



# 产品规格承认书

**RoHS**  
COMPLIANT

## Product Spec Certification

客户名称 : \_\_\_\_\_

品 名 : X2 0.22uF/310Vac P15mm L22mm \_\_\_\_\_

承认日期 : \_\_\_\_\_

\_\_\_\_\_

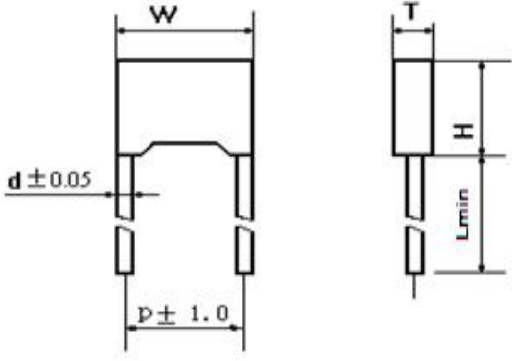
### 料号及外形尺寸

序号	客户料号	额定电压	标称容量 uF	容量偏差	外形尺寸 (单位: mm)					
					W ±0.5	T ±0.5	H ±0.5	P ±0.5	L ±0.5	d ±0.05
1		310V	0.22	±10%	18	8.5	14.5	15	22	0.8
备注										

制定 (Draft by)	审核(Checked by)	核准(Approved by)	日期(Date)
Mr.Wang			
东莞市昊方电子科技有限公司 地址: 东莞市石碣镇单屋村捷旺工业区 C 栋二楼 电话: 0769-81832800 邮箱: haofinecap@163.com 网址: <a href="https://www.safety-capacitor.com">https://www.safety-capacitor.com</a>			

### 客户承认(Customers recognize):

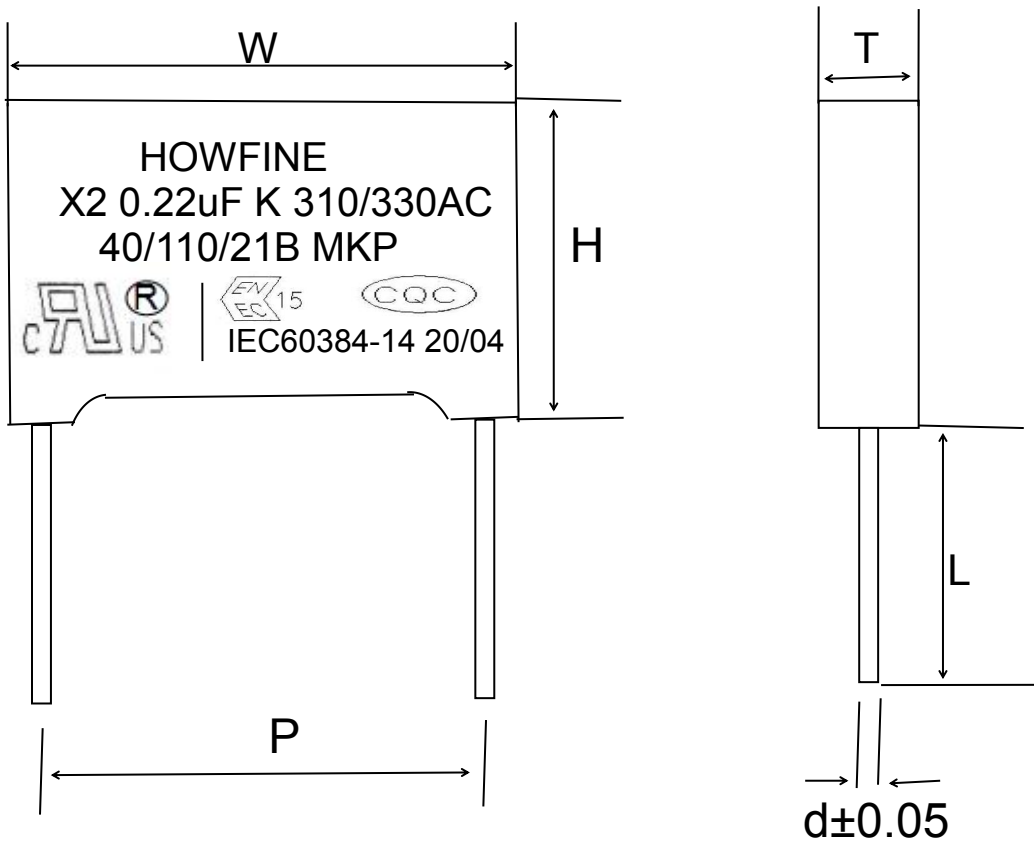
承认 (Tested by)	审核(Checked by)	核准(Approved by)	承认日期(Accept date)

