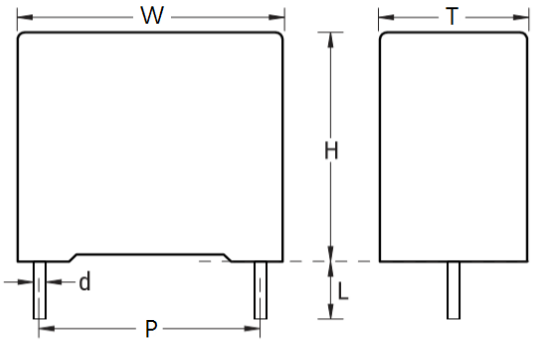
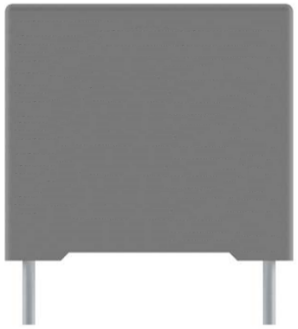
PMEB series (Pitch 5mm)

■ Outline Drawing



Printed on top



■ Typical Applications

By-passing, blocking, coupling, decoupling

Pulse logic, timing, compact fluorescent lamps

Invert for LCD monitors, automotive DC motor suppression

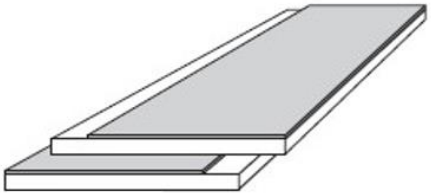
■ Features

Metalized polyester film, Wound construction

Plastic case (UL94V-0), Epoxy resin sealing

High dV/dt ability

■ Construction



■ Specifications

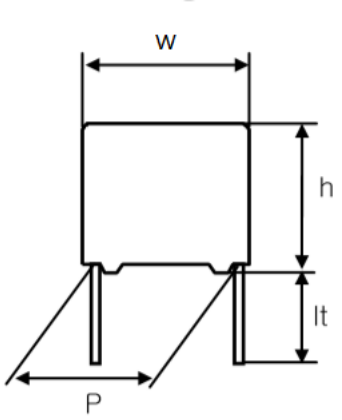
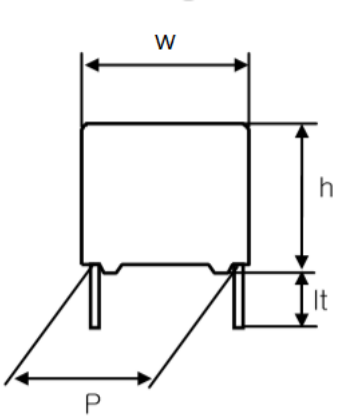
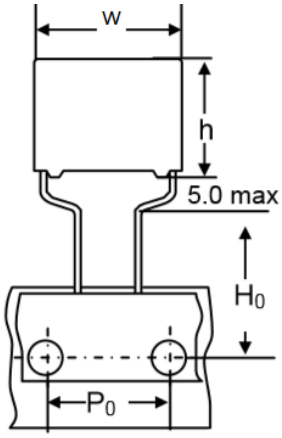
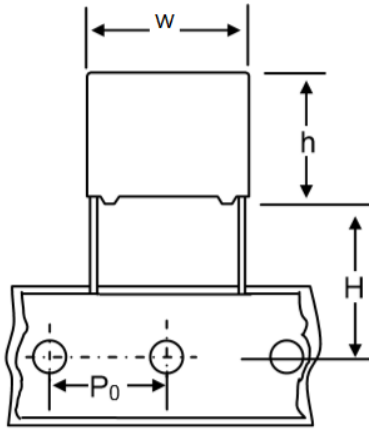
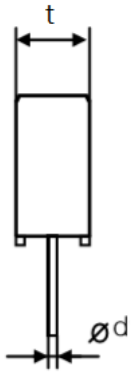
Reference Standard	GB/T 7332 (IEC 60384-2)	
Climatic Category	55/105/21	
Rated Temperature	85℃	
Operating Temperature Range	-55℃~+105℃ (+85℃ to +105℃: decreasing factor 1.25% per ℃ for U_R)	
Capacitance Range	0.001μF ~ 1μF	
Rated (DC) Voltage	63V、100V、250V、400V	
Capacitance Tolerance	±5%(J)、±10%(K)	
Voltage Proof	1.5UR (60s)	
Dissipation Factor	≤ 1.0% (20℃, 1kHz)	
Insulation Resistance	UR ≤ 100V	C_R ≤ 0.33uF IR ≥ 15,000MΩ C_R >0.33uF IR ≥ 5,000S

