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METALLIZED POLYESTER FILM CAPACITOR (MPE)

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METALLIZED POLYESTER FILM CAPACITOR (MPE)

1. SCOPE:

This specification applied to capacitor for type MPE
(METALLIZED POLYESTER FILM CAPACITOR)

2. OPERATING TEMPERATURE:

- 40 °C ~ + 85 °C

3. CAPACITANCE RANGE:

0.01 μ F ~ 6.8 μ F

4. CAPACITANCE TOLERANCE:

$\pm 5\%$ (J) $\pm 10\%$ (K) $\pm 20\%$ (M)

5. RATED VOLTAGE:

100V 250V 400V 630V

6. SPECIFICATIONS:

NO.	TEST ITEMS		PERFORMANCE		METHOD OF TEST (JIS C5102)
6 - 1	Withstand voltage	Between Terminals	Shall be no abnormality		Apply 2.0 times of rated voltage For 60 sec. Charge/discharge Current must be 1 A max.
		Between Terminals & enclosure			Apply 2.0 times of rated voltage For 1 to 5 sec.
6 - 2	Insulation resistance	Between Terminals	$\leq 0.33 \mu F$	$\geq 15,000 M \Omega$	Apply rated voltage $\pm 15\%$ for 60 sec. When rated voltage under 100V. Apply 100V $\pm 15\%$ when rated Voltage Voltage from 100 to 500V at 20 °C
		Between Terminals & enclosure	$> 0.33 \mu F$	$\geq 5000 M \Omega$	
6 - 3	Capacitance		Within the tolerance specified.		a. Measuring frequency: 1KHz $\pm 10\%$ b. Measuring Voltage: 1 VRMS. Max. at 20 °C
6 - 4	Dissipation Factor		0.01 (1.0%) Max.		a. Measuring frequency: 1KHz $\pm 10\%$ b. Measuring Voltage: 1 VRMS. Max. at 20 °C



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NO.	TEST ITEMS		PERFORMANCE	METHOD OF TEST (JIS C5102)
6 – 5	Strength of Terminal	Tensile Strength of Terminal	Shall be no abnormality	Wire diameter 0.5-0.8mm load 1kgs. 0.8-1.2mm load 2.5kgs for 30±5 sec.
		Bending Strength of lead terminal		Wire diameter 0.5-0.8mm load 0.5kgs 4x90°, 0.8-1.2mm load 1.0kgs 4x90°
6 – 6	Vibration Proof		Element shall be not short-circuited nor opened, its connecting condition shall be no abnormality on appearance after testing	Class (A) and Appendix 2 of JIS C51111 a. Frequency change: 10 c/s to 50 c/s b. Vibration distance: 1.5mm c. Testing duration: 2 hours
6 – 7	Solderability		After the immersion lead wire is covered new solder of 75% around lead surface by dipping point.	a. Solder temperature: 230 ±5°C b. Dipping time: 2±0.5 sec
6 – 8	Solder heat Resistance	Appearance	Shall be no abnormality	a. Solder temperature: 270 ±5°C b. Dipping time: 3±0.5 sec c. Dipping depth: 2-2.5mm from root of capacitor.
		Withstand Voltage	Shall satisfy No. 6-1	
		Rate of Variation of Capacitance	Within ±3% of the value before test	
6 – 9	Cold Proof	Rate of Variation of Capacitance at -40°C	Within +5% ~ 0% of value before test	Testing temperature: -40 ± 2°C
6 – 10	Heat Proof	Insulation resistance at 80°C	$\leq 0.33\mu F$ $\geq 900 M \Omega$ at 85°C	Testing temperature: 85 ± 2°C
		Rate of variation of capacitance at 85°C	$>0.33 \mu F$ $\geq 300 M \Omega$ at 85°C Within +5% ~2% of the value before test	



