

TYPE : MPN 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	LI ⁺	L2	L3	L4	L5	L6	L7 ⁺	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 ⁺	LE	LF	LG	LH	LJ ⁺	LK	LL	LM	LN	LP	LQ ⁺
	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 ⁺	LU ⁺	LW ⁺	LX	LY ⁺	LZ ⁺	LV	LO ⁺	LT ⁺	VL ⁺	
	Length	3.8	24.0	27.0	40.0	16.0	30.0	32.0	3.2	Axial	22	33	

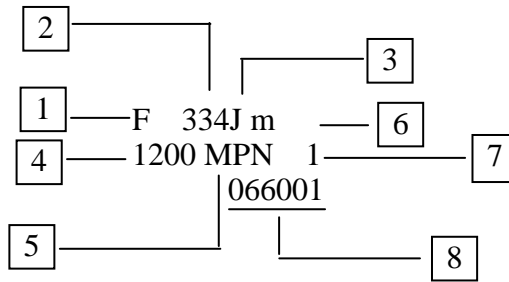
Notes: * Straight, length is minimum

Digit 15-16	Code	Explanation	Code	Explanation	Code	Explanation
	DT	The different size	HX	HF, The different size (T) & The different Wire	HT	HF, The different size (T)
	ZX	The different size (T) & The different Wire	ZY	The different size (H) & The different Wire		
	DH	The different size(H)				

Digit 17-18 Special Number.

TYPE : MPN SPECIFICATION			DIMENSION					
CAP. (μF)	VOLT. (VDC)	TOL. $\pm\%$	DIMENSION unit:mm					SCC P/N
			W	H	T	P	dφ ± 0.05	
0.001	1600	5	18.0	10.0	5.5	15.0	0.8	MPN102J3C*PE**DT04
0.0012	1600	5	18.0	10.0	5.5	15.0	0.8	MPN122J3C*PE**DT04
0.0015	1600	5	18.0	10.5	5.5	15.0	0.8	MPN152J3C*PE**DT04
0.0018	1600	5	18.0	11.0	5.5	15.0	0.8	MPN182J3C*PE**DT04
0.0022	1600	5	18.0	11.0	5.5	15.0	0.8	MPN222J3C*PE**DT04
0.0027	1600	5	18.0	11.0	6.0	15.0	0.8	MPN272J3C*PE**DT05
0.0033	1600	5	18.0	12.0	6.5	15.0	0.8	MPN332J3C*PE**DT07
0.0039	1600	5	18.0	13.0	7.5	15.0	0.8	MPN392J3C*PE**DT09
0.0047	1600	5	18.0	13.0	7.5	15.0	0.8	MPN472J3C*PE**DT09
0.0056	1600	5	18.0	14.5	7.5	15.0	0.8	MPN562J3C*PE**DT09
0.0068	1600	5	18.0	15.0	8.5	15.0	0.8	MPN682J3C*PE**DT12
0.0082	1600	5	26.5	12.5	7.0	22.5	0.8	MPN822J3C*PJ**DT08
0.010	1600	5	26.5	13.0	7.5	22.5	0.8	MPN103J3C*PJ**DT09
0.012	1600	5	26.5	15.0	7.5	22.5	0.8	MPN123J3C*PJ**DT09
0.015	1600	5	26.5	15.5	8.5	22.5	0.8	MPN153J3C*PJ**DT12
0.018	1600	5	26.5	16.0	9.0	22.5	0.8	MPN183J3C*PJ**DT14
0.022	1600	5	26.5	18.0	10.0	22.5	0.8	MPN223J3C*PJ**DT16
0.027	1600	5	26.0	19.0	11.0	22.5	0.8	MPN273J3C*PJ**DT18

Marking

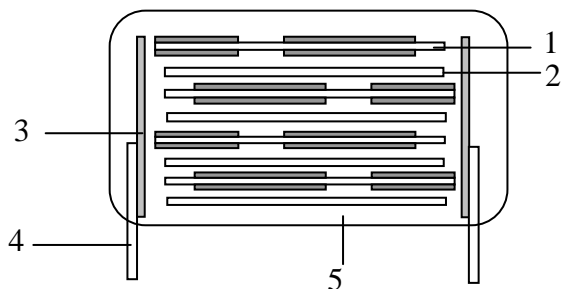


- 1 : Company symbol
- 2 : Capacitance
- 3 : Tolerance
- 4 : Rated voltage
- 5 : Type name
- 6 : Year / Month
- 7 : Week
- 8 : Production batch number (P ≥ 10mm)

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)

TYPE : MPN 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	VR ≤ 100V 50,000 MΩ VR > 100V 100,000 MΩ	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	VR ≤ 100V 15,000 S VR > 100V 30,000 S		
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

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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" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <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 : MPN 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 _R 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)