

規格承認書

SPECIFICATION FOR APPROVAL

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PART NO.	ZOV20D180K~182KP/Z	PAGE: 1 OF 7			
		DATE: 2017年10月18日			
UL	E315524	CSA	LR115266	VDE	40005858

1.OUTLINE

1.1 DIMENSIONS

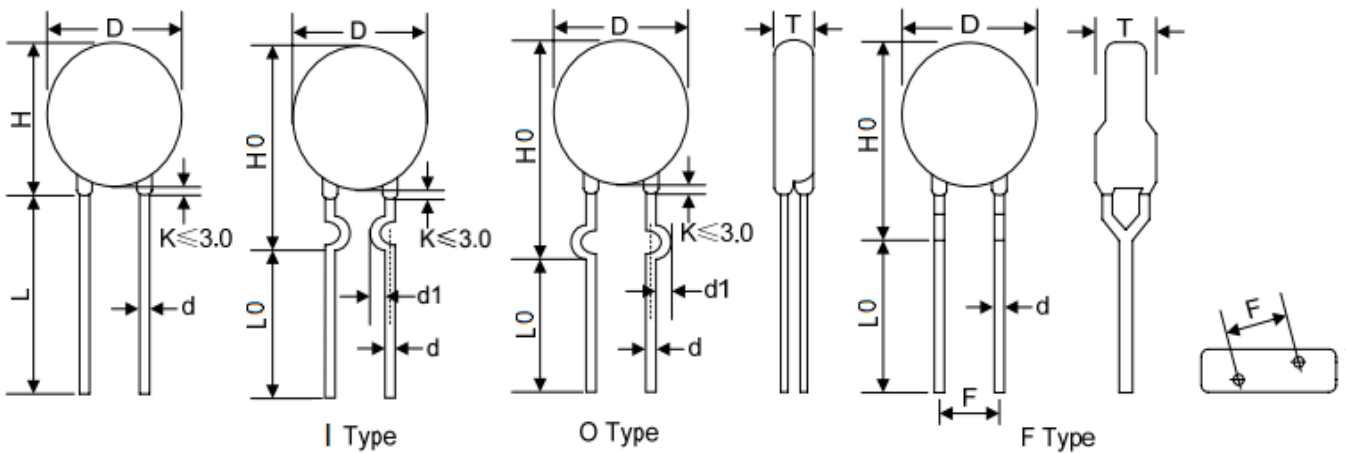


Table1	
Unit:mm	
Symbol	Dimension
D(max.)	23.0
H(max.)	26.5
H0(max.)	28.0
F(±0.8/1.0)	7.5/10.0
T	Table2
d(±0.05)	0.8/1.0
d1(±0.4)	1.4/1.6
L(min.)	20.0
L0(min.)	15.0
Epoxy Colour : Green	

Table2			
Unit:mm			
Model	T	Model	T
180K	2.96-4.23	361K	3.82-5.38
220K	3.06-4.37	391K	3.92-5.55
270K	3.17-4.59	431K	4.06-5.77
330K	3.30-4.78	471K	4.20-5.99
390K	3.25-4.54	511K	4.33-6.21
470K	3.38-4.77	561K	4.50-6.48
560K	3.53-5.02	621K	4.71-6.81
680K	3.73-5.32	681K	4.91-7.14
820K	3.05-4.22	751K	5.15-7.53
101K	3.15-4.39	781K	5.25-7.69
121K	3.25-4.59	821K	5.38-7.91
151K	3.11-4.40	911K	5.69-8.17
181K	3.21-4.60	102K	6.00-8.64
201K	3.30-4.76	112K	6.34-9.16
221K	3.35-4.61	122K	6.68-9.69
241K	3.42-4.72	142K	7.69-11.26
271K	3.52-4.89	162K	8.03-11.78
301K	3.62-5.05	182K	8.71-12.83
331K	3.72-5.22		

