

規格承認書

SPECIFICATION FOR APPROVAL

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PART NO.	ZOV05D180K~681KP/Z	PAGE: 1 OF 7			
		DATE: 2017年10月18日			
UL	E315524	CSA	LR115266	VDE	40005858

1.OUTLINE

1.1 DIMENSIONS

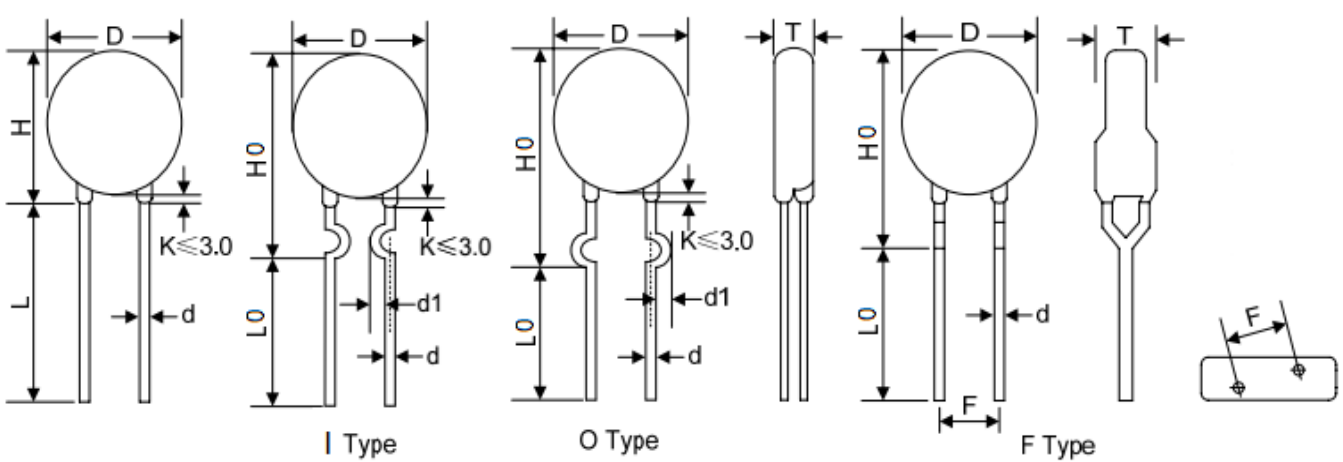


Table1	
Unit:mm	
Symbol	Dimension
D(max.)	7.5
H(max.)	10.5
H0(max.)	13.0
F(±0.8)	5.0
T	Table2
d(±0.05)	0.6
d1(±0.4)	1.2
L(min.)	20.0
L0(min.)	15.0
Epoxy Colour : Green	

Table2			
Unit:mm			
Model	T	Model	T
180K	2.03-3.33	221K	2.58-3.98
220K	2.12-3.45	241K	2.66-4.11
270K	2.22-3.64	271K	2.78-4.30
330K	2.34-3.81	301K	2.90-4.49
390K	2.30-3.63	331K	3.02-4.67
470K	2.42-3.84	361K	3.14-4.86
560K	2.56-4.07	391K	3.26-5.05
680K	2.75-4.34	431K	3.42-5.30
820K	2.18-3.39	471K	3.58-5.55
101K	2.28-3.56	511K	3.74-5.81
121K	2.40-3.75	561K	3.94-6.12
151K	2.30-3.54	621K	4.18-6.50
181K	2.42-3.73	681K	4.42-6.87
201K	2.52-3.89		

