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

1. Feature

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

2. Applications

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

3. Safety Certificate

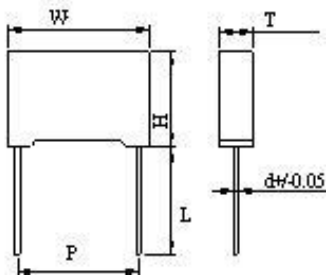
Country	Certification Body	Safety Standards	Certificate No.	Capacitance Range	Rated Voltage
USA / Canada	UL/cUL	UL60384-14	E208107	0.001μF ～ 1μF	330VAC 440VAC 480VAC 500VAC 530VAC
Germany	VDE	DIN ENIEC60384-14:2024; ENIEC60384-14:2023	40054631		
EU	ENEC	IEC60384-14:2023	40054631		
China	CQC	IEC60384-14:2023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

Part numbering on request.

5. Electrical Characteristics

Climatic Category	40/110/56B
Operating Temperature Range	-40℃～110℃
Rated Voltage	330VAC、440VAC、480VAC、500VAC、530VAC。
Dissipation Factor	≤0.1%
Withstand 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±1.0	d±0.05
0.001	330VAC	10.0	11.0	5.0	7.5	0.6
	440VAC	10.0	11.0	5.0	7.5	0.6
	480VAC	10.0	11.0	5.0	7.5	0.6
	500VAC	10.0	11.0	5.0	7.5	0.6
	530VAC	10.0	11.0	5.0	7.5	0.6
0.0012	330VAC	10.0	11.0	5.0	7.5	0.6
	440VAC	10.0	11.0	5.0	7.5	0.6
	480VAC	10.0	11.0	5.0	7.5	0.6
	500VAC	10.0	11.0	5.0	7.5	0.6
	530VAC	10.0	11.0	5.0	7.5	0.6
0.0015	330VAC	10.0	11.0	5.0	7.5	0.6
	440VAC	10.0	11.0	5.0	7.5	0.6
	480VAC	10.0	11.0	5.0	7.5	0.6
	500VAC	10.0	11.0	5.0	7.5	0.6
	530VAC	10.0	11.0	5.0	7.5	0.6
0.0018	330VAC	10.0	11.0	5.0	7.5	0.6
	440VAC	10.0	11.0	5.0	7.5	0.6
	480VAC	10.0	11.0	5.0	7.5	0.6
	500VAC	10.0	11.0	5.0	7.5	0.6
	530VAC	10.0	11.0	5.0	7.5	0.6
0.0022	330VAC	10.0	11.0	5.0	7.5	0.6
	440VAC	10.0	11.0	5.0	7.5	0.6
	480VAC	10.0	11.0	5.0	7.5	0.6
	500VAC	10.0	11.0	5.0	7.5	0.6
	530VAC	10.0	11.0	5.0	7.5	0.6

Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±1.0	d±0.05
0.0027	330VAC	10.0	11.0	5.0	7.5	0.6
	440VAC	10.0	11.0	5.0	7.5	0.6
	480VAC	10.0	11.0	5.0	7.5	0.6
	500VAC	10.0	11.0	5.0	7.5	0.6
	530VAC	10.0	11.0	5.0	7.5	0.6
0.0033	330VAC	10.0	11.0	5.0	7.5	0.6
	440VAC	10.0	11.0	5.0	7.5	0.6
	480VAC	10.0	11.0	5.0	7.5	0.6
	500VAC	10.0	11.0	5.0	7.5	0.6
	530VAC	10.0	11.0	5.0	7.5	0.6
0.0039	330VAC	10.0	15.0	8.0	7.5	0.6
	440VAC	10.0	15.0	8.0	7.5	0.6
	480VAC	10.0	15.0	8.0	7.5	0.6
	500VAC	10.0	15.0	8.0	7.5	0.6
	530VAC	10.0	15.0	8.0	7.5	0.6
0.0047	330VAC	10.0	15.0	8.0	7.5	0.6
	440VAC	10.0	15.0	8.0	7.5	0.6
	480VAC	10.0	15.0	8.0	7.5	0.6
	500VAC	10.0	15.0	8.0	7.5	0.6
	530VAC	10.0	15.0	8.0	7.5	0.6
0.0056	330VAC	10.0	15.0	8.0	7.5	0.6
	440VAC	10.0	15.0	8.0	7.5	0.6
	480VAC	10.0	15.0	8.0	7.5	0.6
	500VAC	10.0	15.0	8.0	7.5	0.6
	530VAC	10.0	15.0	8.0	7.5	0.6
0.001	330VAC	13.0	11.0	5.0	10	0.6
	440VAC	13.0	11.0	5.0	10	0.6
	480VAC	13.0	11.0	5.0	10	0.6
	500VAC	13.0	11.0	5.0	10	0.6
	530VAC	13.0	11.0	5.0	10	0.6
0.0012	330VAC	13.0	11.0	5.0	10	0.6
	440VAC	13.0	11.0	5.0	10	0.6
	480VAC	13.0	11.0	5.0	10	0.6
	500VAC	13.0	11.0	5.0	10	0.6
	530VAC	13.0	11.0	5.0	10	0.6

Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±1.0	d±0.05
0.0015	330VAC	13.0	11.0	5.0	10	0.6
	440VAC	13.0	11.0	5.0	10	0.6
	480VAC	13.0	11.0	5.0	10	0.6
	500VAC	13.0	11.0	5.0	10	0.6
	530VAC	13.0	11.0	5.0	10	0.6
0.0018	330VAC	13.0	11.0	5.0	10	0.6
	440VAC	13.0	11.0	5.0	10	0.6
	480VAC	13.0	11.0	5.0	10	0.6
	500VAC	13.0	11.0	5.0	10	0.6
	530VAC	13.0	11.0	5.0	10	0.6
0.0022	330VAC	13.0	12.0	6.0	10	0.6
	440VAC	13.0	12.0	6.0	10	0.6
	480VAC	13.0	12.0	6.0	10	0.6
	500VAC	13.0	12.0	6.0	10	0.6
	530VAC	13.0	12.0	6.0	10	0.6
0.0033	330VAC	13.0	12.0	6.0	10	0.6
	440VAC	13.0	12.0	6.0	10	0.6
	480VAC	13.0	12.0	6.0	10	0.6
	500VAC	13.0	12.0	6.0	10	0.6
	530VAC	13.0	12.0	6.0	10	0.6
0.0039	330VAC	13.0	13.0	7.0	10	0.6
	440VAC	13.0	13.0	7.0	10	0.6
	480VAC	13.0	13.0	7.0	10	0.6
	500VAC	13.0	13.0	7.0	10	0.6
	530VAC	13.0	13.0	7.0	10	0.6
0.0047	330VAC	13.0	13.0	7.0	10	0.6
	440VAC	13.0	13.0	7.0	10	0.6
	480VAC	13.0	13.0	7.0	10	0.6
	500VAC	13.0	13.0	7.0	10	0.6
	530VAC	13.0	13.0	7.0	10	0.6
0.0056	330VAC	13.0	13.0	7.0	10	0.6
	440VAC	13.0	13.0	7.0	10	0.6
	480VAC	13.0	13.0	7.0	10	0.6
	500VAC	13.0	13.0	7.0	10	0.6
	530VAC	13.0	13.0	7.0	10	0.6

Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±1.0	d±0.05
0.0068	330VAC	13.0	13.0	7.0	10	0.6
	440VAC	13.0	13.0	7.0	10	0.6
	480VAC	13.0	13.0	7.0	10	0.6
	500VAC	13.0	13.0	7.0	10	0.6
	530VAC	13.0	13.0	7.0	10	0.6
0.0082	330VAC	13.0	15.0	8.0	10	0.6
	440VAC	13.0	15.0	8.0	10	0.6
	480VAC	13.0	15.0	8.0	10	0.6
	500VAC	13.0	15.0	8.0	10	0.6
	530VAC	13.0	15.0	8.0	10	0.6
0.01	330VAC	13.0	15.0	8.0	10	0.6
	440VAC	13.0	15.0	8.0	10	0.6
	480VAC	13.0	15.0	8.0	10	0.6
	500VAC	13.0	15.0	8.0	10	0.6
	530VAC	13.0	15.0	8.0	10	0.6
0.01	330VAC	18.0	11.0	5.0	15	0.8
	440VAC	18.0	11.0	5.0	15	0.8
	480VAC	18.0	11.0	5.0	15	0.8
	500VAC	18.0	11.0	5.0	15	0.8
	530VAC	18.0	11.0	5.0	15	0.8
0.012	330VAC	18.0	11.0	5.0	15	0.8
	440VAC	18.0	11.0	5.0	15	0.8
	480VAC	18.0	11.0	5.0	15	0.8
	500VAC	18.0	11.0	5.0	15	0.8
	530VAC	18.0	11.0	5.0	15	0.8
0.015	330VAC	18.0	11.0	5.0	15	0.8
	440VAC	18.0	11.0	5.0	15	0.8
	480VAC	18.0	11.0	5.0	15	0.8
	500VAC	18.0	11.0	5.0	15	0.8
	530VAC	18.0	11.0	5.0	15	0.8
0.018	330VAC	18.0	11.0	5.0	15	0.8
	440VAC	18.0	11.0	5.0	15	0.8
	480VAC	18.0	11.0	5.0	15	0.8
	500VAC	18.0	11.0	5.0	15	0.8
	530VAC	18.0	11.0	5.0	15	0.8

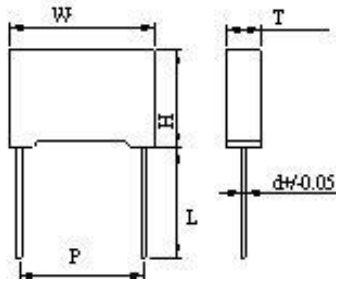
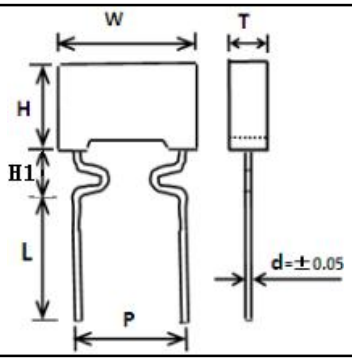
Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±1.0	d±0.05
0.022	330VAC	18.0	13.5	7.5	15	0.8
	440VAC	18.0	13.5	7.5	15	0.8
	480VAC	18.0	13.5	7.5	15	0.8
	500VAC	18.0	13.5	7.5	15	0.8
	530VAC	18.0	13.5	7.5	15	0.8
0.027	330VAC	18.0	13.5	7.5	15	0.8
	440VAC	18.0	13.5	7.5	15	0.8
	480VAC	18.0	13.5	7.5	15	0.8
	500VAC	18.0	13.5	7.5	15	0.8
	530VAC	18.0	13.5	7.5	15	0.8
0.033	330VAC	18.0	13.5	7.5	15	0.8
	440VAC	18.0	13.5	7.5	15	0.8
	480VAC	18.0	13.5	7.5	15	0.8
	500VAC	18.0	13.5	7.5	15	0.8
	530VAC	18.0	13.5	7.5	15	0.8
0.039	330VAC	18.0	14.5	8.5	15	0.8
	440VAC	18.0	14.5	8.5	15	0.8
	480VAC	18.0	14.5	8.5	15	0.8
	500VAC	18.0	14.5	8.5	15	0.8
	530VAC	18.0	14.5	8.5	15	0.8
0.047	330VAC	18.0	16.0	10.0	15	0.8
	440VAC	18.0	16.0	10.0	15	0.8
	480VAC	18.0	16.0	10.0	15	0.8
	500VAC	18.0	16.0	10.0	15	0.8
	530VAC	18.0	16.0	10.0	15	0.8
0.056	330VAC	18.0	19.0	11.0	15	0.8
	440VAC	18.0	19.0	11.0	15	0.8
	480VAC	18.0	19.0	11.0	15	0.8
	500VAC	18.0	19.0	11.0	15	0.8
	530VAC	18.0	19.0	11.0	15	0.8

Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±1.0	d±0.05
0.068	330VAC	18.0	19.0	11.0	15	0.8
	440VAC	18.0	19.0	11.0	15	0.8
	480VAC	18.0	19.0	11.0	15	0.8
	500VAC	18.0	19.0	11.0	15	0.8
	530VAC	18.0	19.0	11.0	15	0.8
0.047	330VAC	26.5	16.5	7.0	22.5	0.8
	440VAC	26.5	16.5	7.0	22.5	0.8
	480VAC	26.5	16.5	7.0	22.5	0.8
	500VAC	26.5	16.5	7.0	22.5	0.8
	530VAC	26.5	16.5	7.0	22.5	0.8
0.056	330VAC	26.5	17.0	8.5	22.5	0.8
	440VAC	26.5	17.0	8.5	22.5	0.8
	480VAC	26.5	17.0	8.5	22.5	0.8
	500VAC	26.5	17.0	8.5	22.5	0.8
	530VAC	26.5	17.0	8.5	22.5	0.8
0.068	330VAC	26.5	17.0	8.5	22.5	0.8
	440VAC	26.5	17.0	8.5	22.5	0.8
	480VAC	26.5	17.0	8.5	22.5	0.8
	500VAC	26.5	17.0	8.5	22.5	0.8
	530VAC	26.5	17.0	8.5	22.5	0.8
0.082	330VAC	26.5	17.0	8.5	22.5	0.8
	440VAC	26.5	17.0	8.5	22.5	0.8
	480VAC	26.5	17.0	8.5	22.5	0.8
	500VAC	26.5	17.0	8.5	22.5	0.8
	530VAC	26.5	17.0	8.5	22.5	0.8
0.1	330VAC	26.5	19.0	10.0	22.5	0.8
	440VAC	26.5	19.0	10.0	22.5	0.8
	480VAC	26.5	19.0	10.0	22.5	0.8
	500VAC	26.5	19.0	10.0	22.5	0.8
	530VAC	26.5	19.0	10.0	22.5	0.8
0.12	330VAC	26.5	19.0	10.0	22.5	0.8
	440VAC	26.5	19.0	10.0	22.5	0.8
	480VAC	26.5	19.0	10.0	22.5	0.8
	500VAC	26.5	19.0	10.0	22.5	0.8
	530VAC	26.5	19.0	10.0	22.5	0.8

Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±1.0	d±0.05
0.15	330VAC	26.5	20.0	11.0	22.5	0.8
	440VAC	26.5	20.0	11.0	22.5	0.8
	480VAC	26.5	20.0	11.0	22.5	0.8
	500VAC	26.5	20.0	11.0	22.5	0.8
	530VAC	26.5	20.0	11.0	22.5	0.8
0.18	330VAC	26.5	23.0	13.0	22.5	0.8
	440VAC	26.5	23.0	13.0	22.5	0.8
	480VAC	26.5	23.0	13.0	22.5	0.8
	500VAC	26.5	23.0	13.0	22.5	0.8
	530VAC	26.5	23.0	13.0	22.5	0.8
0.1	330VAC	31.5	20.0	11.0	27.5	0.8
	440VAC	31.5	20.0	11.0	27.5	0.8
	480VAC	31.5	20.0	11.0	27.5	0.8
	500VAC	31.5	20.0	11.0	27.5	0.8
	530VAC	31.5	20.0	11.0	27.5	0.8
0.15	330VAC	31.5	20.0	11.0	27.5	0.8
	440VAC	31.5	20.0	11.0	27.5	0.8
	480VAC	31.5	20.0	11.0	27.5	0.8
	500VAC	31.5	20.0	11.0	27.5	0.8
	530VAC	31.5	20.0	11.0	27.5	0.8
0.18	330VAC	31.5	22.0	13.0	27.5	0.8
	440VAC	31.5	22.0	13.0	27.5	0.8
	480VAC	31.5	22.0	13.0	27.5	0.8
	500VAC	31.5	22.0	13.0	27.5	0.8
	530VAC	31.5	22.0	13.0	27.5	0.8
0.22	330VAC	31.5	25.0	14.0	27.5	0.8
	440VAC	31.5	25.0	14.0	27.5	0.8
	480VAC	31.5	25.0	14.0	27.5	0.8
	500VAC	31.5	25.0	14.0	27.5	0.8
	530VAC	31.5	25.0	14.0	27.5	0.8
0.27	330VAC	31.5	25.0	14.0	27.5	0.8
	440VAC	31.5	25.0	14.0	27.5	0.8
	480VAC	31.5	25.0	14.0	27.5	0.8
	500VAC	31.5	25.0	14.0	27.5	0.8
	530VAC	31.5	25.0	14.0	27.5	0.8

