



产品规格承认书

RoHS
COMPLIANT

Product Spec Certification

客户名称 : _____

品 名 : X2 0.1uF/310Vac P15mm L22mm _____

承认日期 : _____

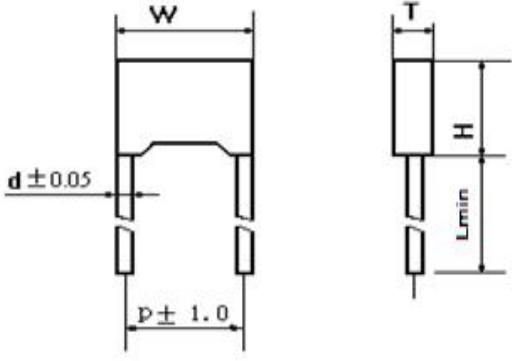
料号及外形尺寸

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	0.47	±10%	18	6	12	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: https://www.safety-capacitor.com			

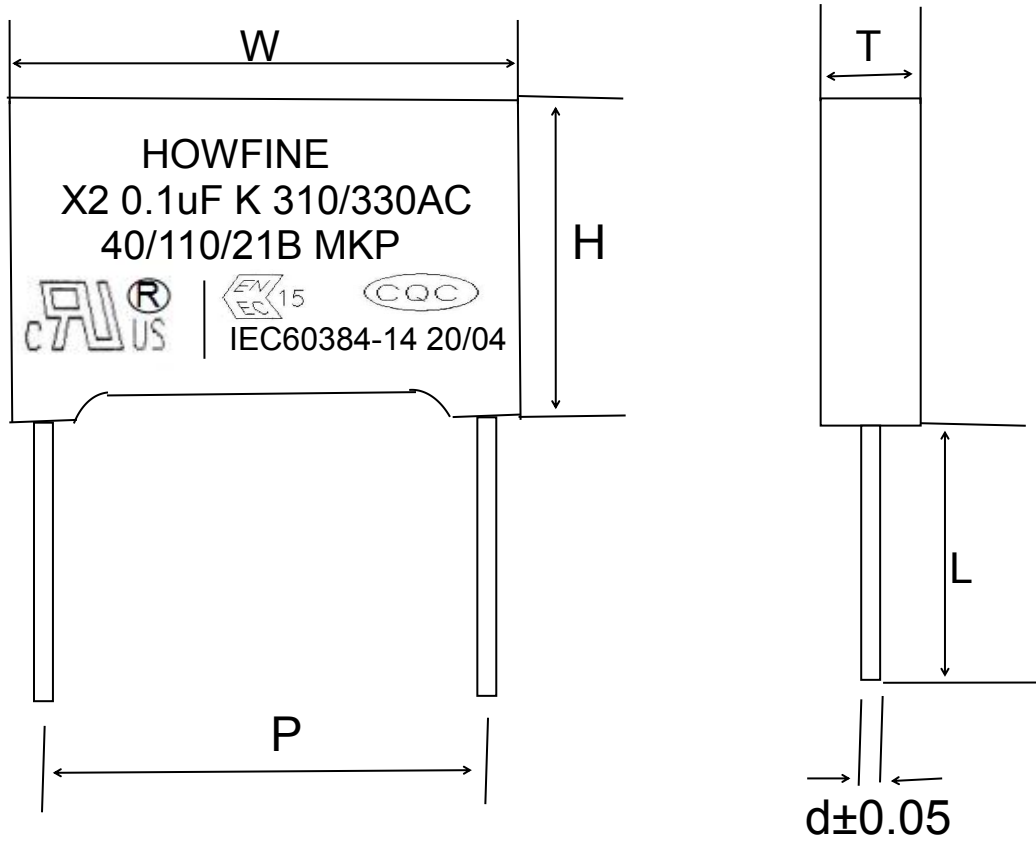
客户承认(Customers recognize):

