

APPROVAL SHEET

CUSTOMER: MEGASAN


PART NAME: EMI Suppression Capacitor Class X2 –SMXV

PART NO: SMXVG105KE5XXAB2315 · SMXVG104KD1XXAT1520
SMXVG334KD4XXAB1506

TYPE: MPX

ISSUED NO: SMXV (310Vac)

DATE: Apr 29, 2021

APPROVAL STAMP	
VENDER	CUSTOMER
 RoHS COMPLIANT	



威迪電子(東莞)有限公司

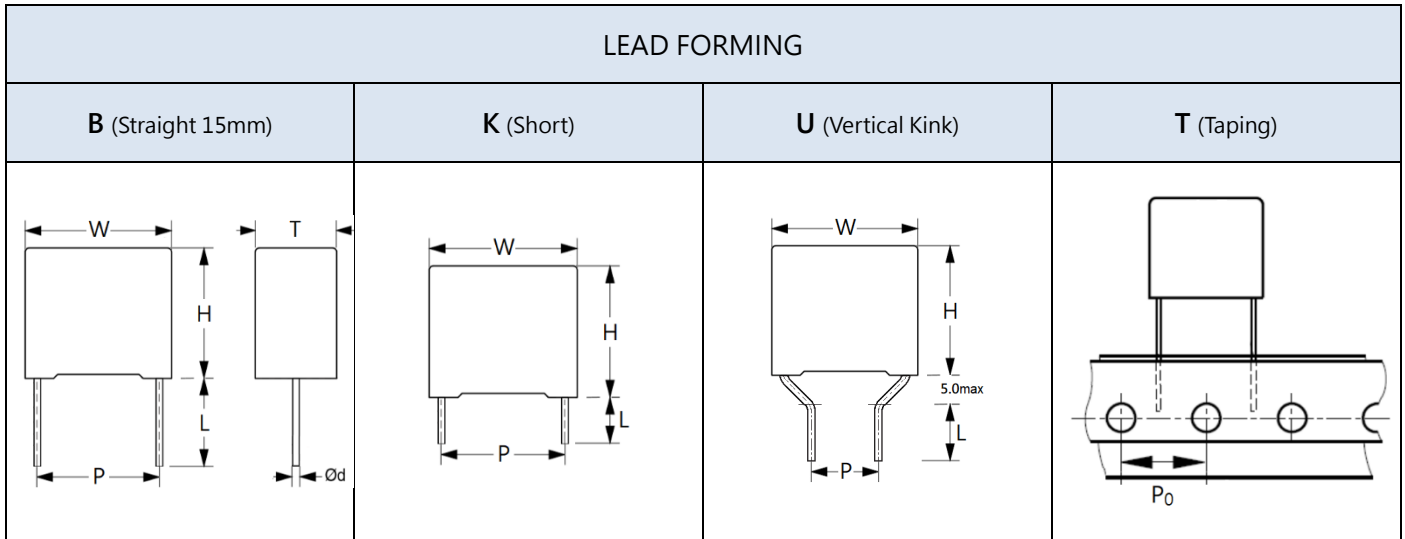
廣東省東莞市寮步鎮新舊圍管理區

WINDAY ELECTRONIC (DONGGUAN) CO., LTD

TEL : 0769-83268071 FAX : 0769-83268070

SMXV-AC310V series

■ Dimension :

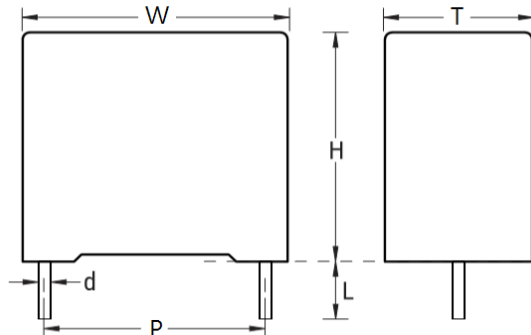


Unit: mm

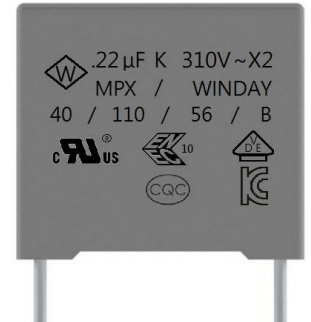
Customer Item No.	Description	Lead Forming	DIMENSION					
			$W_{\pm 0.5}$	$H_{\pm 0.5}$	$T_{\pm 0.5}$	$P_{\pm 0.5}$	$\phi d_{\pm 0.05}$	$L_{\pm 0.5}$
/	105K310Vac	B	26	20	11	22.5	0.8	15
/	104K310Vac	T	18	11	5	15	0.8	20
/	334K310Vac	B	18	14.5	8.4	15	0.8	6