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NO.	TEST ITEMS		PERFORMANCE	METHOD OF TEST (JIS C5102)
6 – 11	Humidity test	Appearance	Shall be no abnormality	a. Temperature: $40 \pm 2^{\circ}\text{C}$ b. Humidity: 90 ~ 95% RH c. Testing time: 500 ± 24 Hours d. Apply voltage: Rated voltage After testing, leave it for about 16 hours at standard condition. Withstand voltage is 130% rate voltage, 60 sec.
		Withstand Voltage		
		Insulation resistance	$\leq 0.33\mu\text{F}$	
			$\geq 2700\text{ M}\Omega$	
		Dissipation factor	$>0.33\mu\text{F}$	
			$\geq 900\text{ M}\Omega$	
6 – 12	High temperature loading	Appearance	Shall be no abnormality	a. Temperature: $85 \pm 2^{\circ}\text{C}$ b. Testing time: 1000 ± 48 Hours c. Apply voltage: The voltage is 140% of rated voltage
		Insulation resistance	$\leq 0.33\mu\text{F}$	
			$\geq 2700\text{ M}\Omega$	
		Dissipation factor	$>0.33\mu\text{F}$	
			$\geq 900\text{ M}\Omega$	
		Rate of variation capacitance	0.011 (1.1%) Max.	
		Rate of variation capacitance	Within $\pm 10\%$ of the value before test	
		Appearance	Shall be no abnormality	
		Insulation resistance	$\leq 0.33\mu\text{F}$	
			$\geq 2700\text{ M}\Omega$	
		Dissipation factor	$>0.33\mu\text{F}$	
			$\geq 900\text{ M}\Omega$	
		Rate of variation capacitance	0.011 (1.1%) Max.	
		Rate of variation capacitance	Within $\pm 7\%$ of the value before test	
		Appearance	Shall be no abnormality	
		Insulation resistance	$\leq 0.33\mu\text{F}$	
			$\geq 2700\text{ M}\Omega$	
		Dissipation factor	$>0.33\mu\text{F}$	

7. MEASURING & TESTING EQUIPMENTS:

7.1 Capacitance and Dissipation Factor

- Hewlett Packard 4284A Precision LCR Meter
- Chen Hwa 1063 LCR Meter
- Tonghui LCR-TH2613 Meter

7.2 Insulation Resistance:

- Hewlett Packard 4329A High Resistance Meter
- Tonghui TH2681 Meter



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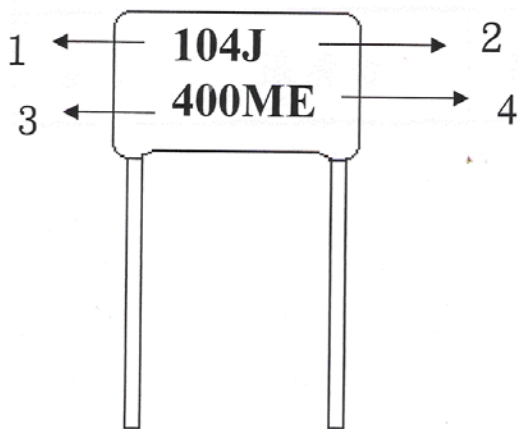
7.3 Environmental Test Chamber:

- a. ESPEC MC-710P
- b. C SUN HCC-2
- c. WANG TAT SCO-3

7.4 Dielectric Strength Test:

TOPWARD TPT-500 Puncture Insulation Tester

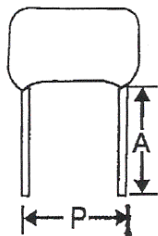
8. MARKING:



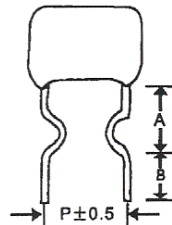
1. Normal Capacitance in PF.
2. Capacitance Tolerance
3. DC rated voltage
4. Type of Material

Lead type:

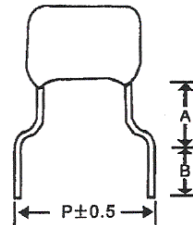
Straight Lead



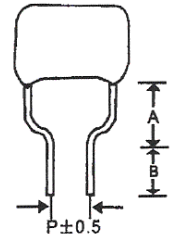
Inward Kink



Outward Kink



Narrow Kink



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