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Electrical characteristics

ZOV Part Number	Maximum Allowable Voltage		Varistor voltage V _{1.0mA}	IR3 μA	@	Clamping voltage		Maximum Peak Current (8/20μs)		Maximum Ebergt 10/1000μs		Reted Power (w)	Typical Capacitance (Reference) @1KHz (pf)
	Ac.rms (V)	DC (V)				VC (V)	IP (A)	Standard (A)	High Surge (A)	Standard (JOULE)	High Surge (JOULE)		
20D180KP/Z	11	14	18(15-21.6)	50	10	36	20	2000/1000*2	3000/2000*2	11	13	0.2	28500
20D220KP/Z	14	18	22(19.5-26)		10	43				18500			
20D270KP/Z	17	22	27(24-31)		10	53				13000			
20D330KP/Z	20	26	33(29.5-36.5)		10	65				11500			
20D390KP/Z	25	31	39(35-43)		15	77				8500			
20D470KP/Z	30	38	47(42-52)		15	93				7400			
20D560KP/Z	35	45	56(50-62)		15	110				6500			
20D680KP/Z	40	56	68(61-75)		15	135				5800			
20D820KP/Z	50	65	82(74-90)	24	28	135	100	6500/4500*2	10000/6500*2	45	56	1	4900
20D101KP/Z	60	85	100(90-110)		28	165				4000			
20D121KP/Z	75	100	120(108-132)		28	200				3300			
20D151KP/Z	95	125	150(135-165)		28	250				2700			
20D181KP/Z	115	150	180(162-198)		38	300				2200			
20D201KP/Z	130	170	200(185-225)		38	340				2000			
20D221KP/Z	140	180	220(198-242)		38	360				1800			
20D241KP/Z	150	200	240(216-264)		38	395				1650			
20D271KP/Z	175	225	270(243-297)		38	455				1500			
20D301KP/Z	190	250	300(270-330)		38	500				1300			
20D331KP/Z	210	275	330(297-363)		38	550				1200			
20D361KP/Z	230	300	360(324-396)		38	595				1100			
20D391KP/Z	250	320	390(351-429)		38	650				1000			
20D431KP/Z	275	350	430(387-473)		38	710				930			
20D471KP/Z	300	385	470(423-517)		38	775				850			
20D511KP/Z	320	415	510(459-561)		38	845				780			
20D561KP/Z	350	460	560(504-616)		38	925				710			
20D621KP/Z	385	505	620(558-682)		35	1025				650			
20D681KP/Z	420	560	680(612-748)		35	1120				600			
20D751KP/Z	460	615	750(675-825)		35	1240				530			
20D781KP/Z	485	640	780(702-858)		35	1290				510			
20D821KP/Z	510	670	820(738-902)		30	1355				500			
20D911KP/Z	550	745	910(819-1001)		30	1500				440			
20D102KP/Z	625	825	1000(900-1100)		30	1650				400			
20D112KP/Z	680	895	1100(990-1210)	30	1815	360							
20D122KP/Z	750	990	1200(1080-1320)	30	1980	350							
20D142KP/Z	880	1140	1400(1260-1540)	30	2310	340							
20D162KP/Z	1000	1280	1600(1440-1760)	30	2640	330							
20D182KP/Z	1100	1465	1800(1620-1980)	30	2970	320							

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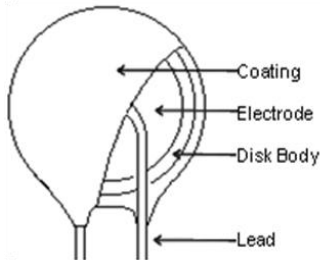
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2.ELETRICAL PARAMETER					
2.1	Max. Allowable Voltage	Reference p2*	At 1.0mA DC		
2.2	Varistor Voltage(Test Time For 30ms)		V0.1mA □ V1mA ■		
2.3	Rated Wattage				
2.4	Max. Clamping Voltage		Test Current Waveform 8/20μs		
2.5	Withstanding Surge Current		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	2.0/1.0Kgf; 10Sec.
4.2	Bending of Terminations	No Outstanding Damage	1.0/0.5Kgf; 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°C Immersed Time: ≤5Sec.
4.5	Resistance of soldering heat	△ V1mA/V1mA ≅ ±5%	Solder Temp: 260±5°C Immersed Time: 10±1Sec.

