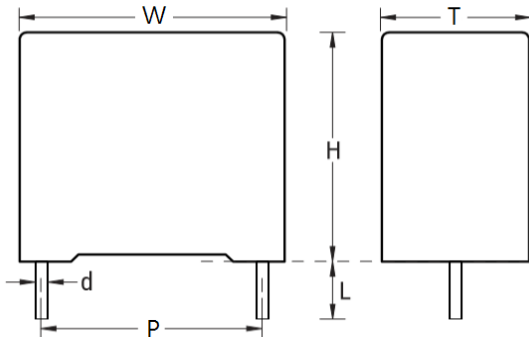


AC Capacitor For Capacitive Divider SMPJ series

■ Outline Drawing

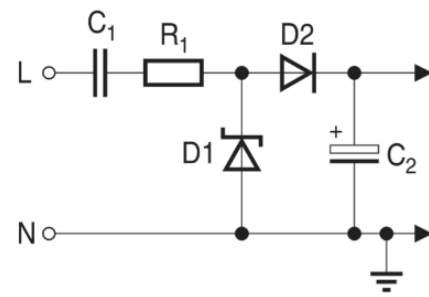


■ Typical Applications

This is specifically designed for applications in serial
With the main, i.e., capacitive divider, For example :
Energy meter, LED driver etc

■ Features

- Good self-healing properties
- withstanding overvoltage stressing
- Long stability of capacitance
- Good properties in damp environment
- Excellent active and passive flame resistant abilities



The capacitor C1 works as a voltage divider without thermal losses

■ Specifications

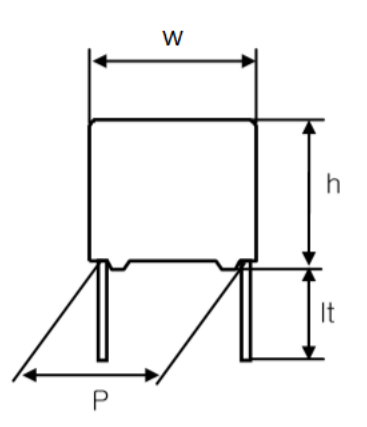
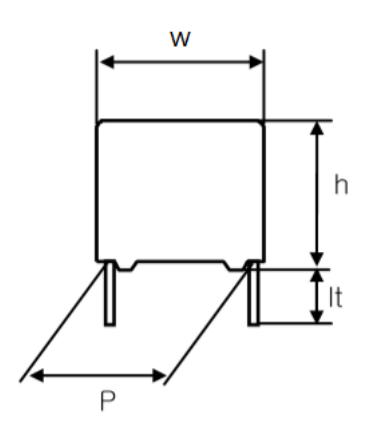
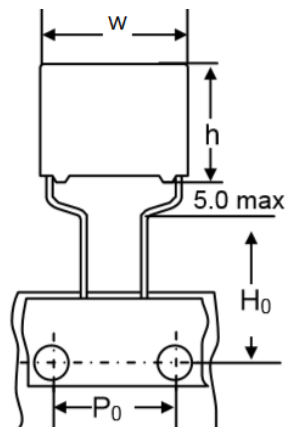
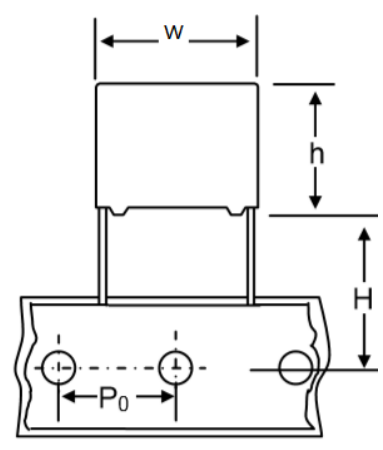
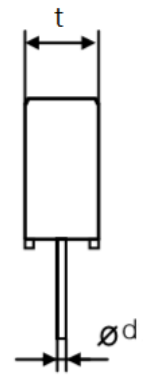
Reference Standard	GB/T 14579 (IEC 60384-17)		
Climatic Category	40/105/56		
Rated Temperature	85°C		
Operating Temperature Range	-40°C ~ +105°C (+85°C to +105°C: decreasing factor 1.25% per °C for U _R)		
Capacitance Range	0.01μF ~ 4.7μF		
Rated (AC) Voltage - 50/60Hz	230Vac	250Vac	275V/300Vac
Maximum continuous DC voltage	400Vdc	560Vdc	630Vdc
Capacitance Tolerance	±5%(J) 、 ±10%(K) 、 ±20%(M)		
Voltage Proof	1.5U _R * 1.414 (Vdc) 60sec		
Dissipation Factor	≤ 0.1% (25°C, 1kHz)		
Insulation Resistance	U _R ≤ 100V	C _R ≤ 0.33uF IR ≥ 15,000MΩ C _R > 0.33uF IR ≥ 5,000s	

