

规 格 书

SPECIFICATION

客户 CUSTOMER	立创商城
客户料号 CUSTOMER P/N	C7501335
规格描述 DESCRIPTION	1000V/22NF/J/F15/直脚/L22/18*11*5/ZNR灰壳
产品编码 PART NUMBER	MMKP82-223J3A0765
日期 DATE	2025-11-25

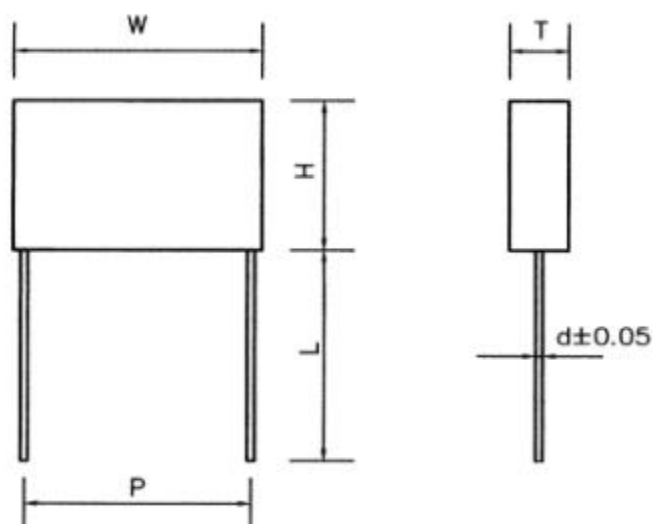
德尔创承认栏 APPROVED BY DERSONIC			客户承认栏 APPROVED BY CUSTOMER	
批 准 APPROVED BY	审 核 CHECK BY	制订 FORMULATE BY	批 准 APPROVED BY	审 核 CHECK BY
				

东莞市德尔创电子有限公司

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Specification & Dimensions

[illegible]

注:产品脚距大于或等于15MM产品外形尺寸与脚距间距的公差均为 $\pm 1.0\text{MM}$

2. 产品介绍

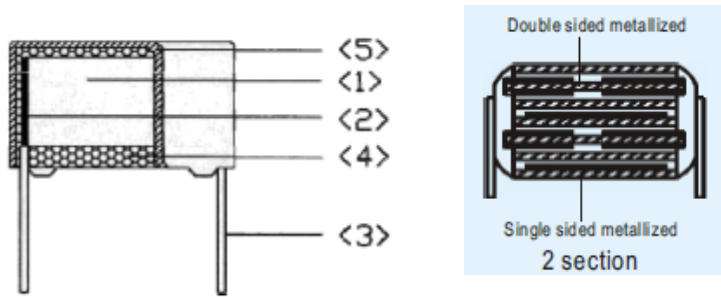
Products Introduction

PHB 电容是由金属化聚丙烯串式薄膜和双面薄膜，采用无感结构卷绕而成，引线采用镀锡铜包钢线，外部使用阻燃塑胶外壳及阻燃环氧封装而成。具有良好的自愈功能和优良的阻燃性，符合UL94-V0标准。

PHB are winded with metallized polypropylene series film dielectric and double side metallized film. Non-inductive construction,tinned copper wire leads,and encapsulated in plastic case with flame retardant epoxy resin sealed.They have excellent features of self-healing and good flame retardant according to UL 94-V0

3. 产品结构和关键材料

Construction and main materials of products



NO	关键材料 Main Materials	材料规格 Specification	备注 Remark
1	金属化聚丙烯薄膜和双面聚酯膜 Metallized polypropylene and double side Film	MPPZAH or MPPA (4~12um)	...
2	锌锡层 Zn,Sn line	锌或锌锡合金 Zn or Zn and Sn alloy	...
3	导线 Terminal	镀锡铜包钢线 (Φ0.6 or 0.8mm) CP(tinned copper wire leads)	镀锡层厚度7um以上
4	封装材料 Sealed Material	环氧树脂 Epoxy resin	UL94-V0
5	塑胶外壳 Plastic Case	PBT	UL94-V0

注：以上材料均符合环保要求
Note:All of the Materials are in compliance with the requirements of ROHS AND REACH.

