

# 規格承認書

## SPECIFICATION FOR APPROVAL

Rev1.0	SPECIFICATION	NO.			
PART NO.	ZOV25D180K~182KP/Z	PAGE: 1 OF 5			
		DATE: 2017年10月18日			
UL	E315524	CSA	LR115266	VDE	40005858

### 1.OUTLINE

#### 1.1 DIMENSIONS

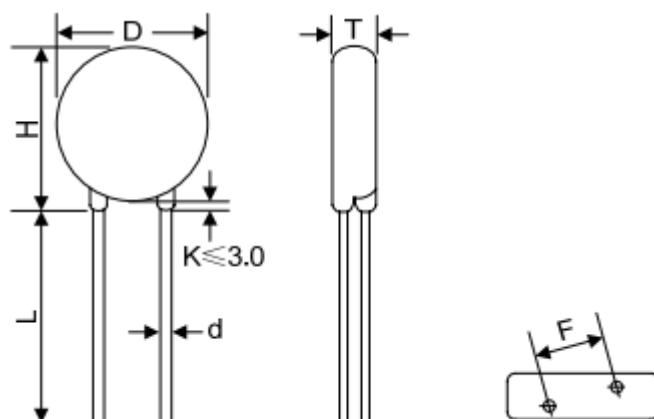


Table1	
Unit:mm	
Symbol	Dimension
D(max.)	23.0
H(max.)	26.5
F(±0.8/1.0)	7.5/10.0
T	Table2
d(±0.05)	0.8/1.0
L(min.)	20.0
Epoxy Colour : Green	

Table2			
Unit:mm			
Model	T	Model	T
180K	2.97-4.26	361K	4.01-5.95
220K	3.08-4.41	391K	4.13-6.17
270K	3.19-4.63	431K	4.28-6.45
330K	3.32-4.83	471K	4.44-6.74
390K	3.26-4.57	511K	4.60-7.02
470K	3.39-4.80	561K	4.79-7.37
560K	3.54-5.06	621K	5.03-7.67
680K	3.75-5.36	681K	5.26-7.80
820K	3.06-4.22	751K	5.53-8.00
101K	3.16-4.40	781K	5.65-8.19
121K	3.28-4.60	821K	5.81-8.44
151K	3.44-4.90	911K	6.16-8.95
181K	3.61-5.20	102K	6.51-9.51
201K	3.76-5.25	112K	6.90-10.14
221K	3.84-5.30	122K	7.30-10.77
241K	3.95-5.80	142K	8.47-12.60
271K	3.66-5.32	162K	8.86-13.23
301K	3.77-5.53	182K	9.64-14.49
331K	3.89-5.74		

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### Electrical characteristics

ZOV Part Number	Maximum Allowable Voltage		Varistor voltage V <sub>1.0mA</sub>	IR3 μA	@	Clamping volatge		Maximum Peak Crurrent (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)		
25D180KP/Z	11	14	18(15-21.6)	50	10	36	30	3000/1 500*2	4500/3 000*2	13	20	0.25	45000
25D220KP/Z	14	18	22(19.5-26)			43				29000			
25D270KP/Z	17	22	27(24-31)			53				26500			
25D330KP/Z	20	26	33(29.5-36.5)			65				18000			
25D390KP/Z	25	31	39(35-43)			77				13500			
25D470KP/Z	30	38	47(42-52)			93				11500			
25D560KP/Z	35	45	56(50-62)			110				10500			
25D680KP/Z	40	56	68(61-75)			135				9050			
25D820KP/Z	50	65	82(74-90)	36	21	135	150	15000/ 10000* 2	18000/ 15000* 2	56	80	1.2	7700
25D101KP/Z	60	85	100(90-110)			165				6300			
25D121KP/Z	75	100	120(108-132)			200				5200			
25D151KP/Z	95	125	150(135-165)			250				4300			
25D181KP/Z	115	150	180(162-198)			300				3500			
25D201KP/Z	130	170	200(185-225)			340				3200			
25D221KP/Z	140	180	220(198-242)			360				2900			
25D241KP/Z	150	200	240(216-264)			395				2650			
25D271KP/Z	175	225	270(243-297)			455				2400			
25D301KP/Z	190	250	300(270-330)			500				2100			
25D331KP/Z	210	275	330(297-363)			550				1900			
25D361KP/Z	230	300	360(324-396)			595				1750			
25D391KP/Z	250	320	390(351-429)			650				1600			
25D431KP/Z	275	350	430(387-473)			710				1500			
25D471KP/Z	300	385	470(423-517)			775				1400			
25D511KP/Z	320	415	510(459-561)			845				1250			
25D561KP/Z	350	460	560(504-616)			925				1150			
25D621KP/Z	385	505	620(558-682)			1025				1050			
25D681KP/Z	420	560	680(612-748)			1120				950			
25D751KP/Z	460	615	750(675-825)			1240				850			
25D781KP/Z	485	640	780(702-858)			1290				800			
25D821KP/Z	510	670	820(738-902)			1355				750			
25D911KP/Z	550	745	910(819-1001)			1500				700			
25D102KP/Z	625	825	1000(900-1100)			1650				650			
25D112KP/Z	680	895	1100(990-1210)	1815	600								
25D122KP/Z	750	990	1200(1080-1320)	1980	550								
25D142KP/Z	880	1140	1400(1260-1540)	2310	500								
25D162KP/Z	1000	1280	1600(1440-1760)	2640	450								
25D182KP/Z	1100	1465	1800(1620-1980)	2970	400								