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Electrical characteristics

ZOV Part Number	Maximum Allowable Voltage		Varistor voltage	IR3 @ μA	Clamping voltage		Maximum Peak Current (8/20μs)		Maximum Ebergt 10/1000μs		Reted Power (w)	Typical Capacitance (Reference) @1KHz (pf)	
	Ac.rms	DC	V _{1.0 mA}		VC	IP	Standard	High Surge	Standard	High Surge			
	(V)	(V)	(V)		(V)	(A)	(A)		(JOULE)				
05D180KP/Z	11	14	18(15-21.6)	50	10	40	1	100/50*2	250/100*2	0.4	0.6	0.01	1400
05D220KP/Z	14	18	22(19.5-26)		10	48				0.5	0.7		1150
05D270KP/Z	17	22	27(24-31)		10	60				0.6	0.9		930
05D330KP/Z	20	26	33(29.5-36.5)		10	73				0.8	1.1		760
05D390KP/Z	25	31	39(35-43)		15	80				0.9	1.2		640
05D470KP/Z	30	38	47(42-52)		15	104				1.1	1.5		530
05D560KP/Z	35	45	56(50-62)		15	123				1.3	1.8		450
05D680KP/Z	40	56	68(61-75)		15	145				1.6	2.2		370
05D820KP/Z	50	65	82(74-90)	16	28	150	5	400/200*2	800/400*2	2.5	4	0.1	300
05D101KP/Z	60	85	100(90-110)		28	175				3	4.1		250
05D121KP/Z	75	100	120(108-132)		28	210				4	4.9		210
05D151KP/Z	95	125	150(135-165)		28	260				4.8	6.5		165
05D181KP/Z	115	150	180(162-198)		38	320				5.9	7.5		140
05D201KP/Z	130	170	200(185-225)		38	355				6.5	8.5		125
05D221KP/Z	140	180	220(198-242)		38	380				7	9		110
05D241KP/Z	150	200	240(216-264)		38	415				8	10.5		100
05D271KP/Z	175	225	270(243-297)		38	475				8.5	11		95
05D301KP/Z	190	250	300(270-330)		38	520				9	12		85
05D331KP/Z	210	275	330(297-363)		38	570				9.5	13		75
05D361KP/Z	230	300	360(324-396)		38	620				10	16		70
05D391KP/Z	250	320	390(351-429)		38	675				12	17		65
05D431KP/Z	275	350	430(387-473)		38	745				13	20		60
05D471KP/Z	300	385	470(423-517)		38	810				15	21		55
05D511KP/Z	320	415	510(459-561)		38	845				16	22.5		50
05D561KP/Z	350	460	560(504-616)	38	920	16.8	24	45					
05D621KP/Z	385	505	620(558-682)	35	1025	17.7	26.6	40					
05D681KP/Z	420	560	680(612-748)	35	1120	19.4	29.1	38					

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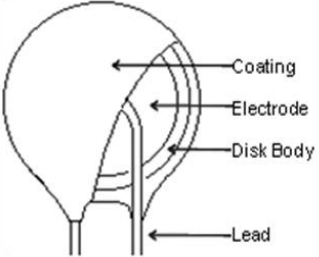
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2.ELETRICAL PARAMETER					
2.1	Max. Allowable Voltage	Reference p2*	At 1.0mA DC		
2.2	Varistor Voltage(Test Time For 30ms)		V0.1mA □ V1mA ■		
2.3	Rated Wattage				
2.4	Max. Clamping Voltage		Test Current Waveform 8/20μs		
2.5	Withstanding Surge Current		Test Current Waveform 8/20μs		
2.6	Max. Energy		Test Current Waveform 10/1000μs		
2.7	Typical Capacitance		@1KHz		
2.8	Leakage Current		At 80% of Varistor Voltage		
2.9	Nonlinear Exponent (α)		$\alpha = \log \frac{I_1^\alpha}{I_2^\alpha} / \log \frac{V_1^\alpha}{V_2^\alpha}$		
2.10	Temperature Coefficient of Varistor Voltage	-0.05≤Tc≤0.05(% °C)	$\left \frac{V_{1mA@85^\circ C} - V_{1mA@25^\circ C}}{V_{1mA@25^\circ C}} \times \frac{1}{60} \times 100\% (\%/^\circ C) \right $		
			$\left \frac{V_{1mA@-40^\circ C} - V_{1mA@25^\circ C}}{V_{1mA@25^\circ C}} \times \frac{1}{65} \times 100\% (\%/^\circ C) \right $		
2.11	Impulse Life	≒±10%(V1mA)	Test Current Waveform 8/20μs		