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

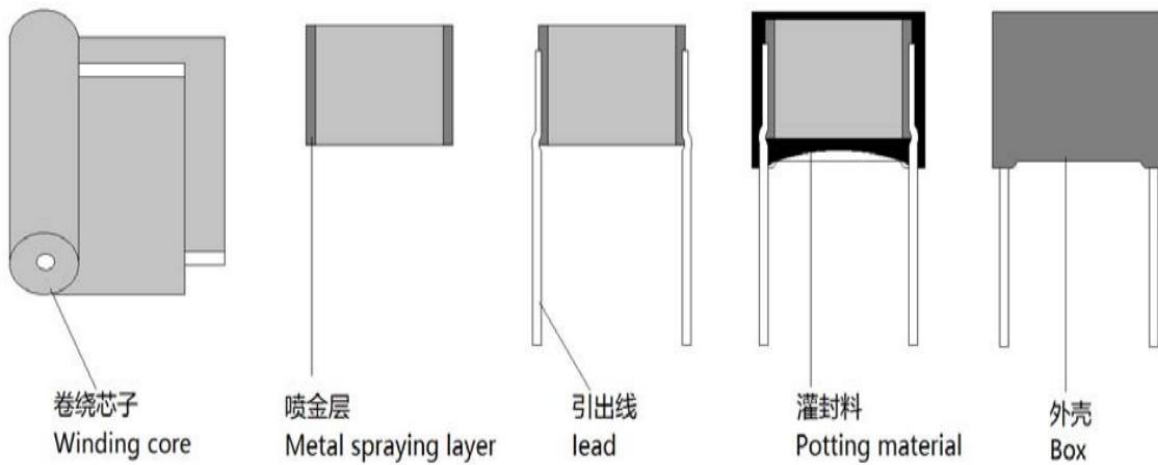
技术要求 Specifications		外型图 Outline Drawing									
引用标准 Reference Standard	GB10190(IEC60384-14)		 <p>W---表示本体宽度(W±0.5) H---表示本体高度(H±0.5) T---表示本体厚度(T±0.5) P---表示脚距(P±0.5) L---表示脚长(21min, 可变动)</p>								
气候类别 Climatic Category	40/110/21B										
工作温度范围 Rated Temperature Range	-40℃~+110℃										
表面温升(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	0.1uF										
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≥5000s										
外形尺寸 Dimensions(mm)											
Item	W±0.5	H±0.5	T±0.5	P±0.5	d	L±1.5					
104K310VAC	18	12	6	15	0.8	22					
电性能测试 Property test											
No.	1	2	3	4	5	6	7	8	9	10	
Co (nF)	99.21	98.37	102.27	95.96	102.72	100.51	95.71	93.96	102.55	99.29	
DF	0.0002	0.0001	0.0002	0.0003	0.0003	0.0003	0.0002	0.0004	0.0002	0.0003	
IR	≥10000 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.										

halogen-free safety capacitors Metallized Polypropylene Film Capacitors-Class X2

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 μ F~3.3 μ F4. CAPACITANCE TOLERANCE : K(\pm 10%), M(\pm 20%)

5. DIELECTRIC : METALLIZED POLYPROPYLENE FILM

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

7. INSULATION RESISTANCE: BETWEEN TERMINALS

(1) LESS THAN OR EQUAL TO 0.33 μ F ; \geq 1.5 \times 10⁴M Ω (2) GREATER THAN 0.33 μ F ; \geq 5 \times 10³M Ω . μ 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 μ F \leq 0.0080(1KHz)CR>1 μ 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 μ F \leq 0.0080(1KHz)CR>1 μ 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 μ F~3.3 μ 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 μ F<CR \leq 0.47 μ F \leq 0.1% (20 $^{\circ}$ C, 1KHZ)0.47 μ F<CR \leq 1.0 μ F \leq 0.2% (20 $^{\circ}$ C, 1KHZ)CR>1.0 μ 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 μ F ; \geq 1.5 \times 10⁴M Ω (2) 大于 0.33 μ F ; \geq 5 \times 10³M Ω . μ 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 μ F (增加值) \leq 0.0080(1KHz)CR>1 μ 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 μ F (增加值) \leq 0.0080(1KHz)CR>1 μ 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°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) ≤ 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°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_c 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_c 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)

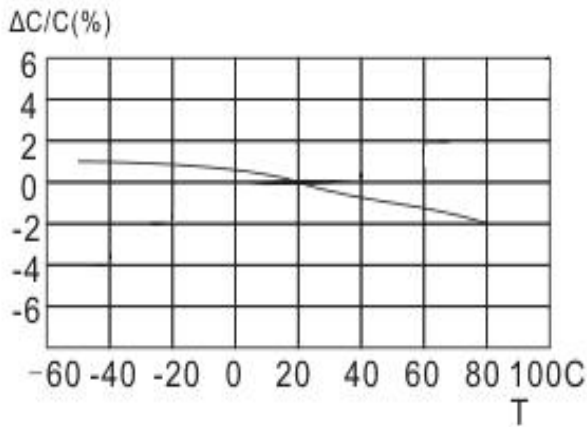
试验判据:

