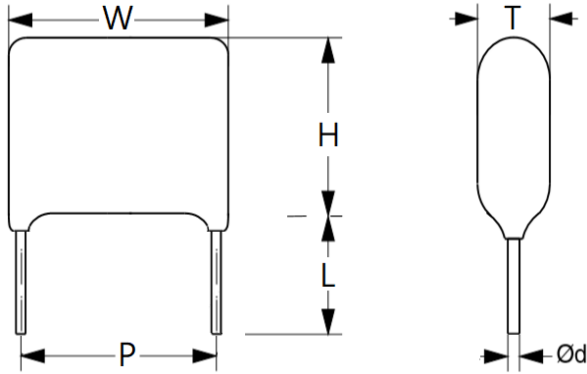


SMEM series (Pitch 5mm)

■ Outline Drawing



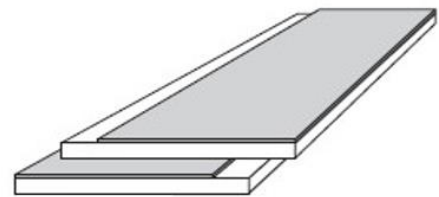
■ Typical Applications

- By-passing, blocking, coupling, decoupling
- Pulse logic, timing, compact fluorescent lamps
- Invert for LCD monitors, automotive DC motor suppression

■ Features

- Metalized polyester film,
- non-inductive wound construction
- Wide capacitance range, small size, and light weight
- Long life due to self-healing
- Flame retardant epoxy resin coating (UL94V-0)

■ Construction



■ Specifications

Reference Standard	GB/T 7332 (IEC 60384-2)	
Climatic Category	55/105/21	
Rated Temperature	85°C	
Operating Temperature Range	-40°C~+105°C (+85°C to +105°C: decreasing factor 1.25% per °C for UR)	
Capacitance Range	0.001μF ~ 1μF	
Rated (DC) Voltage	63V · 100V · 250V	
Capacitance Tolerance	±5%(J) · ±10%(K) · ±20%(M)	
Voltage Proof	1.5UR (60s)	
Dissipation Factor	≤ 1.0% (25°C, 1kHz)	
Insulation Resistance	UR ≤ 100V	$C_R \leq 0.33\mu F \quad IR \geq 15,000M\Omega$ $C_R > 0.33\mu F \quad IR \geq 5,000S$

SMEM series (Pitch 5mm)

■ Product code system

SMEM	J	103	K	0100	D	B	05	23
Type	Internal use	Capacitance	Tolerance	Rated Voltage	Voltage	Lead forming	Lead Pitch	Lead Length
SMEM= Metallized Polyester Capacitor (Dipped)	--	103 =10000pF =10nF =0.01μF	J=±5% K=±10% M=±20%	0063=63V 0100=100V 0250=250V	D=DC	Shown as Table I	05=5mm	04=3.5mm 15=15mm 23=23mm

■ Table I

Code	B (Straight 23mm)	K (Short)	R (Inside Kink)
Lead Forming			
Code	U (Vertical Kink)	T (Taping)	--
Lead Forming			

SMEM series (Pitch 5mm)

■ Dimensions (mm)