PMEB series (Pitch 5mm)

■ Product code system

PMEB	X	103	K	0100	D	B	05	18
Type	Internal use	Capacitance	Tolerance	Rated Voltage	Voltage	Lead forming	Lead Pitch	Lead Length
SMEB= Metallized Polyester Capacitor (Boxed)	--	103 =10000pF =10nF =0.01μF	J=±5% K=±10% M=±20%	0063=63V 0100=100V 0250=250V 0400=400V	D=DC	Shown as Table I	05=5mm	04=3.5mm 15=15mm 18=18mm

■ Table I

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

PMEB series (Pitch 5mm)

■ **Dimensions (mm)**

63Vdc (40Vac)

Cap. μF	W	H	T	P	d	Part number
0.0010	7.2	6.5	2.5	5.0	0.5	PMEBX102+0063D*05**
0.0015	7.2	6.5	2.5	5.0	0.5	PMEBX152+0063D*05**
0.0022	7.2	6.5	2.5	5.0	0.5	PMEBX222+0063D*05**
0.0027	7.2	6.5	2.5	5.0	0.5	PMEBX272+0063D*05**
0.0033	7.2	6.5	2.5	5.0	0.5	PMEBX332+0063D*05**
0.0039	7.2	6.5	2.5	5.0	0.5	PMEBX392+0063D*05**
0.0047	7.2	6.5	2.5	5.0	0.5	PMEBX472+0063D*05**
0.0068	7.2	6.5	2.5	5.0	0.5	PMEBX682+0063D*05**
0.0082	7.2	6.5	2.5	5.0	0.5	PMEBX822+0063D*05**
0.010	7.2	6.5	2.5	5.0	0.5	PMEBX103+0063D*05**
0.015	7.2	6.5	2.5	5.0	0.5	PMEBX153+0063D*05**
0.022	7.2	6.5	2.5	5.0	0.5	PMEBX223+0063D*05**
0.027	7.2	6.5	2.5	5.0	0.5	PMEBX273+0063D*05**
0.033	7.2	6.5	2.5	5.0	0.5	PMEBX333+0063D*05**
0.047	7.2	6.5	2.5	5.0	0.5	PMEBX473+0063D*05**
0.056	7.2	6.5	2.5	5.0	0.5	PMEBX563+0063D*05**
0.068	7.2	6.5	2.5	5.0	0.5	PMEBX683+0063D*05**
0.082	7.2	6.5	2.5	5.0	0.5	PMEBX823+0063D*05**
0.10	7.2	6.5	2.5	5.0	0.5	PMEBX104+0063D*05**
0.12	7.2	6.5	2.5	5.0	0.5	PMEBX124+0063D*05**
0.15	7.2	7.5	3.5	5.0	0.5	PMEBX154+0063D*05**
0.18	7.2	7.5	3.5	5.0	0.5	PMEBX184+0063D*05**
0.22	7.2	7.5	3.5	5.0	0.5	PMEBX224+0063D*05**
0.27	7.2	7.5	3.5	5.0	0.5	PMEBX274+0063D*05**
0.33	7.2	9.5	4.5	5.0	0.5	PMEBX334+0063D*05**
0.39	7.2	9.5	4.5	5.0	0.5	PMEBX394+0063D*05**
0.47	7.2	9.5	4.5	5.0	0.5	PMEBX474+0063D*05**
0.56	7.2	11	6	5.0	0.5	PMEBX564+0063D*05**
0.68	7.2	11	6	5.0	0.5	PMEBX684+0063D*05**
0.82	7.2	11	6	5.0	0.5	PMEBX824+0063D*05**
1.0	7.2	11	6	5.0	0.5	PMEBX105+0063D*05**