SMXV-AC310V series

■ Outline Drawing



Rated Voltage 310Vac



■ Typical Applications

Widely used in high frequency, DC, AC and pulse circuits •

For across the line X2 applications

■ Features

Withstanding overvoltage stressing
Excellent passive flame resistant abilities

■ Construction

Dielectric: Metallized Polypropylene film

Electrodes: Metal vapor coating (Zn-Al synthetic)

Case: Flame-retardant PBT (UL94 V-0)

Epoxy Resin coating (UL 94 V-0)

Lead: Tinned copper clad steel wire

■ Safety Approvals

UL	UL60384-14	
ENEC(VDE)	IEC 60384-14:2013/AMD1:2016	
KC	K60384-14	
CQC	GB/T 6346. 14-2015	

■ Specifications

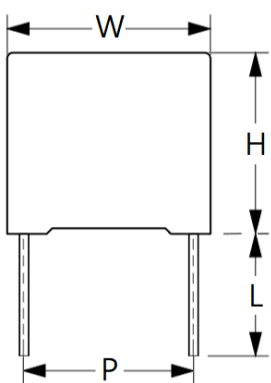
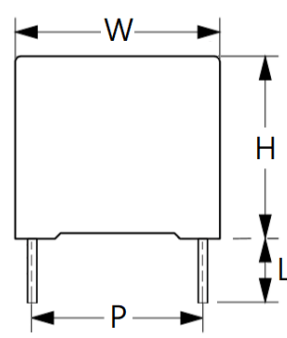
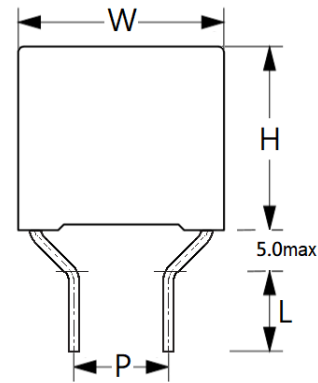
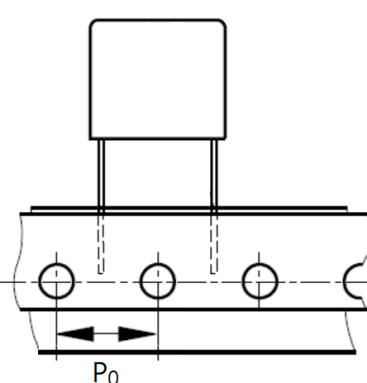
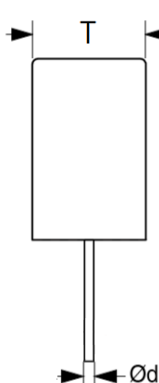
容量範圍 Capacitance Range	0.001µF (102) ~ 4.7µF (475)	
容量誤差 Capacitance Tolerance	±10% (K)	
額定電壓 Rated Voltage - 50/60Hz	310Vac	
氣候類別 Climatic Category / Passive Flammability Class	40/110/56/B	
工作溫度 Operating Temperature Range	-40°C~110°C	
耐電壓 Voltage Proof	Between Terminals	4.3U _R (Vdc), 60s
	Between Terminal and Enclosure	U _R ×200%+1500Vac, 60sec.
絕緣電阻 Insulation Resistance	C _R ≤ 0.33µF IR ≥ 15,000MΩ	
	C _R > 0.33µF IR ≥ 5,000s (20°C, 100V, 1min)	
損耗因素 Dissipation Factor	0.1% Max, at 1KHz and 25°C	

SMXV-AC310V series

■ Product code system

SMXV	G	104	K	D2X5	A	B	15	15
Type	Internal use	Capacitance	Tolerance	Case code	Voltage	Lead forming	Lead Pitch	Lead Length
SMXV= X2 310Vac	--	104 =100000pF =100nF =0.1μF	K=±10%	D2X5=18*12*6 D3XX=18*13.5*7.5 E4XX=26.5*19*10 F3XX=31*25*14	A=AC	Shown as Table I	08=7.5mm 10=10mm 15=15mm 23=22.5mm 28=27.5mm	04=3.5mm 15=15mm 20=20mm