AC Capacitor For Capacitive Divider SMPJ series

■ Product code system

SMPJ	I	105	K	0300	A	B	28	15
Type	Internal use	Capacitance	Tolerance	Rated Voltage	Voltage	Lead forming	Lead Pitch	Lead Length
SMPJ= Metallized Polypropylene Capacitive Divider Capacitor (Boxed)	--	105 =1000nF =1.0μF	J=±5% K=±10% M=±20%	0230=230V 0250=250V 0275=275V 0300=300V	A=AC	Shown as Table I	08=7.5mm 10=10mm 15=15mm 23=22.5mm 28=27.5mm	04=3.5mm 15=15mm 23=23mm

■ Table I

Code	B (Straight 15mm)	K (Short)	U (Vertical Kink)
Lead Forming			
Code	T (Taping)	--	--
Lead Forming			--

AC Capacitor For Capacitive Divider

SMPJ series

■ Dimensions (mm)

230Vac (400Vdc)						
Cap. μF	W	H	T	P	d	Part number
0.033	10.5	11	5	7.5	0.6	SMPJ_333+0230A*08**
0.047	10.5	12	6	7.5	0.6	SMPJ_473+0230A*08**
0.033	13	9	4	10	0.6	SMPJ_333+0230A*10**
0.047	13	11	5	10	0.6	SMPJ_473+0230A*10**
0.068	13	12	6	10	0.6	SMPJ_683+0230A*10**
0.10	13	12	6	10	0.6	SMPJ_104+0230A*10**
0.10	18	11	5	15	0.8	SMPJ_104+0230A*15**
0.15	18	12	6	15	0.8	SMPJ_154+0230A*15**
0.22	18	13.5	7.5	15	0.8	SMPJ_224+0230A*15**
0.33	18	14.5	8.5	15	0.8	SMPJ_334+0230A*15**
0.47	18	15.5	9.5	15	0.8	SMPJ_474+0230A*15**
0.33	26.5	15	6	22.5	0.8	SMPJ_334+0230A*23**
0.47	26.5	16.5	7	22.5	0.8	SMPJ_474+0230A*23**
0.56	26.5	17	8.5	22.5	0.8	SMPJ_564+0230A*23**
0.68	26.5	17	8.5	22.5	0.8	SMPJ_684+0230A*23**
0.82	26.5	19	10	22.5	0.8	SMPJ_824+0230A*23**
1.0	26.5	20	11	22.5	0.8	SMPJ_105+0230A*23**
1.2	26.5	20	11	22.5	0.8	SMPJ_125+0230A*23**
1.5	26.5	22	12	22.5	0.8	SMPJ_155+0230A*23**
0.47	32	18	9	27.5	0.8	SMPJ_474+0230A*23**
0.56	32	18	9	27.5	0.8	SMPJ_564+0230A*23**
0.68	32	18	9	27.5	0.8	SMPJ_684+0230A*23**
1.0	32	18	9	27.5	0.8	SMPJ_105+0230A*28**
1.2	32	20	11	27.5	0.8	SMPJ_125+0230A*28**
1.5	32	20	11	27.5	0.8	SMPJ_155+0230A*28**
2.0	32	22	13	27.5	0.8	SMPJ_205+0230A*28**
2.2	32	24.5	15	27.5	0.8	SMPJ_225+0230A*28**
3.0	32	33	18	27.5	0.8	SMPJ_305+0230A*28**
3.3	32	33	18	27.5	0.8	SMPJ_335+0230A*28**
4.0	32	33	18	27.5	0.8	SMPJ_405+0230A*28**
4.7	32	37	22	27.5	0.8	SMPJ_475+0230A*28**