技术要求 Specifications		外型图 Outline Drawing									
引用标准 Reference Standard	GB10190(IEC60384-14)		 <p>W---表示本体宽度(W±0.5) H---表示本体高度(H±0.5) T---表示本体厚度(T±0.5) P---表示脚距(P±0.5) L---表示脚长(21min, 可变动)</p>								
气候类别 Climatic Category	40/110/21B										
工作温度范围 Rated Temperature Range	-40℃~+110℃										
表面温升(ΔT) Surface overtemperature (ΔT)	电容本体温升比使用环境温度≤5℃										
额定电压 Rated Voltage	310V~330VAC, 50/60HZ										
标称容量 Capacitance	0.47uF										
容量偏差 Capacitance Tolerance	±10%(K)										
耐电压 Voltage Proof	引线之间 Between Terminals	4.3UR(Vdc), 2S									
	极壳之间 Between Terminals To Case:	2 100Vac, 1min									
损耗角正切 Dissipation Factor	≤0.001 20℃ 1KHz, 输出水平 1.0V										
绝缘电阻(20℃ 1min) Insulation Resistance	Ur > 100V Cr ≤ 0.33 μF IR ≥ 15000 MΩ										
外形尺寸 Dimensions(mm)											
Item	W±0.5	H±0.5	T±0.5	P±0.5	d	L±1.5					
474K310VAC	18	14.5	8.5	15	0.8	22					
电性能测试 Property test											
No.	1	2	3	4	5	6	7	8	9	10	
Co (nF)	218.21	215.37	210.22	212.92	216.27	209.51	208.71	211.96	210.55	210.293	
DF	0.0003	0.0003	0.0004	0.0004	0.0002	0.0004	0.0003	0.0002	0.0002	0.0003	
IR	≥15000 MΩ										
TV (DC)	1200VDC										
判定 Result	合格										
备注 Remark	需方已阅读本协议书内容并确认完全理解其涵义.Purchaser have read this technology confer and confirm that completely understand it.										

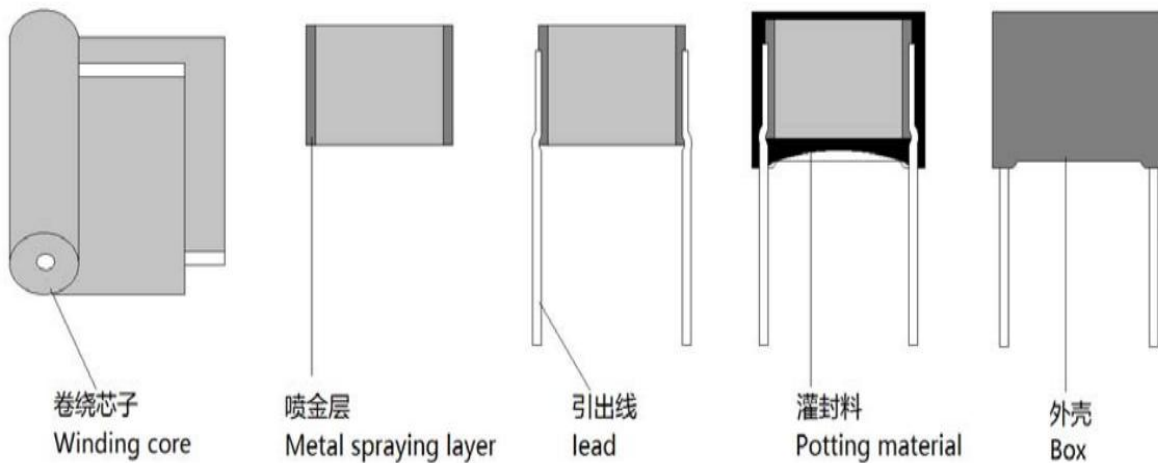


# Polypropylene Film Halogen Free Capacitor X2 Series

## 1、外形图 Outline



## 2. 结构图 Structure diagram





## SPECIFICATION

**ACROSS-THE-LINE AND INTERFERENCE SUPPRESSION  
CAPACITOR CLASS X2**

## 1. REFERENCE STANDARDS:

AMERICA : UL (U.S.A.): UL 1414

EU : ENEC: 20190626-E502279

ASIA : CQC(China): GB/14472 CERTIFICATA

2. RATED VOLTAGE : 310/330VAC, 50~60HZ

3. CAPACITANCE RANGE : 0.01  $\mu$ F~3.3  $\mu$ F4. CAPACITANCE TOLERANCE : K( $\pm$ 10%), M( $\pm$ 20%)

5. DIELECTRIC : METALLIZED POLYPROPYLENE FILM

6. DISSIPATION FACTOR TAN  $\delta$  :0.01 $\mu$ F<CR $\leq$ 0.47 $\mu$ F  $\leq$ 0.1% (20 $^{\circ}$ C, 1KHZ)0.47 $\mu$ F<CR $\leq$ 1.0 $\mu$ F  $\leq$ 0.2% (20 $^{\circ}$ C, 1KHZ)CR>1.0 $\mu$ F  $\leq$ 0.3% (20 $^{\circ}$ C, 1KHZ)

7. INSULATION RESISTANCE: BETWEEN TERMINALS

(1) LESS THAN OR EQUAL TO 0.33  $\mu$ F ;  $\geq$ 1.5 $\times$ 10<sup>4</sup>M  $\Omega$ (2) GREATER THAN 0.33  $\mu$ F ;  $\geq$ 5 $\times$ 10<sup>3</sup>M  $\Omega$ .  $\mu$ FMEASURED AT 100 $\pm$ 15VDC, 60SEC./20 $^{\circ}$ C

8. WITHSTAND VOLTAGE :

BETWEEN TERMINALS TEST VOLTAGE :APPLY 4.3 OF Ur FOR 1SEC.

BETWEEN TERMINAL AND CRUST TEST VOLTAGE :APPLY 2000VAC FOR 5SEC.