■ Table I

Code	B (Straight 15mm)	K (Short)	U (Vertical Kink)
Lead Forming			
Code	T (Taping)	--	--
Lead Forming			--

SMXV-AC310V series

■ Specifications (IEC 60384-14)

Test items	Performance requirements	Conditions of test
Capacitance	Within the tolerance specified	1KHz, 1Vrms Max. at 25°C
Dissipation Factor	0.001 (0.1%) Max.	1KHz, 1Vrms Max. at 25°C
Voltage proof	Shall be no abnormality	Between terminals 4.3U _R (Vdc) Test of 60sec.
		Between terminal and enclosure U _R ×200%+1500Vac, 60sec.
Insulation resistance	C _R ≤ 0.33μF IR ≥ 15,000MΩ C _R > 0.33μF IR ≥ 5,000s	100±15Vdc, 60sec / 20°C
Robustness of terminations	No wire breakage and no damage of capacitor	Tense Strength of Terminal Load Force: 1.0 Kg Holding Time: 10 ± 1sec
		Bending Strength of Terminal Load Force: 0.5 Kg Bending Time : 4 x 90 °
Resistance to soldering heat	(1) Appearance: No visible damage (2) ΔC/C : ≤ ±5% of the initial value	Solder temperature: 260±5°C Solder time: 5±0.5sec
Solderability	95% of the surface tinning	Solder temperature: 260±5°C Solder time: 2±0.5sec
Rapid change of temperature	The capacitors shall be visually examined and there shall be no visible damage.	Lower category temperature: -40°C Upper category temperature: 110°C Number of cycles: 5 Duration t1 = 30 min
Vibration	The capacitors shall be visually examined and there shall be no visible damage	Frequency range: 10~55Hz Course: X、Y、Z (axis) 2h / axis (6h in total) Displacement amplitude: 0.75mm

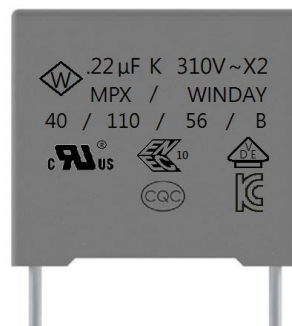
SMXV-AC310V series

■ Specifications (IEC 60384-14)

Test items	Performance requirements	Conditions of test
Climatic sequence	(1) Appearance: No visible damage (2) $\Delta C/C : \leq \pm 5\%$ of the initial value (3) DF (tan δ): ≤ 0.008 of increased value (4) IR: $\geq 50\%$ of the applicable limits (5) Voltage proof: Normal	Dry Heat Upper Temperature: 110°C Lower Duration: 16Hrs
		Cold Temperature: -40°C Duration: 2Hrs
Damp Heat Steady State	(1) Appearance: No visible damage (2) $\Delta C/C : \leq \pm 5\%$ of the Initial value (3) DF (tan δ): ≤ 0.008 of increased value (4) IR: $\geq 50\%$ of the applicable limits (5) Voltage proof: Normal	+40°C and 93% RH, 56 days
Charge and discharge	(1) Appearance: No visible damage (2) $\Delta C/C : \leq \pm 10\%$ of the initial value (3) DF (tan δ): ≤ 0.008 of increased value (4) IR: $\geq 50\%$ of the applicable limits	Test voltage : $\sqrt{2} \times U_R$ VAC 50 Hz Charge and discharge: 0.5sec/time Repeated for 10000 cycles
Endurance	(1) Appearance: No Visible Damage (2) $\Delta C/C : \leq \pm 10\%$ of the initial value (3) DF (tan δ): ≤ 0.008 of increased value (4) IR: $\geq 50\%$ of the applicable limits	1.25 x U_R VAC 50 Hz, once every hour increase to 1,000VAC for 0.1 second, 1,000 hours at upper rated temperature



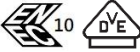


■ Mark (Example)

SMXV For 310Vac



1. Capacitance : .22 μ F indicates 0.22 μ F or 220nF	2. Capacitors Tolerance : K= $\pm 10\%$
3. Rated Voltage : 250Vac/275Vac and 310Vac	4. Capacitors class, such as X2
5. Type of the capacitors MPX	6. Trademark WINDAY indicating
7. Climatic Category : 40/100/21 and 40/110/56	8. Recognized approval mark