250Vac (560Vdc)						
Cap. μF	W	H	T	P	d	Part number
0.010	13	9	4	10	0.6	SMPJ_103+0250A*10**
0.015	13	9	4	10	0.6	SMPJ_153+0250A*10**
0.022	13	9	4	10	0.6	SMPJ_223+0250A*10**
0.033	13	11	5	10	0.6	SMPJ_333+0250A*10**
0.047	13	11	5	10	0.6	SMPJ_473+0250A*10**
0.068	13	12	6	10	0.6	SMPJ_683+0250A*10**
0.068	18	11	5	15	0.8	SMPJ_683+0250A*15**
0.10	18	12	6	15	0.8	SMPJ_104+0250A*15**
0.15	18	13.5	7.5	15	0.8	SMPJ_154+0250A*15**
0.22	18	14.5	8.5	15	0.8	SMPJ_224+0250A*15**
0.33	18	15.5	9.5	15	0.8	SMPJ_334+0250A*15**
0.22	26.5	15	6	22.5	0.8	SMPJ_224+0250A*23**
0.33	26.5	16.5	7	22.5	0.8	SMPJ_334+0250A*23**
0.39	26.5	17	8.5	22.5	0.8	SMPJ_394+0250A*23**
0.47	26.5	17	8.5	22.5	0.8	SMPJ_474+0250A*23**
0.56	26.5	19	10	22.5	0.8	SMPJ_564+0250A*23**
0.68	26.5	19	10	22.5	0.8	SMPJ_684+0250A*23**
0.82	26.5	20	11	22.5	0.8	SMPJ_824+0250A*23**
1.0	26.5	22	12	22.5	0.8	SMPJ_105+0250A*23**
1.2	26.5	24.5	15.5	22.5	0.8	SMPJ_125+0250A*23**
1.5	26.5	24.5	15.5	22.5	0.8	SMPJ_155+0250A*23**
0.47	32	18	9	27.5	0.8	SMPJ_474+0250A*28**
0.56	32	18	9	27.5	0.8	SMPJ_564+0250A*28**
0.68	32	18	9	27.5	0.8	SMPJ_684+0250A*28**
1.0	32	20	11	27.5	0.8	SMPJ_105+0250A*28**
1.2	32	22	13	27.5	0.8	SMPJ_125+0250A*28**
1.5	32	25	13	27.5	0.8	SMPJ_155+0250A*28**
2.0	32	33	18	27.5	0.8	SMPJ_205+0250A*28**
2.2	32	33	18	27.5	0.8	SMPJ_225+0250A*28**
3.0	32	33	18	27.5	0.8	SMPJ_305+0250A*28**
3.3	32	33	18	27.5	0.8	SMPJ_335+0250A*28**
4.0	32	37	22	27.5	0.8	SMPJ_405+0250A*28**

AC Capacitor For Capacitive Divider

SMPJ series

■ Dimensions (mm)

275V/300Vac (630Vdc)						
Cap. μF	W	H	T	P	d	Part number
0.010	13	9	4	10	0.6	SMPJ_103+0300A*10**
0.015	13	11	5	10	0.6	SMPJ_153+0300A*10**
0.022	13	12	6	10	0.6	SMPJ_223+0300A*10**
0.033	13	12	6	10	0.6	SMPJ_333+0300A*10**
0.010	18	11	5	15	0.8	SMPJ_103+0300A*15**
0.015	18	11	5	15	0.8	SMPJ_153+0300A*15**
0.022	18	11	5	15	0.8	SMPJ_223+0300A*15**
0.033	18	11	5	15	0.8	SMPJ_333+0300A*15**
0.047	18	12	6	15	0.8	SMPJ_473+0300A*15**
0.068	18	13.5	7.5	15	0.8	SMPJ_683+0300A*15**
0.10	18	14.5	8.5	15	0.8	SMPJ_104+0300A*15**
0.15	18	15.5	9.5	15	0.8	SMPJ_154+0300A*15**
0.22	18	19	11	15	0.8	SMPJ_224+0300A*15**
0.068	26.5	15	6	22.5	0.8	SMPJ_683+0300A*23**
0.10	26.5	15	6	22.5	0.8	SMPJ_104+0300A*23**
0.15	26.5	16	7	22.5	0.8	SMPJ_154+0300A*23**
0.22	26.5	17	8.5	22.5	0.8	SMPJ_224+0300A*23**
0.33	26.5	19	10	22.5	0.8	SMPJ_334+0300A*23**
0.39	26.5	20	11	22.5	0.8	SMPJ_394+0300A*23**
0.47	26.5	22	12	22.5	0.8	SMPJ_474+0300A*23**
0.22	32	18	9	27.5	0.8	SMPJ_224+0300A*28**
0.33	32	18	9	27.5	0.8	SMPJ_334+0300A*28**
0.47	32	20	11	27.5	0.8	SMPJ_474+0300A*28**
0.56	32	22	13	27.5	0.8	SMPJ_564+0300A*28**
0.68	32	22	13	27.5	0.8	SMPJ_684+0300A*28**
1.0	32	28	14	27.5	0.8	SMPJ_105+0300A*28**
1.5	32	33	18	27.5	0.8	SMPJ_155+0300A*28**
2.2	32	37	22	27.5	0.8	SMPJ_225+0300A*28**