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3.MATERIAL LIST

3.1	Drawing				
3.2	Material Chart RoHs	Item	Composition	Manufacturer	
		Coating	Epoxy Resin	Made in China, and in line with the UL 94-V0 testing, meet the environmental requirements	
		Lead	Cp/Cu wire	Made in China, meet the environmental requirements	
		Electrode	Silver	Made in China, meet the environmental requirements	
		Disk	Zinc Oxide	Made in China, meet the environmental requirements	
		Solder	Sn:96.5%CU 0.5%Ag3.0%	Made in China, meet the environmental requirements	

4.MECHANICAL REQUIREMENTS

4.1	Tensile of Terminations	No Outstanding Damage	1.0Kgf; 10Sec.
4.2	Bending of Terminations	No Outstanding Damage	0.5Kgf; 90° ,3 Times
4.3	Vibration	No Outstanding Damage	Freq:10-55hz;Amp:0.75mm,1Min
4.4	Solderability	Min. 95% of The Terminal Should Be Covered With Solder Uniformly	Solder Temp:245±5℃ Immersed Time: ≤5Sec.
4.5	Resistance of soldering heat	Δ V1mA/V1mA ≅ ±5%	Solder Temp: 260±5℃ Immersed Time: 10±1Sec.

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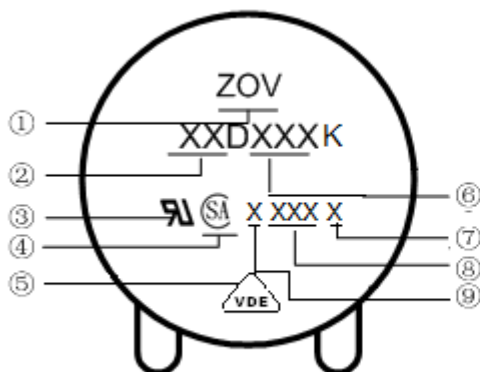
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5.ENVIRONMENTAL REQUIREMENTS

5.1	High Temperature Storage	$\Delta V1mA/V1mA$ $\cong \pm 5\%$	Ambient Temp: 125±2°C Duration:1000h		
5.2	Low Temperature Storage	$\Delta V1mA/V1mA$ $\cong \pm 5\%$	Ambient Temp: -40±2°C Duration:1000h		
5.3	High Humidity Storage/Damp Heat	$\Delta V1mA/V1mA$ $\cong \pm 5\%$	Ambient Temp: 40±2°C 90-95% R.H. Duration:1000h		
5.4	Temperature Cycle	$\Delta V1mA/V1mA$ $\cong \pm 5\%$	Step	Temperature (°C)	Period (min)
			1	-40±3	30 ±3
			2	Room Temp	15 ±3
			3	85±3	30 ±3
4	Room Temp	15 ±3			
5.5	High Temperature Load	$\Delta V1mA/V1mA$ $\cong \pm 10\%$	Ambient temp:85±2°C Duration:1000h Load: MAX. Allowable Voltage		
5.6	High Humidity Load	$\Delta V1mA/V1mA$ $\cong \pm 10\%$	Ambient Temp: 40±2°C 90-95%R.H.Duration:1000H Load: MAX. Allowable Voltage		
5.7	Operating Temperature Range	-40°C ~ +85°C			
5.8	Storage Temperature Range	-40°C ~ +125°C			