引线无破裂, 电容本体无损伤

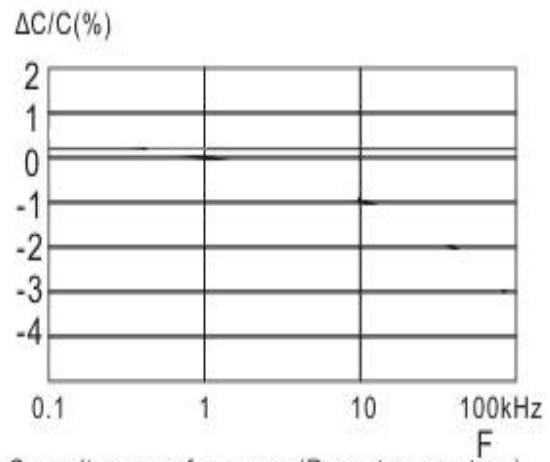
22. 标识:

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

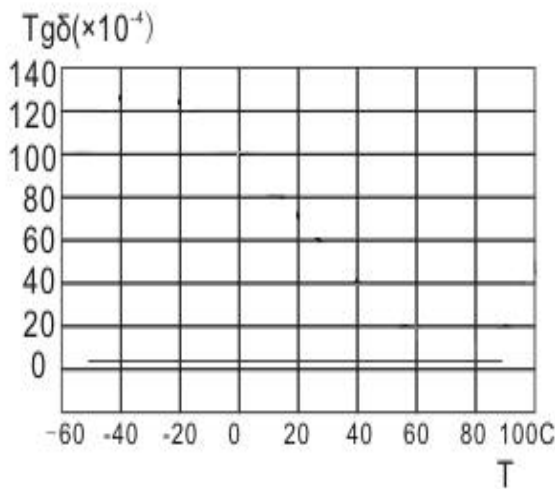
典型的电容器特性曲线 Typical graphs



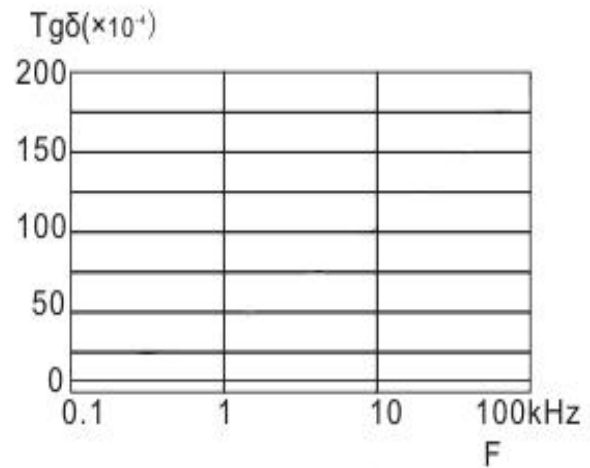
Capacitance vs. temperature at 1 kHz



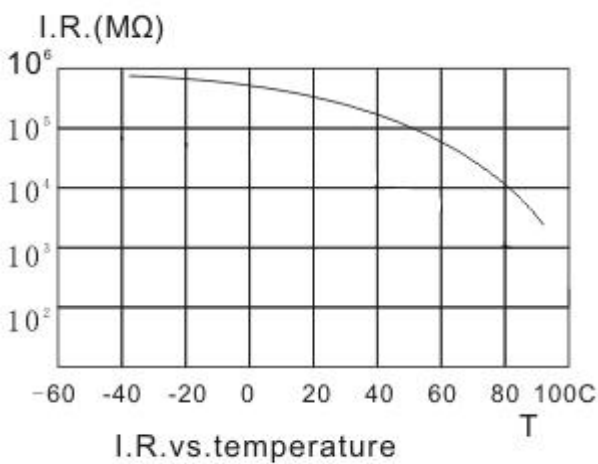
Capacitance vs. frequency (Room temperature)



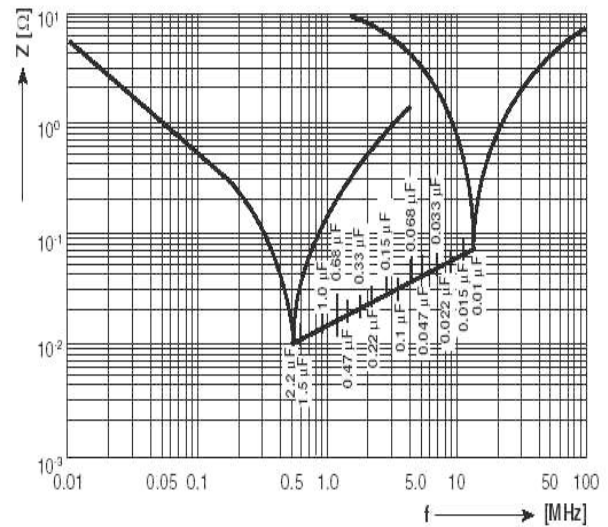
Dissipation factor vs. temperature at 1 kHz



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