Capacitance (uF)	Voltage	Dimension (mm)				
		W±0.5	H±0.5	T±0.5	P±1.0	d±0.05
0.33	330VAC	31.0	28.0	18.0	27.5	0.8
	440VAC	31.0	28.0	18.0	27.5	0.8
	480VAC	31.0	28.0	18.0	27.5	0.8
	500VAC	31.0	28.0	18.0	27.5	0.8
	530VAC	31.0	28.0	18.0	27.5	0.8
0.39	330VAC	41.5	28.0	14.0	37.5	0.8
	440VAC	41.5	28.0	14.0	37.5	0.8
	480VAC	41.5	28.0	14.0	37.5	0.8
	500VAC	41.5	28.0	14.0	37.5	0.8
	530VAC	41.5	28.0	14.0	37.5	0.8
0.47	330VAC	41.5	30.0	17.0	37.5	0.8
	440VAC	41.5	30.0	17.0	37.5	0.8
	480VAC	41.5	30.0	17.0	37.5	0.8
	500VAC	41.5	30.0	17.0	37.5	0.8
	530VAC	41.5	30.0	17.0	37.5	0.8
0.56	330VAC	41.5	30.0	17.0	37.5	0.8
	440VAC	41.5	30.0	17.0	37.5	0.8
	480VAC	41.5	30.0	17.0	37.5	0.8
	500VAC	41.5	30.0	17.0	37.5	0.8
	530VAC	41.5	30.0	17.0	37.5	0.8
0.68	330VAC	41.5	34.0	20.5	37.5	0.8
	440VAC	41.5	34.0	20.5	37.5	0.8
	480VAC	41.5	34.0	20.5	37.5	0.8
	500VAC	41.5	34.0	20.5	37.5	0.8
	530VAC	41.5	34.0	20.5	37.5	0.8
0.82	330VAC	41.5	34.0	20.5	37.5	0.8
	440VAC	41.5	34.0	20.5	37.5	0.8
	480VAC	41.5	34.0	20.5	37.5	0.8
	500VAC	41.5	34.0	20.5	37.5	0.8
	530VAC	41.5	34.0	20.5	37.5	0.8
1.0	330VAC	41.5	35.5	22.5	37.5	0.8
	440VAC	41.5	35.5	22.5	37.5	0.8
	480VAC	41.5	35.5	22.5	37.5	0.8
	500VAC	41.5	35.5	22.5	37.5	0.8
	530VAC	41.5	35.5	22.5	37.5	0.8

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)

