

规格承认书

Specification For Approval

客户名称:

(Customer Name)

产品名称:

(Product Name)

客户料号:

(Customer part

科尼盛料号:

(KNSCHA number)

型号规格:

(Specifications)

日期:

DATE

金属化聚丙烯膜抗干扰电容器

Metallized polypropylene film interference resistant capacitor

MPX104K31B5KN20600

X2 104K310VAC P=7.5mm

2025.11.14

制 造 Manufacture	
核 准 APPROVAL	制 作 PREPARED
刘军军	张优美

客户承认栏 CUSTOMER APPROVED		
核 准 APPROVED	确 认 CHECKED	经 办 DESIGNED

广东科尼盛电子科技有限公司

KNSCHA ELECTRONICS CO., LIMITED.

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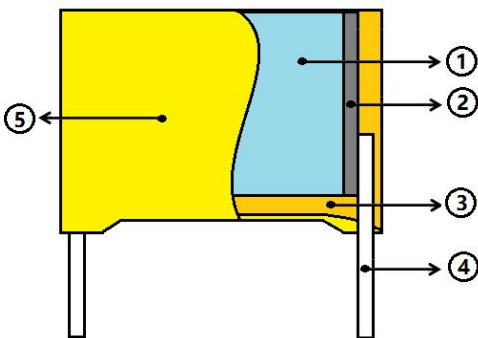
Dongkeng Town, Dongguan City, Guangdong Province

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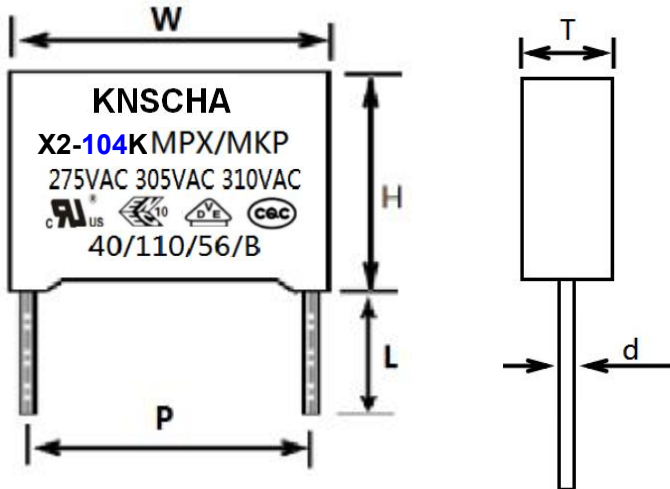
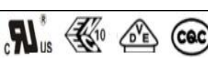
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X2 Metallized polypropylene film anti-interference capacitors

Graphical	illustration
	① Capacitor core ② Metal spraying tin-zinc alloy ③ High Temp wax ④ CP Wire ⑤ PBT Plastic case

■Outline style

Graphical						Printing mark	illustration		
						KNSCHA	Brand		
						MPX/MKP X2	Product type		
						104	Capacity Spec		
						K	Cap tolerance value		
						275/305/310VAC	Rated voltage		
							Product certification mark		
						40/110/56	Climate category		
						B	Flame resistance class		
N O	Specification	Cap (μ F)	W ± 0.5	H ± 0.5	T ± 0.5	P ± 0.5	d ± 0.05	L ± 0.5	Remark
1	104K310VAC	0.1	10	12	6	7.5	0.6	20	

Size: Unit mm

■Feature:

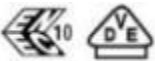
- Can withstand over pressure impact
- Excellent temperature characteristic ability
- Excellent self-healing ability
- Good moisture proof performance
- Excellent flame resistance ability

X2 Metallized polypropylene film anti-interference capacitors

■Main application:

- Widely used in power supply crossover and other anti-interference products.

