MPX/X2-THB 85℃/85%RH Metallized Polypropylene Film Interference Suppression Capacitors (Class X2) Data Sheet Feature

■Wide capacitance range from 0.001uF to 10uF.

■Operating Temperature: -40℃～110℃

■Storage Temperature: 15℃~35℃

■Metallized polypropylene film.

■Good self-healing properties, withstanding over-voltage stressing.

■Long stability of capacitance

■Excellent active and passive flame resistant abilities (UL94V-0),good properties in damp environment.

Applications

■Widely used in energy meter, LED driver ect.

Applicable Standard

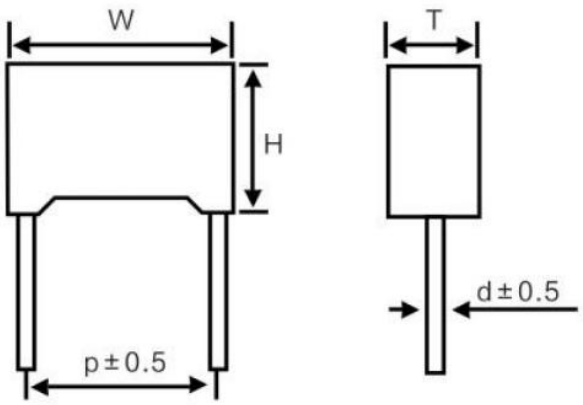
Approval	Organization	Safety Standards	Certificate No.	Capacity Range(μ F)	Rated Voltage
USA Canada	UL/CUL	UL60384-14	E208107	0.001～10.0	275VAC 305VAC 310VAC 330VAC 350VAC
Germany	VDE	DIN EN IEC60384-14:2024 EN IEC60384-14:2023	40034679	0.001～10.0	
EU	ENEC	IEC60384-14:2023	40034679	0.001～10.0	
China	CQC	GB/T 6346.14-2023	CQC19001213200	0.001～10.0	
Korea	KTL	KC60384-1(2015-09) KC60384-14(2015-09)	SU03031-12001	0.1below	
			SU03031-12002	0.1above～0.33	
			SU03031-12003	0.33 above～1.0	
			SU03031-12004	1.0 above～2.2	
			SU03031-23001	2.2above～4.7	
			SU03031-23002	4.7 above～10.0	

Part numbering on request.

Specifications

Climatic Category	40/110/56
Rated Voltage	275VAC、305VAC、310VAC、330VAC、350VAC
Dissipation Factor(tanδ)	≤0.1%
Withstand Voltage	Between terminals to case: $2U_R$+1500VAC Minimum of 2000VAC
	Between terminals:$4.3U_R$(DC)/5S Voltage Ramp-Up Rate: 150 V/s
Insulation Resistance (I.R.)	C_R≤0.33μF，IR≥15000MΩ C_R＞0.33μF，IR≥5000S Note：T[s]=I.R.[MΩ]*CN [μF]　20℃、100V、60S
High Temperature and high Humidity Test	Capacitance change rate ≤10% (Applied voltage:240VAC;　Temperature: 85 ± 2 ℃; Humidity: 85±2%;　Test period: 500 hours)

Dimensions (mm) and Approval



Capacitance (uF)	Rated Voltage	Size (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
0.001	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0012	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0015	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0018	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.002	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0022	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0025	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0027	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0033	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0039	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0047	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6

Capacitance (uF)	Rated Voltage	Size (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
0.0056	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0068	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.0082	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.01	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.012	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.015	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.018	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.022	275VAC/305VAC/310VAC	10	9	4	7.5	0.6
	330VAC/350VAC	10	11	5	7.5	0.6
0.033	275VAC/305VAC/310VAC	10	11.5	6	7.5	0.6
	330VAC/350VAC	10	15	8	7.5	0.6
0.001	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.0012	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.0015	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.0018	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.0022	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.0033	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.0039	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6