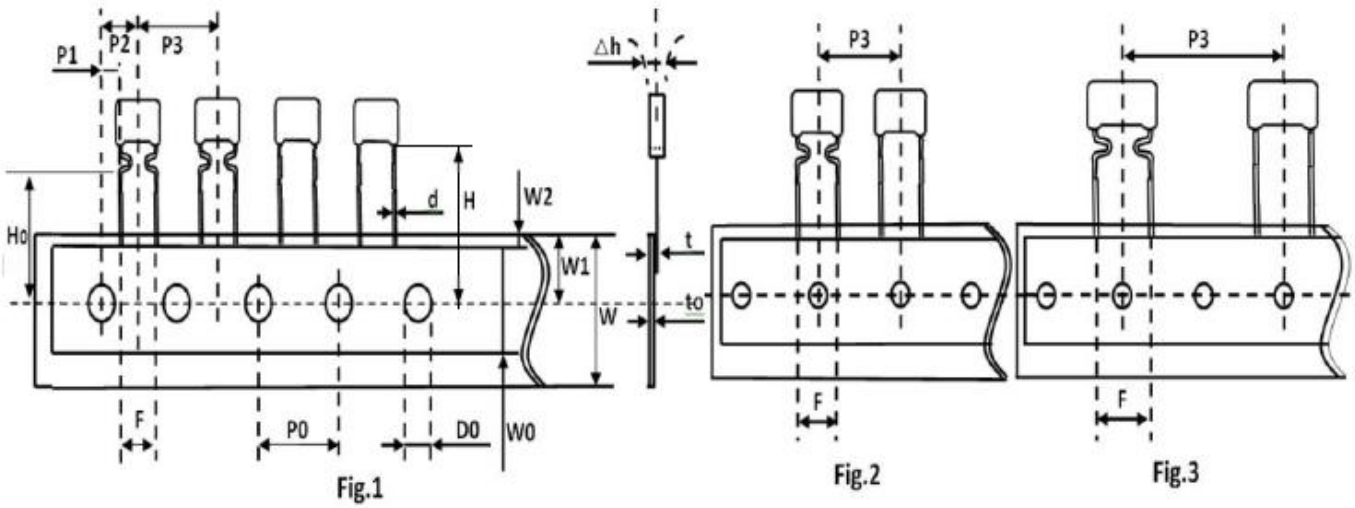
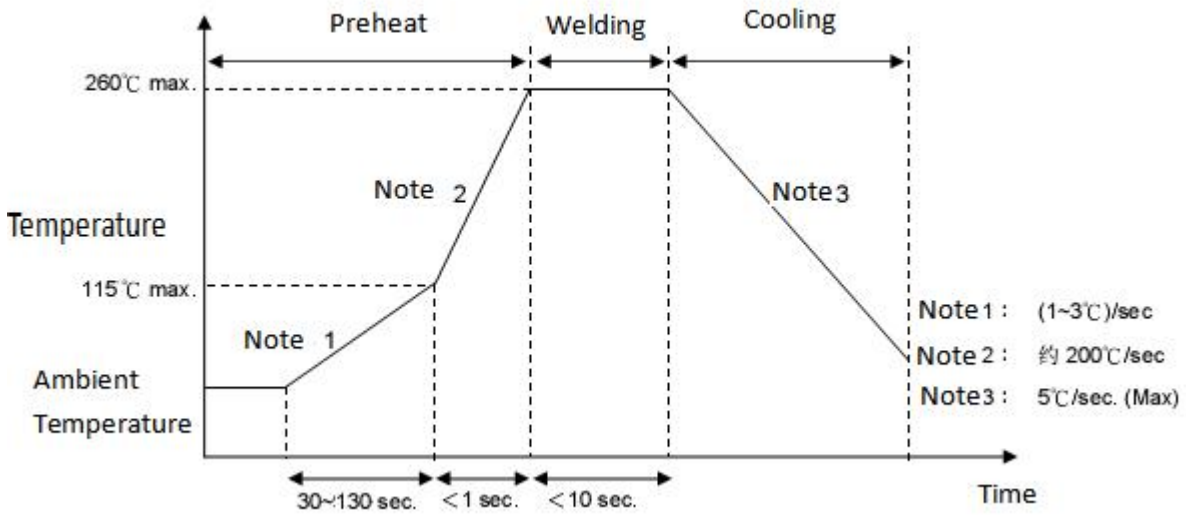


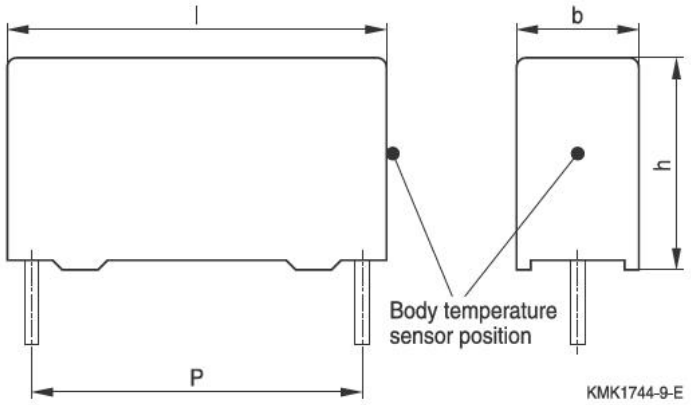
Fig.1 Fig.2 Fig.3

Code	Fig.1	Fig.2	Fig.2	Fig.3	Fig.3	Tolerance
	P=5.0	P=7.5	P=10	P=15	P=22.5	
P3	12.7	12.7	12.7	25.4	30.0	±1.0
P2	6.35	/	/	/	/	±1.3
P0	12.7	12.7	12.7	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	12.0	12.0	12.0	12.0	12.0	±1.0
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