

 威迪電子(東莞)有限公司		制作日期	2013-10-15	版本	07
文件名稱	PPN Approval Sheet (Polypropylene Film Non-InductiveCapacitor)	文件編號	WD-AP-06	頁次	08/01

1. Scope :

This specification applied to capacitor for type PPN(Polypropylene Film Non-InductiveCapacitor)

2. Temperature

2-1 Rated Temperature : 85°C

2-2 Rated Temperature Range : -40 ~ +105 (+85°C to +105°C decreasing factor 1.25% per °C for VR(DC))

3. Capacitance Range :

0.001uF ~ 0.47 uF

4. Capacitance Tolerance :

±2%(G) 、 ±3%(I) 、 ±5%(J) 、 ±10%(K) 、 ±20%(M)

5. Rated Voltage :

100VDC 、 250VDC 、 400VDC 、 500VDC 、 630VDC 、 1KVDC

6. Winday Part No. :

 1 2 3 4 5 6 7 8 9

 (tape) (Internal use) (capacitance) (tolerance) (rated voltage) (Dc/Ac) (lead forming) (lead pitch) (lead length)

6-1 tape :

Code	SPEI	SMEF	SMEM	SMPP	SPEN	SPPN	SPPS	SMXY	SMEC	SMET
Tape	PEI	MEF	MEM	MPP	PEN	PPN	PPS	X2	MEC	MET

6-2 Internal use

6-3 Capacitance :

Code	102	103	104
Capacitance	0.001uF	0.01uF	0.1uF

6-4 Tolerance :






Code	G	I	J	K	M
Tolerance	±2%	±3%	±5%	±10%	±20%

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6-5 Rated Voltage : Showing the real working voltage indicated. For example : 0630 -> 630V, 1000 -> 1KV ◦

6-6 D→DC ; A→AC

6-7 Lead forming :

Code	B	K	R	U	W	T	S
Lead Forming						TAPING	Customer Special Require

6-8 Lead Pitch : Showing the capacitor lead pitch, For example :


Code	10	15	20	28
Pitch(mm)	10mm	15mm	20mm	27.5mm

6-9 Lead length : Showing the capacitor lead Length, For example :


Code	04	08	10	13	23	30	40
Length(mm)	4mm	8mm	10mm	13mm	23mm	30mm	40mm

7. Specifications (IEC 60384-13)

No	Test items	Performance	Test Method
7-1	Withstand voltage (Between Terminals)	Shall be no abnormality	150% Of Rated Voltage, 60sec.
	Between terminal and Enclosure	Shall be no abnormality	UR×200%+1000VDC, 60sec.

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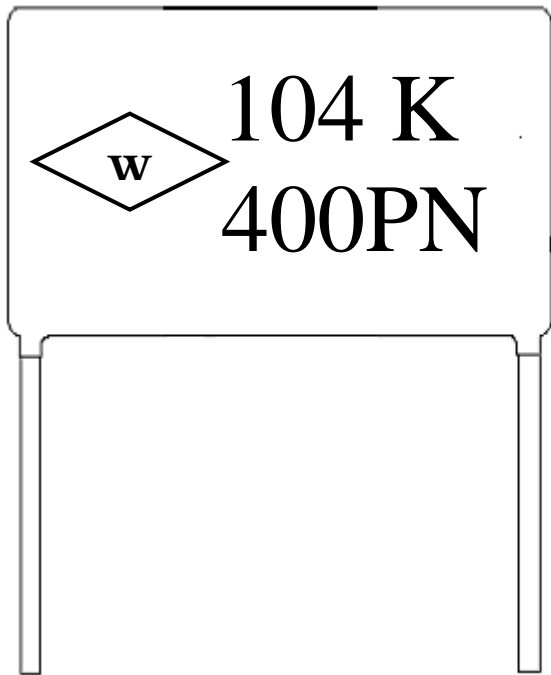
No	Test items	Performance	Test Method
7-2	Insulation resistance (Between Terminals)	$C_R \leq 0.33\mu F$ $IR \geq 50,000M\Omega$ $C_R > 0.33\mu F$ $IR \geq 5,000 M\Omega \div C(\mu F)$	Measured at $100 \pm 15VDC$, For 60sec / $25^\circ C$
7-3	Capacitance	Within the tolerance specified	1KHz, 1Vrms Max. at $25^\circ C$
7-4	Dissipation Factor	0.001 (0.1%) Max.	1KHz, 1Vrms Max. at $25^\circ C$
7-5	Tense Strength of Terminal	No wire breakage and No Damage of Capacitor	1. Load Force : 1.0 Kg 2. Holding Time : 10 ± 1 sec
7-6	Bending Strength of Terminal	No wire breakage and No Damage of Capacitor	1. Load Force : 0.5 Kg 2. Bending Time : $4 \times 90^\circ$ in 5sec
7-7	Solder-ability	1. Appearance : No Visible Damage 2. Covering an area of $>$ solder 95%	Soldering Peocess 1.Capacitor preheating temperature of $T < 120^\circ C$ 2.Preheating time capacitor $t < 5$ min Single wave soldering 1.Solder temperature: $270 \pm 5^\circ C$ 2.Solder time: 2 ± 0.5 sec
7-8	Heat Shock test	(1) Appearance : No Visible Damage (2) Withstand Voltage : Normal (3) Capacitance Change : $\leq \pm 3\%$ of The Initial Value	The terminal of capacitor shall be immersed in the melting solder. a. Solder temperature: $270 \pm 5^\circ C$ b. Solder time: 3 ± 0.5 sec c. Test Voltage: 100% of The Rate Voltage For 1min.