9. CLIMATIC CATEGORY : 40/110/21B

10. HUMIDITY TEST CONDITIONS:

TEST TEMPERATURE: 40  $\pm$  2 $^{\circ}$ CRELATIVE HUMIDITY: 93  $\pm$  3%

TEST DURATION: 21 DAYS

TEST CRITERIA:

CAPACITANCE DRIFT:  $\leq$   $\pm$ 5% OF THE INITIAL VALUE.

DISSIPATION FACTOR(INCREASE ):

CR $\leq$ 1 $\mu$ F  $\leq$ 0.0080(1KHz)CR>1 $\mu$ F  $\leq$ 0.0050(1KHz)INSULATION RESISTANCE:  $\geq$ 50% OF INITIAL

SPECIFIED VALUE.

11. DRY "HEAT" RESISTANCE :

IN ACCORDANCE WITH IEC600 68-2-2 TEST Ba CONDITIONS :

TEST TEMPERATURE : 100 $\pm$  2 $^{\circ}$ C

TEST DURATION : 16 HOURS

TEST CRITERIA :

(1) APPEARANCE : NO VISIBLE DAMAGE AND NO LEAKAGE.

(2) DISSIPATION FACTOR(INCREASE ):

CR $\leq$ 1 $\mu$ F  $\leq$ 0.0080(1KHz)CR>1 $\mu$ F  $\leq$ 0.0050(1KHz)(3) CAPACITANCE CHANGE :  $\leq$   $\pm$ 5% OF THE INITIAL VALUE(4) INSULATION RESISTANCE :  $\geq$ 50% OF INITIAL SPECIFIED VALUE

## 性能说明

## 跨接及抑制干扰用 X2 系列电容器

## 1. 参考标准:

美洲: UL (美国): UL1414

欧盟: ENEC: 20190626-E502279

亚洲: CQC(中国): GB/14472

2. 额定电压: 310/330VAC, 50 ~ 60 HZ

3. 电容量范围: 0.01  $\mu$ F~3.3  $\mu$ F4. 电容量偏差范围: K ( $\pm$ 10%), M ( $\pm$ 20%)

5. 电介质: 金属化聚丙烯薄膜

6. 损耗角正切:

0.01 $\mu$ F<CR $\leq$ 0.47 $\mu$ F  $\leq$ 0.1% (20 $^{\circ}$ C, 1KHZ)0.47 $\mu$ F<CR $\leq$ 1.0 $\mu$ F  $\leq$ 0.2% (20 $^{\circ}$ C, 1KHZ)CR>1.0 $\mu$ F  $\leq$ 0.3% (20 $^{\circ}$ C, 1KHZ)

7. 绝缘电阻: 在引出端之间

(1) 小于或等于 0.33  $\mu$ F ;  $\geq$ 1.5 $\times$ 10<sup>4</sup>M  $\Omega$ (2) 大于 0.33  $\mu$ F ;  $\geq$ 5 $\times$ 10<sup>3</sup>M  $\Omega$ .  $\mu$ F测试条件: 20 $^{\circ}$ C, 100 $\pm$ 15VDC, 60 秒

8. 耐电压:

极间试验电压 4.3Ur (1SEC)

极壳间试验电压:2000VAC(5SEC)

8. 气候类别: 40/110/21B

9. 10. 稳态湿热试验:

试验温度: 40  $\pm$  2 $^{\circ}$ C相对湿度: 93  $\pm$  3%

试验时间: 21 天

试验判据:

电容量变化率:  $\leq$  初始测试值的  $\pm$  5%损耗角正切: CR $\leq$ 1 $\mu$ F (增加值)  $\leq$ 0.0080(1KHz)CR>1 $\mu$ F(增加值)  $\leq$ 0.0050(1KHz)绝缘电阻:  $\geq$  初始规定值的 50%

11. 干热试验:

根据 IEC600 68-2-2 试验 Ba 之条件:

试验温度: 100 $\pm$ 2 $^{\circ}$ C

试验时间: 16 小时

试验判据:

(1) 外观: 无可见损伤及渗出物

(2) 损耗角正切: CR $\leq$ 1 $\mu$ F (增加值)  $\leq$ 0.0080(1KHz)CR>1 $\mu$ F(增加值)  $\leq$ 0.0050(1KHz)(3) 电容量变化:  $\leq$  初始测试值的  $\pm$ 5%(4) 绝缘电阻:  $\geq$  初始规定值的 50%

## 12. COLD RESISTANCE

IN ACCORDANCE WITH IEC 68-2-1 TEST Aa CONDITIONS

TEST TEMPERATURE :  $-40 \pm 2^{\circ}\text{C}$ 

TEST DURATION : 2 HOURS

TEST CRITERIA :

(1) APPEARANCE : NO VISIBLE DAMAGE

(2) DISSIPATION FACTOR (INCREASE) :

$$\text{CR} \leq 1\mu\text{F} \quad \cong 0.0080 (1\text{KHz})$$

$$\text{CR} > 1\mu\text{F} \quad \cong 0.0050 (1\text{KHz})$$

(3) CAPACITANCE CHANGE :  $\cong \pm 5\%$  OF THE INITIAL VALUE(4) INSULATION RESISTANCE :  $\cong 50\%$  OF INITIAL SPECIFIED

## 13. DAMP HEAT CYCLE TEST:

IN ACCORDANCE WITH IEC60068-2-30 TEST Db

TEST TEMPERATURE T:  $+40 \pm 2^{\circ}\text{C}$ 

TEST HUMIDITY: 90%~95%R.H

TEST DURATION: FIVE CYCLES ( ONE CYCLE FOR 24HRS)

AFTER TEST, ALLOW IT STAY ALONE FOR 1~2HRS AT STANDARD TEMP AND HUMIDITY BEFORE MAKING MEASUREMENTS.