+ = Capacitance tolerance: K=±10% , J=±5%

* = Lead forming

** = Lead length

AC Capacitor For Capacitive Divider SMPJ series

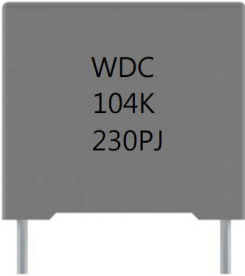

■ Specifications

Test items	Performance	Test Method
Withstand voltage (Between Terminals)	Shall be no abnormality	1.5U _R * 1.414 (Vdc) 60sec
Between terminal and Enclosure	Shall be no abnormality	U _R ×200%+1000Vac, 60sec
Insulation resistance (Between Terminals)	C _R ≤ 0.33μF , IR ≥ 15000MΩ C _R > 0.33μF , IR ≥ 5000s	Measured at 100±15Vdc, For 60sec / 25°C
Capacitance	Within the tolerance specified	1KHz, 1Vrms Max. at 25°C
Dissipation Factor	0.001 (0.1%) Max.	1Vrms Max. at 25°C
Tense Strength of Terminal	No wire breakage and no damage of capacitor	1. Load Force : 1.0 Kg 2. Holding Time : 10 ± 1sec
Bending Strength of Terminal	No wire breakage and no damage of capacitor	1. Load Force : 0.5 Kg 2. Bending Time : 4 x 90° in 5sec
Solderability	(1) Appearance : No visible damage (2) Covering an area of > solder 95%	1. Solder Temperature : 240±5°C 2. Solder Time : 3±0.5 sec
Heat Shock test	(1) Appearance : No visible damage (2) ΔC/C : ≤ 3% of the initial value (3) DF (tanδ) : Growth less than ≤ 0.004	The terminal of capacitor shall be immersed in the melting solder. a. Solder Temperature: 260±5°C b. Solder Time: 10±1sec
Cold Resistance	(1) Appearance : No visible damage (2) ΔC/C : ≤ 5% of the initial value (3) DF (tanδ) : Growth less than ≤ 0.005	a. Test Temperature: -40°C b. Test Times: 2Hrs
Dry Heat Resistance	(4) IR : ≥ 50% of clause shall be satisfied	a. Test Temperature: 85°C b. Test Times: 16Hrs

AC Capacitor For Capacitive Divider SMPJ series

Test items	Performance	Test Method
Humidity Resistance	(1) Appearance : No visible damage (2) $\Delta C/C$: $\leq 5\%$ of the initial value (3) DF (tan δ) : Growth less than ≤ 0.002 (4) IR : $\geq 50\%$ of clause shall be satisfied	a. Test Temperature: 40°C \pm 2°C b. Relative Humidity: 90 ~ 95% c. Test Times: 500 \pm 8Hrs d. Applied voltage: Rated voltage Then recovery at ordinary condition at least 6Hrs
Charge & Discharge	(1) Appearance : No visible damage (2) $\Delta C/C$: $\leq 5\%$ of the initial value (3) DF (tan δ) : Growth less than ≤ 0.005 (4) IR : $\geq 50\%$ of clause shall be satisfied	a. Test Voltage : Rated voltage charge for 0.5 sec. Discharge for 0.5 sec. b. Repeated for 10000 cycles
High Temp Loading test (Continuous)	(1) Appearance : No visible damage (2) DF (tan δ) : Growth less than ≤ 0.004 (3) $\Delta C/C$: $\leq 5\%$ of the initial value (4) IR : $\geq 50\%$ of clause shall be satisfied	a. Test Temperature: 85°C \pm 2°C b. Test Times: 1000 \pm 24Hrs c. Apply 125% of the rated voltage Then recovery at ordinary condition at least 6Hrs

