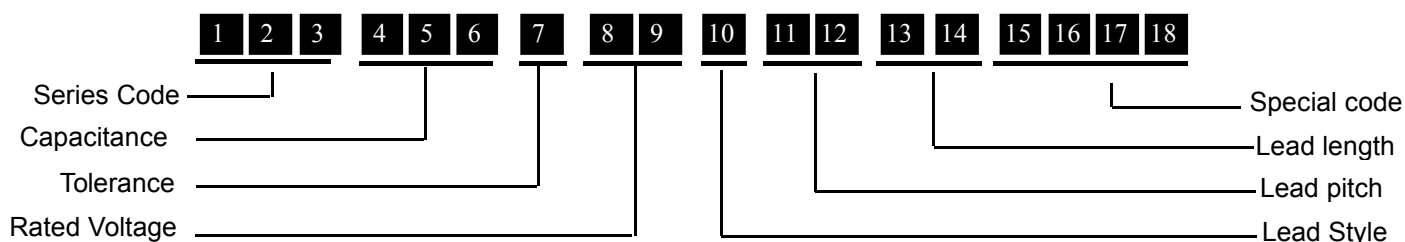


Type : PEN Specification

Part Numbering System

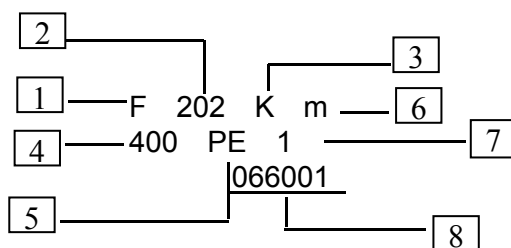


Digit 1~3	Type	PEN												
Digit 4~6	Digit 4~5 indicate the first two figures of the capacitance value and the 6th digit indicate the number of zero added to obtain the rated capacitance in pF. EX.102=1000pF=1nF=0.001μF													
Digit 7	Code		F		G		H		J		K		M	
	Tolerance		±1%		±2%		±3%		±5%		±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*	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	Code	Explanation	Code	Explanation	Code	Explanation
15~16	DT	The different size(T)	DH	The different size(H)	EL	Low noise, The different size(T)
	HH	HF,The different size(H)	HT	HF, The different size(T)		
Digit 17~18	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 ($P \geq 10.0\text{mm}$, $H \geq 13.0\text{mm}$)

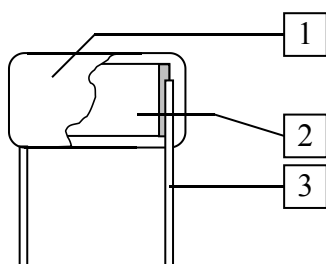
Year	Month	Mark	Year	Month	Mark	Year	Month	Mark	Year	Month	Mark
2017 2021 2025 ...	1	A	2018 2022 2026 ...	1	N	2019 2023 2027 ...	1	a	2020 2024 2028 ...	1	n
	2	B		2	P		2	b		2	p
	3	C		3	Q		3	c		3	q
	4	D		4	R		4	d		4	r
		E		5	S		5	e		5	s
	6	F		6	T		6	f		6	t
	7	G		7	U		7	g		7	u
	8	H		8	V		8	h		8	v
	9	J		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

Cycle every 4 years, rotating back and forth

Code: A: January 2021, January 2025, January 2029...

Code: B: February 2021, February 2025, February 2029...

