




# Metal Oxide Varistor

## ● 05D Specifiation

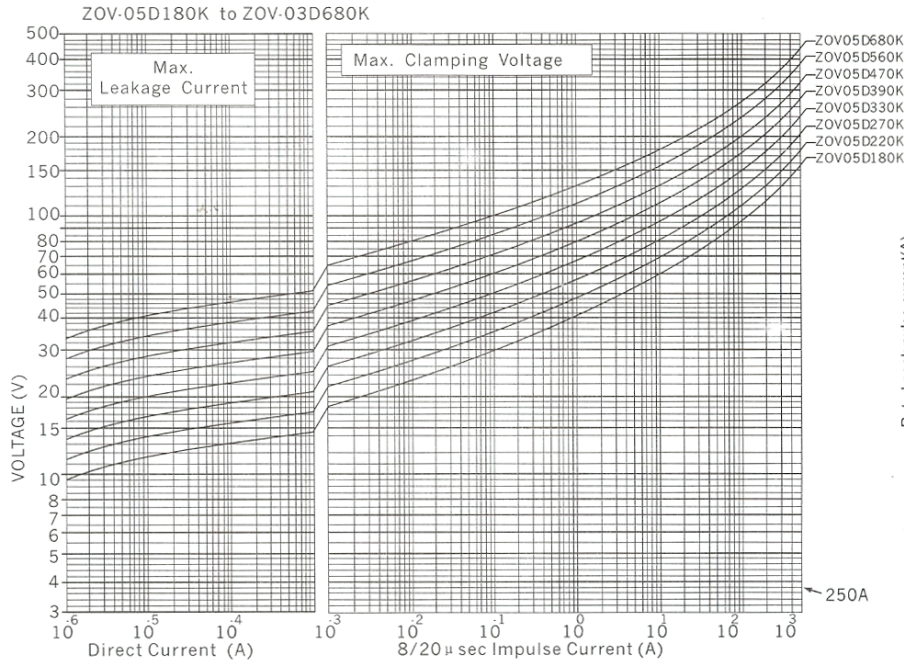
Put "Z" In Free Code Stands For High Surge Series

ZOV Part Number	Maximum Allowable Voltage		Varistor Voltage V <sub>1.0mA</sub>	Clamping voltage (Max.)		Maximum Peak Current (8/20µs)		Maximum Energy (10/1000 µs)		Rated Power (W)	Typical Capacitance (Reference) @ 1 KHz (pf)				
	AC.rms	DC		VC	IP	Standard	High Surge	Standard	High Surge						
	∅5.0mm	(V)		(V)	(V)	(A)	(A)	(A)	(JOULE)						
05D180K	Z	11	14	18(15-21.6)	40	1	100 50×2	250 100×2	0.4	0.6	0.01	1400	*	*	*
05D220K	Z	14	18	22(19.5-26)	48				0.5	0.7		1150	*	*	*
05D270K	Z	17	22	27(24-31)	60				0.6	0.9		930	*	*	*
05D330K	Z	20	26	33(29.5-36.5)	73				0.8	1.1		760	*	*	*
05D390K	Z	25	31	39(35-43)	80				0.9	1.2		640	*	*	*
05D470K	Z	30	38	47(42-52)	104				1.1	1.5		530	*	*	*
05D560K	Z	35	45	56(50-62)	123				1.3	1.8		450	*	*	*
05D680K	Z	40	56	68(61-75)	145				1.6	2.2		370	*	*	*
05D820K	Z	50	65	82(74-90)	150	5	400 200×2	800 400×2	2.5	4.0	0.10	300	*	*	*
05D101K	Z	60	85	100(90-110)	175				3.0	4.1		250	*	*	*
05D121K	Z	75	100	120(108-132)	210				4.0	4.9		210	*	*	*
05D151K	Z	95	125	150(135-165)	260				4.8	6.5		165	*	*	*
05D181K	Z	115	150	180(162-198)	320				5.9	7.5		140	*	*	*
05D201K	Z	130	170	200(185-225)	355				6.5	8.5		125	*	*	*
05D221K	Z	140	180	220(198-242)	380				7.0	9.0		110	*	*	*
05D241K	Z	150	200	240(216-264)	415				8.0	10.5		100	*	*	*
05D271K	Z	175	225	270(243-297)	475				8.5	11		95	*	*	*
05D301K	Z	190	250	300(270-330)	520				9.0	12		85	*	*	*
05D331K	Z	210	275	330(297-363)	570				9.5	13		75	*	*	*
05D361K	Z	230	300	360(324-396)	620				10.0	16		70	*	*	*
05D391K	Z	250	320	390(351-429)	675				12.0	17		65	*	*	*
05D431K	Z	275	350	430(387-473)	745				13.0	20		60	*	*	*
05D471K	Z	300	385	470(423-517)	810				15.0	21		55	*	*	*
05D511K	Z	320	415	510(459-561)	845				16.0	22.5		50	*	*	*
05D561K	Z	350	460	560(504-616)	920	16.8	24	45	*	*	*				
05D621K	Z	385	505	620(558-682)	1025	17.7	26.6	40	*						
05D681K	E	420	560	680(612-748)	1120	19.4	29.1	38	*						