TEST CRITERIA:

(1) CAPACITANCE CHANGE :  $\cong \pm 5\%$  OF THE INITIAL VALUE(2) DISSIPATION FACTOR (INCREASE):  $\cong 0.005$ (3) INSULATION RESISTANCE :  $\cong 50\%$  OF INITIAL SPECIFIED VALUE

## 14. RAPID CHANGE OF TEMPERATURE:

QA=  $-40^{\circ}\text{C}$  0.5hQB=  $+85^{\circ}\text{C}$  0.5h

IN ACCORDANCE WITH IEC60384-1 4.16 TRANSFORMING TIME 2~3MIN FROM LOWER TEMPERATURE QA TO UPPER TEMPERATURE QB (AS ONE CYCLE), FIVE CYCLES IN ALL.

TEST CRITERIA:

(1) APPEARANCE : NO VISIBLE DAMAGE

(2) CAPACITANCE CHANGE :  $\cong \pm 5\%$  OF THE INITIAL VALUE(3) DISSIPATION FACTOR (INCREASE):  $\cong 0.005$ (4) INSULATION RESISTANCE :  $\cong 50\%$  OF INITIAL SPECIFIED

## 15. LIFE. TEST CONDITIONS:

TEST TEMPERATURE:  $100 \pm 3^{\circ}\text{C}$ 

TEST VOLTAGE: 1.25UR AND 1,000V FOR A PERIOD OF 0.1 SEC. ONCE EACH HOUR.

TEST DURATION: 1,000HOURS

TEST CRITERIA:

CAPACITANCE DRIFT:  $\cong \pm 10\%$  OF THE INITIAL VALUE

DISSIPATION FACTOR (INCREASE) :

$$\text{CR} \leq 1\mu\text{F} \quad \cong 0.0080 (1\text{KHz})$$

$$\text{CR} > 1\mu\text{F} \quad \cong 0.0050 (1\text{KHz})$$

INSULATION RESISTANCE:  $\cong 50\%$  OF SPECIFIED VALUE

## 12. 寒冷试验:

根据 IEC60068-2-1 试验 Aa 之条件:

试验温度:  $-40 \pm 2^{\circ}\text{C}$ 

试验时间: 2 小时

试验判据:

(1) 外观: 无可见损伤

(2) 损耗角正切:  $\text{CR} \leq 1\mu\text{F}$  (增加值)  $\cong 0.0080 (1\text{KHz})$ 

$$\text{CR} > 1\mu\text{F} (\text{增加值}) \cong 0.0050 (1\text{KHz})$$

(3) 电容量变化:  $\cong$  初始测试值的  $\pm 5\%$ (4) 绝缘电阻:  $\cong$  初始规定值的 50%

## 13. 循环湿热试验:

根据 IEC60068-2-30 试验 Db

试验温度:  $+40 \pm 2^{\circ}\text{C}$ 

试验湿度: 90%~95%R.H

持续时间: 5 个循环 (24 小时为一个循环)

试验后, 允许电容器在正常的温度与湿度下放置 1~2 小时再进行测试.

试验判据:

(1) 容量变化  $\leq \pm 5\%$ (2) 损耗变化 (增加值)  $\leq 0.005$ (3) 绝缘电阻:  $\cong$  初始规定值的 50%

## 14. 温度快速变化试验:

QA=  $-40^{\circ}\text{C}$  0.5hQB=  $+85^{\circ}\text{C}$  0.5h

按 IEC60384-1 4.16 条从负温 QA 到正温 QB 中间转换时间 2~3 分钟 (为一次循环) 共 5 次.

试验判据:

(1) 外观: 无可见损伤.

(2) 电容量变化:  $\cong$  初始测试值的  $\pm 5\%$ (3) 损耗角正切 (增加值):  $\cong 0.005$ (4) 绝缘电阻:  $\cong$  初始规定值的 50%

## 15. 耐久性试验:

试验温度:  $100 \pm 3^{\circ}\text{C}$ 

试验电压: 1.25UR, 每 1 小时将电压升至 1000V (有效值), 持续时间 0.1 秒.

试验持续时间: 1000 小时

试验判据:

电容量变化率:  $\cong$  初始值的  $\pm 10\%$ 损耗角正切:  $\text{CR} \leq 1\mu\text{F}$  (增加值)  $\cong 0.0080 (1\text{KHz})$ 

$$\text{CR} > 1\mu\text{F} (\text{增加值}) \cong 0.0050 (1\text{KHz})$$

绝缘电阻:  $\cong$  初始值的 50%

## 16. SOLERABILITY CONDITIONS:

SOLDER BATH TEMPERATURE:  $260 \pm 3^{\circ}\text{C}$ 

SOLDER MATERIAL: 99.96% OF TIN + 0.04% OF ARGENTINE

SOLDER TIME :  $5 \pm 0.5\text{SEC}$ 

TEST CRITERIA : 90% OF THE SURFACE TINNING

## 17. SOLDERING HEAT RESISTANCE:

IN ACCORDANCE WITH IEC60068 Td TEST CONDITIONS:

SOLDER BATH TEMPERATURE:  $260 \pm 5^{\circ}\text{C}$ SLDER TIME :  $10 \pm 1\text{SEC.}$ 