4. 典型应用

Type application

本产品用于电子灯具，汽车灯，镇流器，吸收突波，高脉冲，高电压，大电流，振荡电流场合。

The Products are suitable for lighting,car headlamp and ballast,High pulse,High voltage, , high current and oscillator circuits ect.

5. 特点

Features

- 5.1 无感结构 Non-induction construction
- 5.2 优良的耐湿性 High moisture-resistance
- 5.3 自愈性 Self-healing property
- 5.4 阻燃性(符合UL 94V-0) Flame retardant type (compliance with UL 94V-0)
- 5.5 非常小的损耗和温升 Very low loss and small inherent temperature rise.
- 5.6 优秀的频率和温度特性 Excellent frequency and temperature characteristics
- 5.7 适合高频高电流脉冲应用 Suitable where applies high frequency and high current puls

6. 电气特性

Electrical specifications

如无其他说明, 电气特性请参考IEC 60384-16
Unless otherwise specified,electric characteristics shall refer to IEC 60384-16

项目 Item	特性要求 Characteristic requirement						测试方法及条件 Test method&Condition
气候类别 Climatic Category							
阻燃等级 Passive Flammability Class	B						
工作温度 Operating Temperature	-40℃～+110℃						
容量范围 Capacitance Range	0.001uF～2.2uF						
容量偏差 Capacitance Tolerance	±5% (J) , ±10% (K) , ±20% (M)						1KHz , 1.0Vrms , 20℃
额定电压 Rated Voltage	630V/800V/1000V/1200V/1250V/1600V/2000VDC						
损耗角正切 Dissipation Factor		C≤0.47 μ F	0.47 μ F<C≤1.0 μ F		C>1.0 μ F		1KHz , 1.0Vrms , 20℃
	1KHZ	0.10%	0.10%		0.10%		
	10KHZ	0.20%	0.40%		0.80%		
	100KHZ	0.60%					
绝缘阻值 Insulation Resistance		C≤0.33 μ F		C≥0.33 μ F			Ur>100V, 100VDC, 60S, 20℃
		IR≥50000M Ω		IR≥10000s			
				or ≥10000M Ω • Uf			
端子间电压 Withstand voltage Between Terminals	应无永久性击穿或飞弧 No permanent breakdown or flashover						1.6Ur(d.c) 60s Cut off Current 10mA , ARC=OFF, Voltage raising time 5～10s, pulse rise ≤150v/us
端子与壳体间耐压 Withstand voltage Between Terminals and Case	应无永久性击穿或飞弧 No permanent breakdown or flashover						2Ur+1500V(a.c) 60s ≥2000V(a.c)
最大脉冲上升时间 MAX. Pulse rise time (dv/dt)		Lead spacing					
	7.5mm	10mm	15mm	22.5mm	27.5mm	37.5mm	
	600V/us	500V/us	400V/us	200V/us	150V/us	100V/us	

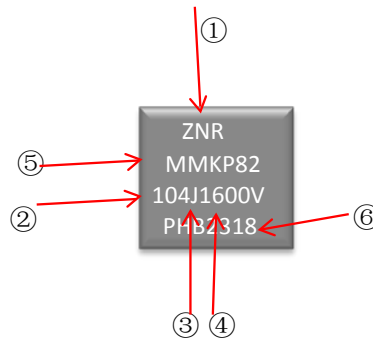
容许单个尖峰值（脉冲）电流值Permissible currnt valuse; $I(Ao-P)=C(U_f)*dv/dt(v/us)$;

若连续的尖峰值电流值应用于重复或频繁出现的脉冲情形，要按其峰值的0.55倍率设定，较为安全。

注：额定电压定义：在工作温度范围内，电容持续运行的可承受电压。

请不要将电容置于超过额定温度环境中长期工作，会降低使用寿命或发生电击危险。

Note:Rated voltage is defined the voltage which shall be capable of applying to capacitors continuously in the operating temperature range.Please do not place the capacitors in more than the rated operating temperature environment in the long-term work. It can reduces the capacitor's life or cause an electric shock hazard.



