

MPK/X1-THB 85°C/85%RH Box Type Metallized Polypropylene Film Interference Suppression Capacitor

Feature

- Wide capacitance range from 0.001uF to 1.0uF .
- Operating Temperature: -40°C ~ 110°C .
- Storage Temperature: 15°C ~ 35°C .
- Capability of withstanding overvoltage .
- Flame retardant resin (UL94V-0) .

Applications

- Mainly used in across-the-line, interference suppression circuits .

Electrical Characteristics

Climatic Category	40/110/56B
Operating Temperature Range	330VAC、440VAC、480VAC、500VAC、530VAC。
Dissipation Factor	≤0.1%
Rated Voltage	Between terminals to case: $2U_R + 1500VAC$, Minimum of 2000VAC。
	Between terminals: $4.3U_R(DC)/5S$ 。
Insulation Resistance (I.R.)	$C_R \leq 0.33\mu F$, $IR \geq 15000M\Omega$ $C_R > 0.33\mu F$, $IR \geq 5000S$ Remark: $T[s] = I.R.[M\Omega] \cdot C_N[\mu F]$ 20°C、100V、60S。
Pulse Voltage	Apply Voltage: $C_R \leq 1.0\mu F$, 4KVDC $C_R > 1.0\mu F$, $4KVDC / \sqrt{C_R}$ Number of pulses: 24 times Duration: Charge in current for 9S, Discharge for 2S.
Spontaneous Combustion Test	$U_{\sim} = U_R$, $U_i = 4.0KV$ Each sample should withstand an energy storage capacitor 20 times, and the interval between each two discharges is 5S.
High Temperature and high Humidity Test	Capacitance change rate ≤10% (Applied voltage: 240VAC; Temperature: $85 \pm 2^\circ C$; Humidity: $85 \pm 2\%$; Test period: 500 hours)

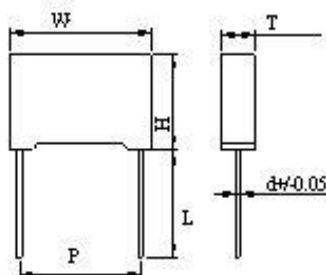
Safety Certificate

Country	Certification Body	Safety Standards	Capacitance Range	Rated Voltage
USA / Canada	UL/cUL	UL60384-14	0.001 μ F ~ 1 μ F	330VAC 440VAC 480VAC 500VAC 530VAC
Germany	VDE	IEC60384-14:2013/AMD1:2016		
EU	ENEC	IEC60384-14:2013/AMD1:2016		
China	CQC	IEC60384-14:2013+AMD1:2016		

How to order

<u>X1</u>	<u>F</u>	<u>104</u>	<u>K</u>	<u>A330</u>	<u>0150</u>	<u>B</u>	<u>000</u>	<u>T</u>
<u>Type</u>	<u>Material Code</u>	<u>Capacitance Code</u>	<u>Tolerance</u>	<u>Rated Voltage</u>	<u>Size Code</u>	<u>Package Code</u>	<u>Suffix Indicate Requirement</u>	<u>Special THB</u>
X1	F: Plastic Film Cap For X1	pF Code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) 104 = 0.1 μ F 103 = 0.01 μ F	K: +/-10%	For AC Voltage: A330:330VAC A440:440VAC A480:480VAC A500:500VAC A530:530VAC	Pitch Size for Standard Box 0100: pitch size 10mm 0150: pitch size 15mm 0200: pitch size 20mm 0225: pitch size 22.5mm 0275: pitch size 27.5mm For smaller box size, different size code S150: pitch 15mm, but in smaller box size Pls refer to "size code" from dimensions table	B: Bulk A: Ammo Taped	000: Indicating Standard If for cut leads or long leg 000: mean standard LL 035: cut leads to 3.5mm 040: cut leads to 4mm 250: 25mm long leads	

Dimensions and Approval(mm)