100Vdc (63Vac)

Cap. μF	W	H	T	P	d	Part number
0.0010	7.2	6.5	2.5	5.0	0.5	PMEBX102+0100D*05**
0.0015	7.2	6.5	2.5	5.0	0.5	PMEBX152+0100D*05**
0.0022	7.2	6.5	2.5	5.0	0.5	PMEBX222+0100D*05**
0.0027	7.2	6.5	2.5	5.0	0.5	PMEBX272+0100D*05**
0.0033	7.2	6.5	2.5	5.0	0.5	PMEBX332+0100D*05**
0.0039	7.2	6.5	2.5	5.0	0.5	PMEBX392+0100D*05**
0.0047	7.2	6.5	2.5	5.0	0.5	PMEBX472+0100D*05**
0.0068	7.2	6.5	2.5	5.0	0.5	PMEBX682+0100D*05**
0.0082	7.2	6.5	2.5	5.0	0.5	PMEBX822+0100D*05**
0.010	7.2	6.5	2.5	5.0	0.5	PMEBX103+0100D*05**
0.015	7.2	6.5	2.5	5.0	0.5	PMEBX153+0100D*05**
0.022	7.2	6.5	2.5	5.0	0.5	PMEBX223+0100D*05**
0.027	7.2	6.5	2.5	5.0	0.5	PMEBX273+0100D*05**
0.033	7.2	6.5	2.5	5.0	0.5	PMEBX333+0100D*05**
0.047	7.2	6.5	2.5	5.0	0.5	PMEBX473+0100D*05**
0.056	7.2	6.5	2.5	5.0	0.5	PMEBX563+0100D*05**
0.068	7.2	6.5	2.5	5.0	0.5	PMEBX683+0100D*05**
0.082	7.2	7.5	3.5	5.0	0.5	PMEBX823+0100D*05**
0.10	7.2	7.5	3.5	5.0	0.5	PMEBX104+0100D*05**
0.12	7.2	7.5	3.5	5.0	0.5	PMEBX124+0100D*05**
0.15	7.2	9.5	4.5	5.0	0.5	PMEBX154+0100D*05**
0.18	7.2	9.5	4.5	5.0	0.5	PMEBX184+0100D*05**
0.22	7.2	9.5	4.5	5.0	0.5	PMEBX224+0100D*05**
0.27	7.2	9.5	4.5	5.0	0.5	PMEBX274+0100D*05**
0.33	7.2	11	6	5.0	0.5	PMEBX334+0100D*05**
0.39	7.2	11	6	5.0	0.5	PMEBX394+0100D*05**
0.47	7.2	11	6	5.0	0.5	PMEBX474+0100D*05**
0.56	7.2	11	6	5.0	0.5	PMEBX564+0100D*05**
0.68	7.2	11	6	5.0	0.5	PMEBX684+0100D*05**
0.82	7.2	11	6	5.0	0.5	PMEBX824+0100D*05**
1.0	7.2	11	6	5.0	0.5	PMEBX105+0100D*05**

PMEB series (Pitch 5mm)

■ **Dimensions (mm)**

250Vdc (160Vac)