7. 印字 Marking

(1)商标 logo: ZNR

(2)静电容量 Capacitance: 104

(3)允许误差 Capacitance Tolerance: $\pm 5\%$ (J)

(4)额定电压 Rated Voltage: 630V/800V/1000V/1200V/1250V/1600V/2000VDC

(5)产品类别 Product Class:

(6)产品型号及其生产周期 Product type: PHB&DATE OF Made

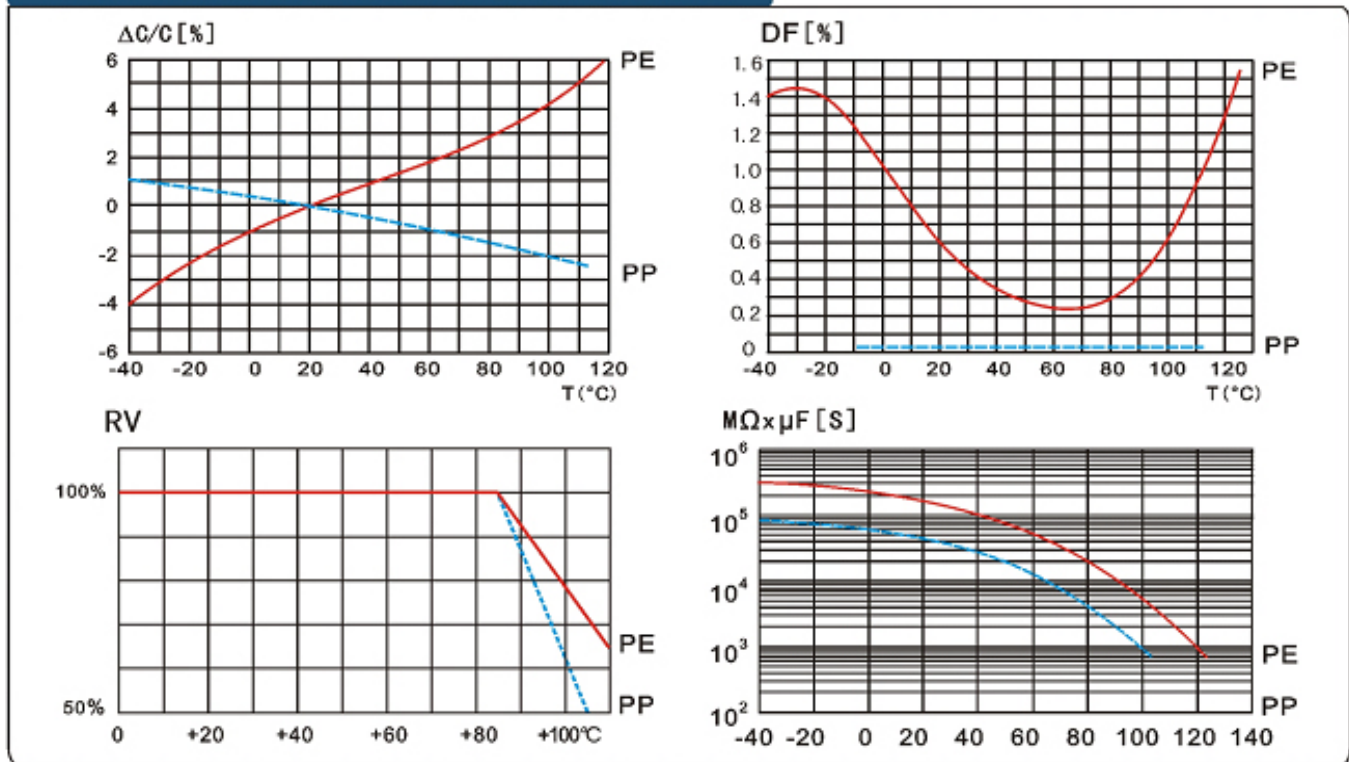
8. 温度特性

TEMPERATURE CHARACTERISTICS

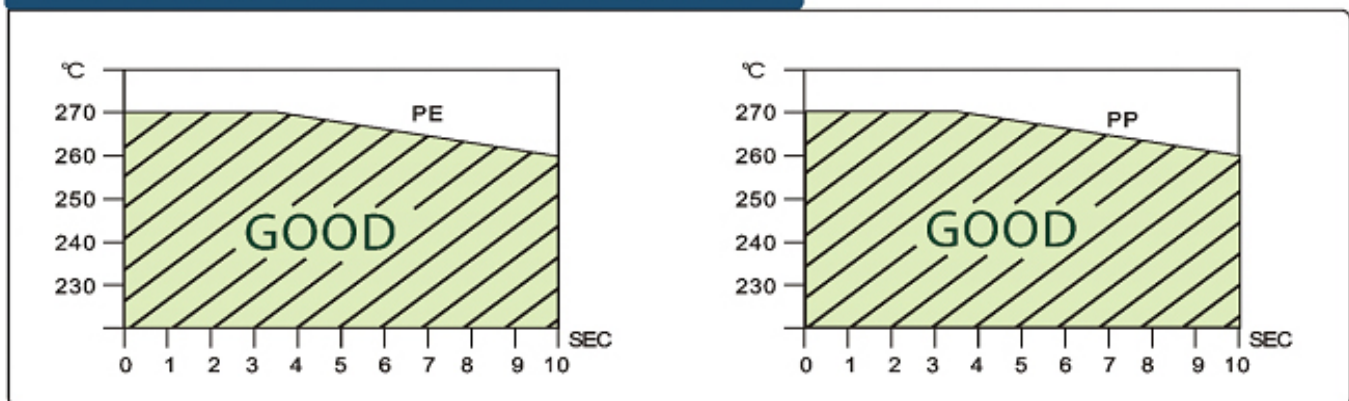
