MMKP82
Double-sided metallized polypropylene

MMK104J3AE158
MMK124J3AE158
MMK224J3AE208
MMK474J3AF208

FEATURES

- Excellent self-healing performance
- Excellent High Frequency Performance
- Excellent Temperature Characteristics
- Excellent moisture proof performance
- Excellent flame retardancy
- Low Loss Value and High Insulation Resistance
- Excellent Capacity Stability under Long-term Load

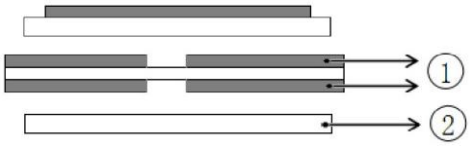
APPLICATIONS

- Widely used in high voltage and high frequency pulse circuit
- Suitable for LC resonant circuit

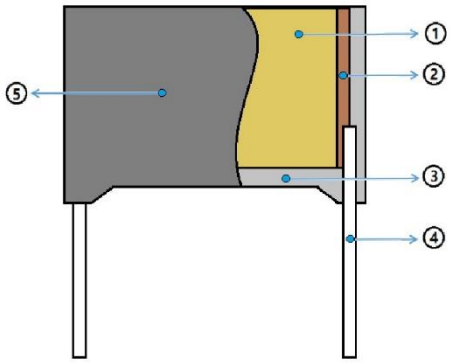
TECHNICAL SPECIFICATION

Item	Specification	
Reference standard	GB/T 10190 (IEC 60384-16)	
Climate classification	40/105/56	
Flame retardant grade	B	
Rated voltage	630V, 1000V, 1600V, 2000V	
Working temperature range	-40°C ~ +105°C	
Capacitance range	0.0001μF～0.47μF	
Capacitance tolerance	G(±2%), H(±3%), J(±5%), K(±10%), M (±20%)	
Withstand voltage	1.6UR(5S)	
Tangent of loss angle	≤ 0.1% (1KHz , 20°C)	
Insulation resistance	≥ 30000MΩ; CR ≤ 0.33μF ≥ 10000S; CR > 0.33μF	20°C, 100V, 60S

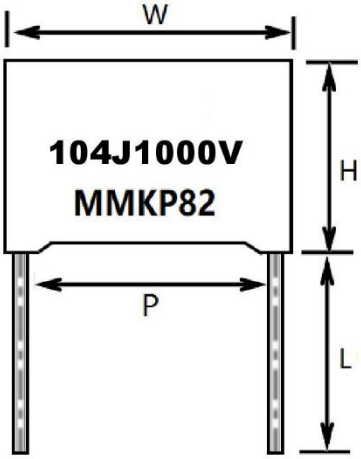
CORE STRUCTURE DIAGRAM

Graphical	illustration
	① Conductor ② Dielectric

PRODUCT STRUCTURE DRAWING

Graphical	illustration
	① Capacitor core ② Metal spraying tin-zinc alloy ③ Epoxy resin ④ CP wire ⑤ PBT plastic case

OUTLINE STYLE

Graphical	Printing Mark	illustration
	104	Capacitance capacity
	J	Capacitance tolerance
	1000V	Rated Voltage
	MMKP82	Product type series

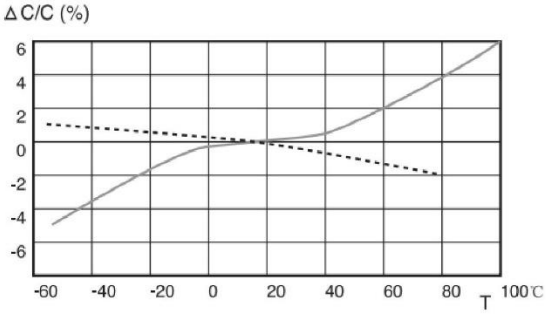
No.	Specification	Capacitance (uF)	W ±0.5	H ±0.5	T ±0.5	P ±0.5	d ±0.05	L ±2
1	104J1000V	0.1	26	21	10	22.5	0.8	15
2	124J1000V	0.12	26	21	10	22.5	0.8	15
3	224J1000V	0.22	26	21	10	22.5	0.8	20
4	474J1000V	0.47	32	28	18	27.5	0.8	20