Capacitance (uF)	Rated Voltage	Size (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
0.0047	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.0056	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.0068	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.0082	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.01	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.012	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.015	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.018	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.02	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.022	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.027	275VAC/305VAC/310VAC	13	9	4	10	0.6
	330VAC/350VAC	13	11	5	10	0.6
0.033	275VAC/305VAC/310VAC 330VAC/350VAC	13	11	5	10	0.6
0.039	275VAC/305VAC/310VAC	13	11	5	10	0.6
	330VAC/350VAC	13	12	6	10	0.6
0.047	275VAC/305VAC/310VAC	13	11	5	10	0.6
	330VAC/350VAC	13	12	6	10	0.6
0.056	275VAC/305VAC/310VAC	13	12	6	10	0.6
	330VAC/350VAC	13	13	7	10	0.6
0.068	275VAC/305VAC/310VAC	13	12	6	10	0.6
	330VAC/350VAC	13	13	7	10	0.6

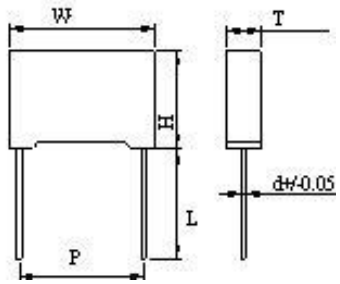
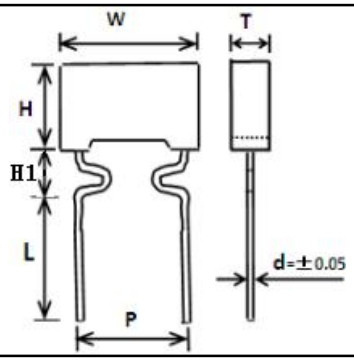
Capacitance (uF)	Rated Voltage	Size (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
0.082	275VAC/305VAC/310VAC	13	12	6	10	0.6
	330VAC/350VAC	13	13	7	10	0.6
0.1	275VAC/305VAC/310VAC	13	12	6	10	0.6
	330VAC/350VAC	13	13	7	10	0.6
0.12	275VAC/305VAC/310VAC	13	12	6	10	0.6
	330VAC/350VAC	13	13	7	10	0.6
0.15	275VAC/305VAC/310VAC	13	12	6	10	0.6
	330VAC/350VAC	13	15.5	8	10	0.6
0.15	275VAC/305VAC/310VAC	15	12.5	7	12.5	0.6
	330VAC/350VAC	15	15	9	12.5	0.6
0.18	275VAC/305VAC/310VAC	15	12.5	7	12.5	0.6
	330VAC/350VAC	15	15	9	12.5	0.6
0.22	275VAC/305VAC/310VAC	15	14	8.5	12.5	0.6
	330VAC/350VAC	15	15	9	12.5	0.6
0.01	275VAC/305VAC/310VAC	18	11	5	15	0.8
	330VAC/350VAC	18	12	6	15	0.8
0.012	275VAC/305VAC/310VAC	18	11	5	15	0.8
	330VAC/350VAC	18	12	6	15	0.8
0.015	275VAC/305VAC/310VAC	18	11	5	15	0.8
	330VAC/350VAC	18	12	6	15	0.8
0.018	275VAC/305VAC/310VAC	18	11	5	15	0.8
	330VAC/350VAC	18	12	6	15	0.8
0.022	275VAC/305VAC/310VAC	18	11	5	15	0.8
	330VAC/350VAC	18	12	6	15	0.8
0.033	275VAC/305VAC/310VAC	18	11	5	15	0.8
	330VAC/350VAC	18	12	6	15	0.8
0.047	275VAC/305VAC/310VAC	18	11	5	15	0.8
	330VAC/350VAC	18	12	6	15	0.8
0.056	275VAC/305VAC/310VAC	18	11	5	15	0.8
	330VAC/350VAC	18	12	6	15	0.8
0.068	275VAC/305VAC/310VAC	18	11	5	15	0.8
	330VAC/350VAC	18	12	6	15	0.8