63(40Vac)/100Vdc (63Vac)						
Cap. μF	W	H	T	P	d	Part number
0.001	7.3	7.5	4.5	5	0.5	SMEM_102+0100D*05**
0.0015	7.3	7.5	4.5	5	0.5	SMEM_152+0100D*05**
0.0022	7.3	7.5	4.5	5	0.5	SMEM_222+0100D*05**
0.0033	7.3	7.5	4.5	5	0.5	SMEM_332+0100D*05**
0.0047	7.3	7.5	4.5	5	0.5	SMEM_472+0100D*05**
0.0068	7.3	7.5	4.5	5	0.5	SMEM_682+0100D*05**
0.0082	7.3	7.5	4.5	5	0.5	SMEM_822+0100D*05**
0.01	7.3	7.5	4.5	5	0.5	SMEM_103+0100D*05**
0.015	7.3	8	5	5	0.5	SMEM_153+0100D*05**
0.022	7.3	8	5	5	0.5	SMEM_223+0100D*05**
0.033	7.3	8	4.5	5	0.5	SMEM_333+0100D*05**
0.047	7.3	7.5	4.5	5	0.5	SMEM_473+0100D*05**
0.068	7.3	7.5	4.5	5	0.5	SMEM_683+0100D*05**
0.082	7.3	8	5	5	0.5	SMEM_823+0100D*05**
0.1	7.3	8.5	5.5	5	0.5	SMEM_104+0100D*05**
0.15	7.3	9	5.5	5	0.5	SMEM_154+0100D*05**
0.22	7.3	9	5.5	5	0.5	SMEM_224+0100D*05**
0.33	7.3	9	5.5	5	0.5	SMEM_334+0100D*05**
0.39	7.3	9	5.5	5	0.5	SMEM_394+0100D*05**
0.47	7.3	9.5	6	5	0.5	SMEM_474+0100D*05**
0.68	7.3	10	6.5	5	0.5	SMEM_684+0100D*05**
0.82	7.3	11	7	5	0.5	SMEM_824+0100D*05**
1.0	7.3	12	7.5	5	0.5	SMEM_105+0100D*05**

250Vdc (140Vac)						
Cap. μF	W	H	T	P	d	Part number
0.001	7.3	7.5	4.5	5	0.5	SMEM_102+0250D*05**
0.0015	7.3	7.5	4.5	5	0.5	SMEM_152+0250D*05**
0.0022	7.3	7.5	4.5	5	0.5	SMEM_222+0250D*05**
0.0033	7.3	7.5	4.5	5	0.5	SMEM_332+0250D*05**
0.0047	7.3	7.5	4.5	5	0.5	SMEM_472+0250D*05**
0.0068	7.3	7.5	4.5	5	0.5	SMEM_682+0250D*05**
0.0082	7.3	7.5	4.5	5	0.5	SMEM_822+0250D*05**
0.01	7.3	7.5	4.5	5	0.5	SMEM_103+0250D*05**
0.015	7.3	8	5	5	0.5	SMEM_153+0250D*05**
0.022	7.3	8	5	5	0.5	SMEM_223+0250D*05**
0.033	7.3	8	4.5	5	0.5	SMEM_333+0250D*05**
0.047	7.3	8	4.5	5	0.5	SMEM_473+0250D*05**
0.068	7.3	8.5	5	5	0.5	SMEM_683+0250D*05**
0.082	7.3	9	6	5	0.5	SMEM_823+0250D*05**
0.1	7.3	9.5	6.5	5	0.5	SMEM_104+0250D*05**
0.15	7.3	10	7	5	0.5	SMEM_154+0250D*05**
0.22	7.3	10.5	7	5	0.5	SMEM_224+0250D*05**

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

* = Lead forming

** = Lead length

SMEM series (Pitch 5mm)

■ Specifications

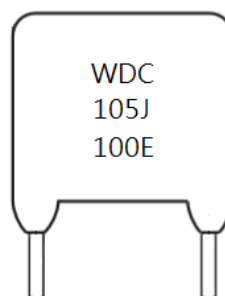
Test items	Performance	Test Method
Withstand voltage (Between Terminals)	Shall be no abnormality	150% of rated voltage, 60sec
Between terminal and Enclosure	Shall be no abnormality	UR×200%+1000Vac, 60sec.
Insulation resistance (Between Terminals)	$C_R \leq 0.33\mu F$, $IR \geq 15000M\Omega$ $C_R > 0.33\mu F$, $IR \geq 5000S$	Measured at $100 \pm 15Vdc$, For 60sec / $25^\circ C$
Capacitance	Within the tolerance specified	1KHz, 1Vrms Max. at $25^\circ C$
Dissipation Factor	0.01 (1.0%) Max.	1Vrms Max. at $25^\circ C$
Tense Strength of Terminal	No wire breakage and no damage of capacitor	1. Load Force : 1.0 Kg 2. Holding Time : 10 ± 1 sec
Bending Strength of Terminal	No wire breakage and no damage of capacitor	1. Load Force : 0.5 Kg 2. Bending Time : $4 \times 90^\circ$ in 5sec
Solderability	(1) Appearance : No visible damage (2) Covering an area of > solder 95%	1. Solder Temperature : $240 \pm 5^\circ C$ 2. Solder Time : 3 ± 0.5 sec
Heat Shock test	(1) Appearance : No visible damage (2) $\Delta C/C : \leq 3\%$ of the initial value (3) DF (tg δ) : Growth less than ≤ 0.004	The terminal of capacitor shall be immersed in the melting solder. a. Solder Temperature: $260 \pm 5^\circ C$ b. Solder Time: 10 ± 1 sec
Cold Resistance	(1) Appearance : No visible damage (2) $\Delta C/C : \leq 5\%$ of the initial value (3) DF (tg δ) : Growth less than ≤ 0.005	a. Test Temperature: $-40^\circ C$ b. Test Times: 2Hrs
Dry Heat Resistance	(4) IR : $\geq 50\%$ of clause shall be satisfied	a. Test Temperature: $85^\circ C$ b. Test Times: 16Hrs

