
563	0.056	13.0	11.0	5.0	10.0	0.6
683	0.068	13.0	11.0	5.0	10.0	0.6
823	0.082	13.0	12.0	6.0	10.0	0.6
104	0.10	13.0	12.0	6.0	10.0	0.6
683	0.068	18.0	11.0	5.0	15.0	0.8
823	0.082	18.0	11.0	5.0	15.0	0.8
104	0.10	18.0	11.0	5.0	15.0	0.8
124	0.12	18.0	11.0	5.0	15.0	0.8
154	0.15	18.0	12.0	6.0	15.0	0.8
184	0.18	18.0	12.0	6.0	15.0	0.8
224	0.22	18.0	13.5	7.5	15.0	0.8
274	0.27	18.0	13.5	7.5	15.0	0.8
334	0.33	18.0	14.5	8.5	15.0	0.8
394	0.39	18.0	16.0	10.0	15.0	0.8
474	0.47	18.0	16.0	10.0	15.0	0.8
564	0.56	18.0	19.0	11.0	15.0	0.8
684	0.68	18.0	19.0	11.0	15.0	0.8

630Vdc (250Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
102	0.0010	10.5	9.0	4.0	7.5	0.6
122	0.0012	10.5	9.0	4.0	7.5	0.6
152	0.0015	10.5	9.0	4.0	7.5	0.6
182	0.0018	10.5	9.0	4.0	7.5	0.6
222	0.0022	10.5	9.0	4.0	7.5	0.6
272	0.0027	10.5	9.0	4.0	7.5	0.6
332	0.0033	10.5	9.0	4.0	7.5	0.6
392	0.0039	10.5	9.0	4.0	7.5	0.6
472	0.0047	10.5	9.0	4.0	7.5	0.6
562	0.0056	10.5	9.0	4.0	7.5	0.6
682	0.0068	10.5	9.0	4.0	7.5	0.6
822	0.0082	10.5	9.0	4.0	7.5	0.6
103	0.010	10.5	9.0	4.0	7.5	0.6
123	0.012	10.5	9.0	4.0	7.5	0.6
153	0.015	10.5	11.0	5.0	7.5	0.6
183	0.018	10.5	11.0	5.0	7.5	0.6
223	0.022	10.5	11.0	5.0	7.5	0.6
273	0.027	10.5	12.0	6.0	7.5	0.6
333	0.033	10.5	12.0	6.0	7.5	0.6
102	0.0010	13.0	9.0	4.0	10.0	0.6
122	0.0012	13.0	9.0	4.0	10.0	0.6
152	0.0015	13.0	9.0	4.0	10.0	0.6
182	0.0018	13.0	9.0	4.0	10.0	0.6
222	0.0022	13.0	9.0	4.0	10.0	0.6
272	0.0027	13.0	9.0	4.0	10.0	0.6
332	0.0033	13.0	9.0	4.0	10.0	0.6
392	0.0039	13.0	9.0	4.0	10.0	0.6
472	0.0047	13.0	9.0	4.0	10.0	0.6
562	0.0056	13.0	9.0	4.0	10.0	0.6
682	0.0068	13.0	9.0	4.0	10.0	0.6
822	0.0082	13.0	9.0	4.0	10.0	0.6
103	0.010	13.0	9.0	4.0	10.0	0.6
123	0.012	13.0	9.0	4.0	10.0	0.6
153	0.015	13.0	9.0	4.0	10.0	0.6
183	0.018	13.0	9.0	4.0	10.0	0.6
223	0.022	13.0	11.0	5.0	10.0	0.6
273	0.027	13.0	11.0	5.0	10.0	0.6
333	0.033	13.0	11.0	5.0	10.0	0.6
393	0.039	13.0	12.0	6.0	10.0	0.6

## 盒式外形尺寸 Dimensions (mm)

630Vdc (250Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
473	0.047	13.0	12.0	6.0	10.0	0.6
273	0.027	18.0	11.0	5.0	15.0	0.8
333	0.033	18.0	11.0	5.0	15.0	0.8
393	0.039	18.0	11.0	5.0	15.0	0.8
473	0.047	18.0	11.0	5.0	15.0	0.8
563	0.056	18.0	11.0	5.0	15.0	0.8
683	0.068	18.0	12.0	6.0	15.0	0.8
823	0.082	18.0	12.0	6.0	15.0	0.8
104	0.10	18.0	13.5	7.5	15.0	0.8
124	0.12	18.0	13.5	7.5	15.0	0.8
154	0.15	18.0	13.5	7.5	15.0	0.8
184	0.18	18.0	14.5	8.5	15.0	0.8
224	0.22	18.0	16.0	10.0	15.0	0.8
274	0.27	18.0	19.0	11.0	15.0	0.8
334	0.33	18.0	19.0	11.0	15.0	0.8
823	0.082	26.5	15.0	6.0	22.5	0.8
104	0.10	26.5	15.0	6.0	22.5	0.8

630Vdc (250Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
124	0.12	26.5	15.0	6.0	22.5	0.8
154	0.15	26.5	15.0	6.0	22.5	0.8
184	0.18	26.5	15.0	6.0	22.5	0.8
224	0.22	26.5	16.0	7.0	22.5	0.8
274	0.27	26.5	17.0	8.5	22.5	0.8
334	0.33	26.5	17.0	8.5	22.5	0.8
394	0.39	26.5	18.5	10.0	22.5	0.8
474	0.47	26.5	18.5	10.0	22.5	0.8
564	0.56	26.5	20.0	11.0	22.5	0.8
684	0.68	26.5	22.0	12.0	22.5	0.8
334	0.33	32.0	18.0	9.0	27.5	0.8
394	0.39	32.0	18.0	9.0	27.5	0.8
474	0.47	32.0	18.0	9.0	27.5	0.8
564	0.56	32.0	20.0	11.0	27.5	0.8
684	0.68	32.0	20.0	11.0	27.5	0.8
824	0.82	32.0	20.0	11.0	27.5	0.8
105	1.0	32.0	22.0	13.0	27.5	0.8

## 金属化薄膜电容器



X2  
金属膜卷绕机

# DMB型塑料外壳双面金属化聚丙烯膜电容器

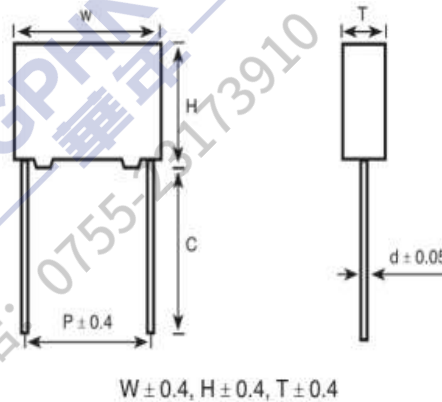
## Double Sided Metallized Polypropylene film Capacitors (Box-Type)

### Type DMB Series (MMKP82)

DMB电容器采用聚丙烯薄膜做为介质，以自愈性优良的耐高温双面金属化聚酯薄膜做电极，两端喷金构成无感结构，单向引出，阻燃环氧树脂灌封，塑壳封装。

DMB type capacitor of constructed with polypropylene fime dielectric,electrode with double sided metallized polyester film,twain section spray-metal form Non-inductive , configuration,Electrode lead unilateralism fetch out and flame retardant epoxy resin dip sealed, box coating.

#### 外形图 Outline Drawing



#### 特点 Features

- |               |   |
|---------------|---|
| ◆ 双面金属化聚酯薄膜电极 | electrode with double sided metallized polyester flim |
| ◆ 损耗小，内部温升小   | Low loss and small inherent temperature rise          |
| ◆ 负电容量温度系数    | Negative temperature coefficient of capacitance       |
| ◆ 优异的阻燃性能     | Excellent active and passive flame resistant circuit  |

#### 主要用途 Typical Applications

- |                      |  |
|----------------------|--|
| ◆ 广泛应用于高压、高频和脉冲电路中   | Widely used in high voltage ,high frequency and pulse circuit    |
| ◆ 电视机中S校正和行逆程波形和显示器中 | Deflection circuits in TV-sets(S-correction and fly-back tuning) |
| ◆ 电子振荡器和节能灯中         | Lamp capacitor for electronic ballast and compact lamps          |
| ◆ 吸收和SCR整流电路         | Snubber and SCR commutating circuits                             |

#### 技术指标 Specifications

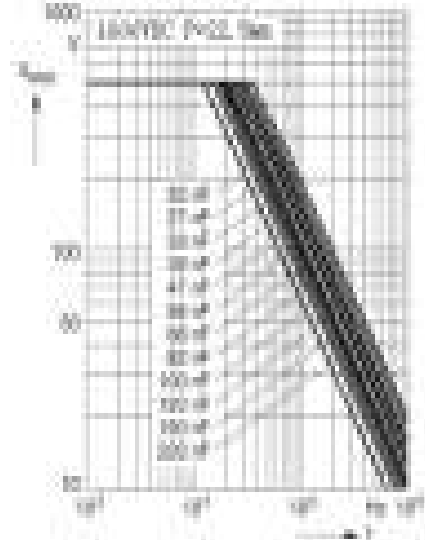
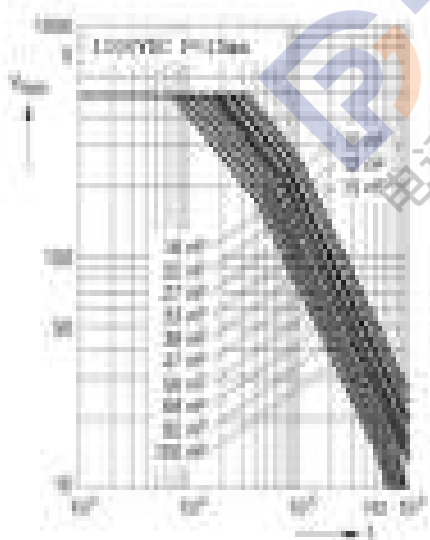
项目 Item	标准要求 Specification
气候类别 Climatic Category	40/105/56
额定温度 Rated Temperature	85°C for $U_R$ (dc) ; 75°C for $U_R$ (ac)
工作温度 Operating Temperature Range	- 40°C ~ +105°C (+85°C to +105°C: decreasing factor 1.25% per °C for $U_R$ (dc) (+75°C to +105°C: decreasing factor 1.35% per °C for $U_R$ (ac)
容量范围 Capacitance Range	0.00022μF ~ 0.39μF
容量偏差 Capacitance Tolerance	G: ±2%、H: ±3%、J: ±5%、K: ±10%
额定电压 Rated Voltage	630V 1000V/1250V 1600V 2000V