CHARACTERISTICS

TYPICAL GRAPHS

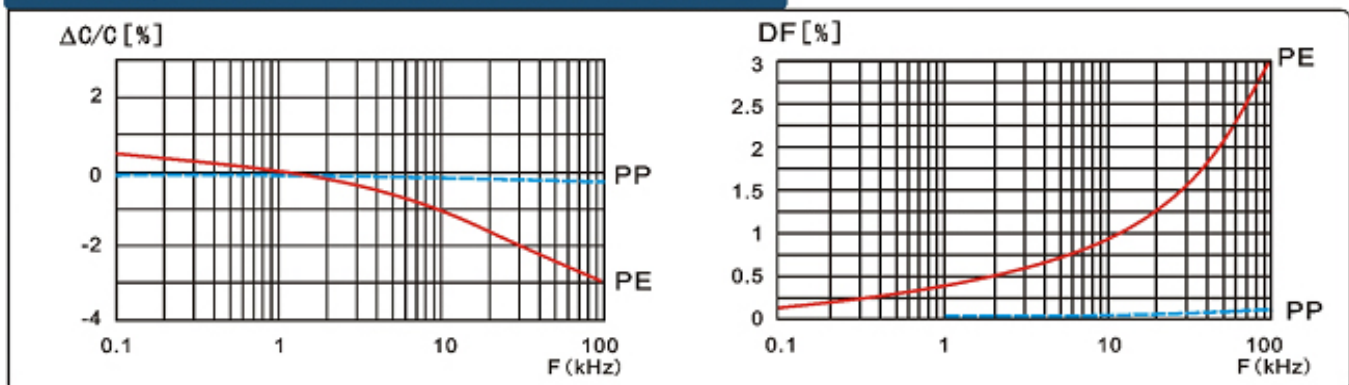
TEMPERATURE CHARACTERISTICS



SOLDERING TEMPERATURE VS. TIME



FREQUENCY CHARACTERISTICS



9. 使用指导

Guide in useage

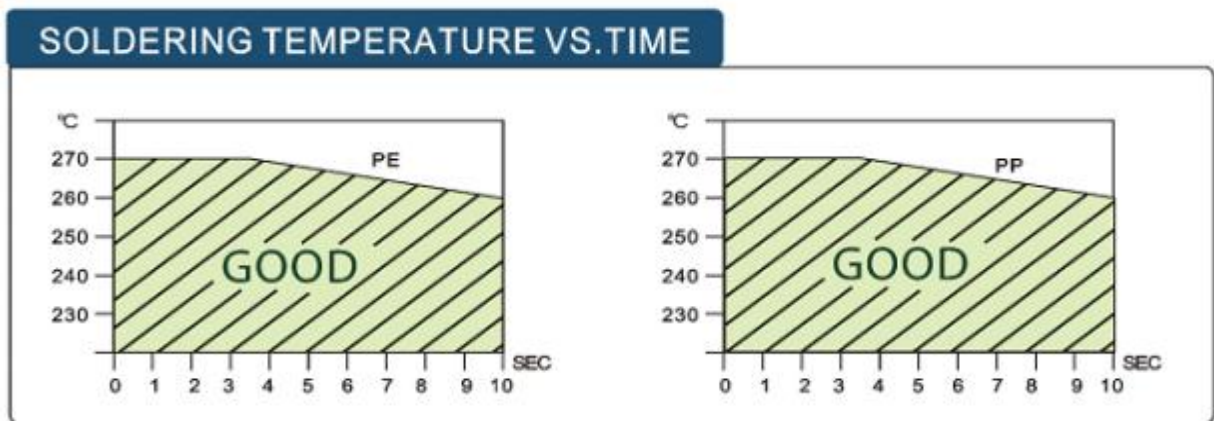
9.1 焊锡

Soldering

当焊接电容器时，焊锡热会通过引线端子和封装层传递到电容素子，因此必须注意高温和长时间焊接引起的电容电气特性衰减或外包封层损坏。请确认焊锡在以下温度范围内。