CAPACITANCE BODY MAY LIE ON BRINTING CIRCUIT BOARD

TEST CRITERIA;

APPEARANCE: NO DAMAGE AND GOOD TINNING

CAPACITANCE CHANGE:  $\leq \pm 5\%$ 

DISSIPATION FACTOR (INCREASE ):

 $\text{CR} \leq 1\mu\text{F} \quad \leq 0.0080 (1\text{KHz})$  $\text{CR} > 1\mu\text{F} \quad \leq 0.0050 (1\text{KHz})$ INSULATION RESISTANCE:  $\geq 50\%$  OF SPECIFIED VALUE

## 18. CHARGE AND DISCHARGE:

CYSLE TIME: 10000TIMES t

CHARGE LASTING TIME: 0.5S

DISCHARGE LASTING TIME: 0.5S

DISCHARGE DV/DT  $\leq 100\text{V}/\mu\text{S}$ 

TEST CRITERIA :

CAPACITANCE CHANGE :  $\leq \pm 10\%$  OF THE INITIAL

DISSIPATION FACTOR (INCREASE ):

 $\text{CR} \leq 1\mu\text{F} \quad \leq 0.0080 (1\text{KHz})$  $\text{CR} > 1\mu\text{F} \quad \leq 0.0050 (1\text{KHz})$ INSULATION RESISTANCE :  $\geq 50\%$  OF INITIAL SPECIFIED VALUE

## 19. VIBRATION RESISTANCE:

IN ACCORDANCE WITH IEC 60068-2-6 TEST F<sub>c</sub> CONDITIONS.

FREQUENCE RANGE : 10 — 55HZ

DISPLACEMENT AMPLITUDE : 0.75mm

CONFORMING TO MAX. : 10 g

TEST DURATION: 6 HOURS

TEST CRITERIA:

APPEARANCE: NO VISIBLE DAMAGE

CAPACITANCE CHANGE:  $\leq \pm 2\%$  OF THE INITIAL VALUE

## 16. 可焊性试验:

焊槽温度:  $260 \pm 3^{\circ}\text{C}$ 

焊料成份: 锡 99.96% + 银 0.04%

浸入时间:  $5 \pm 0.5\text{秒}$ 

试验判据: 引线表面 90%锡被复盖

## 17. 耐焊接热试验:

根据 IEC60068 Td 试验之条件:

焊接温度:  $260 \pm 5^{\circ}\text{C}$ 浸入时间:  $10 \pm 1\text{秒}$ 

电容器本体与焊料之间用 PC 板隔离

试验判据:

产品外观: 引线镀锡层无可见损伤.

电容量变化率:  $\leq$  初始值的  $\pm 5\%$ 损耗角正切:  $\text{CR} \leq 1\mu\text{F}$  (增加值)  $\leq 0.0080 (1\text{KHz})$  $\text{CR} > 1\mu\text{F}$  (增加值)  $\leq 0.0050 (1\text{KHz})$ 绝缘电阻:  $\geq$  初始规定值的 50%

## 18. 充放电试验:

周期: 10000 次

充电持续时间: 0.5 秒

放电持续时间: 0.5 秒

放电 DV/DT  $\leq 100\text{V}/\mu\text{S}$ 

试验判据:

电容量变化率:  $\leq$  初始测量值的  $\pm 10\%$ 损耗角正切:  $\text{CR} \leq 1\mu\text{F}$  (增加值)  $\leq 0.0080 (1\text{KHz})$  $\text{CR} > 1\mu\text{F}$  (增加值)  $\leq 0.0050 (1\text{KHz})$ 绝缘电阻:  $\geq$  初始规定值的 50%

## 19. 振动试验:

根据 IEC 60068-2-6 试验 F<sub>c</sub> 之条件:

频率范围: 10~55HZ

位移: 0.75 mm

最大加速度: 10 g

试验时间: 6 小时

试验判据:

外观: 无可见损伤

电容量变化率:  $\leq$  初始测量值的  $\pm 2\%$

## 20. TENSILE STRENGTH OF TERMINALS

IN ACCORDANCE WITH IEC 60068-2-21 TEST Ua.1 CONDITIONS.

TERMINAL DIA. (mm)	LOAD FORCE KG (N)	HOLDING TIMES SEC.
>0.5 TO ≤0.8	1.0 (10)	10
>0.8	2.0 (20)	20

TEST CRITERIA:

NO WIRE BREAKAGE AND NO DAMAGE OF CAPACITOR.

## 21. BENDING OF TERMINALS

IN ACCORDANCE WITH IEC 60068-2-21 TEST Ub. CONDITIONS

LOAD FORCE : 0.5 KG (5N)

BENDING TIME : TWO CONSECUTIVE BENDS (4 \* 90 C)

TEST CRITERIA :

NO WIRE BREAKAGE AND NO DAMAGE OF CAPACITOR

## 22. MARKING :

CAPACITORS ARE MARKED WITH TYPE IDENTIFICATION :

CAPACITANCE, CAPACITANCE TOLERANCE, RATED VOLTAGE, GRADE OF

APPROVED CERTIFICATION , BRAND NAME OF MANUFACTURE.

