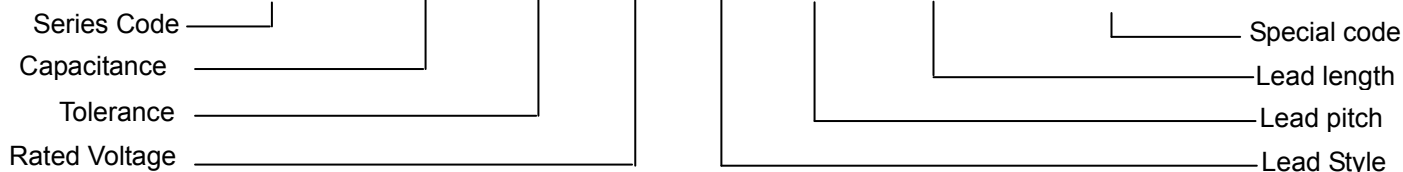


**TYPE : MPM SPECIFICATION**

**ELECTRICAL CHARACTERISTICS**

**1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18**



Digit 1-3	Type	PEI	PEN	MEF	MEB	MET	MEA	MEM	MPX	EPI	MFT	MPM	MPC	MPL
		PPI	PPN	MPP	MPB	MPT	MPF	MPH	MPA	PPS	MFP	MPN	MPS	MPK
		MFA	MFB	MPQ	MPR	MET	MES	MFC						

Digit 4-6 Digit 4-5 indicate the first two figures of the capacitance value and the 6th digit indicate the number of zero added to obtain the rated capacitance in pF. EX. 102=1000pF=1nF=0.001 μF

Digit 7	Code		F		G		H		J		K		M	
	Tolerance		±1%		±2%		±3%		±5%		±10%		±20%	

Digit 8-9			A	B	C	D	E	F	G	H	J	K	L	M	N	
	1					20					50	63			1100	15
	2		100	125	160	200	250	315	400	500	630	800	120			150
	3		1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	1200	1400	1500	
			P	Q	R	S	T	U	V	W	X	Y				
	1		240	300	330	440	540	600	700	850	900					
	2		275	305	350	450	520		760							
3		280	310		480											

Letter and then number indicate AC, but number and then Letter indicate DC.  
 EX. 2A=100VDC A2=100VAC

Digit 10	Code		A			B			C			D		X	
	Lead style		Straight lead			Kink-Cutted			Inward forming			outward forming		straight lead Cutted	
	Code		E			L			T			F		G	
	Lead style		Taping (Ammo) (直脚 TP, P0=12.7mm)			Taping (Ammo) (直脚 TP, P0=15.0mm)			Taping (Ammo) (同等彎 TP)			Taping (Ammo) (內彎 TP)		Taping (Ammo) (外彎 TP)	

Digit 11-12	Code		P2	P3	P4	P5	P6	P8	P9	PA	PB	PC	PD	PE
	Pitch		3.5	4.0	4.5	5.0	6.0	7.0	7.5	8.0	9.0	10.0	31.0	15.0
	Code		PF	PG	PH	PJ	PK	PL	PM	PN	PP	PQ	PR	PS
	Pitch		20.0	21.0	22.0	22.5	28.5	52.5	27.5	30.0	32.5	41.0	12.5	17.5
	Code		PT	PU	PV	PW	PX	PY	PZ	PO				
	Pitch		51.0	27.0	37.5	25.0	12.0	35.0	16.0	Axial				
Digit 13-14	Code		L1 <sup>+</sup>	L2	L3	L4	L5	L6	L7 <sup>+</sup>	L8	L9	LA	LB	LC
	Length		15.0	3.5	4.0	4.5	10.0	15.0	20.0	TP	2.7	8.0	5.0	6.0
	Code		LD <sup>+</sup>	LE	LF	LG	LH	LJ <sup>+</sup>	LK	LL	LM	LN	LP	LQ <sup>+</sup>
	Length		26.0	7.5	5.5	12.0	7.0	25.0	13.0	6.5	3.0	9.0	2.5	17.0
	Code		LR	LS <sup>+</sup>	LU <sup>+</sup>	LW <sup>+</sup>	LX	LY <sup>+</sup>	LZ <sup>+</sup>	LV	LO <sup>+</sup>	LT <sup>+</sup>	VL <sup>+</sup>	
	Length		3.8	24.0	27.0	40.0	16.0	30.0	32.0	3.2	Axial	22	33	