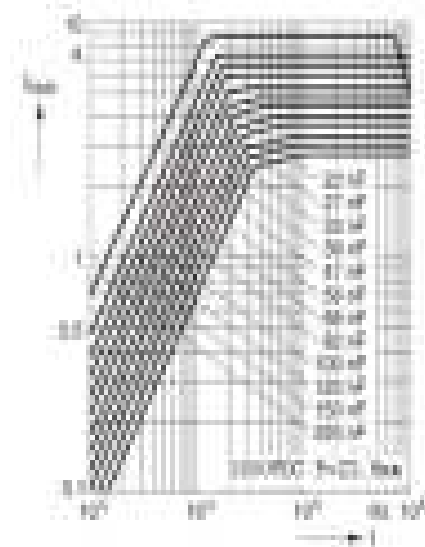
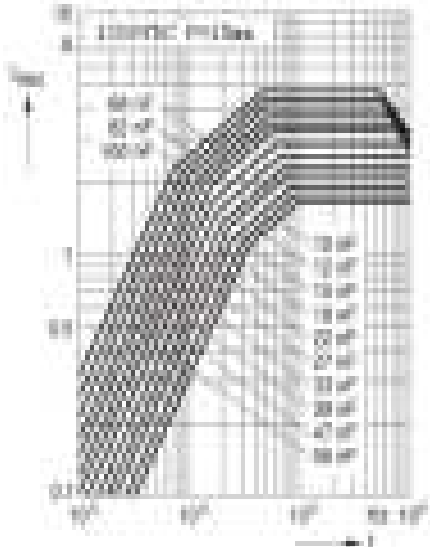
# 金属化薄膜电容器

项目 Item	标准要求 Specification		
损耗角正切 Dissipation Factor	$\leq 0.1\%$ (1KHz at 20 ~ 25°C)		
绝缘电阻 Insulation Resistance	$\geq 100000M\Omega$ for $C_R \leq 0.33\mu F$ ; $\geq 30000S$ for $C_R > 0.33\mu F$ (20°C, 100V, 1min)		
耐电压 Voltage Proof	1.6U <sub>R</sub> (5s)		
最大脉冲爬升速率 Maximum Pulse Rise Time (dV/dt): 若实际工作电压U比额定电压U <sub>R</sub> 低, 电容器可工作在更高的dV/dt场合, 这样dV/dt允许值应为右表值乘以U <sub>R</sub> /U。 If the working voltage(U) is lower than the rated voltage(U <sub>R</sub> ), the capacitor can be worked at a higher dV/dt, In this case, the maximum allowed dV/dt is obtain by multiplying the right value with U <sub>R</sub> /U。	U <sub>R</sub> (V)	dV/dt (V/us)	
		P=15.0	
	630	2500	1500
	1000/1250	3300	2100
	1600	6000	3000
2000	10000	5000	

容许电压与频率关系曲线图: ( $\leq 85^\circ C$ )



容许电流与频率关系曲线图: ( $\leq 85^\circ C$ )



外形尺寸 Dimensions (mm)

630Vdc (400Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
103	0.010	18.0	11.0	5.0	15.0	0.8
123	0.012	18.0	11.0	5.0	15.0	0.8
153	0.015	18.0	11.0	5.0	15.0	0.8
183	0.018	18.0	11.0	5.0	15.0	0.8
223	0.022	18.0	11.0	5.0	15.0	0.8
273	0.027	18.0	11.0	5.0	15.0	0.8
333	0.033	18.0	12.0	6.0	15.0	0.8
393	0.039	18.0	12.0	6.0	15.0	0.8
473	0.047	18.0	12.0	6.0	15.0	0.8
563	0.056	18.0	13.5	7.5	15.0	0.8
683	0.068	18.0	14.5	8.5	15.0	0.8
823	0.082	18.0	14.5	8.5	15.0	0.8
104	0.10	18.0	16.0	10.0	15.0	0.8
124	0.12	18.0	19.0	11.0	15.0	0.8
473	0.047	26.5	15.0	6.0	22.5	0.8
563	0.056	26.5	15.0	6.0	22.5	0.8
683	0.068	26.5	15.0	6.0	22.5	0.8
823	0.082	26.5	15.0	6.0	22.5	0.8
104	0.10	26.5	15.0	6.0	22.5	0.8
124	0.12	26.5	16.0	7.0	22.5	0.8
154	0.15	26.5	17.0	8.5	22.5	0.8
184	0.18	26.5	17.0	8.5	22.5	0.8
224	0.22	26.5	18.5	10.0	22.5	0.8
274	0.27	26.5	22.0	12.0	22.5	0.8
334	0.33	26.5	22.0	12.0	22.5	0.8
394	0.39	26.5	22.0	12.0	22.5	0.8

1000/1250Vdc (630Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
822	0.0082	18.0	11.0	5.0	15.0	0.8
103	0.010	18.0	11.0	5.0	15.0	0.8
123	0.012	18.0	11.0	5.0	15.0	0.8
153	0.015	18.0	11.0	5.0	15.0	0.8
183	0.018	18.0	13.5	7.5	15.0	0.8
223	0.022	18.0	13.5	7.5	15.0	0.8
273	0.027	18.0	14.5	8.5	15.0	0.8
333	0.033	18.0	14.5	8.5	15.0	0.8
393	0.039	18.0	16.0	10.0	15.0	0.8
473	0.047	18.0	19.0	11.0	15.0	0.8
273	0.027	26.5	15.0	6.0	22.5	0.8
333	0.033	26.5	15.0	6.0	22.5	0.8
393	0.039	26.5	15.0	6.0	22.5	0.8
473	0.047	26.5	16.0	7.0	22.5	0.8
563	0.056	26.5	16.0	7.0	22.5	0.8
683	0.068	26.5	17.0	8.5	22.5	0.8
823	0.082	26.5	18.5	10.0	22.5	0.8
104	0.10	26.5	18.5	10.0	22.5	0.8
124	0.12	26.5	22.0	12.0	22.5	0.8
154	0.15	26.5	22.0	12.0	22.5	0.8

外形尺寸 Dimensions (mm)

1600Vdc (650Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
681	0.0007	18.0	11.0	5.0	15.0	0.8
821	0.0008	18.0	11.0	5.0	15.0	0.8
102	0.0010	18.0	11.0	5.0	15.0	0.8
122	0.0012	18.0	11.0	5.0	15.0	0.8
152	0.0015	18.0	11.0	5.0	15.0	0.8
182	0.0018	18.0	11.0	5.0	15.0	0.8
222	0.0022	18.0	11.0	5.0	15.0	0.8
272	0.0027	18.0	11.0	5.0	15.0	0.8
392	0.0039	18.0	11.0	5.0	15.0	0.8
472	0.0047	18.0	11.0	5.0	15.0	0.8
562	0.0056	18.0	11.0	5.0	15.0	0.8
682	0.0068	18.0	11.0	5.0	15.0	0.8
822	0.0082	18.0	12.0	6.0	15.0	0.8
103	0.010	18.0	12.0	6.0	15.0	0.8
123	0.012	18.0	13.5	7.5	15.0	0.8
153	0.015	18.0	13.5	7.5	15.0	0.8
183	0.018	18.0	14.5	8.5	15.0	0.8
223	0.022	18.0	14.5	8.5	15.0	0.8
273	0.027	18.0	16.0	10.0	15.0	0.8
333	0.033	18.0	19.0	11.0	15.0	0.8
153	0.015	26.5	15.0	6.0	22.5	0.8
183	0.018	26.5	15.0	6.0	22.5	0.8
223	0.022	26.5	15.0	6.0	22.5	0.8
273	0.027	26.5	15.0	6.0	22.5	0.8
333	0.033	26.5	16.0	7.0	22.5	0.8
393	0.039	26.5	17.0	8.5	22.5	0.8
473	0.047	26.5	18.5	10.0	22.5	0.8
563	0.056	26.5	18.5	10.0	22.5	0.8
683	0.068	26.5	22.0	12.0	22.5	0.8
823	0.082	26.5	22.0	12.0	22.5	0.8