■ Mark

Pitch 7.5mm	Pitch ≥ 10 mm
	
1. WDC is a registered trademark of WINDAY	2. Capacitance: 105 indicates 1.0 μ F or 1000nF
3. Capacitors Tolerance: K= $\pm 10\%$	4. Rated Voltage: 300Vac, Indicates 300
5. PJ for Metallized polypropylene capacitor for capacitive divider	

AC Capacitor For Capacitive Divider SMPJ series

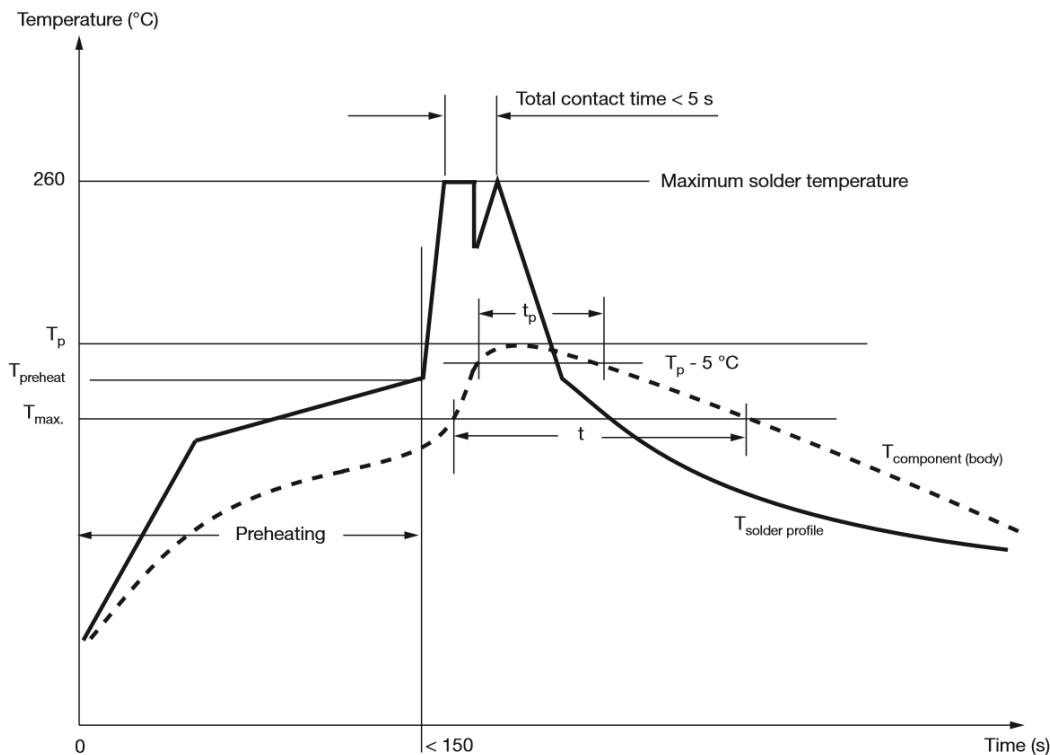
■ Soldering Guidelines for Film Capacitors

WDC recommends that users observe the following guidelines for soldering our film capacitors. Adherence to these recommendations will help to safeguard product specifications and reliability while preventing damage to the capacitors during soldering.

SOLDERING GUIDELINES AND RECOMMENDED WAVE SOLDERING PROFILE

With regard to the resistance to soldering heat and the solderability, our products comply with “IEC 60384-1” and the additional type specifications. The recommended wave soldering profile for our leaded components is defined as follows:

■ Wave Soldering Recommendations



T_p : Peak temperature of the component body (top)

$T_{max.}$: Maximum application temperature of the component

The PSL (Process Sensitivity Level) is classified according JEDEC standard J-STD-075 “Classification of Non-IC Electronic Components for Assembly Processes” and summarized in following tables per product family and pitch size of the component:

SERIES	PRODUCT PITCH SIZE							
	5 mm	7.5 mm	10 mm	15 mm	22.5 mm	27.5 mm	31.5 mm	37.5 mm
SMPJ	--	(3),(5)	(2),(5)	(1),(6)	(1),(6)	(1),(6)	(1),(6)	(1),(6)

(1) No risk

During soldering: $T_p \leq 110^\circ C$, $t_p \leq 20$ s, $t \leq 30$ s

(2) Risk for parameter change if PSL is not strictly followed

(5) Temperature is measured at the body top and must be kept as follows:

(3) Risk for product damage if PSL is not strictly followed

During preheating: $T_{max.} \leq 110^\circ C$

(4) Temperature is measured at the body top and must be kept as follows:

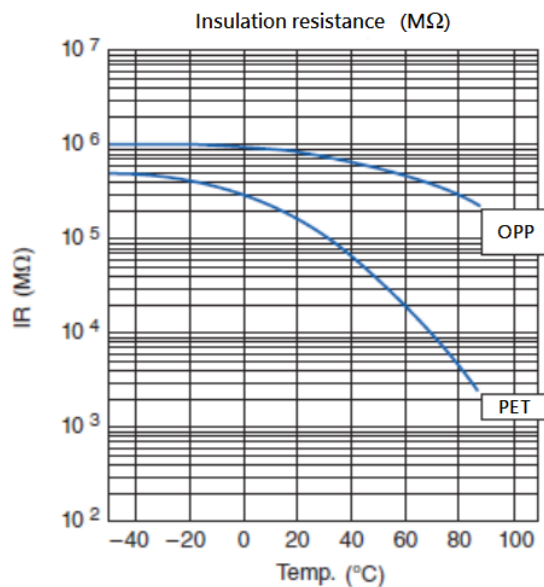
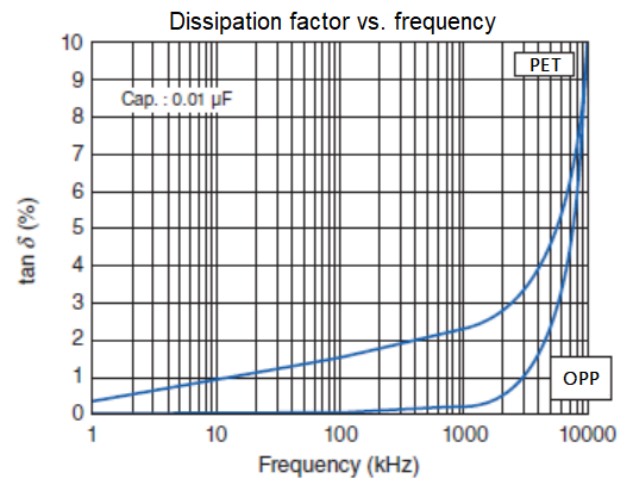
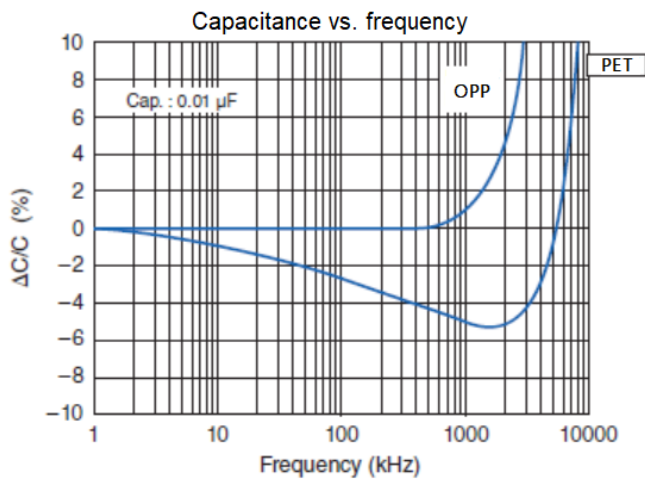
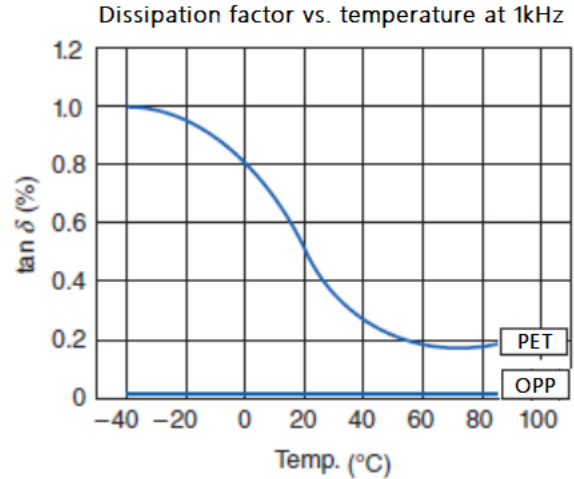
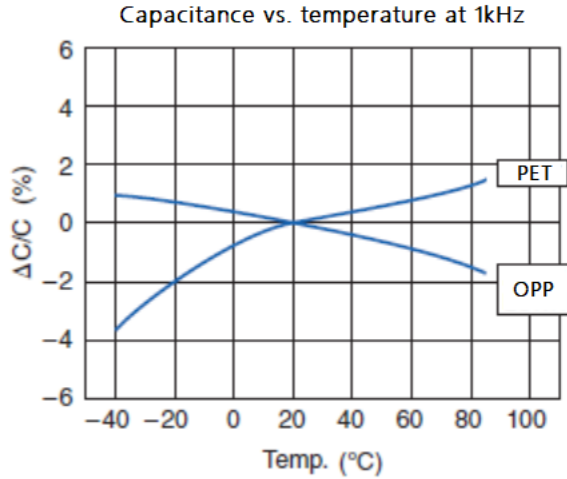
During soldering: $T_p \leq 120^\circ C$, $t_p \leq 20$ s, $t \leq 30$ s