Capacitance (uF)	Rated Voltage	Size (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
0.082	275VAC/305VAC/310VAC	18	12	6	15	0.8
	330VAC/350VAC	18	12.5	6.5	15	0.8
0.1	275VAC/305VAC/310VAC	18	12	6	15	0.8
	330VAC/350VAC	18	12.5	6.5	15	0.8
0.15	275VAC/305VAC/310VAC	18	12	6	15	0.8
	330VAC/350VAC	18	12.5	6.5	15	0.8
0.18	275VAC/305VAC/310VAC	18	12	6	15	0.8
	330VAC/350VAC	18	13.5	7.5	15	0.8
0.2	275VAC/305VAC/310VAC	18	12	6	15	0.8
	330VAC/350VAC	18	15	9	15	0.8
0.22	275VAC/305VAC/310VAC	18	12	6	15	0.8
	330VAC/350VAC	18	15	9	15	0.8
0.27	275VAC/305VAC/310VAC	18	13.5	7.5	15	0.8
	330VAC/350VAC	18	15	9	15	0.8
0.33	275VAC/305VAC/310VAC	18	14.5	8.5	15	0.8
	330VAC/350VAC	18	15	9	15	0.8
0.39	275VAC/305VAC/310VAC	18	16	10	15	0.8
	330VAC/350VAC	18	19	11	15	0.8
0.47	275VAC/305VAC/310VAC	18	16	10	15	0.8
	330VAC/350VAC	18	19	11	15	0.8
0.52	275VAC/305VAC/310VAC	18	16	10	15	0.8
	330VAC/350VAC	18	20	11	15	0.8
0.56	275VAC/305VAC/310VAC	18	16	10	15	0.8
	330VAC/350VAC	18	20	11	15	0.8
0.15	275VAC/305VAC/310VAC 330VAC/350VAC	26.5	16	7	22.5	0.8
0.18	275VAC/305VAC/310VAC 330VAC/350VAC	26.5	16	7	22.5	0.8
0.22	275VAC/305VAC/310VAC 330VAC/350VAC	26.5	16	7	22.5	0.8
0.27	275VAC/305VAC/310VAC 330VAC/350VAC	26.5	16	7	22.5	0.8
0.33	275VAC/305VAC/310VAC	26.5	16.5	7	22.5	0.8
	330VAC/350VAC	26.5	17	8	22.5	0.8

Capacitance (uF)	Rated Voltage	Size (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
0.39	275VAC/305VAC/310VAC 330VAC/350VAC	26.5	17	8.5	22.5	0.8
0.47	275VAC/305VAC/310VAC 330VAC/350VAC	26.5	19	10	22.5	0.8
0.52	275VAC/305VAC/310VAC	26.5	17	8.5	22.5	0.8
	330VAC/350VAC	26.5	18	9	22.5	0.8
0.56	275VAC/305VAC/310VAC	26.5	17	8.5	22.5	0.8
	330VAC/350VAC	26.5	18	9	22.5	0.8
0.68	275VAC/305VAC/310VAC	26.5	19	10	22.5	0.8
	330VAC/350VAC	26.5	20.5	11	22.5	0.8
0.82	275VAC/305VAC/310VAC 330VAC/350VAC	26.5	22	13	22.5	0.8
0.47	275VAC/305VAC/310VAC 330VAC/350VAC	31	20	11	27.5	0.8
0.52	275VAC/305VAC/310VAC 330VAC/350VAC	31	20	11	27.5	0.8
0.56	275VAC/305VAC/310VAC 330VAC/350VAC	31	20	11	27.5	0.8
0.68	275VAC/305VAC/310VAC 330VAC/350VAC	31	20	11	27.5	0.8
0.82	275VAC/305VAC/310VAC	31	21.5	12	27.5	0.8
	330VAC/350VAC	31	21	12	27.5	0.8
1	275VAC/305VAC/310VAC	31	21.5	12	27.5	0.8
	330VAC/350VAC	31	21	12	27.5	0.8
1.2	275VAC/305VAC/310VAC	31	22	13	27.5	0.8
	330VAC/350VAC	31	24	13	27.5	0.8
1.5	275VAC/305VAC/310VAC	31	22	13	27.5	0.8
	330VAC/350VAC	31	25	14	27.5	0.8
1.8	275VAC/305VAC/310VAC	31	22	13	27.5	0.8
	330VAC/350VAC	31	25.5	15	27.5	0.8
2	275VAC/305VAC/310VAC	31	22	13	27.5	0.8
	330VAC/350VAC	31	28	18	27.5	0.8
2.2	275VAC/305VAC/310VAC	31	25	14	27.5	0.8
	330VAC/350VAC	31	28	18	27.5	0.8
2.5	275VAC/305VAC/310VAC	32	25	14	27.5	0.8
	330VAC/350VAC	32	31	22	27.5	0.8

