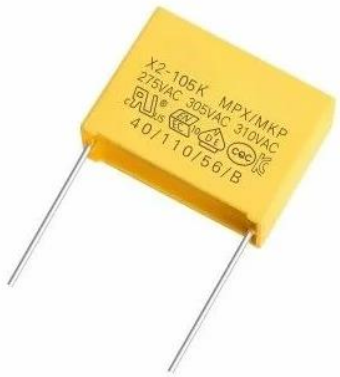
X2 Metallized Polypropylene Film Capacitor

X2104K31C131206
X2224K31D181206
X2334K31D181206
X2474K31D181408
X2684K31D181610



FEATURES

- Can withstand over pressure impact
- Excellent temperature characteristic ability
- Excellent self-healing ability
- Good moisture proof performance
- Excellent flame resistance ability

APPLICATIONS

- Widely used in power supply crossover and other anti-interference products.

SAFETY CERTIFICATION

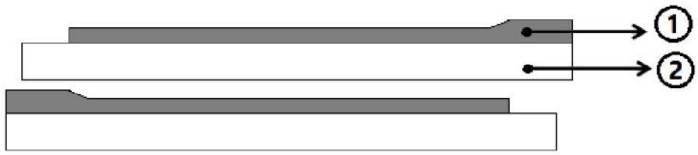
c UL us	UL/CUL (USA/Canada)	UL 60384-14 CSA E60384-14	Certification Number: E477850
10 VDE	ENEC- VDE (EU-Germany)	EN60384-14:2013/A1:2016 IEC 60384-14:2013	Certification Number: 40045532
CQC	CQC (China)	GB/T6346.14-2015	Certification Number: CQC17001162416

TECHNICAL SPECIFICATION

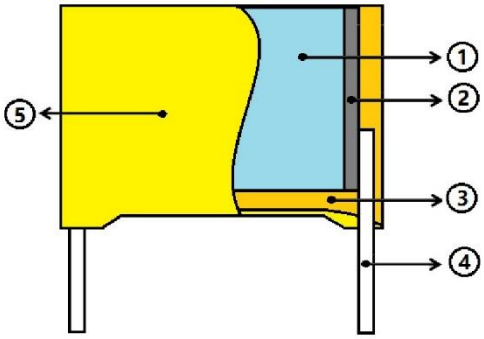
Capacitor series	X2	
Climate category	40/110/56	
Flame resistance class	B	
Operating temp range	-40°C ~ +110°C	
Rated voltage	275Vac、305Vac、310Vac	
Cap range	0.001μF ~ 4.7μF	
Cap tolerance	±10% (K)	
Withstand voltage	4.3UR (VDC) / (60S)	
DF Value	≤ 0.1% (1KHz, 20°C)	
Insulation resistance	≥ 15000MΩ; CR ≤ 0.33μF ≥ 5000S; CR > 0.33μF	20°C, 100V, 60S

X2 Metallized Polypropylene Film Capacitor

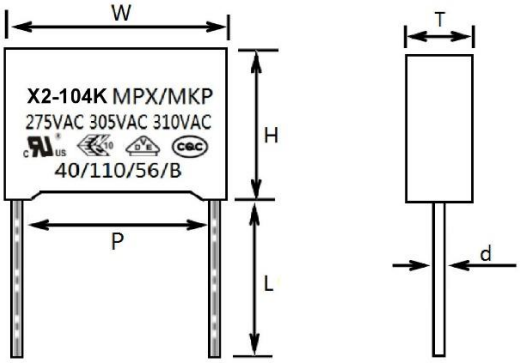
CORE STRUCTURE DRAWING

Graphical	illustration
	① Conductor ② Dielectric

PRODUCT STRUCTURE DRAWING

Graphical	illustration
	① Capacitor core ② Metal spraying tin-zinc alloy ③ High Temp wax ④ CP Wire ⑤ PBT Plastic case

OUTLINE STYLE

Graphical	Printing mark	illustration
	MPX/MKP X2	Product type
	104 (100NF)	Capacity Spec
	K	Cap tolerance value
	275/305/310VAC	Rated voltage
		Product certification mark
	40/110/56	Climate category
	B	Flame resistance class