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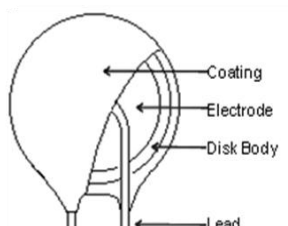
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### 2.ELETRICAL PARAMETER

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)		$\alpha = \log \frac{I_1}{I_2} / \log \frac{V_1}{V_2}$
2.10	Temperature Coefficient of Varistor Voltage	-0.05≤Tc≤0.05(% °C)	$\frac{V_{1mA@85^{\circ}C} - V_{1mA@25^{\circ}C}}{V_{1mA@25^{\circ}C}} \times \frac{1}{60} \times 100\% (\%/^{\circ}C)$ $\frac{V_{1mA@-40^{\circ}C} - V_{1mA@25^{\circ}C}}{V_{1mA@25^{\circ}C}} \times \frac{1}{65} \times 100\% (\%/^{\circ}C)$
2.11	Impulse Life	≅ ±10%(V1mA)	Test Current Waveform 8/20μs

### 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

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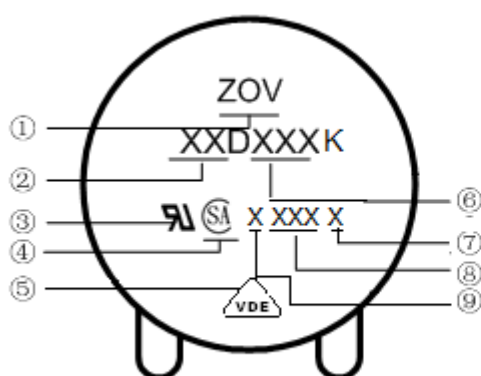
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<b>4.MECHANICAL REQUIREMENTS</b>					
4.1	Tensile of Terminations	No Outstanding Damage	1.0Kgf; 10Sec.		
4.2	Bending of Terminations	No Outstanding Damage	0.5Kgf; 90° ,3 Times		
4.3	Vibration	No Outstanding Damage	Freq:10-55hz;Amp:0.75mm,1Min		
4.4	Solderability	Min. 95% of The Terminal Should Be Covered With Solder Uniformly	Solder Temp:245±5°C Immersed Time: ≤5Sec.		
4.5	Resistance of soldering heat	$\Delta V1mA/V1mA$ $\cong \pm 5\%$	Solder Temp: 260±5°C Immersed Time: 10±1Sec.		
<b>5.ENVIRONMENTAL REQUIREMENTS</b>					
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			

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### 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)

### 7. QUANTITY

Packaging Dimensions (Unit: mm)	Quantity
Bulk 	100pcs/bag 2bags/box (180K~621K)
	50pcs/bag 2bags/box (681K~182K)