When soldering a capacitor, heat in soldering is conducted to the element of the capacitor from wire lead and an enclosure, and hence it should be noted that soldering under high temperature and long period may cause deterioration of characteristic or Coating breakdow of capacitors.

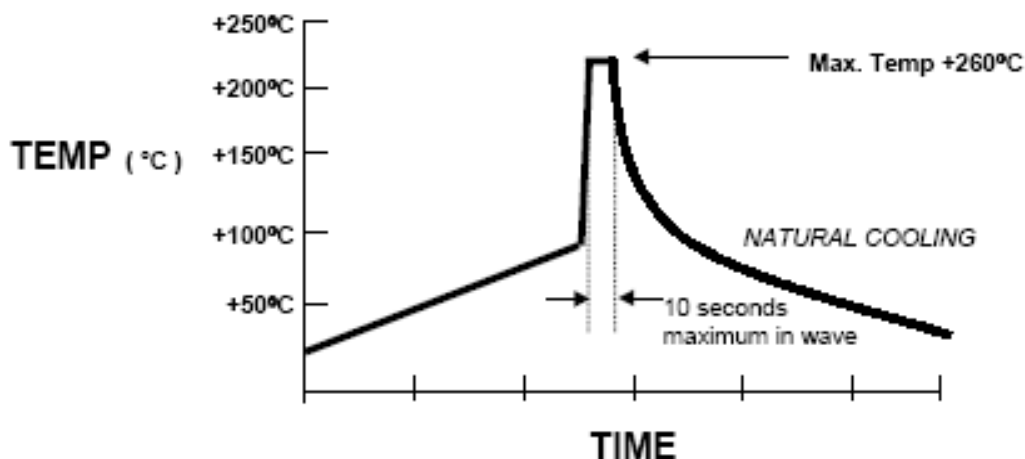
Be sure to solder within the following temperature condition range.