Cap. μF	W	H	T	P	d	Part number
0.0010	7.2	6.5	2.5	5.0	0.5	PMEBX102+0250D*05**
0.0015	7.2	6.5	2.5	5.0	0.5	PMEBX152+0250D*05**
0.0022	7.2	6.5	2.5	5.0	0.5	PMEBX222+0250D*05**
0.0027	7.2	6.5	2.5	5.0	0.5	PMEBX272+0250D*05**
0.0033	7.2	6.5	2.5	5.0	0.5	PMEBX332+0250D*05**
0.0039	7.2	6.5	2.5	5.0	0.5	PMEBX392+0250D*05**
0.0047	7.2	6.5	2.5	5.0	0.5	PMEBX472+0250D*05**
0.0068	7.2	6.5	2.5	5.0	0.5	PMEBX682+0250D*05**
0.0082	7.2	6.5	2.5	5.0	0.5	PMEBX822+0250D*05**
0.010	7.2	6.5	2.5	5.0	0.5	PMEBX103+0250D*05**
0.015	7.2	6.5	2.5	5.0	0.5	PMEBX153+0250D*05**
0.022	7.2	6.5	2.5	5.0	0.5	PMEBX223+0250D*05**
0.027	7.2	7.5	3.5	5.0	0.5	PMEBX273+0250D*05**
0.033	7.2	7.5	3.5	5.0	0.5	PMEBX333+0250D*05**
0.047	7.2	7.5	3.5	5.0	0.5	PMEBX473+0250D*05**
0.056	7.2	7.5	3.5	5.0	0.5	PMEBX563+0250D*05**
0.068	7.2	9.5	4.5	5.0	0.5	PMEBX683+0250D*05**
0.082	7.2	9.5	4.5	5.0	0.5	PMEBX823+0250D*05**
0.10	7.2	9.5	4.5	5.0	0.5	PMEBX104+0250D*05**
0.12	7.2	11	6	5.0	0.5	PMEBX124+0250D*05**
0.15	7.2	11	6	5.0	0.5	PMEBX154+0250D*05**
0.18	7.2	11	6	5.0	0.5	PMEBX184+0250D*05**
0.22	7.2	11	6	5.0	0.5	PMEBX224+0250D*05**

400Vdc (200Vac)

Cap. μF	W	H	T	P	d	Part number
0.0010	7.2	6.5	2.5	5.0	0.5	PMEBX102+0400D*05**
0.0015	7.2	6.5	2.5	5.0	0.5	PMEBX152+0400D*05**
0.0022	7.2	6.5	2.5	5.0	0.5	PMEBX222+0400D*05**
0.0027	7.2	6.5	2.5	5.0	0.5	PMEBX272+0400D*05**
0.0033	7.2	6.5	2.5	5.0	0.5	PMEBX332+0400D*05**
0.0039	7.2	6.5	2.5	5.0	0.5	PMEBX392+0400D*05**
0.0047	7.2	6.5	2.5	5.0	0.5	PMEBX472+0400D*05**
0.0068	7.2	7.5	3.5	5.0	0.5	PMEBX682+0400D*05**
0.0082	7.2	7.5	3.5	5.0	0.5	PMEBX822+0400D*05**
0.010	7.2	9.5	4.5	5.0	0.5	PMEBX103+0400D*05**
0.015	7.2	9.5	4.5	5.0	0.5	PMEBX153+0400D*05**
0.022	7.2	9.5	4.5	5.0	0.5	PMEBX223+0400D*05**
0.027	7.2	11	6	5.0	0.5	PMEBX273+0400D*05**
0.033	7.2	11	6	5.0	0.5	PMEBX333+0400D*05**
0.047	7.2	11	6	5.0	0.5	PMEBX473+0400D*05**

+	=	Capacitance tolerance: K=±10% , J=±5%
*	=	Lead forming
**	=	Lead length

PMEB series (Pitch 5mm)