## 20. 引出端强度试验:

根据 IEC 60068-2-21 试验 Ua.1 之条件:

引出端 直径 (mm)	抗张强度 KG (N)	持续时间 秒
>0.5 TO ≤0.8	1.0 (10)	10
>0.8	2.0 (20)	20

试验判据:

引线无破裂, 电容本部无损

## 21. 引出端弯曲强度试验:

根据 IEC 60068-2-21 试验 Ub 之条件:

抗弯曲强度: 0.5Kg (5N)

弯曲时间: 左右两边连续弯曲 (4×90 度)

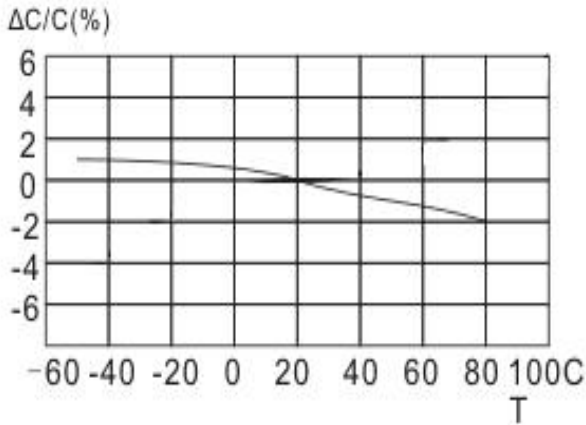
试验判据:

引线无破裂, 电容本体无损伤

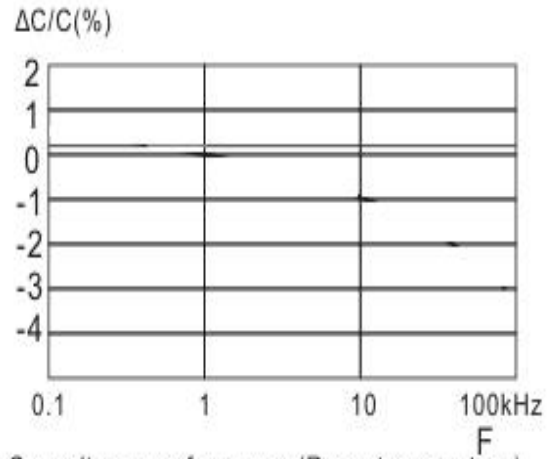
## 22. 标识:

电容器应清晰标明: 电容量, 电容量偏差范围, 额定电压, 安规等级, 制造商标. 认证, 参考标准, 生产时间等

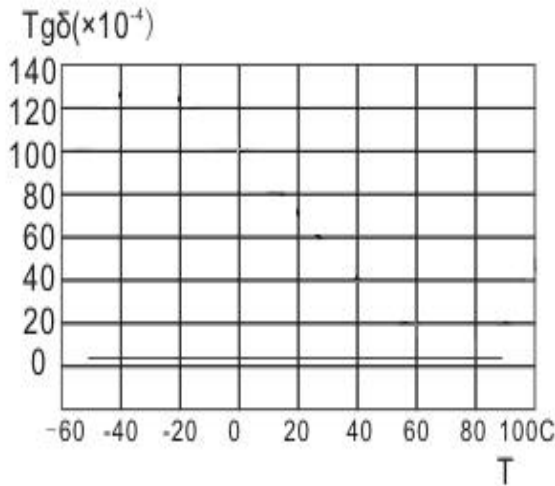
典型的电容器特性曲线 Typical graphs



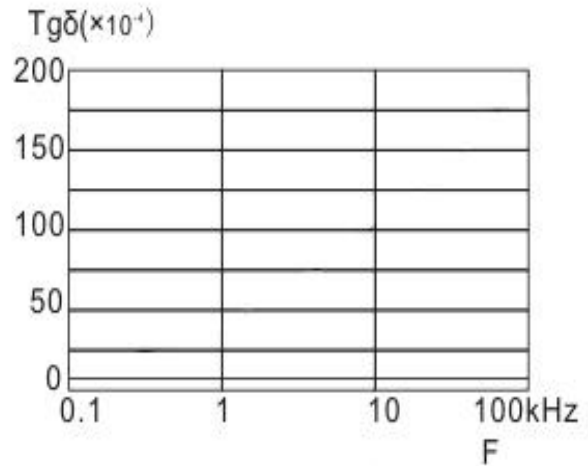
Capacitance vs. temperature at 1 kHz



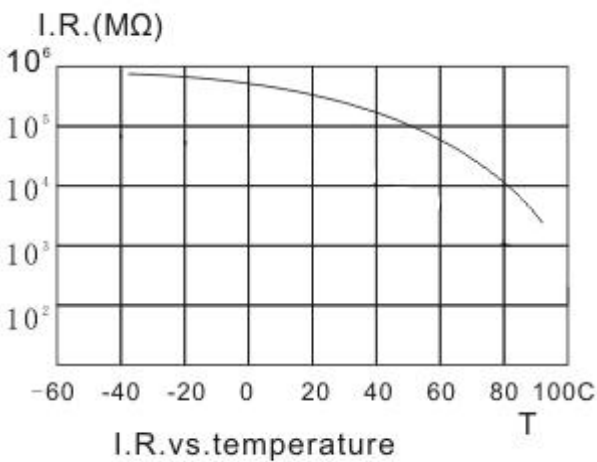
Capacitance vs. frequency(Room temperature)