9.2 流焊/波峰焊

FLOW / WAVE SOLDERING

PRODUCTS: FILM CAPACITORS (Application of Through-Hole)



9.3 烙铁焊接

soldering iron

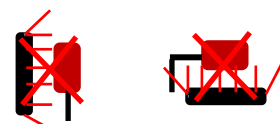
当使用烙铁焊接时，烙铁尖端温度不得超过350°C，焊接时间不超过5秒

When using soldering iron, iron tip temperature less than 350°C, Soldering time(sec.) within 5 seconds.

9.4 组装 assembled

当组装到电路板上的时候，尽量避免贴近发热源。

when assembling to circuit board, Try to avoid getting close to the heat source



10. 存储条件

Storage conditions

10.1 请注意，长时间产品暴露在空气中会导致引线氧化，焊接性能衰减。

It should be noted that the solderability of the terminals may be deteriorated when stored barely in an atmosphere for a long periods

10.2 不能放置在高温高湿环境中，请遵循以下存储条件（原包装下保存）

It shouldn't be located in particularly high temperature and high humidity, it must submit to the following conditions(keeping in the original package)

温度 Temperature: 35℃ MAX

相对湿度 Relative humidity: 60% MAX

10.3 存储时间：最长12个月（以包装袋上标注的生产日期为准）

Storage period: 12 months max

(from the manufacturing date marked on the label in package bag)

11. 可靠性实验

Reliability test

11.1 测试条件：除非另有规定，所有试验和测量均应在GB2421—81第4.3条（IEC68 1第5.3条）中规定的试验用标准大气条件下进行，条件如下：

Test condition: Unless otherwise specified, all tests and measurements shall be made under standard atmospheric conditions for testing as given in GB2421-81 NO.4.3(IEC68-1 NO.5.3), AS follows

温度 Temperature: 15℃—35℃

相对湿度 Relative humidity: 25%—75%

气压 Air pressure: 86—106Kpa (860—1060mbra)

11.2 如对测试结果有任何疑问，则按以下限制测试：

If there may be any doubt on the results, measurements shall be made within the following limits.

环境温度 Ambient temperature: 20±2℃

环境湿度 Relative humidity: 50~70%

11.3 电性参数参考 IEC 60384-1:2008, IEC 60384-16, IEC 60068-2-2; IEC 60068-2-21

Electric characteristics shall refer to IEC 60384-1:2008, IEC 60384-16, IEC 60068-2-2; IEC 60068-2-21