APPROVAL SHEETS FOR SAFETY STANDARD OF TYPE MPX-X2

Approval marks	Standards	Certificate	Climatic Category	Rated Cap.	Rated Voltage
	UL 60384-14	E302125	40/100/21/B	0.001 ~ 4.7μF	275Vac
			40/110/56/B		310Vac
	EN60384-14:09	E302125	40/100/21/B	0.001 ~ 4.7μF	275Vac
			40/110/56/B		310Vac
	IEC 60384-14:2013	40030283	40/100/21/B	0.001 ~ 4.7μF	275Vac
			40/110/56/B		310Vac
	GB/T6346.14-2015	CQC13001096493	40/100/21/B	0.001 ~ 4.7μF	275Vac
			40/110/56/B		310Vac
	KC60384-14	SU03034-12001C SU03034-12002C	40/100/21/C	0.001 ~ 4.7μF	275Vac
		SU03034-12003D SU03034-12004D SU03034-17001A	40/110/56/B		310Vac

SMXV-AC310V series

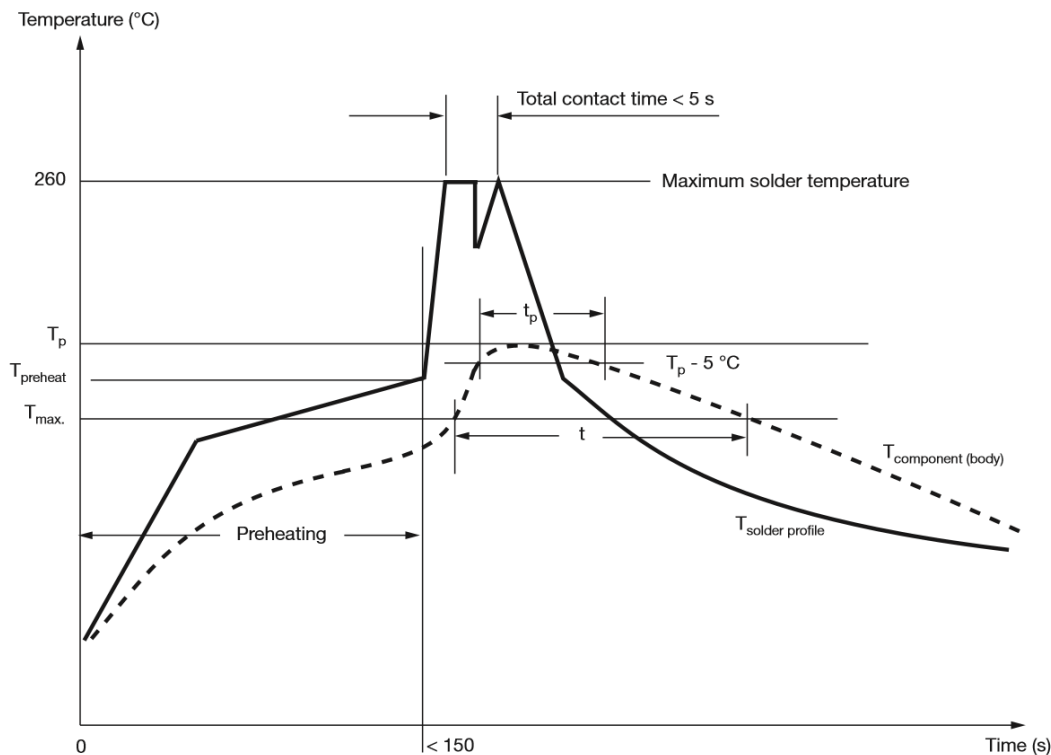
■ Soldering Guidelines for Film Capacitors

WDC recommends that users observe the following guidelines for soldering our film capacitors. Adherence to these recommendations will help to safeguard product specifications and reliability while preventing damage to the capacitors during soldering.

SOLDERING GUIDELINES AND RECOMMENDED WAVE SOLDERING PROFILE

With regard to the resistance to soldering heat and the solderability, our products comply with “IEC 60384-1” and the additional type specifications. The recommended wave soldering profile for our leaded components is defined as follows:

■ Wave Soldering Recommendations



T_p : Peak temperature of the component body (top)

T_{max} : Maximum application temperature of the component

The PSL (Process Sensitivity Level) is classified according JEDEC standard J-STD-075 “Classification of Non-IC Electronic Components for Assembly Processes” and summarized in following tables per product family and pitch size of the component:

SERIES	PRODUCT PITCH SIZE							
	5 mm	7.5 mm	10 mm	15 mm	22.5 mm	27.5 mm	31.5 mm	37.5 mm
X2	--	(3),(5)	(2),(5)	(1),(6)	(1),(6)	(1),(6)	(1),(6)	(1),(6)

(1) No risk

During soldering: $T_p \leq 110\text{ }^\circ\text{C}$, $t_p \leq 20\text{ s}$, $t \leq 30\text{ s}$

(2) Risk for parameter change if PSL is not strictly followed

(5) Temperature is measured at the body top and must be kept as follows:

(3) Risk for product damage if PSL is not strictly followed

During preheating: $T_{max} \leq 110\text{ }^\circ\text{C}$

(4) Temperature is measured at the body top and must be kept as follows:

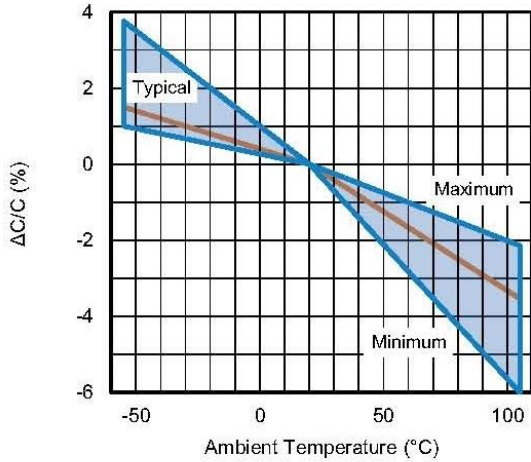
During soldering: $T_p \leq 120\text{ }^\circ\text{C}$, $t_p \leq 20\text{ s}$, $t \leq 30\text{ s}$

During preheating: $T_{max} \leq 100\text{ }^\circ\text{C}$

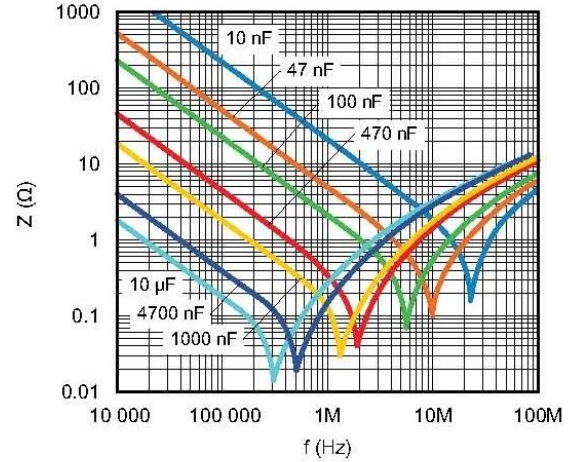
(6) The component has a preheat limitation of 150 °C

SMXV-AC310V series

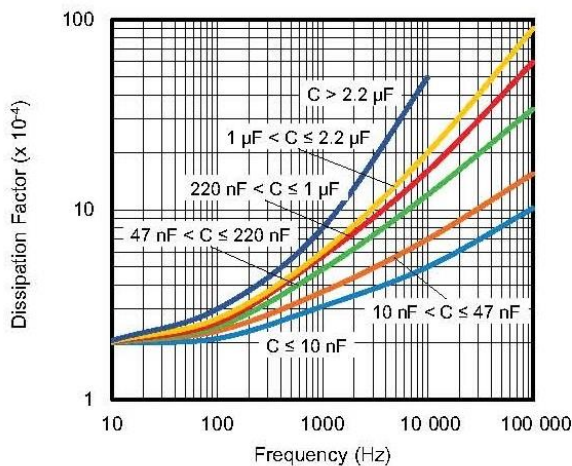
■ Characteristics



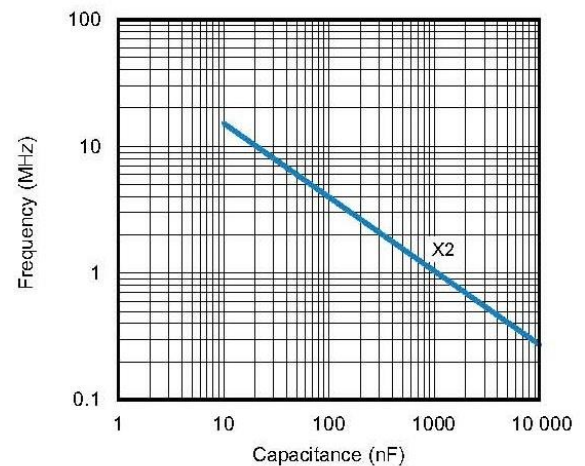
Capacitance as a function of ambient temperature (typical curve)