SMEM series (Pitch 5mm)

Test items	Performance	Test Method
Humidity Resistance	(1) Appearance : No visible damage (2) $\Delta C/C$: $\leq 5\%$ of the initial value (3) DF (tg 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: R.V 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 (tg 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 Then recovery at ordinary condition at least 6Hrs
High Temp Loading test (Continuous)	(1) Appearance : No visible damage (2) DF (tg 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

■ Mark

Pitch 5mm



1. WDC is a registered trademark of WINDAY	2. Capacitance: 105 indicates 1.0 μ F or 100nF
3. Capacitors Tolerance: J= $\pm 5\%$	4. Rated Voltage: 100Vdc, Indicates 100
5. E for Metallized polyester film capacitor	

SMEM series (Pitch 5mm)

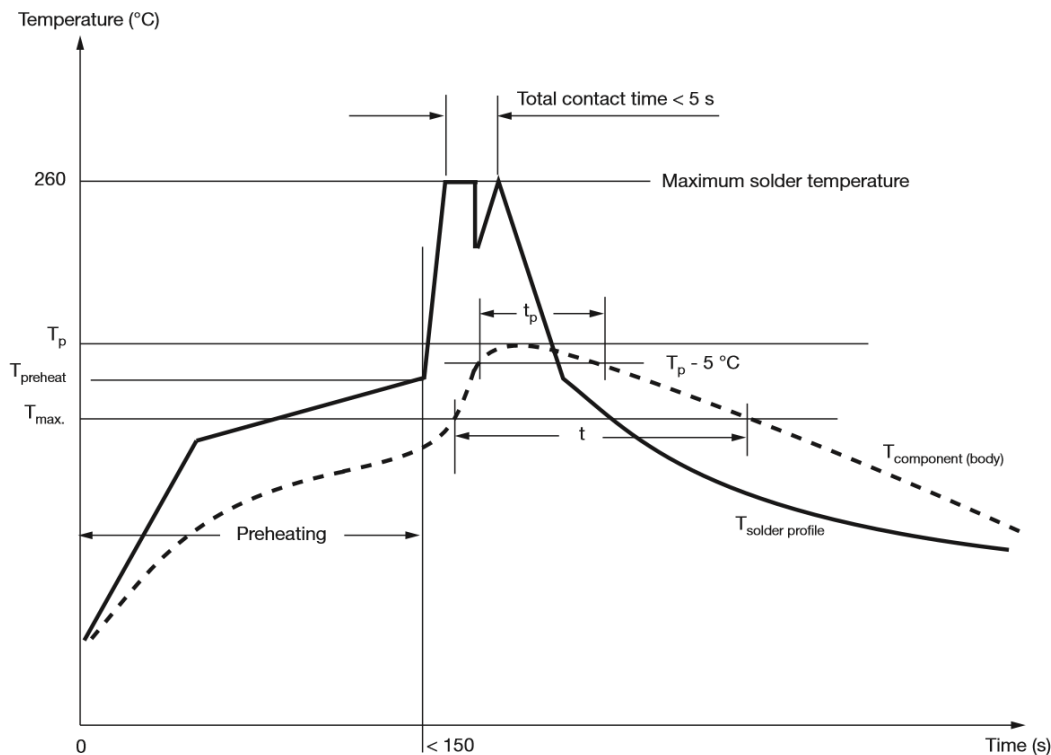
■ Soldering Guidelines for Film Capacitors