2000Vdc (700Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
221	0.00022	18.0	11.0	5.0	15.0	0.8
271	0.00027	18.0	11.0	5.0	15.0	0.8
331	0.00033	18.0	11.0	5.0	15.0	0.8
391	0.00039	18.0	11.0	5.0	15.0	0.8
471	0.00047	18.0	11.0	5.0	15.0	0.8
561	0.00056	18.0	11.0	5.0	15.0	0.8
681	0.00068	18.0	11.0	5.0	15.0	0.8
821	0.00082	18.0	11.0	5.0	15.0	0.8
102	0.0010	18.0	11.0	5.0	15.0	0.8
122	0.0012	18.0	11.0	5.0	15.0	0.8
152	0.0015	18.0	11.0	5.0	15.0	0.8
182	0.0018	18.0	11.0	5.0	15.0	0.8
222	0.0022	18.0	11.0	5.0	15.0	0.8
272	0.0027	18.0	11.0	5.0	15.0	0.8
332	0.0033	18.0	12.0	6.0	15.0	0.8
392	0.0039	18.0	12.0	6.0	15.0	0.8
472	0.0047	18.0	12.0	6.0	15.0	0.8
562	0.0056	18.0	13.5	7.5	15.0	0.8
682	0.0068	18.0	13.5	7.5	15.0	0.8
822	0.0082	18.0	14.5	8.5	15.0	0.8
103	0.010	18.0	16.0	10.0	15.0	0.8
123	0.012	18.0	16.0	10.0	15.0	0.8
153	0.015	18.0	19.0	11.0	15.0	0.8
102	0.0010	26.5	15.0	6.0	22.5	0.8
122	0.0012	26.5	15.0	6.0	22.5	0.8
152	0.0015	26.5	15.0	6.0	22.5	0.8
182	0.0018	26.5	15.0	6.0	22.5	0.8
222	0.0022	26.5	15.0	6.0	22.5	0.8
272	0.0027	26.5	15.0	6.0	22.5	0.8
332	0.0033	26.5	15.0	6.0	22.5	0.8
392	0.0039	26.5	15.0	6.0	22.5	0.8
472	0.0047	26.5	15.0	6.0	22.5	0.8
562	0.0056	26.5	15.0	6.0	22.5	0.8
682	0.0068	26.5	15.0	6.0	22.5	0.8
822	0.0082	26.5	15.0	6.0	22.5	0.8
103	0.010	26.5	15.0	6.0	22.5	0.8
123	0.012	26.5	15.0	6.0	22.5	0.8
153	0.015	26.5	16.0	7.0	22.5	0.8
183	0.018	26.5	16.0	7.0	22.5	0.8
223	0.022	26.5	17.0	8.5	22.5	0.8
273	0.027	26.5	18.5	10.0	22.5	0.8
333	0.033	26.5	18.5	10.0	22.5	0.8
393	0.039	26.5	22.0	12.0	22.5	0.8
473	0.047	26.5	22.0	12.0	22.5	0.8

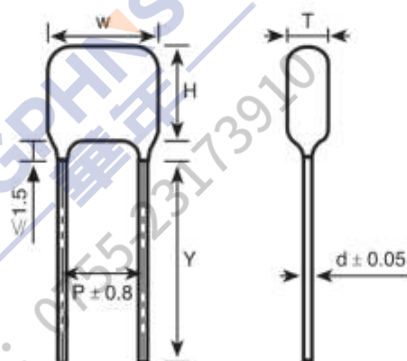
# MEF 金属化聚酯薄膜电容器 (CL21)

## Metallized Polyester Film Capacitors (CL21)

金属化聚脂膜无感结构卷绕而成，采用镀锡铜包钢线、阻燃环氧树脂粉末包封而成。

With metallized polyester film dielectric, non-inductive construction, CP wire and encapsulated in plastic case with flame retardant epoxy resin powder coating

### 外形图 Outline Drawing



### 特点 Features

- ◆ 金属化聚脂膜、无感结构
- ◆ 容量范围宽,体积小,重量轻
- ◆ 自愈性好,寿命长
- ◆ 阻燃性环氧粉末包封

Metallized polyester film non-inductive wound construction  
Wide capacitance range, small size, and light weight  
Long life due to self healing effect  
Flame retardation epoxy resin coated

### 主要用途 Typical Applications

- ◆ 适用于直流和VHF级信号的隔直流、旁路和耦合

Suitable for blocking, by-pass and coupling of DC and signals to VHF range

- ◆ 电视机、显示器S校正电路

S-correction circuits for TV sets and monitors

### 技术指标 Specifications

Item项目	Specification标准要求
气候类别 Climatic Category	55/105/21
额定温度 Rated Temperature	85°C
工作温度 Operating Temperature Range	- 40°C ~ +105°C (+85°C to +105°C: decreasing factor 1.25% per °C for $U_R$ )
容量范围 Capacitance Range	0.01 $\mu$ F ~ 2.2 $\mu$ F
容量偏差 Capacitance Tolerance	J: $\pm$ 5%、K: $\pm$ 10%
额定电压 Rated Voltage	250V、400V/450V、630V
损耗角正切 Dissipation Factor	$\leq$ 1% (1KHz at 20~25°C)
绝缘电阻 Insulation Resistance	$\geq$ 30000 M $\Omega$ for $C_R \leq$ 0.33 $\mu$ F ; $\geq$ 10000 S for $C_R >$ 0.33 $\mu$ F (20°C, 100V, 1min)
耐电压 Voltage Proof	1.6 $U_R$ (5s)

项目Item	标准要求 Specification					
最大脉冲爬升速率 Maximum Pulse Rise Time(dV/dt): 若实际工作电压U比额定电压 $U_R$ 低, 电容器可工作在更高的dV/dt场合, 这样 dV/dt 允许值应为右表值乘以 $U_R/U$ 。 If the working voltage(U)is lower than the rated voltage( $U_R$ ), the capacitor can be worked at a higher dV/dt, In this case, the maximum allowed dV/dt is obtain by multiplying the right value with $U_R/U$ 。	$U_R$ (V)	dV/dt (V/us)				
		P=7.5	P=10.0	P=15.0	P=22.5	P=27.5
	250	30	20	12	8	5
	400/450	40	30	20	10	7
630	/	40	25	12	10	

外形尺寸 Dimensions (mm)

250Vdc(160Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
103	0.010	13.0	10.0	5.0	10.0	0.6
223	0.022	13.0	10.0	5.0	10.0	0.6
333	0.033	13.0	10.0	5.0	10.0	0.6
473	0.047	13.0	9.0	4.5	10.0	0.6
683	0.068	13.0	10.0	5.0	10.0	0.6
104	0.10	13.0	9.0	4.5	10.0	0.6
224	0.22	13.0	10.0	5.0	10.0	0.6
334	0.33	13.0	11.0	6.0	10.0	0.6
474	0.47	13.0	11.5	7.0	10.0	0.6
224	0.22	18.0	10.0	5.0	15.0	0.8
334	0.33	18.0	11.5	6.0	15.0	0.8
474	0.47	18.0	13.0	6.5	15.0	0.8
684	0.68	18.0	12.0	6.5	15.0	0.8
105	1.0	18.0	13.5	7.0	15.0	0.8
155	1.5	18.0	15.5	8.0	15.0	0.8
225	2.2	18.0	17.5	9.0	15.0	0.8
105	1.0	23.0	12.0	6.0	20.0	0.8
155	1.5	23.0	14.5	7.5	20.0	0.8
225	2.2	23.0	17.0	10.5	20.0	0.8

400/450Vdc (200Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
103	0.010	13.0	10.0	5.0	10.0	0.6
223	0.022	13.0	10.0	5.0	10.0	0.6
333	0.033	13.0	10.0	5.0	10.0	0.6
473	0.047	13.0	9.0	4.5	10.0	0.6
683	0.068	13.0	10.0	5.0	10.0	0.6
104	0.10	13.0	10.5	5.5	10.0	0.6
224	0.22	13.0	13.0	8.0	10.0	0.6
334	0.33	18.0	11.5	5.0	15.0	0.8
474	0.47	18.0	13.0	6.5	15.0	0.8
684	0.68	18.0	15.5	7.5	15.0	0.8
474	0.47	23.0	13.0	5.0	20.0	0.8
684	0.68	23.0	15.0	7.5	20.0	0.8
105	1.0	23.0	17.0	9.0	20.0	0.8
155	1.5	23.0	19.0	11.0	20.0	0.8
225	2.2	23.0	19.0	11.0	20.0	0.8

630Vdc (220Vac)						
Code	Cap (μF)	W max	H max	T max	P	d
103	0.010	13.0	10.0	5.0	10.0	0.6
223	0.022	13.0	9.5	5.0	10.0	0.6
333	0.033	13.0	10.0	5.5	10.0	0.6
473	0.047	13.0	10.0	5.0	10.0	0.6
683	0.068	13.0	11.0	6.0	10.0	0.6
104	0.10	13.0	12.5	6.5	10.0	0.6
104	0.10	18.0	10.0	5.5	15.0	0.8
224	0.22	18.0	15.0	8.0	15.0	0.8
334	0.33	18.0	10.0	5.5	15.0	0.8
474	0.47	18.0	14.0	8.0	15.0	0.8
474	0.47	23.0	14.0	6.5	20.0	0.8



# DCC 型温度补偿圆片瓷介电容器 (Class I)

## Type DCC Temperature Compensating Disc Ceramic Capacitors (Class I)

I类温度补偿型圆片瓷介电容器的电容量随温度改变呈线性变化，适用于调节回路和需要补偿温度效应的电路中。

Temperature compensating disc capacitors have a ceramic dielectric that is formulated to provide a predictable linear capacitance change versus temperature. This predictable linear capacitance change allows the temperature compensating disc capacitors to be used in critical circuit applications such as tuned circuits.