During preheating: $T_{max.} \leq 100^\circ C$

(6) The component has a preheat limitation of 150 °C

AC Capacitor For Capacitive Divider SMPJ series

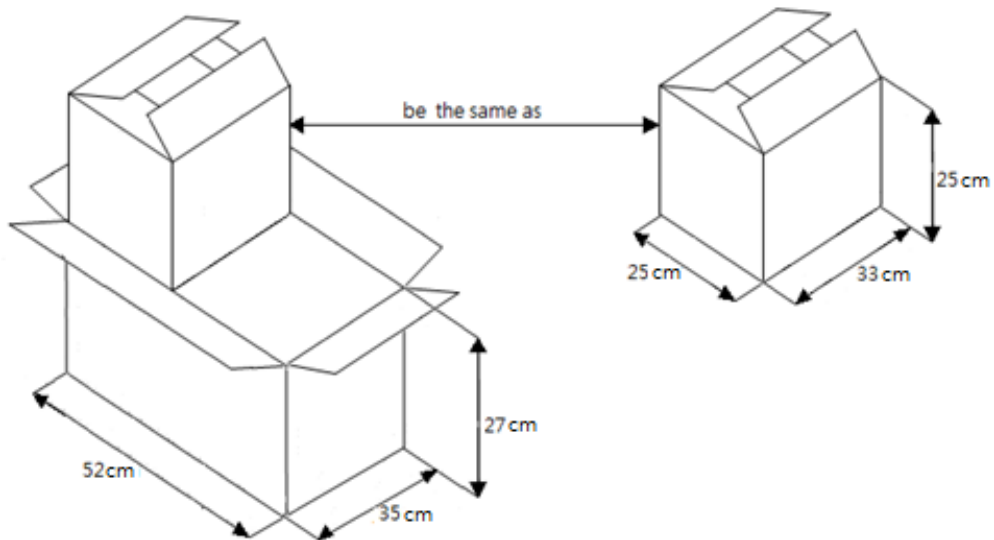
■ Typical graphs



PET :	Metallized Polyester film capacitor
OPP :	Metallized Polypropylene film capacitor

AC Capacitor For Capacitive Divider SMPJ series

■ Packaging



Size (mm)	Pcs / Bag	Pcs / Inner carton (L33:cm XH:25cm X T:25cm)	Pcs / Out box (L52:cm XH:27cm X T:35cm)
13 * 12 * 6	500	5000	10000
18 * 12 * 6	500	5000	10000
18 * 13.5 * 7.5	300	3000	6000
18 * 15.5 * 9.5	300	3000	6000
18 * 19 * 10.8	200	2000	4000
26.5 * 15 * 6	200	2000	4000
26.5 * 17 * 8.5	200	2000	4000
26.5 * 19 * 10	200	1600	3200
26 * 20 * 11	200	1400	2800
26 * 21.5 * 12	200	1200	2400
26.5 * 23 * 13	200	1200	2400

■ Storage conditions and duration

Packaged capacitors should be kept in clean, ventilated, dry coffers, not near the heat source, not subject to direct sunlight, is strictly prohibited and chemical reagents, acid and harmful gas storage together.

Capacitor at a temperature within the range 20 ~ 25 °C, humidity less than 50% of the state of storage for one year.