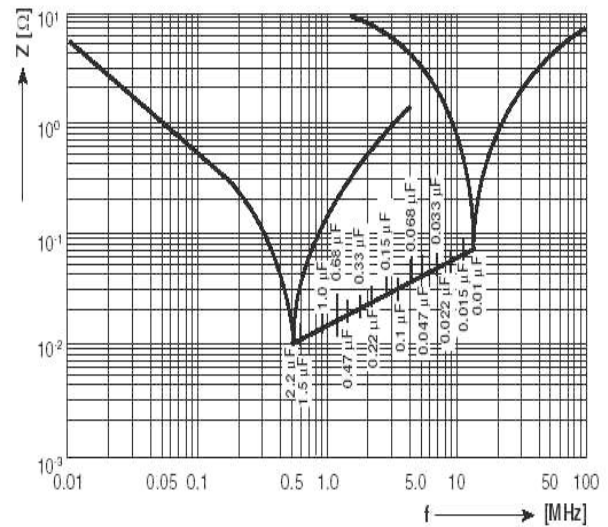
Dissipation factor vs. temperature at 1kHz



Dissipation factor vs. frequency(Room temperature)



I.R. vs. temperature





Capacitor Rating or Range 额定电容 量或范围	Finished Case Overall Dimensions (Indicate Tolerances or Minimum) (With Enclosure/Case & Epoxy) 成品的尺寸及公差						Lead Wire or Wiring Lead 引脚			
	Height		Width		Depth		Lead Space 引脚间距		Lead diameter && 引脚直径	
	(mm/in.)	Tolerance	(mm/in.)	Tolerance	(mm/in.)	Tolerance	(mm/in.)	Tolerance	(mm/in.)	Tolerance
0.01	12.5	+/-2.5mm	11	+/-2.5mm	6.5	+/-2.5mm	7.5	+/- 1 mm	0.6	+/-0.2mm
0.01	12	+/-2.5mm	12	+/-2.5mm	6	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.01	11	+/-2.5mm	18	+/-2.5mm	5	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.015	12.5	+/-2.5mm	11	+/-2.5mm	6.5	+/-2.5mm	7.5	+/- 1 mm	0.6	+/-0.2mm
0.015	12	+/-2.5mm	12	+/-2.5mm	6	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.015	11	+/-2.5mm	18	+/-2.5mm	5	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.022	12.5	+/-2.5mm	11	+/-2.5mm	6.5	+/-2.5mm	7.5	+/- 1 mm	0.6	+/-0.2mm
0.022	12	+/-2.5mm	12	+/-2.5mm	6	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.022	11.0	+/-2.5mm	18.0	+/-2.5mm	5.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.022	11.0	+/-2.5mm	18.0	+/-2.5mm	5.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.033	12	+/-2.5mm	12	+/-2.5mm	6	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.033	12.5	+/-2.5mm	11	+/-2.5mm	6.5	+/-2.5mm	7.5	+/- 1 mm	0.6	+/-0.2mm
0.033	11.0	+/-2.5mm	18.0	+/-2.5mm	5.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.033	11.0	+/-2.5mm	18.0	+/-2.5mm	5.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.047	12.5	+/-2.5mm	11	+/-2.5mm	6.5	+/-2.5mm	7.5	+/- 1 mm	0.6	+/-0.2mm
0.047	12	+/-2.5mm	12	+/-2.5mm	6	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.047	11.0	+/-2.5mm	18.0	+/-2.5mm	5.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.056	12	+/-2.5mm	13	+/-2.5mm	6	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.068	12	+/-2.5mm	13	+/-2.5mm	6	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.068	13.5	+/-2.5mm	10	+/-2.5mm	8.5	+/-2.5mm	7.5	+/- 1 mm	0.6	+/-0.2mm
0.068	11.0	+/-2.5mm	18.0	+/-2.5mm	5.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.082	12	+/-2.5mm	13	+/-2.5mm	6	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.082	11.0	+/-2.5mm	18.0	+/-2.5mm	5.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.1	13.5	+/-2.5mm	10	+/-2.5mm	8.5	+/-2.5mm	7.5	+/- 1 mm	0.6	+/-0.2mm
0.1	13	+/-2.5mm	13	+/-2.5mm	7	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.1	11.0	+/-2.5mm	18.0	+/-2.5mm	5.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.1	12.0	+/-2.5mm	18.0	+/-2.5mm	6.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.15	14	+/-2.5mm	13	+/-2.5mm	8	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.15	12.0	+/-2.5mm	18.0	+/-2.5mm	6.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.15	15.0	+/-2.5mm	26.0	+/-2.5mm	6.0	+/-2.5mm	22.5	+/- 1 mm	0.6	+/-0.2mm
0.18	16	+/-2.5mm	13	+/-2.5mm	8	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.18	13.0	+/-2.5mm	18.0	+/-2.5mm	7.0	+/-2.5mm	15	+/- 1 mm	0.6	+/-0.2mm
0.18	15.0	+/-2.5mm	26.0	+/-2.5mm	6.0	+/-2.5mm	22.5	+/- 1 mm	0.6	+/-0.2mm
0.22	16	+/-2.5mm	13.0	+/-2.5mm	8	+/-2.5mm	10	+/- 1 mm	0.6	+/-0.2mm
0.22	14.0	+/-2.5mm	18.0	+/-2.5mm	8.0	+/-2.5mm	15	+/- 1 mm	0.8	+/-0.2mm
0.22	15.0	+/-2.5mm	26.0	+/-2.5mm	6.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm