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No	Test items	Performance	Test Method
7-9	Cold Resistance	(1) Appearance : No Visible Damage (2) Capacitance Change : $\leq 0\sim -10\%$ of The Initial Value	a. Test Temperature: -40°C b. Test Times: 2Hrs
7-10	Dry Heat Resistance	(1) Appearance : No Visible Damage (2) Withstand Voltage : Normal (3) Capacitance Change : $\leq +5\sim -2\%$ Of The Initial Value	a. TEST TEMPERATURE: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ b. Test Times: 2Hrs
7-11	Humidity Resistance	(1) Appearance : No Visible Damage (2) Withstand Voltage : Normal (3) Capacitance Change : $\leq \pm 10\%$ of The Initial Value (4) Insulation Resistance: $\geq 50\%$ of the rated value (5) DF ($\tan\delta$) ≤ 0.001	a. TEST TEMPERATURE: $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ b. RELATIVE HUMIDITY: $90 \sim 95\%$ c. Test Times: 240 ± 8 HRS d. TEST VOLTAGE: 125% of The Rated Voltage for 1 min.
7-12	Heat Resistance (Charge & Discharge)	(1) Appearance : No Visible Damage (2) DF ($\tan\delta$) ≤ 0.001 (3) Capacitance Change : $\pm 10\%$ of The Initial Value (4) Insulation Resistance: $\geq 50\%$ of the rated value	a. Test Voltage : Rated Voltage Charge for 2sec. Discharge for 2 sec. Repeated For 1000 ± 100 cycles b. Test Temperature: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$
7-13	Heat Resistance (Continuous)	(1) Appearance : No Visible Damage (2) DF ($\tan\delta$) ≤ 0.001 (3) Capacitance Change : $\pm 10\%$ of The Initial Value (4) Insulation Resistance: $\geq 50\%$ of the rated value	a. Test Temperature: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ b. Test Times: 500 ± 24 Hrs c. For 2 hours after voltage test d. TEST VOLTAGE: 125% of The Rated Voltage for 1 min.

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9. Marking Example :



	WINDAY CO. LOGO
1 0 4	CAPACITANCE
K	CAPACITANCE TOLERANCE
400	RATED DC VOLTAGE
PN	Pol ypropylene Film

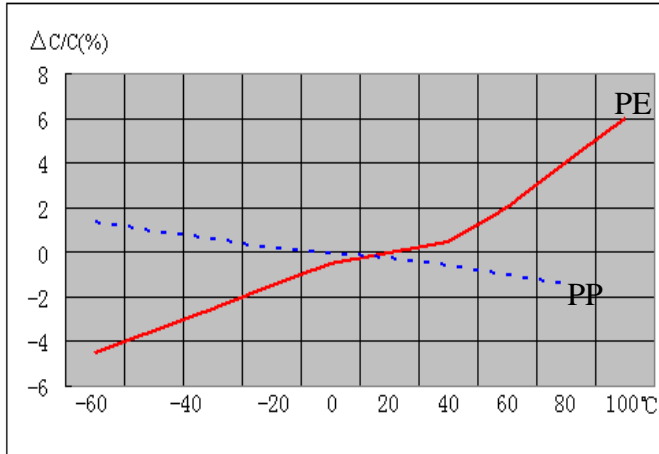
10.Storage conditions and duration

Packaged capacitors should be kept in clean, ventilated, dry coffers, not near the heat source, not subject to direct sunlight, is strictly prohibited and chemical reagents, acid and harmful gas storage together.