### 技术指标 Specification

No	名称 Item	技术要求 Specification
1	使用温度范围 Operating Temperature	-25 °C ~125 °C
2	电容量( $C_R$ ) 和介质损耗测试条件 Capacitance ( $C_R$ ) and Dissipation Factor testing at	25°C, 1Vrms, 100KHz ( $\geq 1000\text{pF}$ : 1KHz)
3	介质损耗 Dissipation Factor( $\text{tg}\delta$ )	NP0, SL: $\leq 2.5\%$ ( $C_R \geq 50\text{pF}$ ); $\leq 5\%$ ( $5\text{pF} \leq C_R < 50\text{pF}$ )
4	额定电压 Rated Voltage ( $U_R$ )	50, 250, 500VDC
5	耐电压 Voltage Proof	$2.5U_R$
6	绝缘电阻 Insulation Resistance (I.R)	在额定电压下测试 At rated voltage, $\geq 10000\text{M}\Omega$
7	温度系数 Temperature Coefficient	N P O , U J , S L

### 电容量与尺寸对照表 Capacitance and Dimension Chart

额定电压 Rated Voltage (VDC)	产品尺寸 Dimension(mm)		电容温度系数组别 Temperature Coefficient Group						引线尺寸 Lead Size(mm)	
	直径 Diameter Dmax	厚度 Thick Tmax	CH(NP0)		UJ(N750)		SL(P100~N1000)		间距 Space F	直径 Diameter d
			电容量范围 Nominal Capacitance	素子尺寸 Plate Size	电容量范围 Nominal Capacitance	素子尺寸 Plate Size	电容量范围 Nominal Capacitance	素子尺寸 Plate Size		
50~250	5.0	3.0	0.5~47	4718	22~56	4718	20~131	4718	2.5	0.50
	5.5		51~56	5218	62~82	5218	151~221	5018		
	6.0		62~82	5618						
	6.5		85~101	6218	85~121	6018	251~271	6018	5.0	0.50
	7.0		111~131	6818	101~131	6518	301~361	6518		
	7.5				181	7018	391~431	7018		
	8.5		141~151	7518	201~221	7818	471~501	7818		
	9.0		181~201	8418			511~561	8318		
	10.0		221~271	9518			621~681	9518		
	10.5						751~821	9818		
11.0	301~331	10818			102	10518				
500	5.5	4.0	0.5~33	4825	18~40	4825	18~121	4825	5.0	0.50
	6.0		36~56	5525			121~181	5525		
	6.5						2011~221	6825		
	7.5						231~271	7825		
	9.0						301~391	8325	0.50	
电容量允许偏差 Capacitance Tolerance			小于 10pF: $\pm 0.25\text{pF}$ , $\pm 0.5\text{pF}$ ; 大于或等于 10pF: $\pm 5\%$ , $\pm 10\%$						见 11~14 页 Ref:P11~14	
包装方式 Packing Style			散装, 编带 (Bulk, Taping)							

# DCT 型高介电常数圆片瓷介电容器 (Class II)

## Type DCT High Dielectric Constant Disc Ceramic Capacitors (Class II)

DCT 型圆片瓷介电容器的特点是：介电常数高，容量大，体积小。适用于旁路、耦合、隔直流和滤波等电路中。

Type DCT disc capacitors have characteristics such as higher dielectric constant, higher capacitance, smaller size. They are suitably used in bypass circuit, coupling circuit, filter circuit, and isolating circuit etc.

### 技术指标 Specification

No	名称 Item	技术要求 Specification
1	使用温度范围 Operating Temperature	-25 °C ~ 125 °C
2	电容量(C <sub>n</sub> )和介质损耗测试条件 Capacitance(C <sub>n</sub> ) and Dissipation factor testing at	25°C, 1 V <sub>rms</sub> , 1 KHz
3	介质损耗 Dissipation Factor(tgδ)	Tg δ ≤ 2.5%
4	额定电压 Rated Voltage (U <sub>n</sub> )	50, 250, 500VDC
5	耐电压 Voltage Proof	2.5U <sub>n</sub>
6	绝缘电阻 Insulation Resistance (I.R)	在额定电压下测试 At rated voltage, ≥ 10000M Ω
7	温度特性 Temperature Characteristic	Y5P, X7R, Y5U, Y5V

### 电容量与尺寸对照表 Capacitance and Dimension Chart

额定电压 Rated Voltage (VDC)	产品尺寸 Dimension(mm)		温度特性 Temperature Characteristic						引线尺寸 Lead Size(mm)	
			Y5P(B)	X7R(R)	Y5U(E)		Y5V(F)			
	直径 Diameter Dmax	厚度 Thick Tmax	电容量范围 Nominal Capacitance	素子尺寸 Plate Size	电容量范围 Nominal Capacitance	素子尺寸 Plate Size	电容量范围 Nominal Capacitance	素子尺寸 Plate Size	间距 Space F	直径 Diameter d
50~250	5.0	3.0	221~152	4718	152~502	4718	222~682	4718	2.5	0.50
	5.5		182~222	5018	682	5018	103	5016		
	6.5		252~332	5818	822~103	6018	103	6020		
	7.5		472	6818					5.0	0.50
	8.0		502~562	7518						
	9.0		682	8520			153~223	8220		
	10.5		822~103	9820						
500	5.0	4.0	151~561	4835	102~222	5040			5.0	0.50
	5.5		681~102	5035			222~332	5040		
	6.0		122	5535						
	6.5		152	6035	272~392	5840	392~562	6040		
	7.0		182	6535						
	7.5		222	7035	472~502	7040	682~103	7030		
	8.0		272	7535	682	7640				
	8.5									
	9.0		332	8435						
	9.5		392	8835	822~103	9035				
	10.5		472	9835			223	9535		
	12.5		682	11535						
	14.5		103	13535					5.0	0.50
电容量允许偏差 Capacitance Tolerance			± 10%, ± 20%		± 20%		+80%~20%			
包装方式 Packing Style			散装, 编带 (Bulk, Taping)							

500V 提供 X7R 产品



# DCS 型半导体圆片瓷介电容器 (Class III)

## Type DCS Semi-conductive Disc Ceramic Capacitors (Class III)

DCS 型半导体圆片瓷介电容器的陶瓷芯片属于表面层半导体结构,其电容器具有大容量、小体积等特点,适用于滤波、旁路、耦合等电路中。

This disc ceramic capacitors belong to surface layer semi-conductive construction, have characteristics such as higher capacitance, small size etc. They are best suited for use in filter circuit, bypass circuit, and coupling circuit etc.

### 技术指标 Specification

No	名称 Item	技术要求 Specification
1	使用温度范围 Operating Temperature	-25 °C ~ 125 °C
2	电容量(C <sub>R</sub> )和介质损耗测试条件 Capacitance(C <sub>R</sub> )and Dissipation factor testing at	25°C, 0.1Vrms, 1KH <sub>z</sub>
3	介质损耗 Dissipation Factor(tgδ)	16V: ≤7% 25V、50V: ≤5.0%
4	额定电压 Rated Voltage (U <sub>R</sub> )	16, 25, 50VDC
5	耐电压 Voltage Proof	1.5U <sub>R</sub>
6	绝缘电阻 Insulation Resistance (I.R)	在额定电压下测试 At rated voltage , 16V : IR ≥ 100MΩ 25V : IR ≥ 250MΩ 50V : IR ≥ 1000MΩ ;
7	温度特性 Temperature Characteristic	Y5P, Y5U, Y5V

### 电容量与尺寸对照表 Capacitance and Dimension Chart

额定电压 Rated Voltage	产品尺寸 Dimension(mm)		温度特性 Temperature Characteristic						引线尺寸 Lead Size(mm)				
			Y5P(B)		Y5U(E)		Y5V(F)						
			电容量范围 Nominal Capacitance	素子尺寸 Plate Size	电容量范围 Nominal Capacitance	素子尺寸 Plate Size	电容量范围 Nominal Capacitance	素子尺寸 Plate Size			间距 Space F	直径 Diameter d	
16 (VDC)	直径 Dmax	厚度 Tmax					683~104	5320	2.5	0.50			
							683~104	5620					
									5.0	0.50			
							124~154	7030					
							204~224	8030					
25	直径 Dmax	厚度 Tmax					103~473	4525	2.5	0.50			
					153~223	4225							
							333	4625					
							473	5625	683~104	5625	5.0	0.50	
									683~104	6025			
							684~104						
								7025	224	8030			
						104	10330					0.50	
50	直径 Dmax	厚度 Tmax							2.5	0.50			
							103	3816			153~223	4525	
									153~223	4225			
						103	4625	333	4625	135~473	4625	5.0	0.50
						153~223	5625	473	5625	683	5625		
						333	7025			104	7025		
						473	8030	683~104	8030	154	8030		
										224	8030	5.0	0.50
			104	11035									
电容量允许偏差 Capacitance Tolerance			± 10%		± 20%		+80%~20%, +50%~20%		见 11~ 14 页 Ref:P11~14				
包装方式 Packing Style			散装, 编带 (Bulk, Taping)										

# DCH型高压圆片瓷介电容器

## Type DCH High Voltage Disc Ceramic Capacitors

高压圆片瓷介电容器具有耐直流高压的特点，适用于高压旁路和耦合电路中。其中的低损耗高压圆片瓷介电容器具有较低的介质损耗，特别适合在电视接收机的行扫描等电路中使用。

The high voltage disc ceramic capacitors have feature of withstanding higher voltage. These capacitors are used in bypass and coupling circuits. Therein the high voltage disc ceramic capacitors with low dissipation factor particularly suit to use in the circuits such as line scanning in TV set.