6.Marking Code



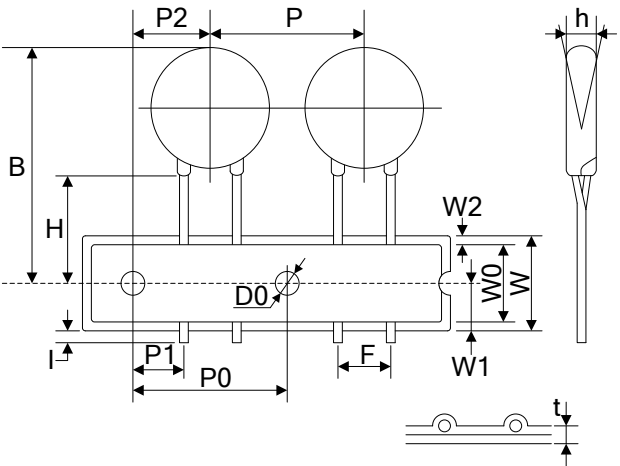
- ① ZOV Logo
- ② Disk Size
- ③ UL Accreditation Logo
- ④ CSA Accreditation Logo
- ⑤ VDE Accreditation Logo
- ⑥ Varistor Voltage
- ⑦ Special standard P: Normal code Z: High surge code
- ⑧ Date Code
- ⑨ c: cp line; copper wire: no print (space)

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7. Taping Dimensions

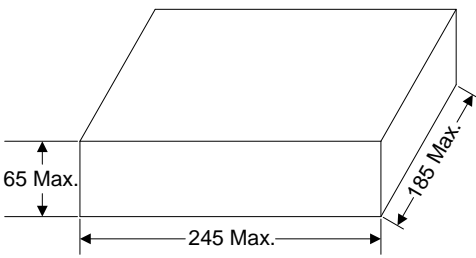
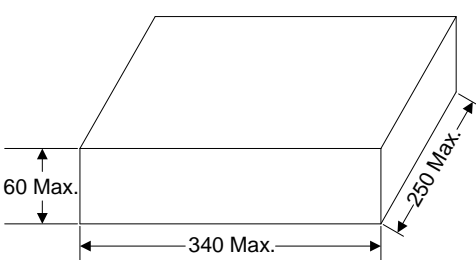
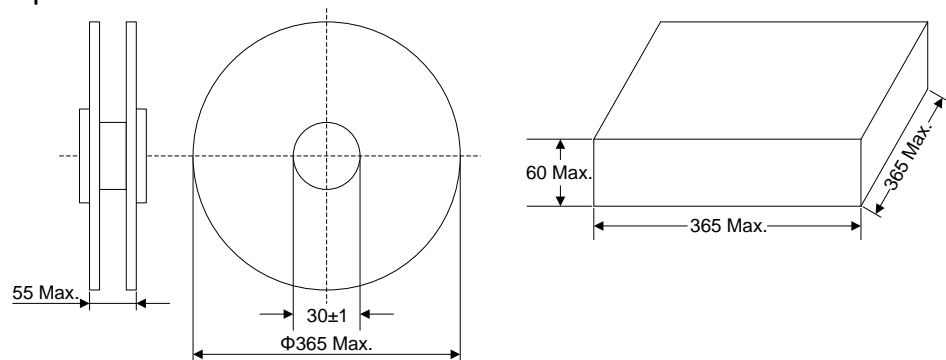
	Symbol	Dimension (mm)
		P
	P0	12.7±0.3
	P1	3.85±0.7
	P2	6.35±1.3
	F	5.0±0.8
	h	0±2
	W	18.0±1.0
	W0	12.0±1.0
	W1	9.0±0.5
	W2	3.0max
	H	20.0±2.0
	I	1.0max
	D0	4.0±0.2
	t	0.6±0.3
	B	32max

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8. Quantity

Packaging Dimensions (Unit: mm)	Quantity
Bulk 	1000pcs/bag 2bags/box (180K~391K)
	1000pcs/bag 2bags/box (431K~681K)
Tape & Box 	1500pcs/box (180K~391K)
	1000pcs/box (431K~681K)
Tape & Reel 	2000pcs/reel (180K~391K)
	1500pcs/reel (431K~681K)