Notes: \* Straight, length is minimum

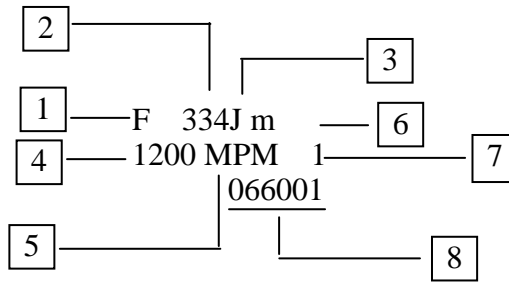
Digit 15-16	Code	Explanation	Code	Explanation	Code	Explanation
	CT	The different color, The different size (T)	CW	The different color & The different size (W)	EL	Low noise
	HD	HF, The different color	CH	The different color & The different size (H)	EE	Low ESR
Digit 17-18	TH	Humidity Bias Test	EA	Low noise, The different color	ED	Low ESR, The different size (H)
	Special Number.					







Marking

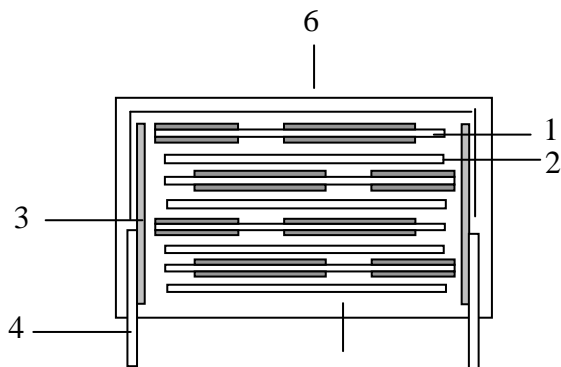


- 1 : Company symbol
- 2 : Capacitance
- 3 : Tolerance
- 4 : Rated voltage
- 5 : Type name
- 6 : Year / Month
- 7 : Week
- 8 : Production batch number (P ≥ 10mm)

Year	Month	Mark	Year	Month	Mark	Year	Month	Mark	Year	Month	Mark
2017 2021 2025 ...	1	A	2018 2022 2026 ...	1	N	2019 2023 2027 ...	1	a	2020 2024 2028 ...	1	n
	2	B		2	P		2	b		2	p
	3	C		3	Q		3	c		3	q
	4	D		4	R		4	d		4	r
	5	E		5	S		5	e		5	s
	6	F		6	T		6	f		6	t
	7	G		7	U		7	g		7	u
	8	H		8	V		8	h		8	v
	9	J		9	W		9	j		9	w
	10	K		10	X		10	k		10	x
	11	L		11	Y		11	l		11	y
	12	M		12	Z		12	m		12	z

周期 4 年一個輪迴, 如 CODE:A, 代表:2017 年 1 月, 2021 年 1 月, 2025 年 1 月, 2029 年 1 月, 2033 年 1 月...  
 CODE:B, 代表:2017 年 2 月, 2021 年 2 月, 2025 年 2 月, 2029 年 2 月, 2033 年 2 月...

Construction



- 1. Double sided metallized polyester film(AL)
- 2. Polypropylene film
- 3. Metal spray. (Zn+ Tin/Zn)
- 4. Lead wire(Cu wire)
- 5. Epoxy resin. (UL94V-0、B)
- 6. PBT Case. (UL94V-0、B)