Lead length: base on customer requirement

Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
0.001	330VAC/440VAC/480VAC	10	9	4	7.5	0.6
	500VAC/530VAC	10	11	5	7.5	0.6
0.0012	330VAC/440VAC/480VAC	10	9	4	7.5	0.6
	500VAC/530VAC	10	11	5	7.5	0.6
0.0015	330VAC/440VAC/480VAC	10	9	4	7.5	0.6
	500VAC/530VAC	10	11	5	7.5	0.6
0.0018	330VAC/440VAC/480VAC	10	9	4	7.5	0.6
	500VAC/530VAC	10	11	5	7.5	0.6
0.0022	330VAC/440VAC/480VAC	10	9	4	7.5	0.6
	500VAC/530VAC	10	11	5	7.5	0.6
0.0027	330VAC/440VAC/480VAC	10	9	4	7.5	0.6
	500VAC/530VAC	10	11	5	7.5	0.6
0.0033	330VAC/440VAC/480VAC	10	9	4	7.5	0.6
	500VAC/530VAC	10	11	5	7.5	0.6
0.0039	330VAC/440VAC/480VAC	10	12	6	7.5	0.6
	500VAC/530VAC	10	15	8	7.5	0.6
0.0047	330VAC/440VAC/480VAC	10	12	6	7.5	0.6
	500VAC/530VAC	10	15	8	7.5	0.6
0.0056	330VAC/440VAC/480VAC	10	12	6	7.5	0.6
	500VAC/530VAC	10	15	8	7.5	0.6
0.001	330VAC/440VAC/480VAC 500VAC/530VAC	13	11	5	10	0.6
0.0012	330VAC/440VAC/480VAC 500VAC/530VAC	13	11	5	10	0.6
0.0015	330VAC/440VAC/480VAC 500VAC/530VAC	13	11	5	10	0.6
0.0018	330VAC/440VAC/480VAC 500VAC/530VAC	13	11	5	10	0.6

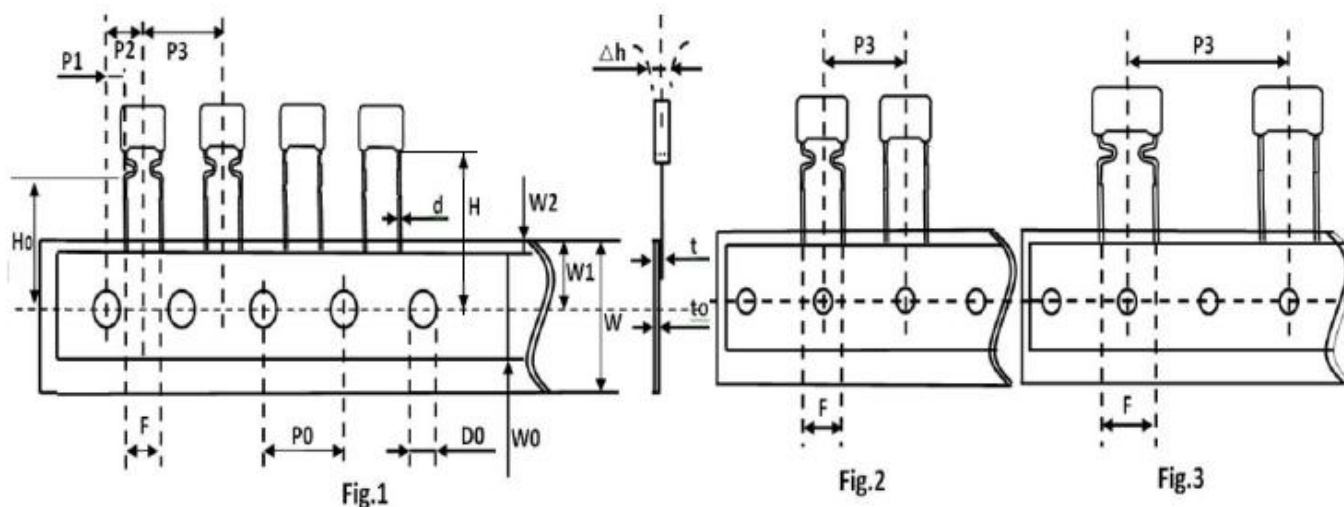
Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
0.0022	330VAC/440VAC/480VAC 500VAC/530VAC	13	12	6	10	0.6
0.0033	330VAC/440VAC/480VAC 500VAC/530VAC	13	12	6	10	0.6
0.0039	330VAC/440VAC/480VAC	13	12	6	10	0.6
	500VAC/530VAC	13	13	7	10	0.6
0.0047	330VAC/440VAC/480VAC	13	12	6	10	0.6
	500VAC/530VAC	13	13	7	10	0.6
0.0056	330VAC/440VAC/480VAC	13	12	6	10	0.6
	500VAC/530VAC	13	13	7	10	0.6
0.0068	330VAC/440VAC/480VAC	13	12	6	10	0.6
	500VAC/530VAC	13	13	7	10	0.6
0.0082	330VAC/440VAC/480VAC	13	12	6	10	0.6
	500VAC/530VAC	13	15	8	10	0.6
0.01	330VAC/440VAC/480VAC	13	13	7	10	0.6
	500VAC/530VAC	13	15	8	10	0.6
0.01	330VAC/440VAC/480VAC 500VAC/530VAC	18	11	5	15	0.8
0.012	330VAC/440VAC/480VAC 500VAC/530VAC	18	11	5	15	0.8
0.015	330VAC/440VAC/480VAC 500VAC/530VAC	18	11	5	15	0.8
0.018	330VAC/440VAC/480VAC 500VAC/530VAC	18	11	5	15	0.8
0.022	330VAC/440VAC/480VAC	18	12	6	15	0.8
		13	13	7	10	0.8
	500VAC/530VAC	18	13.5	7.5	15	0.8
0.027	330VAC/440VAC/480VAC	18	12	6	15	0.8
	500VAC/530VAC	18	13.5	7.5	15	0.8
0.033	330VAC/440VAC/480VAC	18	12	6	15	0.8
	500VAC/530VAC	18	13.5	7.5	15	0.8
0.039	330VAC/440VAC/480VAC	18	13.5	7.5	15	0.8
	500VAC/530VAC	18	14.5	8.5	15	0.8
0.047	330VAC/440VAC/480VAC	18	13.5	7.5	15	0.8
	500VAC/530VAC	18	16	10	15	0.8
0.056	330VAC/440VAC/480VAC	18	14.5	8.5	15	0.8
	500VAC/530VAC	18	19	11	15	0.8
0.068	330VAC/440VAC/480VAC	18	14.5	8.5	15	0.8
	500VAC/530VAC	18	19	11	15	0.8