CHARACTERISTIC TEST

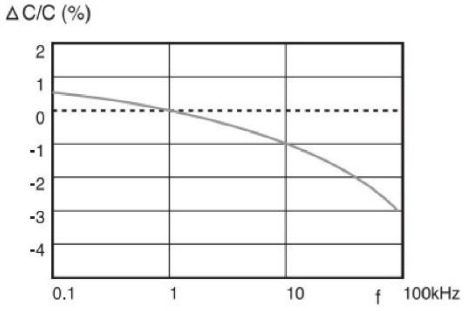
No.	Item	Performance requirement	Test method
1	Initial measurement	Capacitance Loss Angle Tangent: 1KHz	
	Terminal tensile strength	No visible damage to appearance	Tensile test Ual: pull: 0.5 < ϕd ≤ 0.8mm; 10N Bending test Ub: Second bending in each direction Reverse: Two consecutive twists 180 degrees
	Welding heat resistance	No visible damage, clear marking	Welding groove method Tb, Method 1A 260±5°C, 5±1S
	Final measurement	Capacitance: Delta C/C < Initial Measured Value (+5%) Loss tangent: The increase of DF is less than 0.01 (1KHz)	
2	Initial measurement	Capacitance Loss Angle Tangent: 1KHZ	
	Rapid temperature change	No visible damage to appearance	0_A=-40°C, 0=+105°C 5 cycles, duration: t = 30 minutes
	Vibration	No visible damage to appearance	Amplitude 0.75 mm or acceleration 98 m/s^2 For those with lower degrees, the frequency ranges from 10 Hz to 500 Hz. Direction, 2 hours in each direction, 6 hours in total
	Collision	No visible damage to appearance	4000 times, acceleration 390 m/s^2, pulse duration Time: 6ms
	Final measurement	Capacitance: C/C < 5% of the initial measurement value. Loss tangent: the increase of DF is less than 0.01 Insulation resistance IR: > 50% of rated value	
3	Initial measurement	Capacitance Loss Angle Tangent: 1KHz	
	Dry heat		+105°C, 16h
	Circulating damp heat		Test Db, severity b, first cycle
	Cold		-40°C, 2h
	Low atmospheric pressure	In the last 5 minutes at the end of the test, UR is applied without permanent breakdown, flying arc or harmful deformation at the bottom of the shell.	15 ~ 35°C, 8.5Kpa, 1h
	Circulating damp heat	At the end of the experiment, UR was applied for 1 minute.	test Db, severity b, the rest of the cycle

No.	Item	Performance requirement	Test method
4	Final measurement	No visible damage, clear marking Capacitance: C/C < 5% of the initial measurement value. Loss tangent: DF < 0.01 Voltage withstand: 1.6URDC, 5S no breakdown or arc Insulation resistance IR: > 50% of rated value	
5	Steady pressure and damp heat	No visible damage, clear marking Capacitance: C/C < 5% of the initial measurement value. Loss Angle Tangent (1KHz): The increase of DF is less than 0.01 Voltage withstand: 1.6URDC, 5S no breakdown or arc Insulation resistance IR: > 50% of rated value	Temperature: 40 + 2 C Humidity: 93 + 2% RH Duration: 56 days
6	Durability	No visible damage, clear marking Capacitance: C/C < 10% of initial measurement value Loss Angle Tangent (1KHz): The increase of DF is less than 0.01 Voltage withstand: 1.6URDC, 5S no breakdown or arc Insulation resistance IR: > 50% of rated value	+105°C, 1000h Applying voltage: 1.25UR rated voltage
7	Charging and Discharging	Capacitance: C/C < 10% of initial measurement value Loss Angle Tangent (1KHz): The increase of DF is less than 0.01 Insulation resistance IR: > 50% of rated value	Number: 10,000 times Charging duration: 0.5S Discharge duration: 0.5S Charging voltage is rated voltage Charging Resistance: 220/CR (_) or 20 (larger) CR is nominal capacitance (muF)
8	Flame Retardant Test	After leaving the flame, any capacitor will continue to burn for no more than 10 seconds, and the droplets burned by the capacitor shall not ignite the cotton paper laid underneath it.	IEC695-2-2 Needle Flame Method Flame Retardant Level: B Capacitor Volume: V(mm3) < 250, Flame application time is 5 S Capacitance volume: 250 < V(mm3) < 500, Flame application time is 20 s Capacitance volume: 500 < V (mm3) < 1750, Flame application time is 30 s Capacitance volume: V (mm3) > 1750, The time of applying flame is 60s.