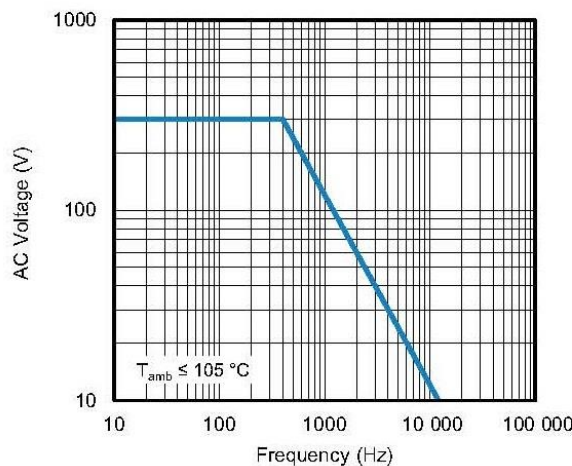
Impedance as a function of frequency (typical curve)



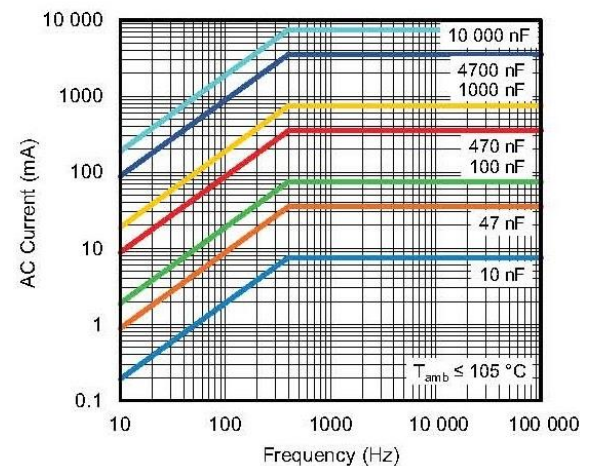
Tangent of loss angle as a function of frequency (typical curve)



Resonant frequency as a function of capacitance (typical curve)



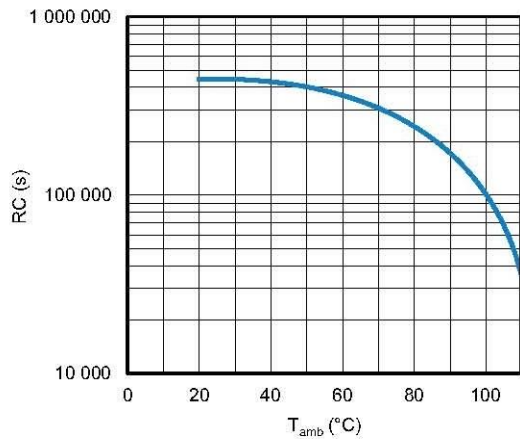
Max. RMS voltage as a function of frequency