Capacitance (μ F)	Voltage	Dimension (mm)				
		W $\pm$ 0.5	H $\pm$ 0.5	T $\pm$ 0.5	P $\pm$ 0.5	d $\pm$ 0.05
0.047	330VAC/440VAC/480VAC	26.5	15	6	22.5	0.8
	500VAC/530VAC	26.5	17	8.5	22.5	0.8
0.056	330VAC/440VAC/480VAC 500VAC/530VAC	26.5	17	8.5	22.5	0.8
0.068	330VAC/440VAC/480VAC 500VAC/530VAC	26.5	17	8.5	22.5	0.8
0.082	330VAC/440VAC/480VAC 500VAC/530VAC	26.5	17	8.5	22.5	0.8
0.1	330VAC/440VAC/480VAC 500VAC/530VAC	26.5	19	10	22.5	0.8
0.12	330VAC/440VAC/480VAC 500VAC/530VAC	26.5	19	10	22.5	0.8
0.15	330VAC/440VAC/480VAC 500VAC/530VAC	26.5	20	11	22.5	0.8
0.18	330VAC/440VAC/480VAC 500VAC/530VAC	26.5	23	13	22.5	0.8
0.1	330VAC/440VAC/480VAC 500VAC/530VAC	31.5	20	11	27.5	0.8
0.15	330VAC/440VAC/480VAC 500VAC/530VAC	31.5	20	11	27.5	0.8
0.18	330VAC/440VAC/480VAC 500VAC/530VAC	31.5	22	13	27.5	0.8
0.22	330VAC/440VAC/480VAC 500VAC/530VAC	31.5	25	14	27.5	0.8
0.27	330VAC/440VAC/480VAC 500VAC/530VAC	31.5	25	14	27.5	0.8
0.33	330VAC/440VAC/480VAC 500VAC/530VAC	31	28	18	27.5	0.8
0.39	330VAC/440VAC/480VAC 500VAC/530VAC	41.5	28	14	37.5	1.0
0.47	330VAC/440VAC/480VAC 500VAC/530VAC	26	21.5	12	22.5	0.8
0.47	330VAC/440VAC/480VAC 500VAC/530VAC	41.5	30	17	37.5	1.0
0.56	330VAC/440VAC/480VAC 500VAC/530VAC	41.5	30	17	37.5	1.0
0.68	330VAC/440VAC/480VAC 500VAC/530VAC	41.5	34	20.5	37.5	1.0
0.82	330VAC/440VAC/480VAC 500VAC/530VAC	41.5	34	20.5	37.5	1.0
1	330VAC/440VAC/480VAC 500VAC/530VAC	41.5	35	22.5	37.5	1.0