### 技术指标 Specification

No	名称 Item	技术要求 Specification
1	使用温度范围 Operating Temperature	-25 °C ~ 125 °C
2	电容量( $C_R$ )和介质损耗测试条件 Capacitance ( $C_R$ ) and Dissipation factor testing at	25°C, 1Vrms, I类 Class I : 100KHz, II类 Class II : 1KHz
3	介质损耗( $\text{tg } \delta$ ) Dissipation Factor( $\text{tg } \delta$ )	Y5P、X7R、Y5U、Y5V : $\leq 2.5\%$ BN: $\leq 0.5\%$ ; Y5R: $\leq 0.2\%$ CH,SL: $\leq 2.5\%$ ( $C_R \geq 50\text{pF}$ ); $\leq 5\%$ ( $5\text{pF} \leq C_R < 50\text{pF}$ )
4	额定电压 Rated Voltage ( $U_R$ )	1 KVDC, 2KVDC, 3KVDC
5	耐电压 Voltage Proof	$1.5U_R + 500\text{V}$
6	绝缘电阻 Insulation Resistance(I.R)	$\geq 10000\text{M}\Omega$ (500VDC)
7	温度特性 * Temperature Characteristic*	Y5P, Y5U, Y5V, NPO, SL, *BN, *Y5R

\* BN, Y5R含铅

\* BN, Y5R contain Pb.



陶瓷电容器生产车间一角

电容量与尺寸对照表(标准品) Capacitance and Dimension Chart

额定电压 Rated Voltage (KVDC)	产品尺寸 Dimension(mm)		温度特性 Temperature Characteristic														引线间距 Lead Spacing (mm)	
	直径 Dmax.	厚度 Tmax.	CH		SL		Y5P/X7R		Y5U		Y5V		BN		Y5R			
			电容量范围 Capacitance	素子尺寸 Plate Size	电容量范围 Capacitance	素子尺寸 Plate Size	电容量范围 Capacitance	素子尺寸 Plate Size	电容量范围 Capacitance	素子尺寸 Plate Size	电容量范围 Capacitance	素子尺寸 Plate Size	电容量范围 Capacitance	素子尺寸 Plate Size	电容量范围 Capacitance	素子尺寸 Plate Size		
1	4.0	5.5					101-181	4750							101-151	4880	5.0	
		6.0	0.5-22	4840	47-68	5040	221-681	5050	102-122	5060	222-272	4850	221-102	4850	221-471	4850		
		6.5	27	5640			102	5650	152-222	5550			102	5550				
		7.0			82-121	6040					332-472	6050			561-681	5850		
		7.5	33-47	6340			122-152	6550	272-332	6550			152	6550				
		8.0			151-181	6840			392	7050	562	7050			821-102	7050		
		8.5	56-68	7240	221	7840	182-222	7850					182-222	7355				
		9.5			271-391	8440			472	8060	682-103	8050			122-152	8050		
		10.0							682	9050			252-332	8855	182	9050		
		10.5																
		11.0					272-392	9850	103	10050			392	10055	222	9850		7.5/10.0
		12.5					472	11050					472	10855	332	11550		10.0
		14.0					562	12550										
		2	4.0	6.0	0.5-22	4860	15-56	5060	101-471	4890	102-122	4890	102-222	4890	221-471	4890		101-271
6.5					68	5860	561-681	5880	152	5890	222-332	5890	681	5890	331	5080		
7.0															471	6080		
8.0					82-101	6860	821-102	6580	222	6890	392	6890	821-102	6690	681-102	7080		
9.0					121-151	7860	122-152	7580	332	7890	472	7890	152	7890				
9.5											562-682	8490					7.5	
10.0					221	9060	222	9080	392-472	9090			182	8890	152	8580		
11.0					271	9860	272	10080	562	10090	822-103	9580	222	9590				
12.0									682	10890			272	10890	222	11085	10.0	
14.0							332-392	12590	103	130100			332	125100				
3	4.0	6.0	3-15	48100	5-39	48100	101-391	48120			102-152	48150				5.0/7.5		
		6.5			47-51	52100	471	52120	102	52130								
		7.0			56-62	58100	561	58120			222	58150						
		7.5			68-75	62100	681	62120	152	62140								
		8.0			82	68100	821	68120			272	68120			331		65120	
		8.5			101	74100	102	72125	222	72130	332	74120			471		75120	
		9.0									392	78120						7.5
		10.0			221	90100			332	88120	472-562	88120			681		85120	
		11.0					152	95120	392	95120								
		11.5					182	100120	472	100120	682	100120						10.0
13.5					222	115120	682	120120	103	120120								
电容量允许偏差 Capacitance Tolerance		±5%, ±10%		±5%, ±10%		±10%		±20%		±20% +80%-20%		±10%		±10%		见11~14页 Ref: 11~14		
包装方式 Packing Style		散装, 编带 (Bulk, Taping)																



容量与尺寸对照表(小型化) Capacitance and Dimension Chart (Reduced Size)

额定电压 Rated Voltage (KVDC)	产品尺寸 Dimension(mm)		温度特性 Temperature Characteristic													引线间距 Lead Spacing (mm)		
	直径 Dmax.	厚度 Tmax.	CH		SL		Y5P/X7R		Y5U		Y5V		BN		Y5R			
			电容范围 Capacitance	素子尺寸 Plate Size	电容范围 Capacitance	素子尺寸 Plate Size	电容范围 Capacitance	素子尺寸 Plate Size	电容范围 Capacitance	素子尺寸 Plate Size	电容范围 Capacitance	素子尺寸 Plate Size	电容范围 Capacitance	素子尺寸 Plate Size	电容范围 Capacitance		素子尺寸 Plate Size	
1	4.0	5.5					151-561	4835										5.0
			0.5-33	4825	18-121	4825	681-102	5035	102-222	5040	202-332	5040						
		6.5	47-56	5525	121-151	5525	122	5535										
		7.0			181-221	6525	152	6035	272-392	5840	392-562	6040						
		8.0	68-82	7025	221	7030	182-222	7035	472	7040	682	7040						
		8.5	101	7525	271	7525	272	7535	682	7540								
		9.5			331-392	8225	332	8435			822-103	8040						
		10.0			471	9025	392	8835	103	9035								
		10.5	121-151	9530			472	9835			223	9538						
		11.0																
		12.5					562	10835										
		14.0					682	11535										
		16.0					822-103	13535										
2	4.0	6.0	1-22	4840	15-68	5040											5.0/7.5	
		6.5	27	5540														
		7.0	30-47	6240	82-101	6040												
		8.0			151	6840												
		9.0			221	7840												
		9.5			271	8440												
容量允许偏差 Capacitance Tolerance			±5%, ±10%		±5%, ±10%		±10%		±20%		±20% +80%-20%		±10%		±10%		见11~14页 Ref: 11~14	
包装方式 Packing Style			散装, 编带 (Bulk, Taping)															

瓷介电容器

陶瓷电容器标志测试



# DCG 型超高压圆片瓷介电容器

## Type DCG Super High Voltage Disc Ceramic Capacitors

超高压圆片瓷介电容器具有较宽的直流额定电压范围和宽的电容容量范围，适用于高压电源的滤波电路、电视机和显示器的高压电路中。

Type DCG high voltage disc ceramic capacitors have high rated voltage, often used in filter circuit for high voltage supply and in high voltage circuit for TV set and monitor.

### 技术指标 Specification

No	名称 Item	技术要求 Specification
1	使用温度范围 Operating Temperature	-25°C~125°C
2	电容量(C <sub>R</sub> )和介质损耗测试条件 Capacitance(C <sub>R</sub> ) and Dissipation factor testing at	25°C, 1Vrms, 100KHz (I类Class I) 1KHz (II类Class II)
3	介质损耗 (tgδ) Dissipation (tgδ)	Y5P、Y5U、Y5V: ≤ 2.5%, BN: ≤ 0.5%, Y5R: ≤ 0.2% SL: ≤ 2.5‰ (C <sub>R</sub> ≥ 50pF); ≤ 5‰ (5pF ≤ C <sub>R</sub> < 50pF)
4	额定电压 Rated Voltage (U <sub>R</sub> )	4~15KV
5	耐电压 * Voltage Proof*	1.5U <sub>R</sub>
6	绝缘电阻 Insulation Resistance (I.R)	≥ 10000MΩ (500VDC)
7	温度特性 * Temperature Characteristic*	SL、DL、Y5P、Y5U、Y5V、*Y5R

\*注：在 25 °C 下，施加 1.5 倍额定电压 1 ~ 5S 无击穿或飞弧。对于额定电压 6 ~ 15kV 的电容器，耐电压试验在绝缘油中进行。  
Note : No breakdown or flashover when apply 1.5 times of rated voltage at 25 °C .Voltage proof shall be conducted in insulation oil for the capacitors with rated voltage of 6~15kV.