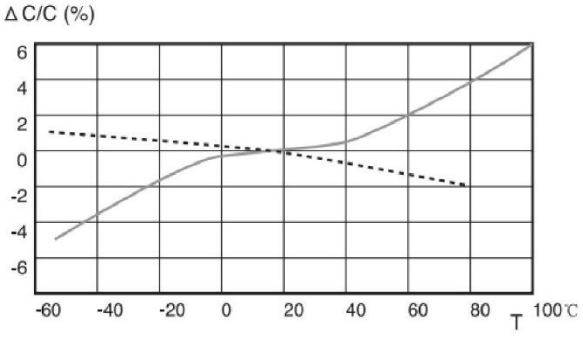
No	Specification	Cap(μF)	W±0.5	H±0.5	T±0.5	P±0.5	d±0.05	L±2	Remark
1	104K310VAC	0.1	13	12	6	10	0.6	15	
2	224K310VAC	0.22	18	12	6	15	0.8	15	
3	334K310VAC	0.33	18	12	6	15	0.8	15	
4	474K310VAC	0.47	18	14.5	8.5	15	0.8	15	
5	684K310VAC	0.68	18	16	10	15	0.8	15	

FEATURE TEST

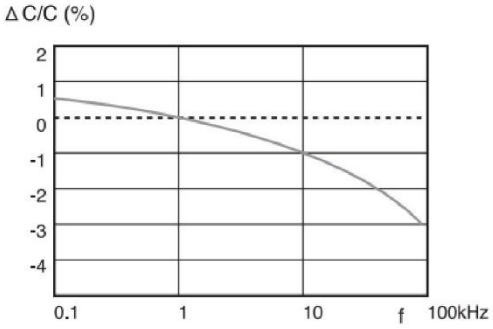
No	Item	Performance requirement	Test Method
1	Initial test	Capacitance DF: 1KHz	
	Out end leading intensity	There is no damage in outline	tension test Ual: tension: 0.5 < ϕd ≤ 0.8mm; 10N bending test Ub: Twice in every direction: two consecutive turn 180 degree
	Welding heat resistant	There is no damage in outline, clear remark	Solder Tb，method 1A 260±5°C, 5±1S
	Final test	Capacitance: △C/C ≤ initial test value±5% DF value: DF increase ≤ 0.01 (1KHz)	
2	Initial test	Capacitance DF Value: 1KHz	
	Fast temp range	There is no damage in outline	0_A = -40°C, 0 = +105°C 5 times cycles, time of duration: t=30min
	Shake	There is no damage in outline	Amplitude 0.75mm or accelerated speed 98 m/s^2, frequency 10 ~ 500Hz three direction, every direction 2h, total: 6h
	Crash	There is no damage in outline	4000 times, accelerated speed 390 m/s^2, impulse continue time: 6ms
	Final test	Capacitance: △C/C ≤ initial test value ±5% DF Value: DF increase ≤ 0.01 IR: ≥ rated value 50%	
3	Initial test	Capacitance DF Value: 1KHz	
	Heat dry		+110°C, 16h
	Cyclic damp heat		Test Db, Severity 7b, primary circulation
	Cold		-40°C, 2h
	Low air pressure	In the last 5 minutes of the test, UR is not permanent breakdown	15 ~ 35°C, 8.5Kpa, 1h
	Cyclic damp heat	After the experiment is over, apply the UR 1 minute.	Test Db, severity b, other circulation
	Final test	There is no damage in outline, clear mark Capacitance: △C/C ≤ initial test value ±5% DF Value: DF ≤ 0.01 Withstand voltage: 1.6URDC, 5S no breakdown or arc IR: ≥Rated value 50%	
4	Stable damp heat	There is no damage in outline, clear mark Capacitance: △C/C ≤ initial test value ±5% DF Value (1KHz): DF increase ≤ 0.008 Withstand voltage: 4.3URDC,60Sno breakdown IR: ≥ Rated value 50%	Temp: 40±2°C Humidity: 93±2%RH Duration time: 56 days