Max. RMS current as a function of frequency

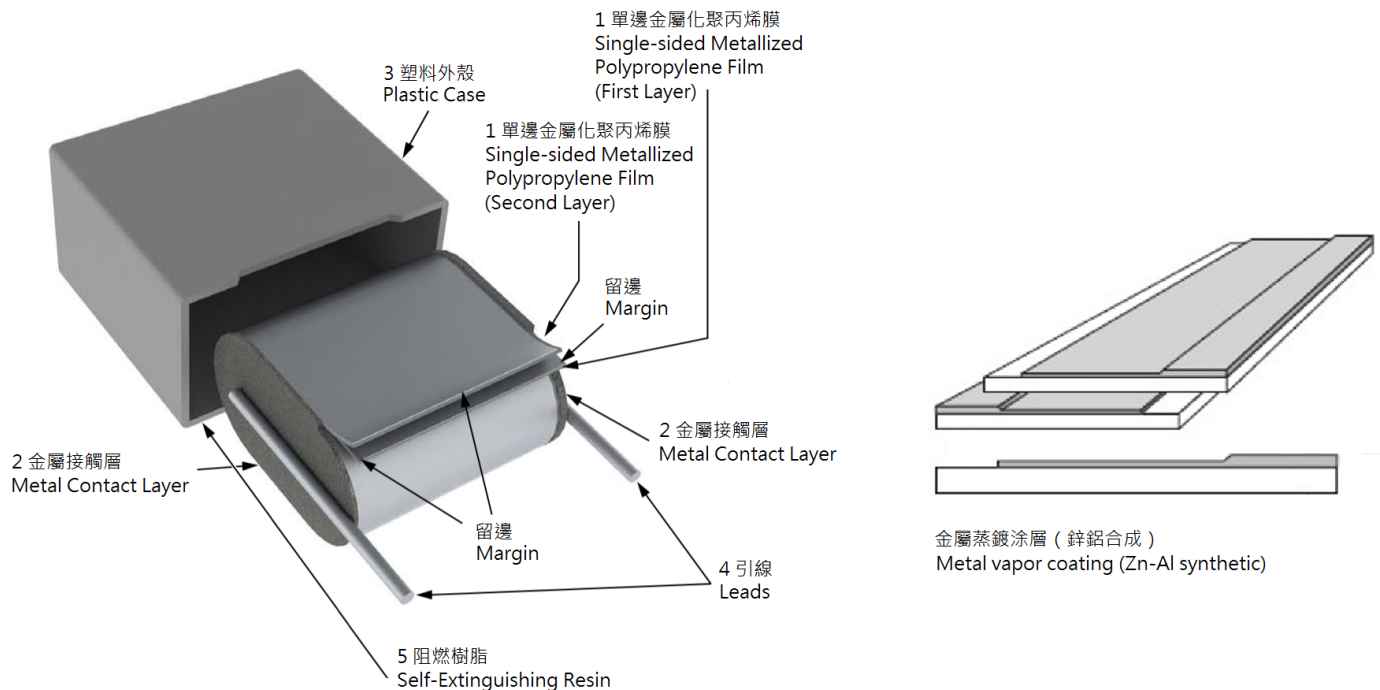
SMXV-AC310V series

■ Characteristics



Insulation resistance as a function of ambient temperature

■ Construction



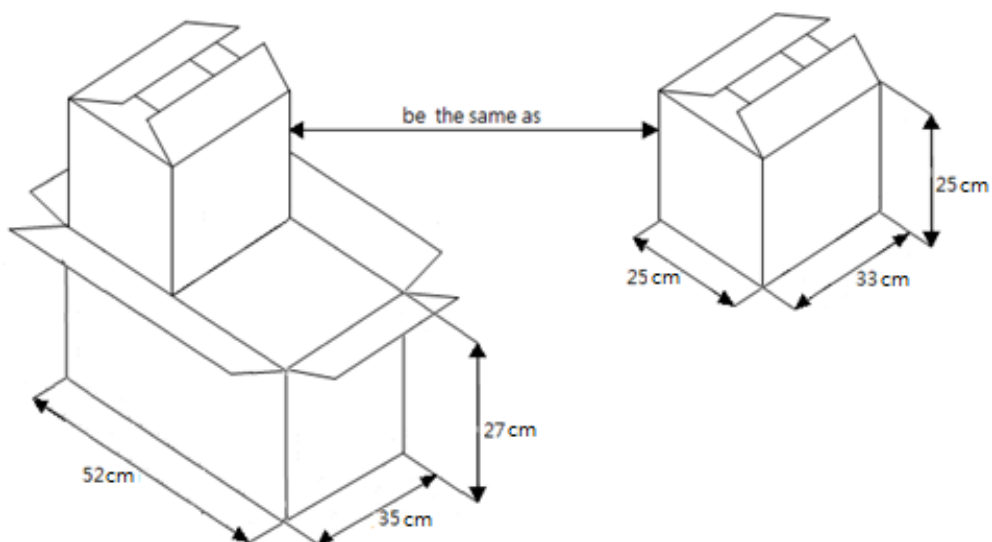
■ Storage conditions and duration

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.