**TYPE : MPM SPECIFICATION**

**ELECTRICAL CHARACTERISTICS**

No	項目 Item		性能 Performance	條件 Test Conditions	參考標準 Reference Standard
1	使用溫度範圍 Operating Temperature Range		-40°C ~ +110°C (+85°C to 110°C:decreasing Factor 1.25%per°C for VR(DC)		IEC 60384-16 2.1.12.2.5
2	額定電壓 Rated Voltage		1200VDC(500VAC) 1600VDC(700VAC) 2000VDC(900VAC)		IEC 60384-14 2.2.3
3	耐電壓 Withstand Voltage	端子間 Between Terminals	無 Short 現象.	Rated voltage x 160% 10 sec Charge and discharge current shall not exceed 10 mA	IEC 60384-16 4.2.1
		端子外裝間 Between Terminals & Enclosure			
5	絕緣阻抗 Insulation Resistance		C≤0.33 μF	Charge time: 60 ±5sec. Charge voltage: VR < 100VDC: 50VDC VR < 500VDC: 100VDC VR ≥ 500VDC: 500VDC Test Temp: 20°C	IEC 60384-16 4.2.4
			C>0.33 μF		
6	靜電容量 Capacitance		於指定範圍內 Within specified tolerance	at 1 KHz ±10% Measure voltage at 1 Vrms Test temp: 20°C	IEC 60384-16 4.2.2
7	散逸因數 Dissipation Factor		0.1 %max at 1KHz	Measure voltage at 1 Vrms Test temp: 20°C	IEC 60384-16 4.2.3
8	端子強度 Terminal Strength	抗拉強度 Pull Strength	端子不鬆斷 No cutting or slack of terminals	Wire diameter: 0.6&0.8mm Load: 1 kg, time: 10 sec. Wire diameter: 1.0 mm Load: 2 kg, time: 20 sec.	IEC 60384-16 4.3
		扭轉強度 Bending Strength		Wire diameter:0.6&0.8 mm 1.0&1.2 mm 90° x 4 time	
9	耐震性 Vibration Proof		無明顯異常 No abnormality of the appearance	Frequency range 10-55-10-55 Hz Amplitude: 0.75 mm, 2 hrs/direction for 3 directions	IEC 60384-16 4.7
10	焊錫附著性 Solder ability		導線浸入後的表面至少需附著 95% 的新焊錫 At least 95% of the surface of the lead wire dipped into is covered with new solder.	Solder temp: 245°C ±5°C Immersion time: 2±0.5sec. Solder: SnAgCu (Sn:96.5% Ag:3% Cu:0.5%)	IEC 60384-16 4.5
11	耐寒性 Cold Resistance	靜電容量化率 Capacitance Change	△C/C≤±5% Within ±5%	Temperature: -40 ±2°C Duration: 96±4 hrs	IEC 60384-16 4.10.4

TYPE : MPM SPECIFICATION		ELECTRICAL CHARACTERISTICS																		
No	項目 Item	性能 Performance	條件 Test Conditions	參考標準 Reference Standard																
12	焊錫耐熱性 Resistance to Soldering heat	外觀 Appearance	無明顯異常 No abnormality on appearance	Solder temp: 265 ±5°C Immersion time: 10±0.5sec.	IEC 60384-16 4.4															
		耐電壓 Withstand Voltage	依項目3 Comply with item 3																	
		靜電容量變化率 Capacitance Change	$\Delta C/C \leq \pm 3\%$ Within ±3%																	
		散逸因數 Dissipation Factor	於項目7範圍以內 Within spec of item 7 above.																	
		絕緣阻抗 Insulation Resistance	Same as the spec of item 5 above																	
13	耐熱性 Dry Heat Resistance	絕緣阻抗 Insulation Resistance	50% of minimum specified value	Temperature: +110 ±2°C Duration: 96±4 hrs	IEC 60384-16 4.10.2															
		靜電容量變化率 Capacitance Change	$\Delta C/C \leq \pm 5\%$ Within±5%																	
14	溫度循環 Temperature Cycle	外觀 Appearance	無明顯異常 No abnormality on appearance	Total: 5 cycle <table border="1"> <thead> <tr> <th>Step</th> <th>Temp</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40±2°C</td> <td>30 ±1min</td> </tr> <tr> <td>2</td> <td>+25±2°C</td> <td>3min max</td> </tr> <tr> <td>3</td> <td>+110±2°C</td> <td>30 ±1min</td> </tr> <tr> <td>4</td> <td>+25±2°C</td> <td>3min max</td> </tr> </tbody> </table>	Step	Temp	Time	1	-40±2°C	30 ±1min	2	+25±2°C	3min max	3	+110±2°C	30 ±1min	4	+25±2°C	3min max	IEC 60384-16 4.6
		Step	Temp		Time															
		1	-40±2°C		30 ±1min															
		2	+25±2°C		3min max															
3	+110±2°C	30 ±1min																		
4	+25±2°C	3min max																		
耐電壓 Withstand Voltage	依項目3 Comply with item 3																			
絕緣阻抗 Insulation Resistance	50% of minimum specified value																			
散逸因數 Dissipation Factor Change	$\Delta DF \leq 0.3\%$ at 1KHz(20°C)																			
15	穩態濕熱試驗 Damp heat , Steady state	外觀 Appearance	無明顯異常 No abnormality on appearance 印字可辨識 Marking to be legible	Humidity: 90~95% RH Temperature: +40 ±2°C Duration: 56Days +48/-0hrs  Measure after exposing at normal state for 1.5±0.5hrs.	IEC 60384-16 4.11															
		耐電壓 Withstand Voltage	依項目3 Comply with item 3																	
		絕緣阻抗 Insulation Resistance	50% of minimum specified value																	
		靜電容量變化率 Capacitance Change	$\Delta C/C \leq \pm 5\%$ Within ±5%																	
		散逸因數變化量 Dissipation Factor Change	$\Delta DF \leq 0.1\%$ at 1KHz(20°C)																	