11.4 电性参数

Electric characteristics

项目 Item	特性要求 Characteristic requirement					测试方法及条件 Test method&Condition	
容量范围 Capacitance Range	0.001uF~2.2uF					IEC60384-16 4.2.2 IEC60384-1 4.7	
容量偏差 Capacitance Tolerance	±5%(J), ±10%(K), ±20%(M)					1KHz , 1.0Vrms , 20℃	
额定电压 Rated Voltage	630V/800V/1000V/1200V/1250V/1600V/2000VDC						
损耗角正切 Dissipation Factor		C≤0.47 μ F	0.47 μ F<C≤1.0 μ F	C>1.0 μ F	1KHz , 1.0Vrms , 20℃		
	1KHZ	0.10%	0.10%	0.10%			
	10KHZ	0.20%	0.40%	0.80%			
	100KHZ	0.60%					
绝缘阻值 Insulation Resistance		C≤0.33 μ F	C≥0.33 μ F		Ur>100V, 100VDC, 60S, 20℃		
		IR≥50000M Ω	IR≥10000s				
			or≥10000M Ω • Uf				
端子间电压 Withstand voltage Between Terminals	应无永久性击穿或飞弧 No permanent breakdown or flashover					1.6Ur(d.c) 60s Cut off Current 10mA , ARC=OFF, Voltage raising time 5~10s, pulse rise ≤150v/us	
端子与壳体间耐压 Withstand voltage Between Terminals and Case	应无永久性击穿或飞弧 No permanent breakdown or flashover					2Ur+1500V(a.c) 60s ≥2000V(a.c)	
最大脉冲上升时间 MAX. Pulse rise time (dv/dt)		Lead spacing					
	7.5mm	10mm	15mm	22.5mm	27.5mm	37.5mm	
	600V/us	500V/us	400V/us	200V/us	150V/us	100V/us	

11.5 寿命实验Life Test

NO.	项目 Item		特性要求 Characteristic requirement	测试方法及条件 Test method&Condition		
1	端子强度 Terminal Strength	拉伸强度 Pull Strength	无可见机械损伤 There shall be no visible mechanical damage	线径mm	荷重	时间
				wire diameter	Load	Time
				≤0.5	5N	10S
				0.5<d≤0.8	10N	10S
				0.8<d≤1.25	20N	10S
				IEC60384-16 C4.3 IEC60384-1 C4.13 IEC60068 2-21 Test Ua1		
		弯曲强度 Bending Strength	无可见机械损伤 There shall be no visible mechanical damage	线径mm	荷重	次数
				wire diameter	Load	Time s
				≤0.5	5N	90℃×4
				0.5<d≤0.8	5N	90℃×4
				0.8<d≤1.25	5N	90℃×4
				IEC60384-16 C4.3 IEC60384-1 C4.13 IEC60068 2-21 Test Ua1		
2	可焊性 Solderability	端子引线周围至少95%的面积均匀附锡，且本体无破裂等损坏现象 At least 95% of the Circumference of the Lead wire.Around load surface dipped into with new soler, the body be no visible damage.	焊锡温度： 235±5℃ Solder temp 浸渍时间： 2.0±0.5S Immersion time IEC60384-16 C4.5 IEC60384-1 C4.15 IEC60068-2-20 Test Ta			
3	耐焊接热 Resistanc e to Soldering heat	外观 Appearance	无可见损伤, 标志清晰 No visible damage, The marking shall be legible。		焊锡温度： 260±5℃ Solder temp 浸渍时间： 10±1S Immersion time 恢复时间1-2小时 Then recovery at ordinary condition 1-2hours IEC60384-16 C4.5 IEC60384-1 C4.14 IEC60068-2-20 Test Ta	
		容量变化 Capacitanc e Variation	△ C/C≤±5%			
		损耗 Dissipation Factor	△ tg δ<0.0080 CR≤1.0 μF △ tg δ<0.0050 CR>1.0 μF at 1KHZ			
		耐电压 Withstand Voltage	1.6 UR （d.c） 60S耐电压后无击穿或飞弧 No permanent breakdown or flashover			
		绝缘电阻 Insulation Resistance	△ R/R≤50%			