\*Y5R 含铅

\*Y5R contain Pb

### 电容量与尺寸对照表 Capacitance and Dimension Chart

额定电压 Rated Voltage (KVDC)	产品尺寸 Dimension (mm)		温度特性 Temperature Characteristic								引线间距 Lead Spacing (mm)
	直径 Diamet-er Dmax.	厚度 Thick-ness Tmax.	Y5P		Y5U		Y5V		DL		
			电容量范围 Capacitance	素子尺寸 Plate Size	电容量范围 Capacitance	素子尺寸 Plate Size	电容量范围 Capacitance	素子尺寸 Plate Size	电容量范围 Capacitance	素子尺寸 Plate Size	
4	6.0	5.0	101-331	48120			102	48140			5.0/7.5
	7.0		391-471	52120	102	52140	122-152	52140			
	7.5		561	58120	122	58140	222	58140			
	8.0		681	62120	152	62140					
	8.5		821	68120			332	68130			
	9.0		102	72120	222	72140					
	10.0		122	82120			472	78140			
6	5.0	6.0	101	40140							5.0/7.5
	6.0		101-221	48200	471-561	48220	102	48220	101	48120 52120	
	6.5		331	52200	681	52200	152	58200			
	7.0		391	58200	821-102	58200	182	62200			
	8.0		471-561	68200							
	9.0		681	76200	152	73220	222	73220			
	10.0		821	82200	222	82200					
	11.0		102	90200							
12.0	122	100200							7.5/10.0		

容量与尺寸对照表 Capacitance and Dimension Chart

额定电压 Rated Voltage (KVDC)	产品尺寸 Dimension(mm)		温度特性 Temperature Characteristic								引线间距 Lead Spacing (mm)
	直径 Diameter	厚度 Thick Tmax.	Y5P		Y5U		Y5V		DL		
			容量范围 Capacitance	素子尺寸 Plate Size	容量范围 Capacitance	素子尺寸 Plate Size	容量范围 Capacitance	素子尺寸 Plate Size	容量范围 Capacitance	素子尺寸 Plate Size	
8	8.0	6.5	471	62200	471	58350			101	52150	7.5/10.0
	9.0				102	68280					
	10.0								221	78160	
	12.0				222	102280					
10	8.0	6.5			471	58350			101	58200	10.0
	9.5				102	73350					
	10.0		471	82360					221	88200	
	13.0				222	112350					
12	8.0	7.0			471	58350					10.0
	9.5				102	73350			101	68240	
	11.0		471	82360					221	90240	
	15.0				222	125400					
15	9.0	8.0							101	68280	10.0
	10.5		471	85400	102	85400					
	12.0								221	100290	
	16.0				222	138500					
容量允许偏差 Capacitance Tolerance			± 10%		± 20%		± 20%		± 10%		见 11~ 14 页 Ref:P11~14
包装方式 Packing Style			散装 (Bulk)								

瓷介电容器

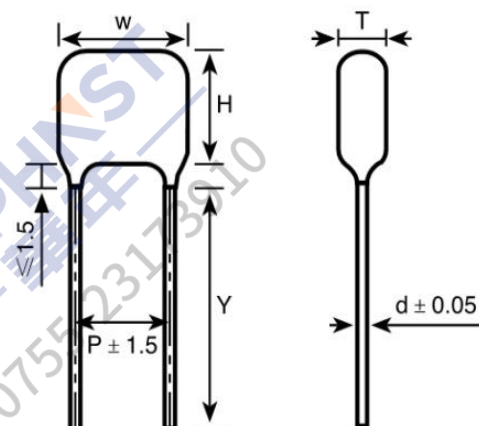
电容器激光标志



# 无感箔式聚丙烯薄膜电容器 (CBB13)

## Polypropylene film/foil Capacitor (Non-inductive)

### 外形图 Outline Drawing



### 特点 Features

- ◆ 膜箔式电容器，无感卷绕结构，浸渍型
- ◆ 优异的频率和温度特性
- ◆ 即使在高频下，损耗也极小
- ◆ 阻燃环氧粉末包封（UL94/V-0）

Film/foil, non-inductive wound type, dipped  
 Excellent frequency and temperature characteristics  
 Very small loss even at high frequency  
 Flame retardant epoxy resin powder coating (UL94/V-0)

### 主要用途 Typical Applications

- ◆ 广泛用于高频、直流和脉冲电路中

Widely used in high frequency, DC and pulse circuits

### 技术指标 Specifications

项目 Item	标准要求 Specification
气候类别 Climatic Category	40/105/21
额定温度 Rated Temperature	85°C
工作温度 Operating Temperature Range	- 40°C ~ +105°C (+85°C to +105°C: decreasing factor 1.25% per °C for U <sub>R</sub> )
容量范围 Capacitance Range	0.0010μF ~ 0.1μF
容量偏差 Capacitance Tolerance	G: ±2% J: ±5% K: ±10%
额定电压 Rated Voltage	250V 400V 630V 1000V
损耗角正切 Dissipation Factor	≤ 0.1% (1KHz at 20~25°C)
绝缘电阻 Insulation Resistance	≥ 50000MΩ for C <sub>R</sub> ≤ 0.1μF ; ≥ 5000S for C <sub>R</sub> > 0.1μF (20°C, 100V, 1min)
耐电压 Voltage Proof	2.0U <sub>R</sub> (5s)

## 外形尺寸 Dimensions (mm)

250Vdc						
Code	Cap (μF)	W max	H max	T max	P	d
102	0.0010	12.0	9.5	5.5	8.5	0.6
122	0.0012	12.0	10.0	6.0	8.5	0.6
152	0.0015	12.0	10.0	6.5	8.5	0.6
182	0.0018	12.0	10.5	6.5	8.5	0.6
222	0.0022	12.0	9.5	5.5	8.5	0.6
272	0.0027	12.0	10.0	6.0	8.5	0.6
332	0.0033	12.0	10.0	6.0	8.5	0.6
392	0.0039	12.0	10.5	6.5	8.5	0.6
472	0.0047	12.0	10.0	6.0	8.5	0.6
562	0.0056	12.0	10.5	6.5	8.5	0.6
682	0.0068	12.0	11.0	7.0	8.5	0.6
822	0.0082	13.5	10.5	6.5	10.0	0.6
103	0.010	13.5	11.0	7.0	10.0	0.6
123	0.012	18.0	11.0	6.0	14.0	0.6
153	0.015	18.0	11.5	6.0	14.0	0.6
183	0.018	18.0	11.5	6.5	14.0	0.6
223	0.022	18.0	12.0	7.0	14.0	0.6
273	0.027	18.0	13.5	7.0	14.0	0.6
333	0.033	18.0	14.0	7.5	14.0	0.6
393	0.039	18.0	14.5	8.0	14.0	0.6
473	0.047	18.0	15.5	8.5	14.0	0.6
563	0.056	22.5	16.0	8.0	19.0	0.8
683	0.068	22.5	16.5	8.5	19.0	0.8
823	0.082	22.5	17.0	9.5	19.0	0.8
104	0.10	22.5	18.0	10.0	19.0	0.8

630Vdc						
Code	Cap (μF)	W max	H max	T max	P	d
102	0.0010	14.5	10.0	6.0	11.0	0.6
122	0.0012	14.5	10.5	6.5	11.0	0.6
152	0.0015	14.5	10.5	6.5	11.0	0.6
182	0.0018	14.5	11.0	6.0	11.0	0.6
222	0.0022	14.5	11.0	6.5	11.0	0.6
272	0.0027	14.5	11.5	7.0	11.0	0.6
332	0.0034	14.5	12.0	7.0	11.0	0.6
392	0.0039	14.5	12.5	7.5	11.0	0.6
472	0.0047	14.5	13.0	8.0	11.0	0.6
562	0.0056	18.0	12.0	6.5	14.0	0.6
682	0.0068	18.0	12.5	7.0	14.0	0.6
822	0.0082	18.0	13.0	7.5	14.0	0.6
103	0.010	18.0	14.5	7.5	14.0	0.6

400Vdc						
Code	Cap (μF)	W max	H max	T max	P	d
102	0.0010	13.5	10.0	6.0	10.0	0.6
122	0.0012	13.5	10.5	6.5	10.0	0.6
152	0.0015	13.5	10.5	6.5	10.0	0.6
182	0.0018	13.5	10.0	6.5	10.0	0.6
222	0.0022	13.5	9.5	5.5	10.0	0.6
272	0.0027	13.5	9.5	5.5	10.0	0.6
332	0.0033	13.5	10.0	6.0	10.0	0.6
392	0.0039	15.0	11.0	6.0	11.0	0.6
472	0.0047	15.0	11.5	6.0	11.0	0.6
562	0.0056	15.0	11.5	6.5	11.0	0.6
682	0.0068	15.0	12.0	7.0	11.0	0.6
822	0.0082	15.0	12.5	7.0	11.0	0.6
103	0.010	15.0	13.0	8.0	11.0	6.0

1000Vdc						
Code	Cap (μF)	W max	H max	T max	P	d
102	0.0010	14.5	10.0	6.0	11.0	0.6
122	0.0012	14.5	10.0	6.0	11.0	0.6
152	0.0015	14.5	10.5	6.5	11.0	0.6
182	0.0018	14.5	11.0	7.0	11.0	0.6
222	0.0022	16.0	11.5	6.5	12.5	0.6
272	0.0027	16.0	11.5	7.0	12.5	0.6
332	0.0034	16.0	12.0	7.5	12.5	0.6

1000Vdc						
Code	Cap (μF)	W max	H max	T max	P	d
392	0.0039	16.0	12.5	8.0	12.5	0.6
472	0.0047	18.0	13.0	7.5	14.0	0.6
562	0.0056	18.0	13.5	8.0	15.0	0.8
682	0.0068	18.0	15.0	8.0	15.0	0.8
822	0.0082	18.0	15.5	8.5	15.0	0.8
103	0.010	22.5	15.0	8.0	19.0	0.8