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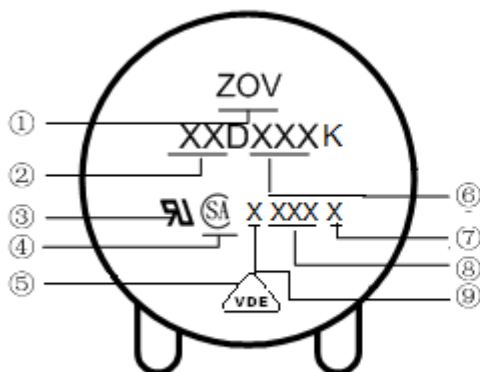
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5.ENVIRONMENTAL REQUIREMENTS

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

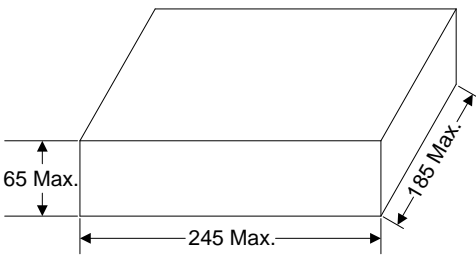
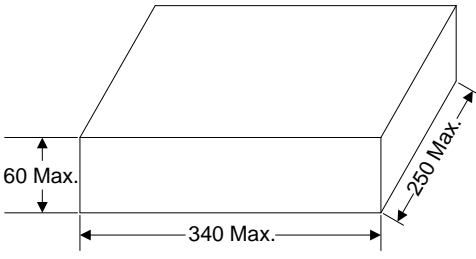
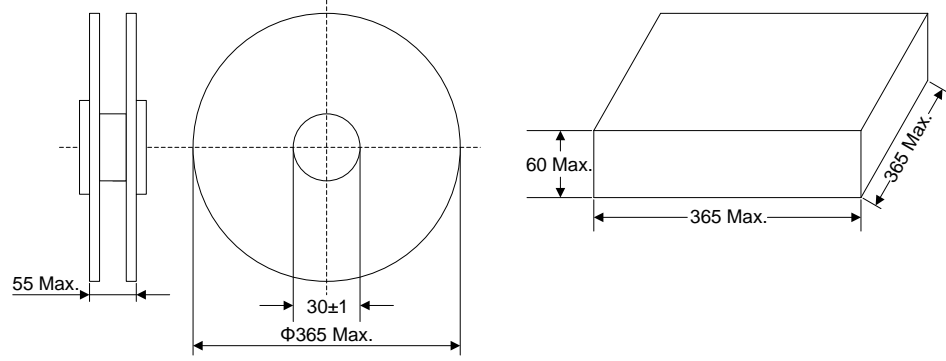
	Symbol	Dimension (mm)
		P
	P0	12.7±1.0
	P1	8.95/7.7±0.7
	P2	12.7±1.3
	F	7.5/10.0±0.8
	h	0±4
	W	18.0±1.0
	W0	12.0±1.0
	W1	9.0±0.5
	W2	3.0max
	H	20.0±2.0
	I	1.0max
	D0	4.0±0.2
	t	0.6±0.3
	B	45max

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8. QUANTITY

Packaging Dimensions (Unit: mm)	Quantity
Bulk 	250pcs/bag 2bags/box (180K~301K)
	200pcs/bag 2bags/box (331K~561K)
	150pcs/bag 2bags/box (621K~112K)
	100pcs/bag 2bags/box (122K~182K)
Tape & Box 	400pcs/box (180K~301K)
	300pcs/box (331K~561K)
	150pcs/box (621K~112K)
Tape & Reel 	400pcs/reel (180K~301K)
	300pcs/reel (331K~561K)
	150pcs/reel (621K~112K)