Capacitance (uF)	Rated Voltage	Size (mm)				
		W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
2.7	275VAC/305VAC/310VAC	32	25	15	27.5	0.8
	330VAC/350VAC	32	31	22	27.5	0.8
3	275VAC/305VAC/310VAC	31	25	15	27.5	0.8
	330VAC/350VAC	31	37	22	27.5	0.8
3.3	275VAC/305VAC/310VAC	31	25	15	27.5	0.8
	330VAC/350VAC	31	37	22	27.5	0.8
3.5	275VAC/305VAC/310VAC	32	28	18	27.5	0.8
3.9	275VAC/305VAC/310VAC	32	37	22	27.5	0.8
2	275VAC/305VAC/310VAC 330VAC/350VAC	41	28	14	37.5	1.0
2.2	275VAC/305VAC/310VAC 330VAC/350VAC	41	28	14	37.5	1.0
2.5	275VAC/305VAC/310VAC	41.5	28	14	37.5	1.0
	330VAC/350VAC	41.5	30	17	37.5	1.0
2.7	275VAC/305VAC/310VAC	41.5	28	14	37.5	1.0
	330VAC/350VAC	41.5	30	17	37.5	1.0
3	275VAC/305VAC/310VAC	41.5	28	14	37.5	1.0
	330VAC/350VAC	41.5	30	17	37.5	1.0
3.3	275VAC/305VAC/310VAC	41.5	28	14	37.5	1.0
	330VAC/350VAC	41.5	34	20.5	37.5	1.0
3.5	330VAC/350VAC	41.5	34	20.5	37.5	1.0
3.9	330VAC/350VAC	41.5	35.5	22.5	37.5	1.0
4.7	275VAC/305VAC/310VAC 330VAC/350VAC	41.5	35.5	22.5	37.5	1.0
5.6	275VAC/305VAC/310VAC 330VAC/350VAC	42.5	41	27.5	37.5	1.0
6.8	275VAC/305VAC/310VAC 330VAC/350VAC	42.5	41	27.5	37.5	1.0
8.2	275VAC/305VAC/310VAC 330VAC/350VAC	42.5	45	30	37.5	1.0
10	275VAC/305VAC/310VAC 330VAC/350VAC	42.5	50	35	37.5	1.0

Lead Configuration

Lead Style	Drawing	Lead Length L (mm)	Coating Lead Length H1(mm)
Long Straight		2.5≤L＜6.0：±0.5 6.0≤L≤10： ±1.0	/
Inner Crimped		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

Taping And Dimensions (mm)