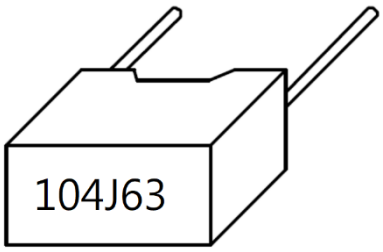
■ Specifications

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 ≥ 15000MΩ $C_R > 0.33\mu F$, IR ≥ 5000S	Measured at 100±15Vdc, For 60sec / 25℃
Capacitance	Within the tolerance specified	1KHz, 1Vrms Max. at 25℃
Dissipation Factor	0.01 (1.0%) Max.	1Vrms Max. at 25℃
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℃ 2. Solder Time : 3±0.5 sec
Heat Shock test	(1) Appearance : No visible damage (2) △C/C : ≤ 3% of the initial value (3) DF (tgδ) : Growth less than ≤ 0.004	The terminal of capacitor shall be immersed in the melting solder. a. Solder Temperature: 260±5℃ b. Solder Time: 10±1sec
Cold Resistance	(1) Appearance : No visible damage (2) △C/C : ≤ 5% of the initial value (3) DF (tgδ) : Growth less than ≤ 0.005 (4) IR : ≥ 50% of clause shall be satisfied	a. Test Temperature: -40℃ b. Test Times: 2Hrs
Dry Heat Resistance		a. Test Temperature: 85℃ b. Test Times: 16Hrs

Test items	Performance	Test Method
Humidity Resistance	(1) Appearance : No visible damage (2) ▵C/C : ≤ 5% of the initial value (3) DF (tgδ) : Growth less than ≤ 0.002 (4) IR : ≥ 50% of clause shall be satisfied	a. Test Temperature: 40℃ ± 2℃ b. Relative Humility: 90 ~ 95% c. Test Times: 500±8Hrs d. Applied voltage: R.V Then recovery at ordinary condition at least 6Hrs
Charge & Discharge	(1) Appearance : No visible damage (2) ▵C/C : ≤ 5% of the initial value (3) DF (tgδ) : Growth less than ≤ 0.005 (4) IR : ≥ 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 (tgδ) : Growth less than ≤ 0.004 (3) ▵C/C : ≤ 5% of the initial value (4) IR : ≥ 50% of clause shall be satisfied	a. Test Temperature: 85℃±2℃ b. Test Times: 1000±24Hrs c. Apply 125% of the rated voltage Then recovery at ordinary condition at least 6Hrs

■ Mark

Pitch 5mm



1. Capacitance: 104 indicates 0.1μF or 100nF	2. Capacitors Tolerance: J=±5%
3. Rated Voltage: 63Vdc, Indicates 63	

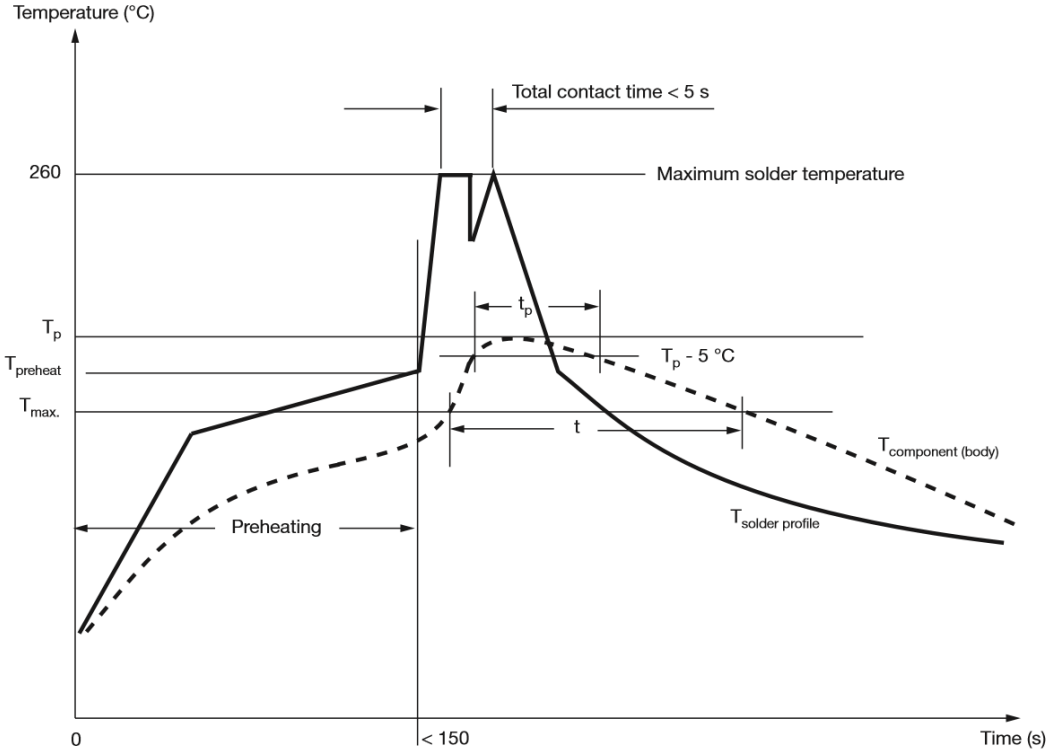
■ Soldering Guidelines for Film Capacitors