HOWFINE 0.27	14.0	+/-2.5mm	18.0	+/-2.5mm	8.0	+/-2.5mm	15	+/- 1 mm	0.8	+/-0.2mm
0.27	15.0	+/-2.5mm	26.0	+/-2.5mm	6.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
额定电容 量或范围	成品的尺寸及公差						引脚			
	Height		Width		Depth		引脚间距		引脚直径	
	μF	(mm/in.)	Tolerance	(mm/in.)	Tolerance	(mm/in.)	Tolerance	(mm/in.)	Tolerance	(mm/in.)
0.33	14.5	+/-2.5mm	18.0	+/-2.5mm	8.5	+/-2.5mm	15	+/- 1 mm	0.8	+/-0.2mm
0.33	16.5	+/-2.5mm	26.0	+/-2.5mm	7.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
0.39	16.0	+/-2.5mm	18.0	+/-2.5mm	10.0	+/-2.5mm	15	+/- 1 mm	0.8	+/-0.2mm
0.39	16.5	+/-2.5mm	26.0	+/-2.5mm	7.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
0.47	16.0	+/-2.5mm	18.0	+/-2.5mm	10.0	+/-2.5mm	15	+/- 1 mm	0.8	+/-0.2mm
0.47	18.0	+/-2.5mm	18.0	+/-2.5mm	9.0	+/-2.5mm	15	+/- 1 mm	0.8	+/-0.2mm
0.47	17.0	+/-2.5mm	26.0	+/-2.5mm	8.5	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
0.47	18.0	+/-2.5mm	31.0	+/-2.5mm	9.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
0.56	18.0	+/-2.5mm	18.0	+/-2.5mm	10.0	+/-2.5mm	15	+/- 1 mm	0.8	+/-0.2mm
0.56	19.0	+/-2.5mm	26.0	+/-2.5mm	10.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
0.68	19.0	+/-2.5mm	18.0	+/-2.5mm	11.0	+/-2.5mm	15	+/- 1 mm	0.8	+/-0.2mm
0.68	21.0	+/-2.5mm	18.0	+/-2.5mm	12.0	+/-2.5mm	15	+/- 1 mm	0.8	+/-0.2mm
0.68	19.0	+/-2.5mm	26.0	+/-2.5mm	10.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
0.68	19.0	+/-2.5mm	31.0	+/-2.5mm	11.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
0.82	19.0	+/-2.5mm	26.0	+/-2.5mm	10.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
0.82	19.0	+/-2.5mm	31.0	+/-2.5mm	11.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
1.0	21.0	+/-2.5mm	18.0	+/-2.5mm	12.0	+/-2.5mm	15	+/- 1 mm	0.8	+/-0.2mm
1.0	20.0	+/-2.5mm	26.0	+/-2.5mm	11.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
1.0	19.0	+/-2.5mm	31.0	+/-2.5mm	11.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
1.2	22.0	+/-2.5mm	26.0	+/-2.5mm	12.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
1.2	22.0	+/-2.5mm	31.0	+/-2.5mm	13.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
1.5	23.0	+/-2.5mm	26.0	+/-2.5mm	13.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
1.5	22.0	+/-2.5mm	31.0	+/-2.5mm	13.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
1.5	28.5	+/-2.5mm	41.0	+/-2.5mm	16.0	+/-2.5mm	37.5	+/- 1 mm	0.8	+/-0.2mm
1.8	24.0	+/-2.5mm	26.0	+/-2.5mm	14.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
1.8	24.5	+/-2.5mm	31.0	+/-2.5mm	14.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
1.8	28.5	+/-2.5mm	41.0	+/-2.5mm	16.0	+/-2.5mm	37.5	+/- 1 mm	0.8	+/-0.2mm
2.0	25.0	+/-2.5mm	26.0	+/-2.5mm	15.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
2.0	28.0	+/-2.5mm	31.0	+/-2.5mm	14.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
2.2	25.0	+/-2.5mm	26.0	+/-2.5mm	15.0	+/-2.5mm	22.5	+/- 1 mm	0.8	+/-0.2mm
2.2	28.0	+/-2.5mm	31.0	+/-2.5mm	14.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
2.2	30	+/-2.5mm	41.5	+/-2.5mm	17	+/-2.5mm	37.5	+/- 1 mm	0.8	+/-0.2mm
2.5	28.0	+/-2.5mm	31.0	+/-2.5mm	17.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
2.5	30	+/-2.5mm	41.5	+/-2.5mm	17	+/-2.5mm	37.5	+/- 1 mm	0.8	+/-0.2mm
2.7	33.0	+/-2.5mm	31.0	+/-2.5mm	18.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
2.7	30	+/-2.5mm	41.5	+/-2.5mm	17	+/-2.5mm	37.5	+/- 1 mm	0.8	+/-0.2mm
3	33.0	+/-2.5mm	31.0	+/-2.5mm	18.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm
3	30	+/-2.5mm	41.5	+/-2.5mm	17	+/-2.5mm	37.5	+/- 1 mm	0.8	+/-0.2mm
3.3	32.0	+/-2.5mm	31.0	+/-2.5mm	20.0	+/-2.5mm	27.5	+/- 1 mm	0.8	+/-0.2mm



HOWFINE 3.3	30	+/-2.5mm	41.5	+/-2.5mm	17	+/-2.5mm	37.5	+/- 1 mm	0.8	+/-0.2mm
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备注：特殊规格可按需求定制