Box Type Metallized Polypropylene Film Interference Suppression Capacitor(Automotive Grade MPK/X1) Data sheet

1. Feature

- Wide capacitance range from 0.001uF to 1.0uF .
- Meet AEC-Q200-Rev E quality standard.
- Operating Temperature: -40℃～110℃ .
- Storage Temperature: 15℃~35℃ .
- Can be cycled through 1000 temperature cycles (-55 ℃ to+110 ℃)
- Compliant with IEC 60384-14
- Compliant with RoHS 2.0 environmental requirements
- Capability of withstanding overvoltage .
- Flame retardant resin (UL94V-0) .

2. Applications

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

3. Safety Certificate

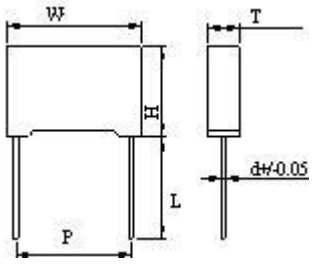
Country	Certification Body	Safety Standards	Certificate No.	Capacitance Range	Rated Voltage
USA / Canada	UL/cUL	UL60384-14	E208107	0.001μF ～ 1μF	330VAC 440VAC 480VAC 500VAC 530VAC
Germany	VDE	DIN ENIEC60384-14:2024; ENIEC60384-14:2023	40054631		
EU	ENEC	IEC60384-14:2023	40054631		
China	CQC	IEC60384-14:2023	CQC22001337767		

Part numbering on request.

5. 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≤0.33μF，IR≥15000MΩ C_R＞0.33μF，IR≥5000S Remark: T[s]=I.R.[MΩ]*CN [μF]　20℃、100V、60S。
Pulse Voltage	Apply Voltage: CR≤1.0μF，4KVDC CR＞1.0μF，4KVDC/$\sqrt{C_R}$ Number of pulses: 24 times Duration: Charge in current for 9S, Discharge for 2S.
Spontaneous Combustion Test	U～=UR,Ui=4.0KV Each sample should withstand an energy storage capacitor 20 times, and the interval between each two discharges is 5S.

6. Dimensions and Approval(mm)



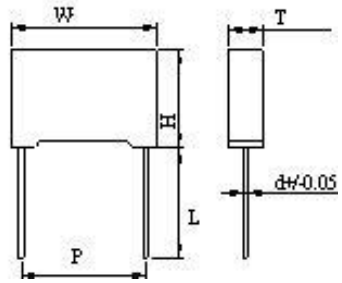
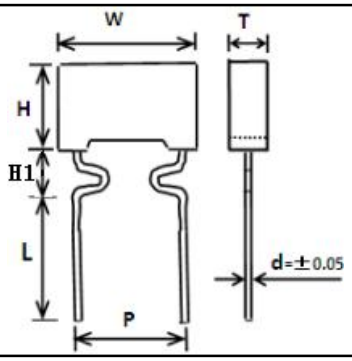
Lead length: base on customer requirement

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
0.0022	330VAC/440VAC/480VAC 500VAC/530VAC	13	12	6	10	0.6

Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
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
	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
0.047	330VAC/440VAC/480VAC	26.5	15	6	22.5	0.8
	500VAC/530VAC	26.5	17	8.5	22.5	0.8

Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
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	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

7. Lead Type、Lead Length

Lead Type	Drawing	Lead Length (mm)	Height H1 (mm)
Long straight lead		2.5≤L＜6.0：±0.5 6.0≤L≤10：±1.0	/
Inner crimped lead		2.5≤L＜6.0：±0.5 6.0≤L≤10：±1.0	Pitch P＞10mm:H1＜6.0mm Pitch P≤10mm:H1＜5.0mm