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	20/22.5 mm	27.5 mm	31.5 mm	37.5 mm
SMEM	(2),(4)	--	--	--	--	--	--	--

(1) No risk

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

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

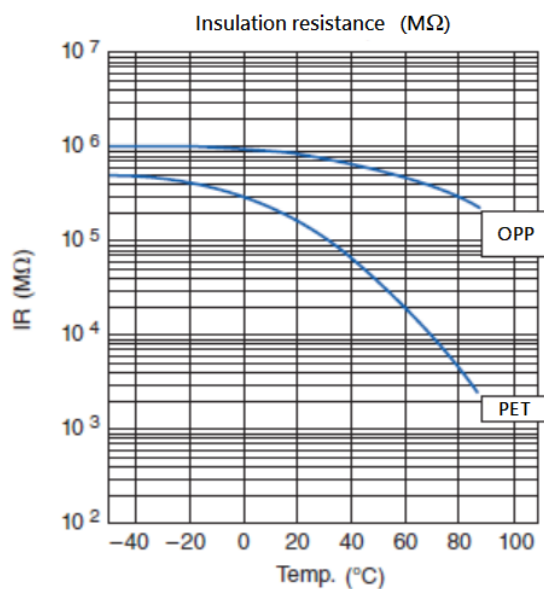
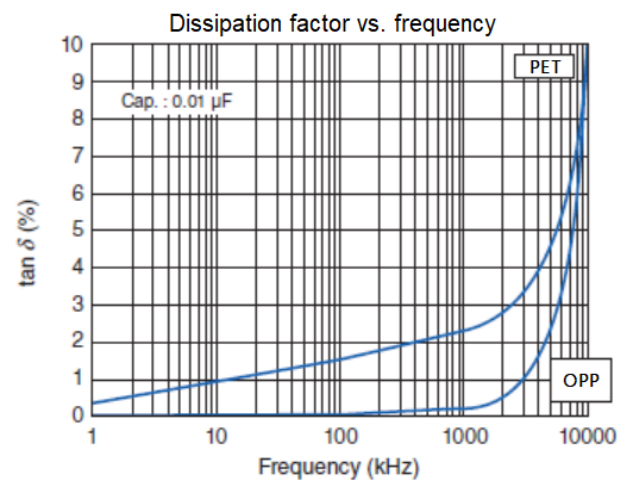
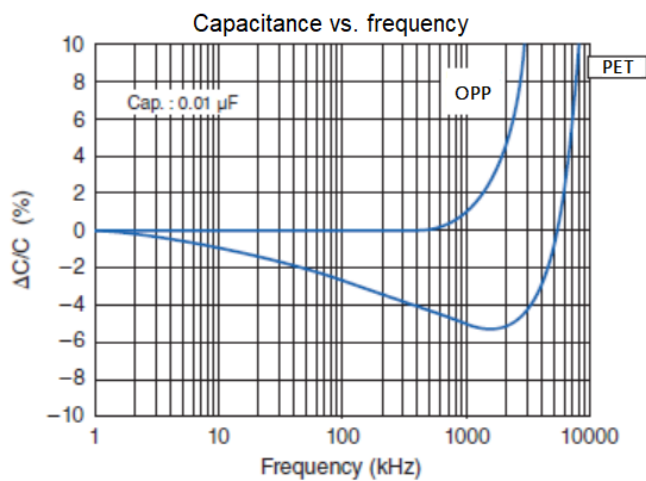
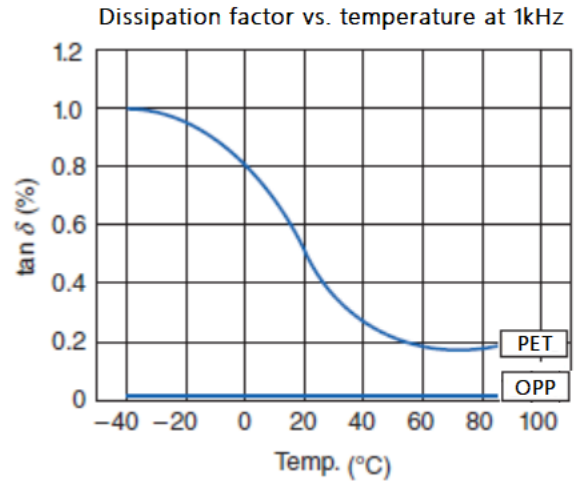
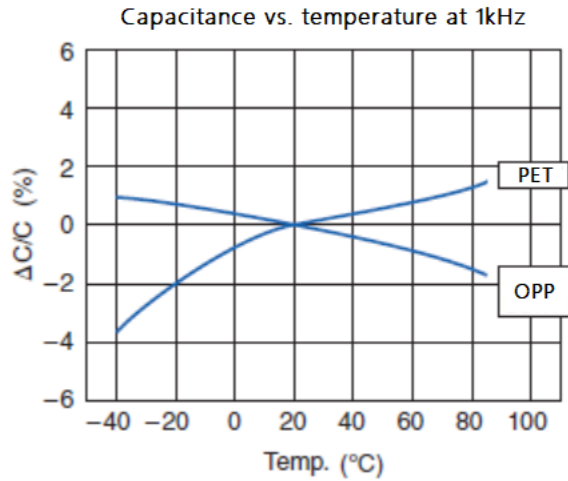
(4) Temperature is measured at the body top and must be kept as follows:

During preheating: $T_{max.} \leq 125^\circ C$

During soldering: $T_p \leq 135^\circ C$, $t_p \leq 30\ s$, $t \leq 50\ s$

SMEM series (Pitch 5mm)

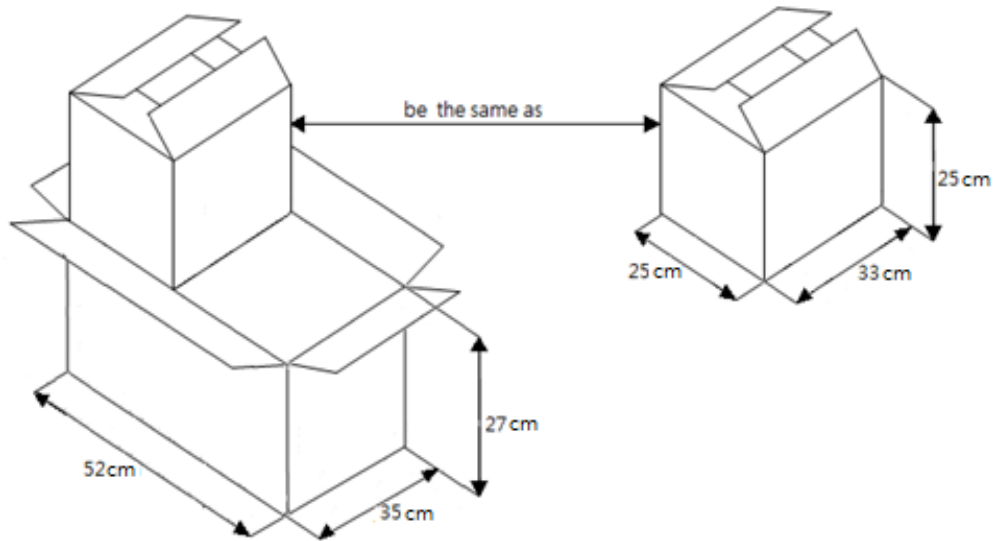
■ Typical graphs



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

SMEM series (Pitch 5mm)

■ Packaging



Pitch (mm)	Pcs / Bag	Pcs / Inner carton (L33:cm XH:25cm X T:25cm)	Pcs / Out box (L52:cm XH:27cm X T:35cm)
5~10	1000	10000	20000

■ 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.