■Safety certification:

	UL/CUL (USA/Canada)	UL 60384-14 CSA E60384-14:09 Certification No.: E477850
	ENEC- VDE(EU-Germany)	DIN EN IEC 60384-14 (VDE 0565-1-1):2024-10; EN IEC 60384-14:2023 IEC 60384-14:2023 Certification No.: 40045532
	CQC(China)	GB/T6346.14-2023 Certification No.: CQC17001162416
	KC(Republic of Korea)	KC60384-1(2015-09), KC60384-14(2015-09) Certification No.: SU03110-18001/2/3/4/5

■Technical specification:

Capacitor series	X2	
Climate category	40/110/56	
Flame resistance class	B	
Operating temp range	-40℃ ~ +110℃	
Rated voltage	275Vac、305Vac、310Vac	
Cap range	0.001μF~4.7μF	
Cap tolerance	±10% (K)	
Withstand voltage	4.3UR (VDC) / (60S)	
DF Value	≤ 0.1% (1KHz , 20℃)	
Insulation resistance	≥15000MΩ; CR ≤ 0.33μF ≥ 5000S; CR > 0.33μF	20℃, 100V, 60S

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■ .Feature test:

NO	Item	Performance requirement	Test Method
1	Initial test	Capacitance DF: 1KHz	
	Out end leading intensity	there is no damage in outline	tension test Ual: tension: $0.5 < \phi d \leq 0.8\text{mm}$; 10N bending test Ub: Twice in every direction:two consecutive turn 180degree
	Welding heat resistant	There is no damage in outline , clear remark	Solder Tb , method 1A $260 \pm 5^{\circ}\text{C}$, $5 \pm 1\text{S}$
	Final test	Capacitance: $\Delta C/C \leq \text{initial test value} \pm 5\%$ DF value: DF increase ≤ 0.01 (1KHz)	
2	Initial test	Capacitance DF Value: 1KHZ	
	Fast temp range	there is no damage in outline	$0A = -40^{\circ}\text{C}$, $0 = +105^{\circ}\text{C}$ 5 times cycles , time of duration: $t=30\text{min}$
	Shake	there is no damage in outline	Amplitude 0.75mm or accelerated speed 98m/s^2 , frequency $10 \sim 500\text{Hz}$ three direction , every direction 2h, total:6h
	Crash	there is no damage in outline	4000 times , accelerated speed 390m/s^2 , impulse continue time: 6ms
	Final test	Capacitance: $\Delta C/C \leq \text{initial test value} \pm 5\%$ DF Value: DF increase ≤ 0.01 IR: $\geq \text{rated value} 50\%$	
3	Initial test	Capacitance DF Value: 1KHz	
	Heat dry		$+110^{\circ}\text{C}$, 16h
	Cyclic damp heat		Test Db,Severity 7 b , primary circulation
	Cold		-40°C , 2h
	Low air pressure	In the last 5 minutes of the test,UR is not permanent breakdown	$15 \sim 35^{\circ}\text{C}$, 8.5Kpa , 1h
	Cyclic damp heat	After the experiment is over,apply the UR 1 minute.	Test Db,severity b , other circulation

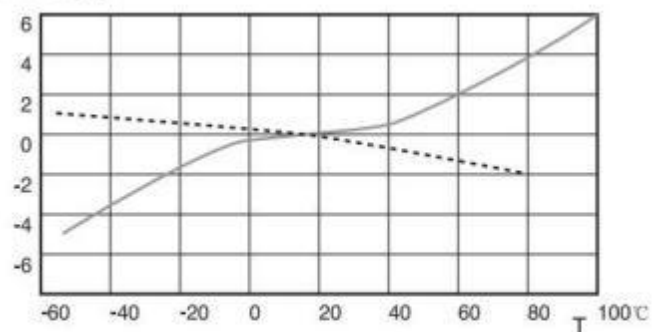
X2 Metallized polypropylene film anti-interference capacitors

■Capacitor feature diagram:

NO	Item	Performance requirement	test method
3	Final test	There is no damage in outline,clear mark Capacitance: $\Delta C/C \leq \text{initial test value} \pm 5\%$ DF Value(1KHz): DF increase ≤ 0.008 Withstand voltage: 4.3URDC,60S no breakdown IR: $\geq \text{Rated value } 50\%$	
4	Stable damp heat	There is no damage in outline,clear mark Capacitance: $\Delta C/C \leq \text{initial test value} \pm 5\%$ DF Value(1KHz): DF increase ≤ 0.008 Withstand voltage: 4.3URDC,60S no breakdown IR: $\geq \text{Rated value } 50\%$	Temp: $40 \pm 2^\circ\text{C}$ humidity: $93 \pm 2\% \text{RH}$ Duration time: 56 days
5	durability	There is no damage in outline,clear mark Cap: $\Delta C/C \leq \text{Initial value} \pm 10\%$ DF(1KHz): DF Increase ≤ 0.008 Withstand voltage: 4.3URDC,60S no breakdown IR: $\geq \text{Rated value } 50\%$	$+110^\circ\text{C}$, 1000h Applied voltage: 1.25UR rated voltage The voltage is raised to 1000v per 1h, and the duration is 0.1s
6	Charge and discharge	Cap: $\Delta C/C \leq \text{initial test value} \pm 10\%$ DF Value (1KHz) : DF increase ≤ 0.01 IR: $\geq \text{Rated value } 50\%$	Time: 10000times Durable charge time: 0.5S Durable discharge time: 0.5S Charge voltage is the rated voltage Charge resistance: $220/\text{CR} (\Omega)$ or 20Ω (the bigger one) CR is the mark of capacitance (μF)
7	Flame resistant test	After leaving the flame,any capacitor will continue to burn for no more than 10s and the dripping of the capacitor should not be ignited in the laid cotton paper	IEC695-2-2 needle flame method Flame resistance class: B Capacitor volume: $V (\text{mm}^3) \leq 250$, Applied flame time is 5S Capacitor volume: $250 < V (\text{mm}^3) \leq 500$, Applied flame time is 20s Capacitor volume: $500 < V (\text{mm}^3) \leq 1750$, Applied flame time is 30s Capacitor volume: $V (\text{mm}^3) > 1750$, Applied flame time is 60s

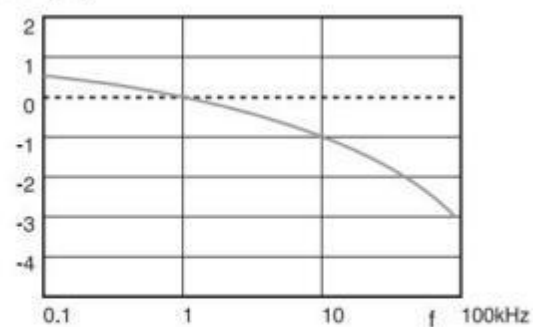
X2 Metallized polypropylene film anti-interference capacitors

$\Delta C/C$ (%)



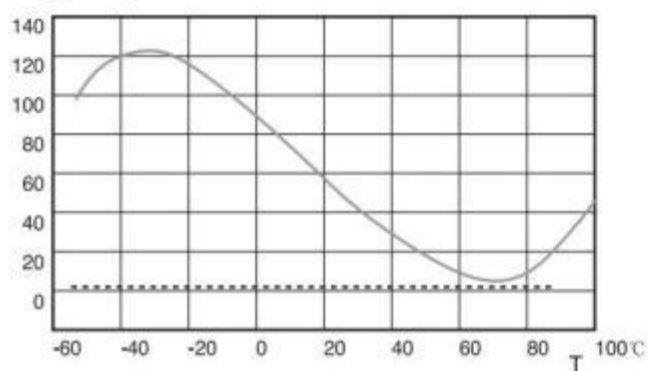
Capacitance vs. temperature at 1kHz

$\Delta C/C$ (%)