无感箔式聚丙烯膜电容器

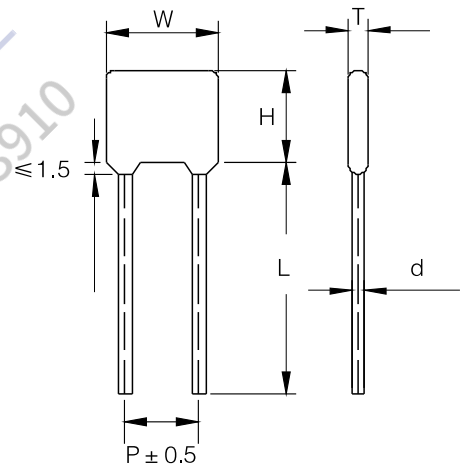


# 箔式聚酯薄膜电容器 (CL11)

## Polyester Film Capacitors

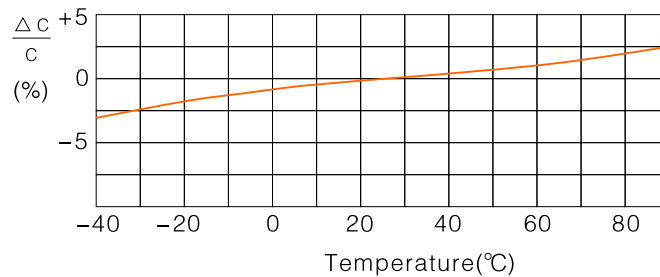
### 规格 Specifications

- ◆ 使用温度范围  
Operating Temperature:  $-40^{\circ}\text{C} \sim 105^{\circ}\text{C}$
- ◆ 电容量  
Capacitance:  $0.001 \mu\text{F} \sim 0.47 \mu\text{F}$
- ◆ 额定工作电压  
Rated working voltage :  $50\text{VDC} \sim 1000\text{VDC}$
- ◆ 测试电压  
Testing voltage: 2 times of the rated voltage
- ◆ 损耗角正切  
Dissipation Factor( $\text{tg } \delta$ ): 1.0% max(At  $1\text{KHz}$ ,  $25^{\circ}\text{C}$ )
- ◆ 绝缘电阻  
Insulation resistance(I.R):  $30000\text{M}\Omega$  for  $C_R \leq 0.33 \mu\text{F}$   
 $10000\text{S}$  for  $C_R > 0.33 \mu\text{F}$

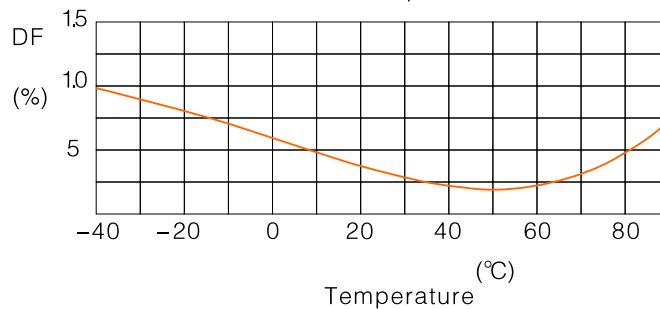


### Performance Curves

Capacitance change VS Temperature



DF VS Temperature



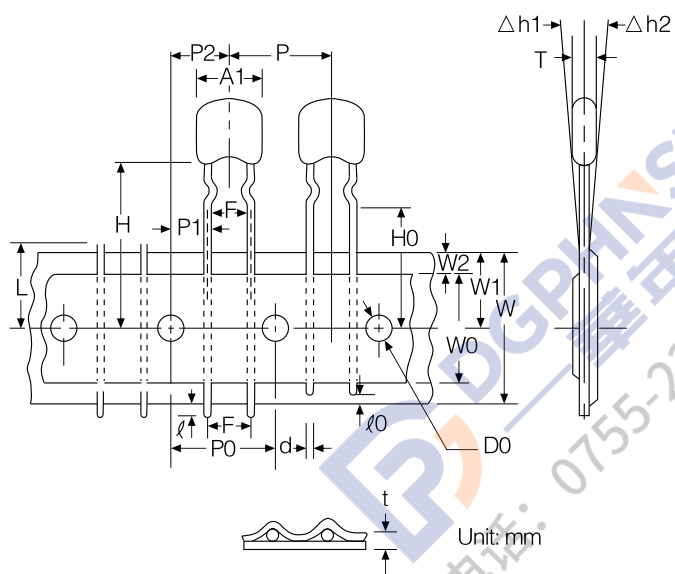
箔式聚酯薄膜电容器

## Rated Voltage and Dimensions

电容量代号 Code of Capacitance	标称电容 Nominal Capacitance ( $\mu\text{F}$ )	外型尺寸 External dimensions (mm)									
		额定电压 Rated Voltage : 50/100V					额定电压 Rated Voltage : 160V				
		W max	H max	T max	$d \pm 0.05$	$p \pm 1.0$	W max	H max	T max	$d \pm 0.05$	$p \pm 1.0$
102	0.001	6.0	10.5	4.0	0.5	3.5	6.5	11.0	3.4	0.5	3.5
152	0.0015	6.0	10.5	4.0	0.5	3.5	6.5	11.0	3.4	0.5	3.5
222	0.0022	6.0	11.5	4.0	0.5	3.5	6.5	11.5	3.4	0.5	3.5
332	0.0033	6.0	10.5	4.0	0.5	3.5	6.5	11.0	3.5	0.5	3.5
472	0.0047	6.0	11.0	4.0	0.5	3.5	6.5	11.0	3.5	0.5	3.5
562	0.0056	6.5	11.5	4.5	0.5	4.0	7.0	11.0	4.0	0.5	5.0
682	0.0068	6.5	11.5	4.5	0.5	4.0	7.0	11.0	4.0	0.5	5.0
822	0.0082	7.0	11.5	4.5	0.5	4.5	8.0	13.0	4.0	0.5	5.0
103	0.01	7.0	11.5	4.5	0.5	4.5	8.0	13.0	4.0	0.5	5.0
123	0.012	7.0	11.5	4.5	0.5	4.5	8.5	13.5	4.5	0.5	5.0
153	0.015	7.0	11.5	4.5	0.5	4.5	9.0	14.0	5.7	0.5	5.5
223	0.022	7.0	11.5	5.0	0.5	5.0	10.0	15.0	6.3	0.5	6.0
333	0.033	8.0	12.0	5.0	0.5	5.5	11.5	15.5	7.0	0.5	6.5
473	0.047	9.0	12.5	5.5	0.5	6.0	11.5	15.5	7.5	0.6	7.0
563	0.056	9.5	12.0	5.5	0.5	6.0	12.5	15.5	7.5	0.6	7.0
683	0.068	9.5	12.5	6.0	0.5	6.5	14.0	16.5	7.5	0.6	8.0
823	0.082	10.0	12.5	6.5	0.5	6.5	14.0	16.5	8.0	0.6	8.0
104	0.1	11.0	13.0	6.5	0.5	7.0					
154	0.15	12.0	16.0	7.5	0.5	8.0					
224	0.22	14.0	17.0	7.5	0.6	9.5					
334	0.33	15.0	18.0	9.0	0.6	9.5					
474	0.47	16.0	20.0	9.5	0.6	10.0					

Code of Capacitance 电容量代号	Nominal Capacitance ( $\mu\text{F}$ ) 标称电容	External dimensions 外型尺寸(mm)									
		Rated Voltage 额定电压: 250V					Rated Voltage 额定电压: 400V				
		W max	H max	T max	$d \pm 0.05$	$p \pm 1.0$	W max	H max	T max	$d \pm 0.05$	$p \pm 1.0$
102	0.001	6.5	11.0	3.6	0.5	3.5	7.0	11.5	4.0	0.5	4.0
152	0.0015	6.5	11.0	3.6	0.5	3.5	7.2	12.0	4.0	0.5	4.0
222	0.0022	6.5	11.5	3.6	0.5	3.5	7.5	12.5	4.0	0.5	4.0
332	0.0033	7.0	11.0	4.0	0.5	3.5	8.0	13.0	4.5	0.5	6.0
472	0.0047	7.5	11.0	4.0	0.5	3.5	9.0	14.0	5.0	0.5	6.0
562	0.0056	7.5	11.0	4.0	0.5	5.0	9.5	14.0	5.5	0.5	6.0
682	0.0068	7.5	11.0	4.0	0.5	5.0	9.5	14.0	5.5	0.5	6.0
822	0.0082	8.0	13.0	4.0	0.5	5.0	10.5	15.0	6.7	0.5	7.0
103	0.01	8.0	13.0	4.0	0.5	5.0	10.5	15.0	6.7	0.5	7.0
153	0.015	8.3	13.5	4.5	0.5	5.0	12.0	15.5	8.0	0.5	7.0
223	0.022	10.0	14.0	5.7	0.5	6.5	12.0	18.5	8.0	0.6	7.0
333	0.033	11.0	15.0	6.3	0.5	6.5	13.5	21.0	8.0	0.6	9.0
473	0.047	12.5	17.5	8.5	0.6	6.5	15.5	22.0	9.5	0.6	9.0
563	0.056	13.8	21.0	8.5	0.6	7.5	17.5	23.5	11.0	0.6	9.0
683	0.068	13.8	21.0	8.5	0.6	7.5	17.5	23.5	11.0	0.6	9.0
823	0.082	16.0	22.0	9.5	0.6	8.5	19.0	24.5	11.0	0.6	11.5
104	0.1	16.0	22.0	9.5	0.6	8.5	19.0	24.5	11.0	0.6	11.5

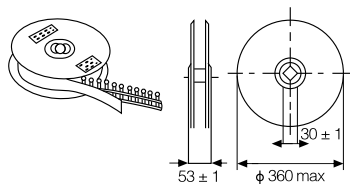
## Taping Dimensions



Symbol	Dimensions(mm)
H	9~14
T	2~6.5
d	0.5
P	12.7 ± 1.0
P0	12.7 ± 0.2
P2	3.85 ± 0.5
F	5.0 ± 0.5
Δh1, Δh2	2max
W	18 ± 0.8
W0	10 ± 0.5
W1	9.0 ± 0.5
W2	2max
H	20 ± 0.75
H0	16 ± 0.5
D0	4 ± 0.2
t	0.7 ± 0.2
L	11max
l, l0	0.5, -1.0