SMXV-AC310V series

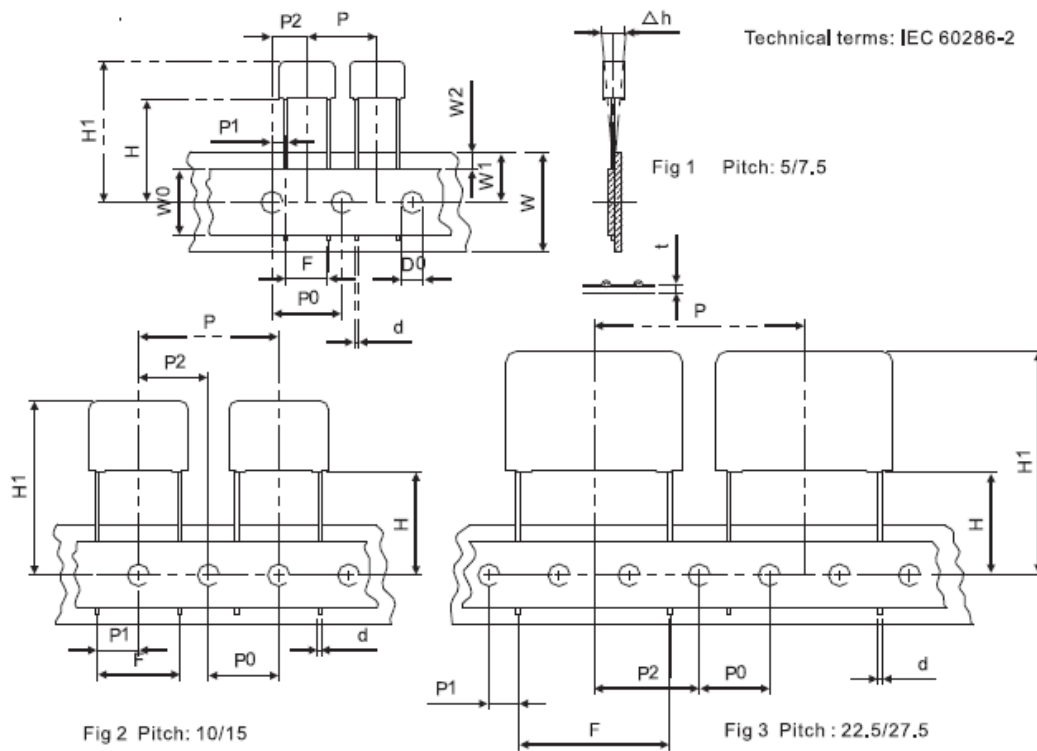
■ Packaging



Size (mm)	Pcs / Bag	Pcs / Inner carton (L33:cm XH:25cm X T:25cm)	Pcs / Out box (L52:cm XH:27cm X T:35cm)
W18xH19xT10.8	200	2000	4000
W31.5xH19.5xT10.8	100	1000	2000
W18xH11xT5	500	5000	10000
W13xH11xT5	300	7500	15000
W18xH12xT6	500	4000	8000

SMXV-AC310V series

Table II



Description	Symbol	Pitch:5	Pitch: 7.5	Pitch:10	Pitch:15	Pitch:22.5	Pitch:27.5
Carrier tape width	W	18±0.5	18±0.5	18±0.5	18±0.5	18±0.5	18±0.5
Hold down tape width	W0	9.5min	9.5min	9.5min	9.5min	9.5min	9.5min
Hole position	W1	9.0±0.5	9.0±0.5	9.0±0.5	9.0±0.5	9.0±0.5	9.0±0.5
Hold down tape position	W2	0-3.0	0-3.0	0-3.0	0-3.0	0-3.0	0-3.0
Feed hole diameter	D0	4.0±0.2	4.0±0.2	4.0±0.2	4.0±0.2	4.0±0.2	4.0±0.2
Taping pitch	P	12.7±1.0	12.7±1.0	25.4±1.0	25.4±1.0	38.1±1.0	38.1±1.0
Feed hole pitch	P0	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2
Centering of the lead wire	P1	3.85±1.3	2.6±0.7	7.7±0.7	5.2±0.7	7.8±0.7	5.3±0.7
Centering of the body	P2	6.35±0.3	6.35±0.3	12.7±1.3	12.7±1.3	19.05±1.3	19.05±1.3
Height of component from tape center	H ^Δ	16.5±0.3	16.5±0.5	16.5±0.5	16.5±0.5	16.5±0.5	16.5±0.5
		18.5±0.5	18.5±0.5	18.5±0.5	18.5±0.5	18.5±0.5	18.5±0.5
Top edge of component	H1	32.2max	32.2max	39.0max	39.0max	44.0max	44.0max
Lead spacing(pitch)	F	5.0+0.8-0.2	7.5+0.8-0.2	10.0+0.8-0.2	15.0+0.8-0.2	22.5+0.8-0.2	27.5+0.8-0.2
Lead wire diameter	d	0.5±0.05	0.6±0.05	0.6±0.05	0.8±0.05	0.8±0.05	0.8±0.05
Component alignment	Δh	0±2.0	0±2.0	0±2.0	0±2.0	0±3.0	0±3.0
Tape thickness	t	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2