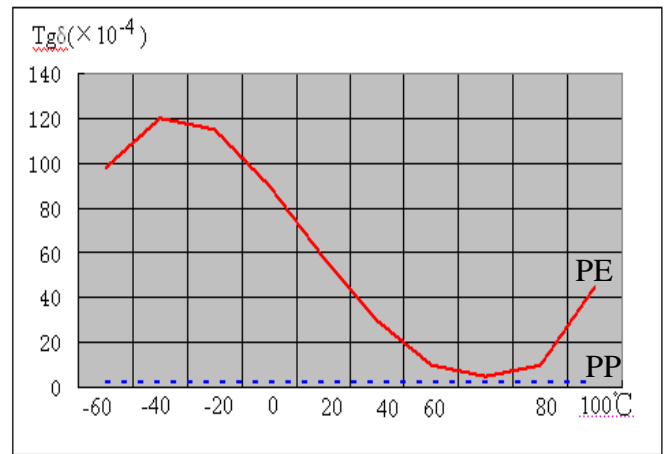
Capacitor at a temperature within the range 20 ~ 25 °C, humidity less than 50% of the state of storage for one year.



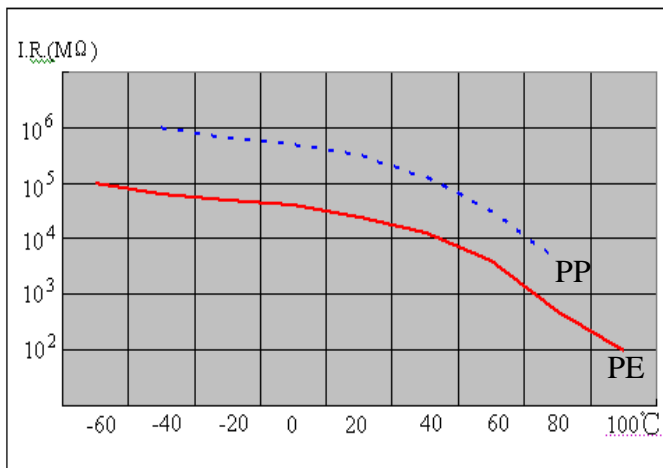
11. Characteristic curve



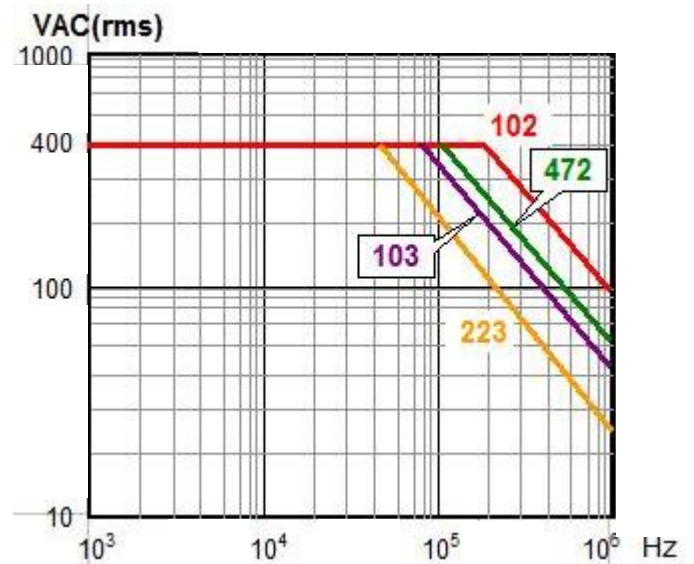
Capacitance vs. temperature at 1kHz




Dissipation factor vs. temperature at 1kHz



I.R. vs. temperature



Voltage and frequency

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12、 Sample Test Record:

CUSTOMER	WD	P/N			Part name			QUAN TITY		
	TDI	P/N			Description					
SMPLING	MILSTD-1916DOL-UOS-OFULL INSP				VL 允收水準			N /	A /	R
PLAN					Electricity:IV			/	/	
					Apperance: IV			/	/	
Sample no	Sepc limit	One	Two	Three	Four	Five	Six	Seven	Eight	
Capacitance value	()-()NF									
Dissipatancefactor	≤ ()%									
Voltage Proof	()VDC For60Sec									
Insulation resistance	≥ ()MΩ (100VDC, 60Sec)									
Width	<()mm									
Height	<()mm									
Thickness	<()mm									
Lead Pitch	()mm(±0.5mm)									
Lead Size	()mm(±1mm)									
LeadDiameter	()mm(±0.05mm)									
Test instrument	1V	Solder heat resitance					Soider temperature	270±5°C		
							Dipping time	2±0.5Second		
Test Firequency	1KHz						Dipping depth	>95%		
							result	<input type="checkbox"/> OK <input type="checkbox"/> NG		
Result	<input type="checkbox"/> ROHS <input type="checkbox"/> ACCEPT <input type="checkbox"/> REJECT									
Remark										
Examin				Teste						