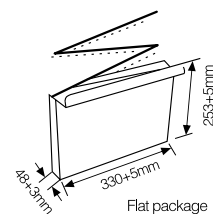
## Packing

### REEL PACK



2000~3000 pcs.per reel  
depending upon dia.of capacitor

### AMMO PACK



1000~2500 pcs per box

### ◆ Packing Quantity

Bulk:200,500,1000pcs

Taping:See above

箔式聚乙酯薄膜电容器

# 径向引线多层片状瓷介电容器

## Radial Leads Multilayer Ceramic Capacitors

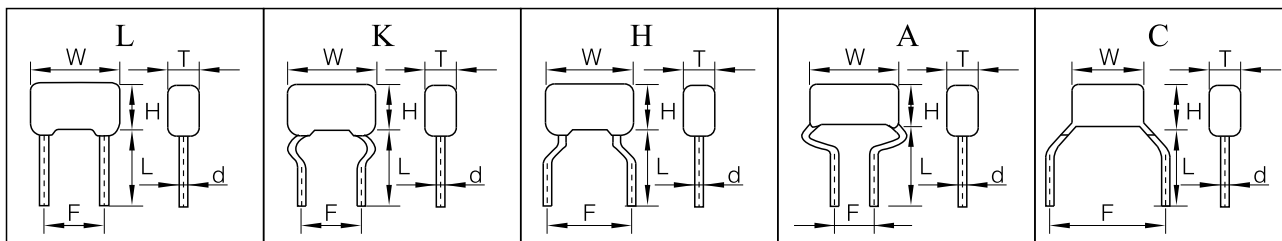
体积小，容量大，环氧树脂封装抗潮性能优良，适合自动安装的卷带包装。

Miniature size, wide capacitance, coating by epoxy resin, creates the excellent humidity resistance and prevents body from damaging during soldering and sasing. Tape and reel packing available for auto-placement

### 电性能标准 Electrical Properties Standard

检验项目 ITEM	检验标准 TEST STANDARD			
	NPO (CH)	X7R(B)	Z5U(E)	Y5V(F)
电容量(C) Capacitance	25°C, 1MHz, 1.0Vrms 25°C, 1KHz, 1.0Vrms, $C_R \geq 10\mu F$ , 120Hz, 0.5Vrms, 在允差范围内 In the tolerance			
损耗角正切 Dissipation Factor (DF)	$C_R \geq 30pF$ , $Q \geq 1000$ ; $C_R < 30pF$ , $Q \geq 400 + 20C$	$C_R < 0.033\mu F$ , $DF \leq 3.5\%$ $C_R \geq 0.033\mu F$ , $DF \leq 5.0\%$	$\leq 5\%$	$C_R \geq 220nF$ , $< 7.0\%$ ; $C_R < 220nF$ , $\leq 5.0\%$
绝缘电阻 Insulation Resistance (IR)	$U_R < 500V$ , $TV = U_R$ ; $U_R \geq 500V$ , $TV = 500V$ ;			
	$C_R \leq 10nF$ , $IR \geq 10000M\Omega$ $C_R > 10nF$ , $R \cdot C \geq 100S$	$C_R \leq 25nF$ , $IR \geq 4000M\Omega$ ; $C_R > 25nF$ , $R \cdot C \geq 100S$		
耐电压 Withstanding Voltage	$U_R \leq 100V$ , $TV = 2.5U_R$ ; $200 \leq U_R \leq 1000V$ , $TV = 1.5U_R$ ; $U_R > 1000V$ , $TV = 1.2U_R$ ;			

### 径向引线型式 Lead Style

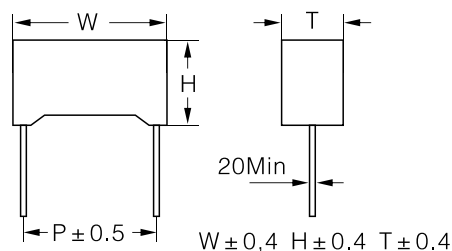


尺寸规格 specifi- cation	线型 Type	Dimensions(mm)				额定电压 Voltage	容量范围Capacitance(pF)		
		F ( $\pm 0.5$ )	L Max	W Max	T Max		NPO CH	X7R R	Z5U (E) Y5V (F)
0603	L C K H A	2.54 5.08	4.2	3.8	3.2	16V 25V 50V	0.5~511	221~183 123~273 183~473	102~473 333~105 473~224
0805		2.54 5.08	4.2	3.8	3.8	25V 50V 100V	0.5~332 0.5~222 0.5~102	221~105 221~105 221~683	103~105 103~105 103~683
1206		2.54 5.08	4.5	4.5	3.8	25V 50V 100V	0.5~682 0.5~472 0.5~392	102~105 102~105 102~105	103~125 103~105 103~105
1210		2.54 5.08	5.0	5.5	3.8	25V 50V 100V	561~103 561~682 561~472	102~334 102~205 102~105	104~155
包装方式 Packing Style		散装，编带 (Bulk, Taping)							

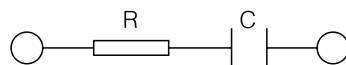
# 金属化聚丙烯膜抗干扰阻容模块(Class MKP 310VAC)

Metallized Polypropylene Film Interference Suppression RC-unit (Class MKP 310VAC)

外形图 Outline Drawing



电路结构图 Construction



## 特点

- ◆ 金属化聚丙烯薄膜
- ◆ 能承受过压冲击
- ◆ 优异的阻燃性能
- ◆ 具有良好的抑制噪音，吸收能量尖峰和阻容作用

## Features

- ◆ Metallized polypropylene structure
- ◆ Withstanding over voltage stressing
- ◆ Excellent active and passive flame resistant abilities
- ◆ Excellent active noise suppression, absorbing peak and energy, damp

## 技术指标 Specifications

工作温度范围 Operating teperature range	-40°C~105°C	
电容器类别 Class	MKP类	
额定电压 Rated Voltage	310VAC	
电容量范围和偏差 Capacitance Range And Tolerance	0.01μF ~ 0.47μF , ±10%	
电阻范围和偏差 Resistance Range And Tolerance	10.0Ω ~ 1000.0Ω , ±30%	
耐电压 Voltage Proof	引线之间 Between Terminals	4.3 U <sub>R</sub> VDC(2S)
	极壳之间 Between Terminals and Case	2000VAC(1min)
绝缘电阻 Insulation Resistance	≥15000MΩ, C <sub>R</sub> ≤ 0.33 μF ≥5000S, C <sub>R</sub> > 0.33 μF	(20°C, 100V, 1min)

## 电容量与外型尺寸 Dimensions(mm)


Code	Cap (μF)	串联电阻 (Ω)	310Vac					产品代码
			W max	H max	T max	P	d	
103	0.010	10.0~470.0	18.0	14.5	8.5	15.0	0.8	MKP103K310A***Ω
223	0.022	10.0~470.0	18.0	14.5	8.5	15.0	0.8	MKP223K310A***Ω
333	0.033	10.0~470.0	18.0	14.5	8.5	15.0	0.8	MKP333K310A***Ω
473	0.047	10.0~470.0	18.0	14.5	8.5	15.0	0.8	MKP473K310A***Ω
683	0.068	10.0~470.0	26.5	17.0	8.5	22.5	0.8	MKP683K310A***Ω
104	0.10	10.0~470.0	26.5	17.0	8.5	22.5	0.8	MKP104K310A***Ω
224	0.22	10.0~470.0	26.5	17.0	8.5	22.5	0.8	MKP224K310A***Ω
334	0.33	10.0~470.0	26.5	19.0	10.0	22.5	0.8	MKP334K310A***Ω
474	0.47	10.0~470.0	26.5	19.0	10.0	22.5	0.8	MKP474K310A***Ω

金属化聚丙烯膜抗干扰阻容模块



X2 电容器  
自动化生产线



金属膜卷绕机 



X2电容自动组装机 

典型生产设备



激光标志机 



喷金机 

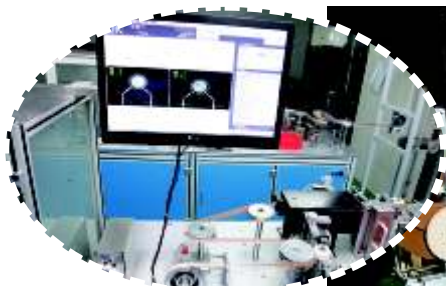


X2电容测试机 

典型生产设备



# Y 电容器 自动化生产线



CCD剔除装配  
不良品（虚焊等）

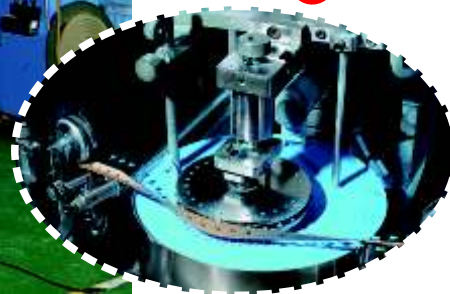



Y电容自动装配线 

典型生产设备



控制产品外观一致性



 Y电容自动包封线



两次高压、两次容量损耗  
筛选令产品性能更可靠



交流电容标志测试线 



# 实验室设备及现场展示



↑ 实验室全景

X2电容器试验设备 →



↑ 交流电容器耐久性试验台



↑ 电容器脉冲电压试验台



实验室设备展示