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



Tp : Peak temperature of the component body (top)

Tmax : 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
PMEB	(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

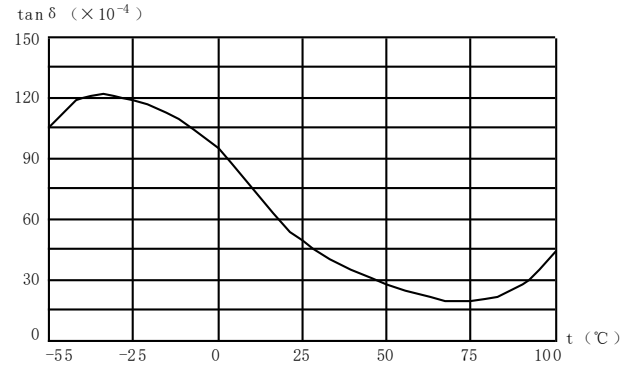
(4) Temperature is measured at the body top and must be kept as follows:

During preheating: Tmax. ≤ 125 °C

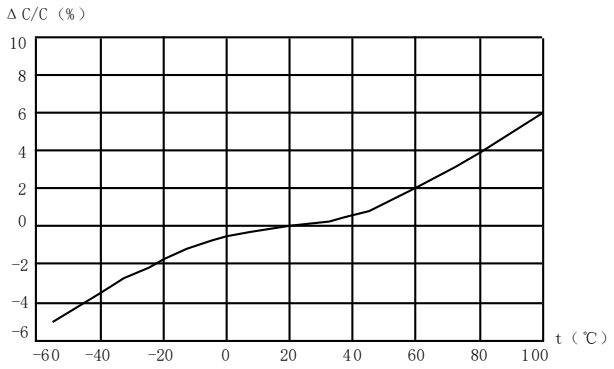
During soldering: Tp ≤ 135 °C, tp ≤ 30 s, t ≤ 50 s

PMEB series (Pitch 5mm)

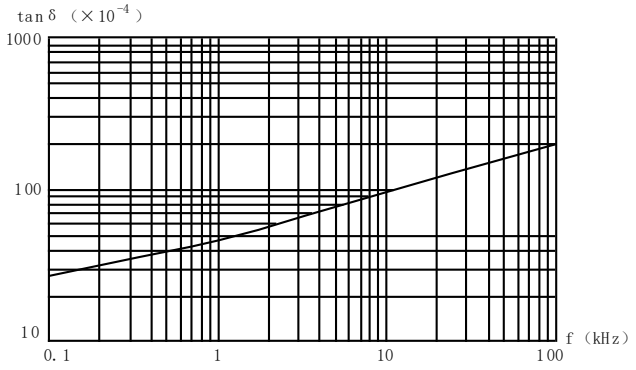
■ Typical graphs



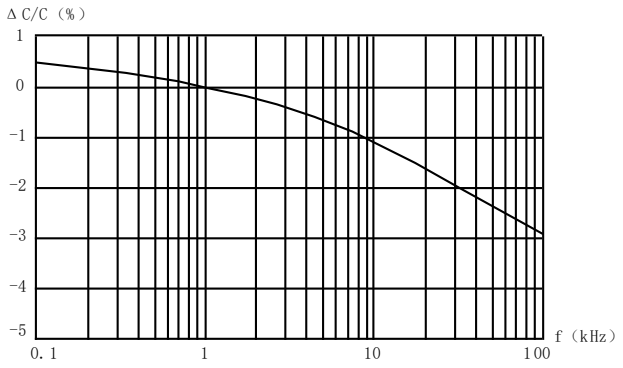
Dissipation Factor VS Temperature at 1KHz