8. Taping and Dimensions (mm)

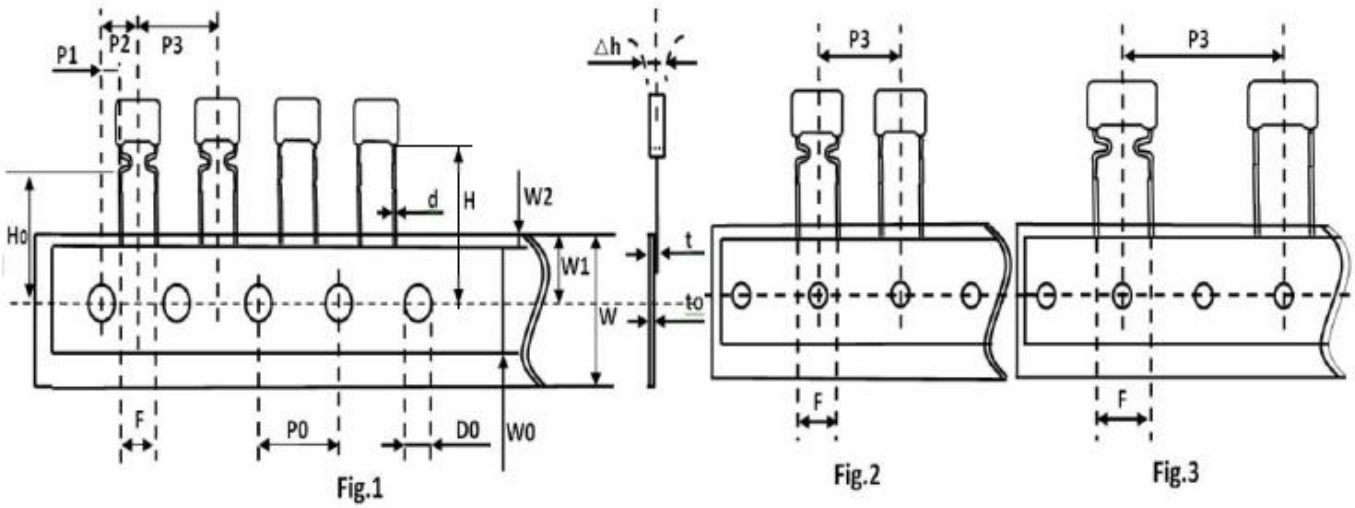
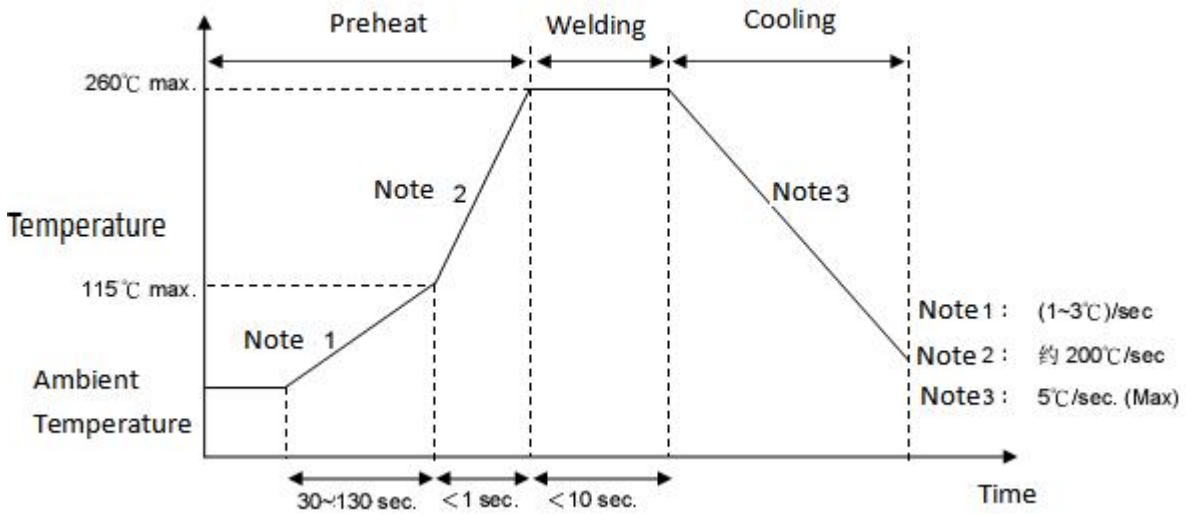


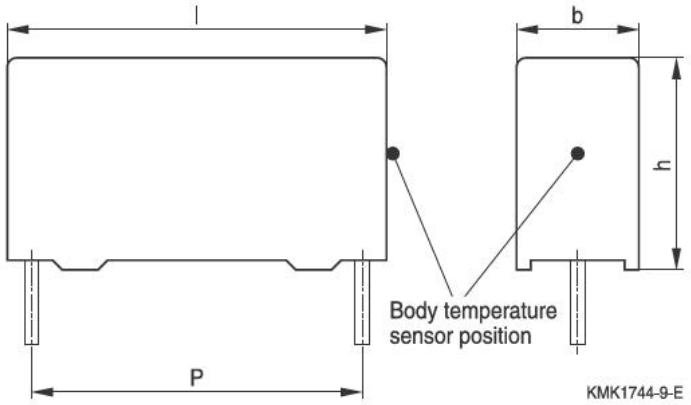
Fig.1 Fig.2 Fig.3

Code	Fig.1	Fig.2	Fig.2	Fig.3	Fig.3	Tolerence
	F=5.0	F=7.5	F=10	F=15	F=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

9. Soldering Condition

Wave Soldering Graph





PP:
During pre-heating: Tp ≤110℃
During soldering: Ts ≤120℃, ts ≤15 s
PE:
During pre-heating: Tp ≤125℃
During soldering: Ts ≤160℃, ts ≤15 s

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

Iron Soldering Condition

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

10. 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: ≤35℃

B. Himidity: ≤70%RH

C. Storage period: Max 12 months