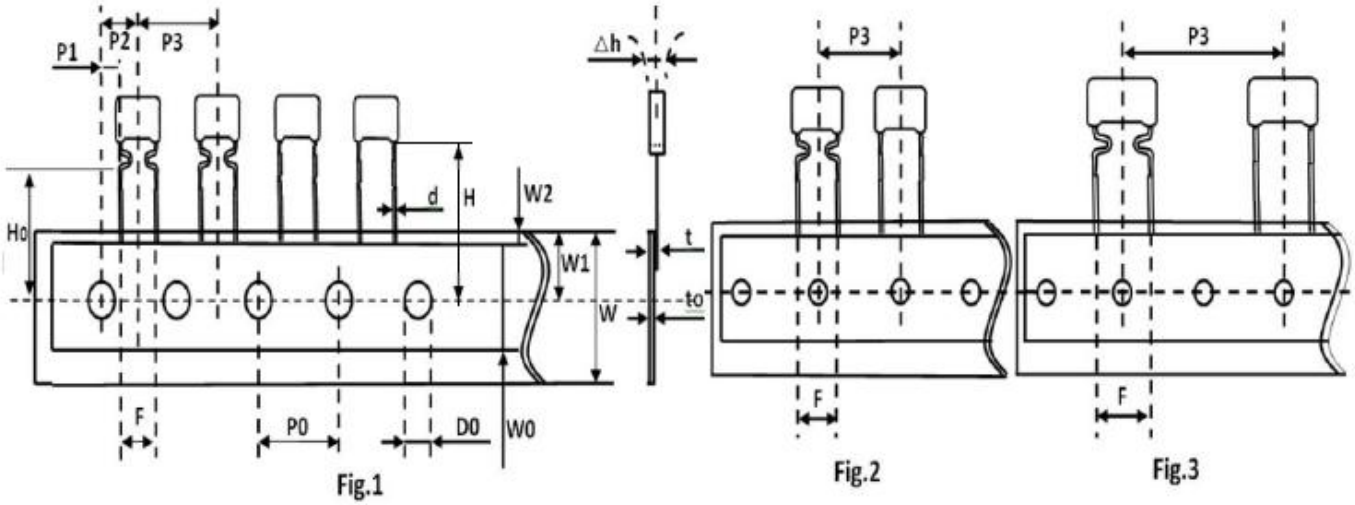
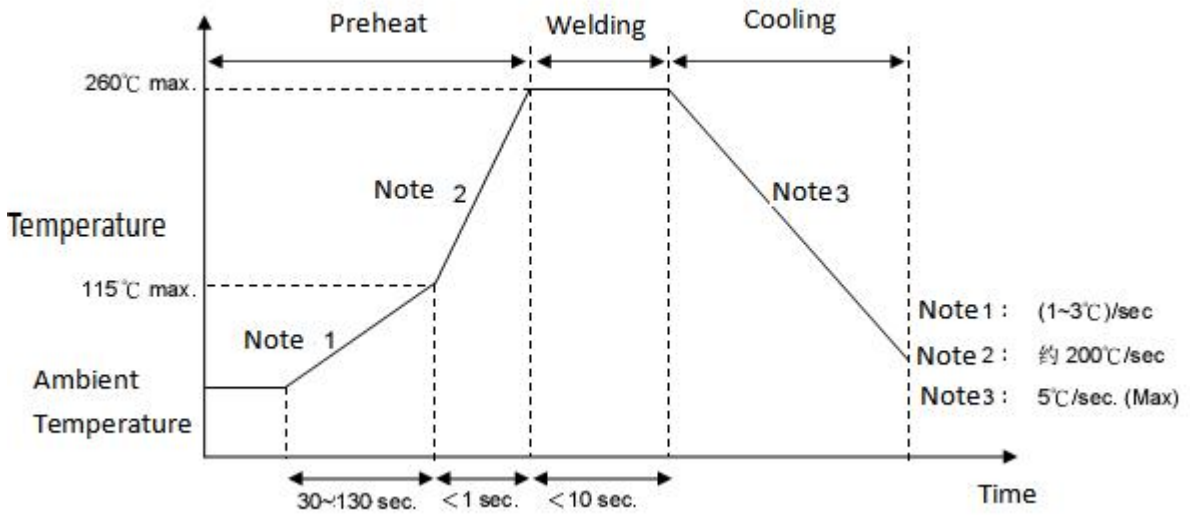


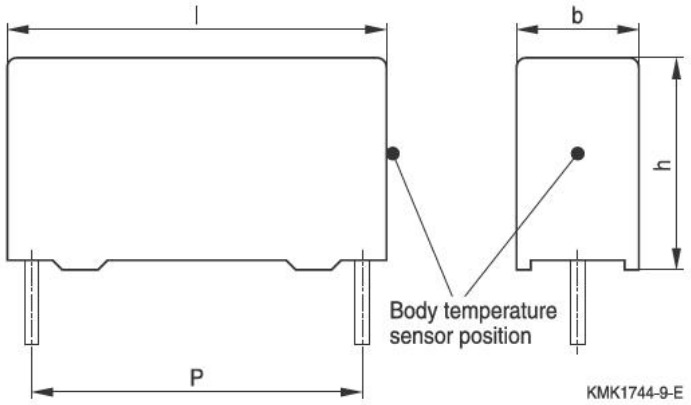
Fig.1 Fig.2 Fig.3

Symbol	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	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
Δ h	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





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.）

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