Item		Characteristic requirement	Test method&Condition
4 耐久性 Endurance	外观 Appearance	无可见损伤, 标志清晰 No visible damage, The marking shall be legible。	温度Temp: 110±3℃ 持续时间:
	容量变化 Capacitance Variation	$\Delta C/C \leq \pm 10\%$	Duration 1000+48h 施加电压voltage: 1.25 Ur(a.c.)50hz 每小时施加1000vac 0.1s once every hour increase to 1000vac for 0.1s
	损耗 Dissipation Factor	$\Delta \tan \delta < 0.0080$ CR≤1.0 μF $\Delta \tan \delta < 0.0050$ CR>1.0 μF at 1KHZ	恢复时间至少16小时 Then recovery at ordinary condition at least 16 hours
	耐电压 Withstand Voltage	1.6 UR (d.c) 60S耐电压后无击穿或飞弧 No permanent breakdown or flashover	IEC60384-16 C4.14 IEC60384-1 C4.23 IEC60068-2-2
	绝缘电阻 Insulation Resistance	$\Delta R/R \leq 50\%$	
5 稳态湿热 Damp heat, steady	外观 Appearance	无可见损伤, 标志清晰 No visible damage, The marking shall be legible。	温度Temp: 40±2℃ 湿度: 90-95%RH
	容量变化 Capacitance Variation	$\Delta C/C \leq \pm 5\%$	Humidity 持续时间: 56 day Duration
	损耗 Dissipation Factor	$\Delta \tan \delta < 0.0080$ CR≤1.0 μF $\Delta \tan \delta < 0.0050$ CR>1.0 μF at 1KHZ	电容不施加电压 恢复时间1-2小时 Then recovery at ordinary condition 1-2 hours
	耐电压 Withstand Voltage	1.6 UR (d.c) 60S耐电压后无击穿或飞弧 No permanent breakdown or flashover	IEC60384-16 C4.12 IEC60384-1 C4.22
	绝缘电阻 Insulation Resistance	$\Delta R/R \leq 50\%$	IEC60068-2-78 Test Cab
6 干热 Dry heat	外观 Appearance	无可见损伤, 标志清晰 No visible damage, The marking shall be legible。	温度Temp: 110±2℃
	容量变化 Capacitance Variation	$\Delta C/C \leq \pm 5\%$	持续时间: 16h Duration
	损耗 Dissipation Factor	$\Delta \tan \delta < 0.0080$ CR≤1.0 μF $\Delta \tan \delta < 0.0050$ CR>1.0 μF at 1KHZ	恢复时间不低于4小时 Then recovery at ordinary condition at least 4 hours
	耐电压 Withstand Voltage	1.6 UR (d.c) 60S耐电压后无击穿或飞弧 No permanent breakdown or flashover	IEC60384-16 C4.11.2 IEC60384-1 C4.21.2
	绝缘电阻 Insulation Resistance	$\Delta R/R \leq 50\%$	IEC60068-2-2, test Bb
项目		特性要求	测试方法及条件

No.	Item	Characteristic requirement	Test method&Condition
#	振动 Vibration	外观 Appearance 无可见损伤, 标志清晰 No visible damage, The marking shall be legible。	上下左右前后三个方向 各2H, 频率10-55Hz 振幅0.75mm或98m/s ² 3 directions at 2 hours each 10-55Hz at 0.75mm or 98m/s ² IEC60384-16 C4.7 IEC60384-1 C4.17 IEC 60068-2-6, test Fc,
#	碰撞或冲击 Bump	外观 Appearance 无可见损伤, 标志清晰 No visible damage, The marking shall be legible。	次数 number of bumps: 1 000 or 4 000 加速度 Acceleration: 400 m/s ² Pulse duration: 6 ms IEC60384-16 C4.8 IEC60384-1 C4.18 IEC 60068-2-29, test Eb,
#	阻燃试验 Passive flammability test	火焰等级: B Category of flammability 火焰时间: 10S Flame exposure time 最大燃烧时间: 10s Maximum burning time	UL94-V0 IEC60384-16 C4.17 IEC60384-1 C4.38 IEC60695-11-5.
#	自燃试验 Active flammability test	缠绕在电容上的薄纱布应不会燃烧, 电测量不要求。 The cheesecloth around the capacitor shall not burn with a flame. No electrical measurements are required.	施加电压为2.5KV的20 个脉冲电压, 每个电压 5秒 20 surge pulses at 2.5 KV(pulse every 5s) IEC60384-16 C4.18