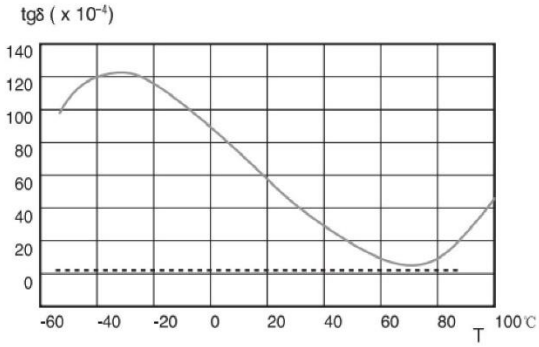
CHARACTERISTIC CHART OF CAPACITOR



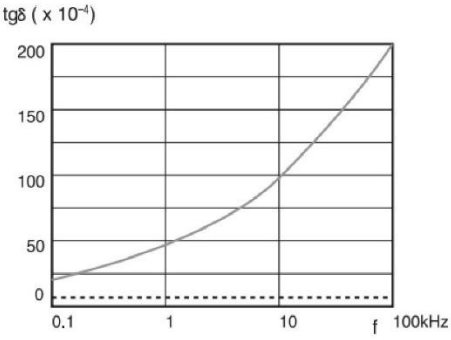
Capacitance vs. temperature at 1kHz



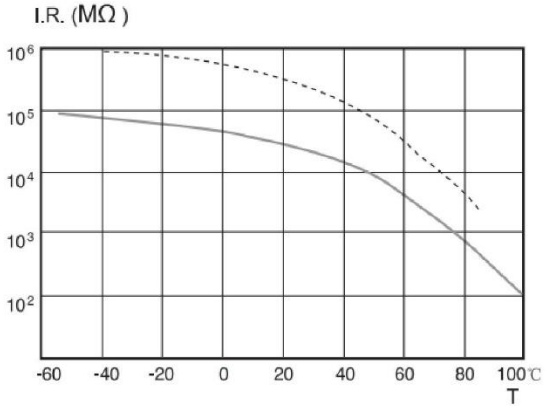
Capacitance vs. frequency (Room temperature)



Dissipation factor vs. temperature at 1kHz



Dissipation factor vs. frequency (Room temperature)



I.R. vs. temperature

Note:

- - - - - -

Polypropylene Film

Polyester Film

PART NUMBER CODING

MMK	824	K	31	E	18	8
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1)	**Product Series**	MMK=MMKP82 Series
(2)	**Capacitance**	3 digit code Example: 824=82x10^{4}pF=820nF=0.82μF
(3)	**Tolerance**	

Code	F	G	H	J	K	M	L	P
Tol.	±1%	±2%	±3%	±5%	±10%	±20%	-10~0%	0~+10%

(4) **Rated Voltage**

Code	VDC
1A	10
1M	12
-	-
1N	15
1C	16
-	-
1E	25
-	-
1V	35
-	-
-	-
1H	50
1T	540
1J	63
1K	80
1U	600

Code	VDC
2A	100
2M	120
2B	125
2N	150
2C	160
2D	200
2E	250
2F	300
2V	350
2G	400
2W	450
2H	500
2T	520
2J	630
2K	800

Code	VDC
3A	1000
3M	1200
3B	1259
3N	1500
3C	1600
3D	2000
3E	2500
3F	3000
3V	3500
3G	4000
-	-
-	-
-	-
-	-

Code	VDC
10	100
22	220
25	250
27	275
28	280
30	305
31	310
33	330
35	350
40	400
44	440
45	450
50	500
60	600
63	630
70	700
M3	1200

(5) **Plastic case / Lead space**

Unit: mm

Code	M	B	C	D	R	E	F
Lead Space	5	7.5	10	15	20	22.5	27.5

(6) **Lead length**

Unit: mm

Code	03	04	05	15	18	20	22	25	35
Length	3.0	4.0	5.0	15	18	20	22	25	35
Code	**Z**	**X**	**C**	**V**	**B**	**N**	**M**	**SV**	
Length	0.2	0.3	0.4	0.5	0.6	0.7	0.8	10.5	

(7) **Lead diameter**

Unit: mm

Code	5	6	8	1	2
Dia.	0.5	0.6	0.8	1.0	1.2