TYPE : MPM SPECIFICATION		ELECTRICAL CHARACTERISTICS			
No	項目 Item	性能 Performance	條件 Test Conditions	參考標準 Reference Standard	
16	高溫負荷 Endurance Test	外觀 Appearance	無明顯異常 No abnormality on appearance 印字可辨識 Marking to be legible	Temperature: +85 ±2°C Duration:1,000 +48/-0 hrs  Applied Voltage 125% x V <sub>R</sub> through series resistor of 20~1000Ω /V to the Capacitor  Measure after exposing at normal state for 4 hrs.	IEC 60384-16 4.12
		耐電壓 Withstand Voltage	依項目 3 Comply with item 3		
		絕緣阻抗 Insulation Resistance	50% of minimum specified value		
		靜電容量變化率 Capacitance Change	$\Delta C/C \leq \pm 5\%$ Within ±5%		
		散逸因數變化量 Dissipation Factor Change	$\Delta DF \leq 0.2\%$ at 10KHz(20°C)		
17	充放電 Charging and discharging	靜電容量變化率 Capacitance Change	$\Delta C/C \leq \pm 5\%$ (relative to the initial value)	Times:10 000 Duration of charging:0.5s Duration of discharging : 0.5s Charging voltage: rated voltage Charging resistance:220/CR(Ω) Discharging resistance: R=10/ CR(Ω) or 20(whichever is the greater) CR: rated capacitance (μF)	IEC 60384-16 4.13
		散逸因數變化量 Dissipation Factor Change	Increase of: $\Delta DF \leq 0.5\%$ (1KHZ)		
		絕緣阻抗 Insulation Resistance	IR: $\geq 50\%$ of rated value		
18	高濕/負荷 試驗 Humidity Bias Test	耐電壓 Withstand Voltage	依項目 3 Comply with item 3	Humidity:90~95%RH Temperature:40±2°C Applied Voltage100%×VRDC Duration:1000±24hrs  Through series resistor of 20~1000Ω /V to the Capacitor  Measure after exposing at Normal state for 4 hrs	AEC- Q200
		絕緣阻抗 Insulation Resistance	50% of minimum specified value		
		靜電容量變化率 Capacitance Change	$\Delta C/C \leq \pm 10\%$ Within ±10%		
		散逸因數變化量 Dissipation Factor Change	$\Delta DF \leq 0.5\%$ at 1KHz(20°C)		

電容儲存條件:

溫度: +5 ~ +35°C

濕度:  $\leq 75\%$  RH

電容儲存時間:

依周期計算有效期: 兩年. (超出兩年產品電氣特性需重新選別及檢查產品外觀)