Lead Type、Lead Length

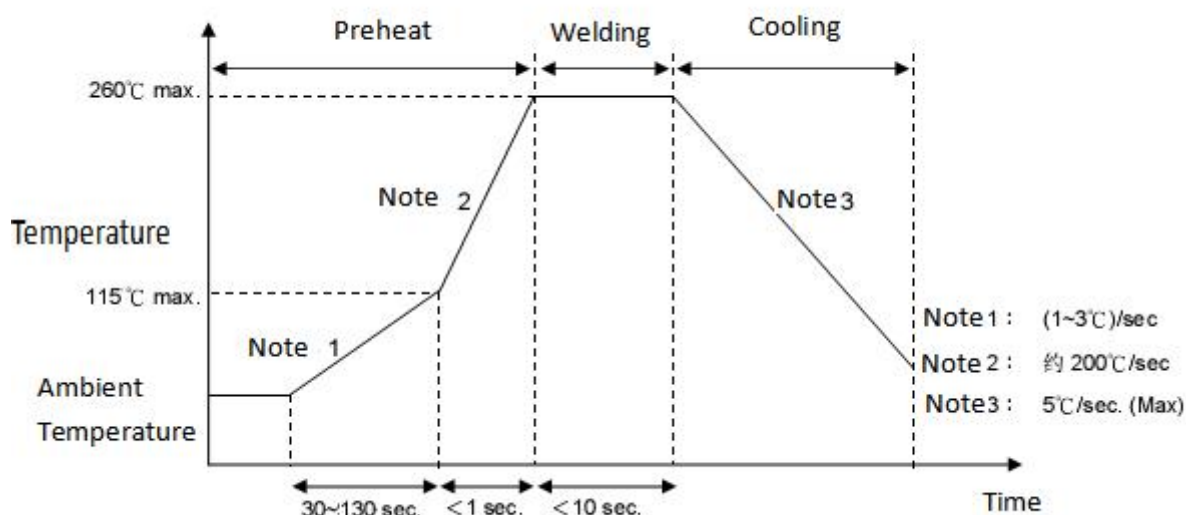
Lead Type	Drawing	Lead Length (mm)	Height H1 (mm)
Long straight lead		$2.5 \leq L < 6.0: \pm 0.5$ $6.0 \leq L \leq 10: \pm 1.0$	/
Inner crimped lead		$2.5 \leq L < 6.0: \pm 0.5$ $6.0 \leq L \leq 10: \pm 1.0$	Pitch $P > 10\text{mm}$: $H1 < 6.0\text{mm}$ Pitch $P \leq 10\text{mm}$: $H1 < 5.0\text{mm}$

Taping and Dimensions (mm)



Code	Fig.1	Fig.2	Fig.2	Fig.3	Fig.3	Tolerance
	P=5.0	P=7.5	P=10	P=15	P=20/22.5	
P3	12.7	12.7	15.0	25.4	30.0	±1.0
P2	6.35	/	/	/	/	±1.3
P0	12.7	12.7	15.0	12.7	15.0	±0.3
P1	3.85	/	/	/	/	±0.7
F	5.0	7.5	10.0	15.0	20.0/22.5	±1.0
H	20.0	20.0	20.0	20.0	20.0	±1.0
H0	16.5	16.5	16.5	16.5	16.5	±0.5
Δh	0	0	0	0	0	±2.0
W	18.0	18.0	18.0	18.0	18.0	+1.0/-0.5
W0	10.5	10.5	10.5	10.5	10.5	max
W1	9.0	9.0	9.0	9.0	9.0	±0.5
W2	3.0	3.0	3.0	3.0	3.0	Max
D0	4.0	4.0	4.0	4.0	4.0	±0.3
d	0.5	0.6	0.6	0.8	0.8	±0.05
t	1.0	1.1	1.1	1.4	1.4	±0.2
t0	0.38	0.38	0.38	0.47	0.47	±0.04

Soldering Condition Wave Soldering Graph



Note: Film capacitor is not suitable for reflow soldering welding, because it will cause thermal contraction and affect electrical performance.

Iron Soldering Condition

Item	Condition
Temperature of soldering copper bit	350°C (max.)
Soldering duration	3sec (max.)
Space between soldering position and coating layer	2mm (min.)

Storage Conditions

- When store under the atmosphere, the terminal may contact with the substance of hydrochloride, hydrosulfide, sulfuric acid, etc. in the atmosphere, which needs to be paid attention to the deterioration of the solderability of the terminal.
- Product could not be exposed to high humidity and high temperature environment. Please store under below condition with the original packing.
 - A. Temperature: $\leq 35^{\circ}\text{C}$
 - B. Humidity: $\leq 70\%\text{RH}$
 - C. Storage period: Max 12 months