Construction



1 : Epoxy resin coating

2 : Polyester film/ Aluminium foil

3 : Lead wire

Type : PEN 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℃ ~ + 125℃ (+85℃ to 125℃:decreasing factor1.25%per℃ for VR(DC))			IEC 60384-2 2.1.1 2.2.4
2	額 定 電 壓 Rated Voltage		100VDC,250VDC,400VDC			IEC 60384-2 2.2.3
3	耐電壓 Withstand Voltage	端 子 間 Between Terminals	No abnormality.		Rated voltage x 200% 2 sec Charge and discharge current shall not exceed 10 mA	IEC 60384-2 4.2.1
		端子外裝間 Between Terminals & Enclosure				
4	絕 緣 阻 抗 Insulation Resistance		C≦0.33μF	VR≦100V 3,750MΩ VR >100V 30,000MΩ	Charge time: 60 ±5sec. Charge voltage: VR < 100VDC: 50VDC VR < 500VDC: 100VDC VR ≧ 500VDC: 500VDC Test Temp: 20℃	IEC 60384-2 4.2.4
			C>0.33μF	VR≦100V 1,250 S VR > 100V 10,000 S		
5	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℃	IEC 60384-2 4.2.2
6	散 逸 因 數 Dissipation Factor		0.75 %max at 1KHz		Measure voltage at 1 Vrms Test temp: 20℃	IEC 60384-2 4.2.3
7	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&0.8 mm Load: 1 kg, time: 10 sec. Wire diameter: 1.0&1.2mm Load: 2 kg, time: 20 sec.	IEC 60384-2 4.3
		扭轉強度 Bending Strength			Wire diameter: 0.6&0.8 mm 1.0 &1.2mm 90° x 4 time	
8	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 60384-2 4.7
9	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℃ ±5℃ Immersion time: 2 ±0.5sec. Solder: SnAgCu (Sn:96.5% Ag:3% Cu:0.5%)	IEC 60384-2 4.5
10	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℃ Immersion time: 10±0.5 sec.	IEC 60384-2 4.4
		耐 電 壓 Withstand Voltage	依 項 目 3 Comply with item 3			
		靜電容量變化率 Capacitance Change	Within ±2%			
		散逸因數 Dissipation Factor	1.0 %max at 1KHz			
		絕緣阻抗 Insulation Resistance	Same as the spec of item 4 above			

Type : PEN Specification			Electrical Characteristics																	
No.	項 目 Item		性 能 Performance	條 件 Test Conditions	參考標準 Reference Standard															
11	耐 寒 性 Cold Resistance	靜電容量变化率 Capacitance Change	Within ±5%	Temperature: -40 ±2°C Duration: 96±4 hrs	IEC 60384-2 4.10.4															
12	耐 熱 性 Dry Heat Resistance	絕 緣 阻 抗 Insulation Resistance	50% of minimum specified value	Temperature: +85 ±2°C Duration: 96±4 hrs	IEC 60384-2 4.10.2															
		靜電容量變化率 Capacitance Change	Within ±5%																	
13	溫度循環 Temperature Cycle	外 觀 Appearance	無 明 顯 異 常 No abnormality on appearance	Total: 6 cycle <table><tr><td>Step</td><td>Temp</td><td>Time</td></tr><tr><td>1</td><td>-40 ±2°C</td><td>30 ±1min</td></tr><tr><td>2</td><td>+25 ±2°C</td><td>10~15min</td></tr><tr><td>3</td><td>+85 ±2°C</td><td>30 ±1min</td></tr><tr><td>4</td><td>+25 ±2°C</td><td>10~15min</td></tr></table>	Step	Temp	Time	1	-40 ±2°C	30 ±1min	2	+25 ±2°C	10~15min	3	+85 ±2°C	30 ±1min	4	+25 ±2°C	10~15min	IEC 60384-2 4.6
		Step	Temp		Time															
		1	-40 ±2°C		30 ±1min															
		2	+25 ±2°C		10~15min															
		3	+85 ±2°C		30 ±1min															
4	+25 ±2°C	10~15min																		
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	Within ±5%																			
散 逸 因 數 Dissipation Factor Change	1.0 %max at 1KHz (20°C)																			
14	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: 504 ± 1 hrs Measure after exposing at normal state for 1.5±0.5 hrs.	IEC 60384-2 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	Within ±5%																	
		散逸因數變化量 Dissipation Factor Change	1.0 %max at 1KHz (20°C)																	
15	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 ±3°C Duration: 1,000 +48/-0 hrs Applied voltage 125% x VR through series resistor of 20~1000Ω/V to the Capacitor Measure after exposing at normal state for 4 hrs.	IEC 60384-2 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	Within ±8%																	
		散逸因數變化量 Dissipation Factor Change	1.0 %max at 1KHz (20°C)																	