No	Item	Performance requirement	Test Method
5	Durability	There is no damage in outline, clear mark Cap: △C/C ≤ Initial value ±10% DF(1KHz): DF Increase ≤ 0.008 Withstand voltage: 4.3URDC,60S no breakdown IR: ≥ Rated value 50%	+110°C, 1000h Applied voltage: 1.25UR rated voltage The voltage is raised to 1000v per 1h, and the duration is 0.1s
6	Charge and discharge	Cap: △C/C ≤ initial test value ±10% DF Value(1KHz): DF increase ≤ 0.01 IR: ≥ Rated value 50%	Time: 10000times Durable charge time: 0.5S Durable discharge time: 0.5S Charge voltage is the rated voltage Charge resistance: 220/C_R(Ω)or 20Ω(the bigger one) C_R is the mark of capacitance(μF)
7	Flame resistant test	After leaving the flame, any capacitor will continue to burn for no more than 10s and the dripping of the capacitor should not be ignited in the laid cotton paper	IEC695-2-2 needle flame method Flame resistance class: B Capacitor volume: V(mm^3) ≤ 250, Applied flame time is 5S Capacitor volume: 250 < V(mm^3) ≤ 500, Applied flame time is 20s Capacitor volume: 500 < V(mm^3) ≤ 1750, Applied flame time is 30s Capacitor volume: V(mm^3) > 1750, Applied flame time is 60s

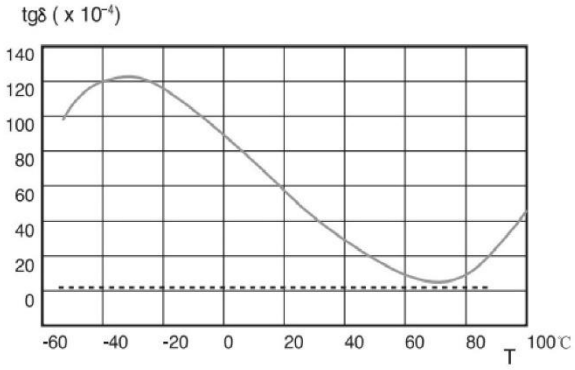
CAPACITOR FEATURE DIAGRAM



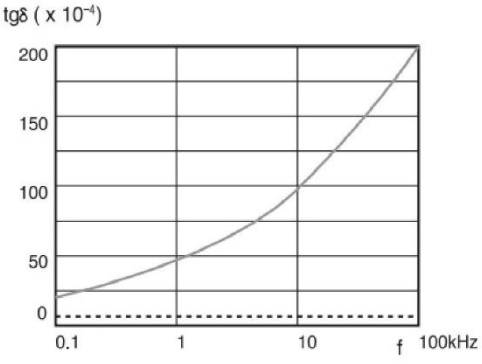
Capacitance vs. temperature at 1kHz



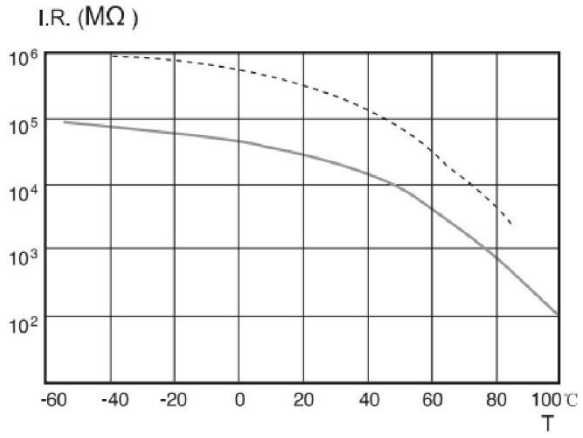
Capacitance vs. frequency (Room temperature)



Dissipation factor vs. temperature at 1kHz



Dissipation factor vs. frequency (Room temperature)



I.R. vs. temperature

- - - - - -

Polypropylene Film

———

Polyester Film

X2 Metallized Polypropylene Film Capacitor

PART NUMBER

X2	104	K	31	C	131206
(1)	(2)	(3)	(4)	(5)	(6)

(1)	**Product Model**	X2=Metallized Polypropylene Film Capacitor
(2)	**Capacitance**	3 digit code Example: **10**4 = **10** x 10^4pF = 100000pF = 0.1uF **47**4 = **47** x 10^4pF = 470000pF = 0.47uF
(3)	**Tolerance**	K= ±10%, M= ±20%, J= ±5%, F= ±1%, G= ±2%, L= -10% ~ 0%, P= 0% ~ 10%
(4)	**Rated Voltage**	31=310VAC, 63=630VAC, 10=100VAC, M3=1200VAC, 45=450VAC
(5)	**Box package Pitch**	M=5mm, B=7.5mm, C=10mm, D=15mm, E=22.5mm, F=27.5mm
(6)	**Box dimensions**	W x H x T (Please refer to Page 2) Unit: mm 13(W) x 12(H) x 06(T)