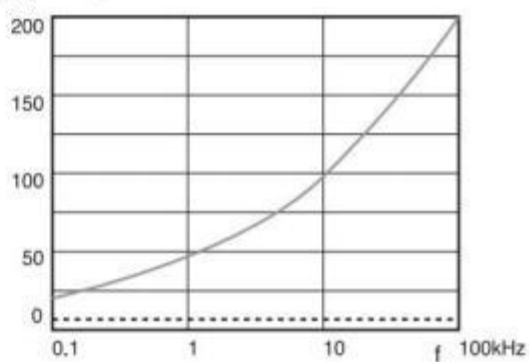
Capacitance vs. frequency (Room temperature)

$\text{tg}\delta$ ($\times 10^{-4}$)



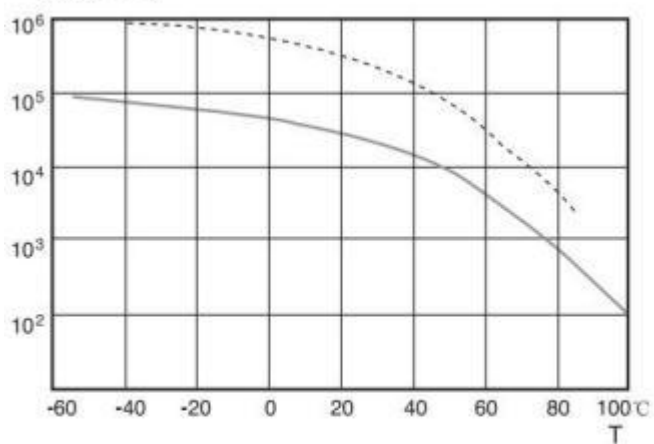
Dissipation factor vs. temperature at 1kHz

$\text{tg}\delta$ ($\times 10^{-4}$)



Dissipation factor vs. frequency (Room temperature)

I.R. ($M\Omega$)



I.R. vs. temperature

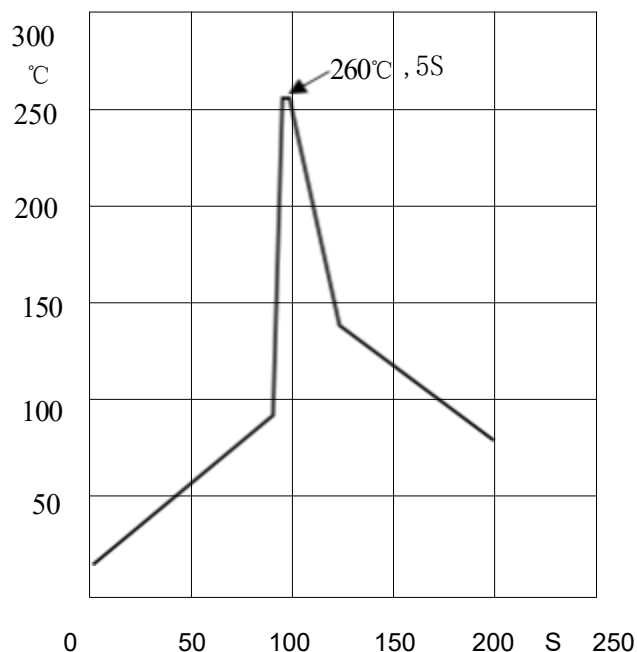
聚丙烯薄膜 (Polypropylene Film)

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聚酯薄膜 (Polyester Film)

X2 Metallized polypropylene film anti-interference capacitors

1.welding conditions:



	temperature	time	Remarks
preheat	110°C	60S	
	100°C	60S	OPP ≤ 7.5
preheating welding	270°C	5S	
	260°C	5S	OPP ≤ 7.5

The temperature of the metallized polypropylene film capacitor product body does not exceed 120°C/60S

The temperature of the metallized polyester film capacitor product body does not exceed 140°C/60S

2.Soldering method with soldering iron:

Soldering iron tip temperature (max)	350°C
welding time	2-3S

Attention: If a second welding is required, it must be done after the capacitor has returned to room temperature.