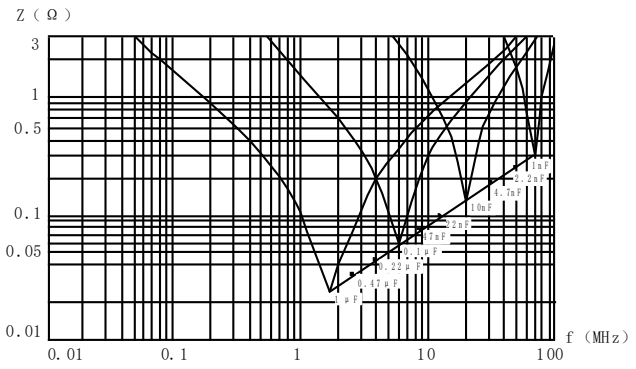
Capacitance VS Temperature at 1KHz



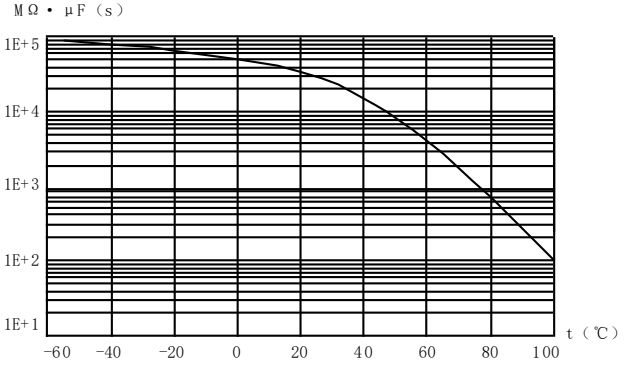
Dissipation Factor VS Frequency (Room Temperature)



Capacitance VS Frequency (Room Temperature)



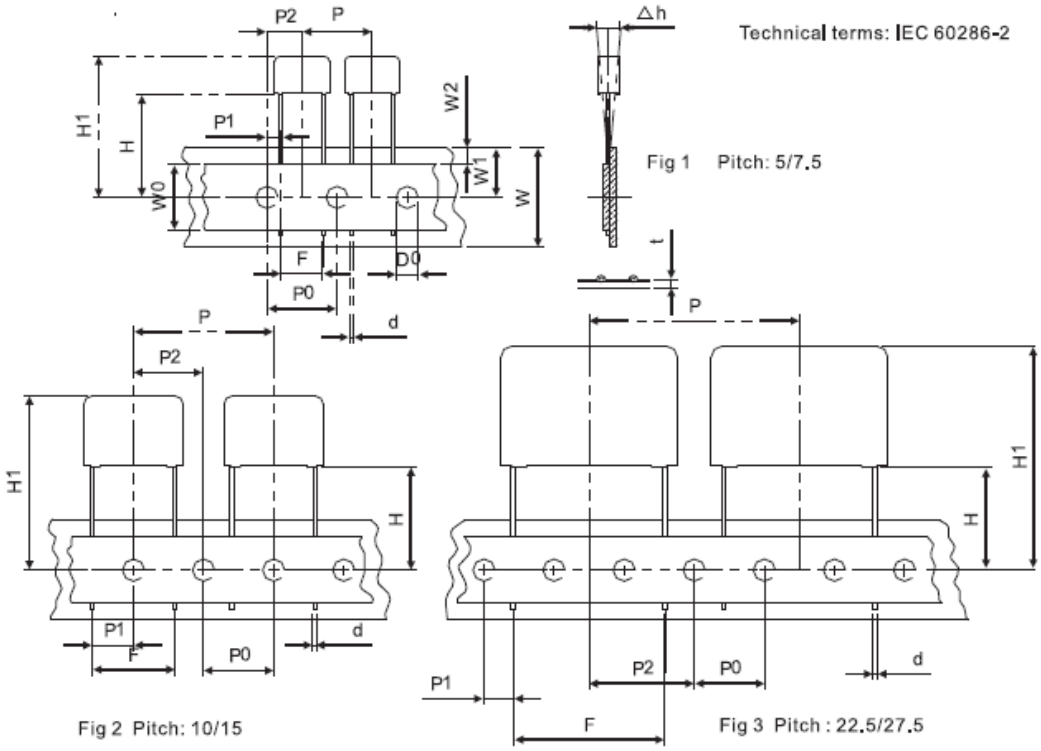
Impedance VS Frequency



Insulation resistance VS Temperature

PMEB series (Pitch 5mm)

Table II



Description	Symbol	Pitch:5	Pitch: 7.5	Pitch:10	Pitch:15	Pitch:22.5	Pitch:27.5
Carrier tape width	W	18+/-0.5	18+/-0.5	18+/-0.5	18+/-0.5	18+/-0.5	18+/-0.5
Hold down tape width	W0	9.5min	9.5min	9.5min	9.5min	9.5min	9.5min
Hole position	W1	9.0+/-0.5	9.0+/-0.5	9.0+/-0.5	9.0+/-0.5	9.0+/-0.5	9.0+/-0.5
Hold down tape position	W2	0-3.0	0-3.0	0-3.0	0-3.0	0-3.0	0-3.0
Feed hole diameter	D0	4.0+/-0.2	4.0+/-0.2	4.0+/-0.2	4.0+/-0.2	4.0+/-0.2	4.0+/-0.2
Taping pitch	P	12.7+/-1.0	12.7+/-1.0	25.4+/-1.0	25.4+/-1.0	38.1+/-1.0	38.1+/-1.0
Feed hole pitch	P0	12.7+/-0.2	12.7+/-0.2	12.7+/-0.2	12.7+/-0.2	12.7+/-0.2	12.7+/-0.2
Centering of the lead wire	P1	3.85+/-1.3	2.6+/-0.7	7.7+/-0.7	5.2+/-0.7	7.8+/-0.7	5.3+/-0.7
Centering of the body	P2	6.35+/-0.3	6.35+/-0.3	12.7+/-1.3	12.7+/-1.3	19.05+/-1.3	19.05+/-1.3
Height of component from tape center	H△	16.5+/-0.3	16.5+/-0.5	16.5+/-0.5	16.5+/-0.5	16.5+/-0.5	16.5+/-0.5
		18.5+/-0.5	18.5+/-0.5	18.5+/-0.5	18.5+/-0.5	18.5+/-0.5	18.5+/-0.5
Top edge of component	H1	32.2max	32.2max	39.0max	39.0max	44.0max	44.0max
Lead spacing(pitch)	F	5.0+0.8-0.2	7.5+0.8-0.2	10.0+0.8-0.2	15.0+0.8-0.2	22.5+0.8-0.2	27.5+0.8-0.2
Lead wire diameter	d	0.5+/-0.05	0.6+/-0.05	0.6+/-0.05	0.8+/-0.05	0.8+/-0.05	0.8+/-0.05
Component alignment	△h	0+/-2.0	0+/-2.0	0+/-2.0	0+/-2.0	0+/-3.0	0+/-3.0
Tape thickness	t	0.7+/-0.2	0.7+/-0.2	0.7+/-0.2	0.7+/-0.2	0.7+/-0.2	0.7+/-0.2

PMEB series (Pitch 5mm)

■ Standard Pack Quantity

Case size	Bulk (Bag/Pcs)	Taping (Ammo/Pcs)
7.2 * 6.5 * 2.5	1000	2000
7.2 * 7.5 * 3.5	1000	1500
7.2 * 9.5 * 4.5	500	1000
7.2 * 10 * 5	500	1000
7.5 * 8 * 5	500	1000
7.2 * 11 * 6	500	1000

■ 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 ℃, humidity less than 50% of the state of storage for one year.