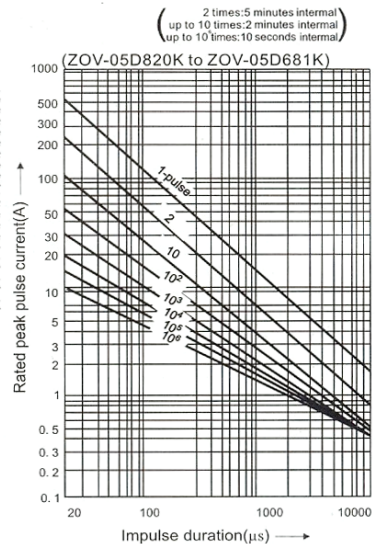
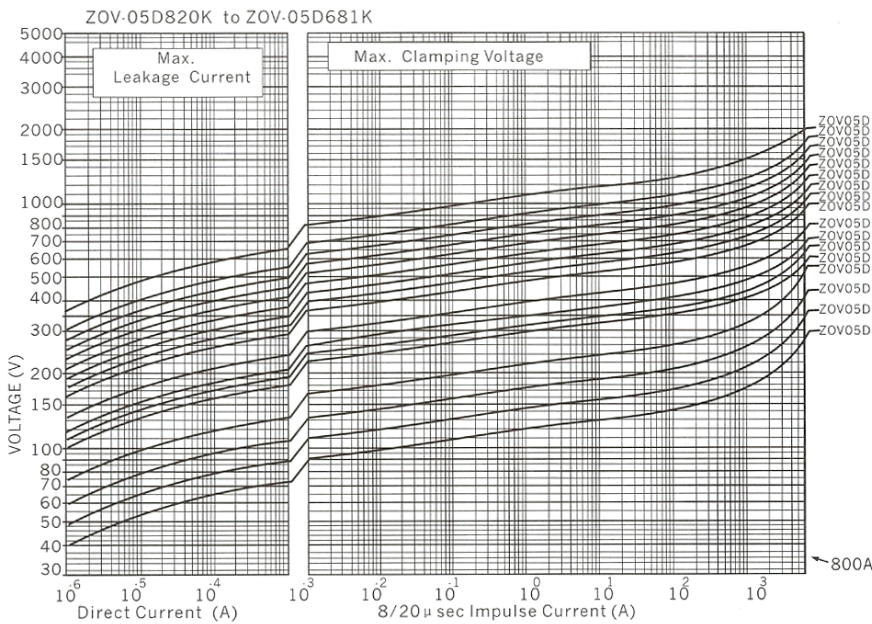
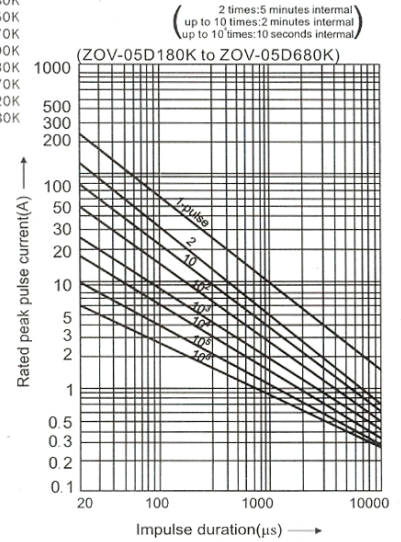
# Metal Oxide Varistor

## ● 05D SERIES

V-I curve



Impulse Lifetime Ratings





# Metal Oxide Varistor

## ● 07D Specification

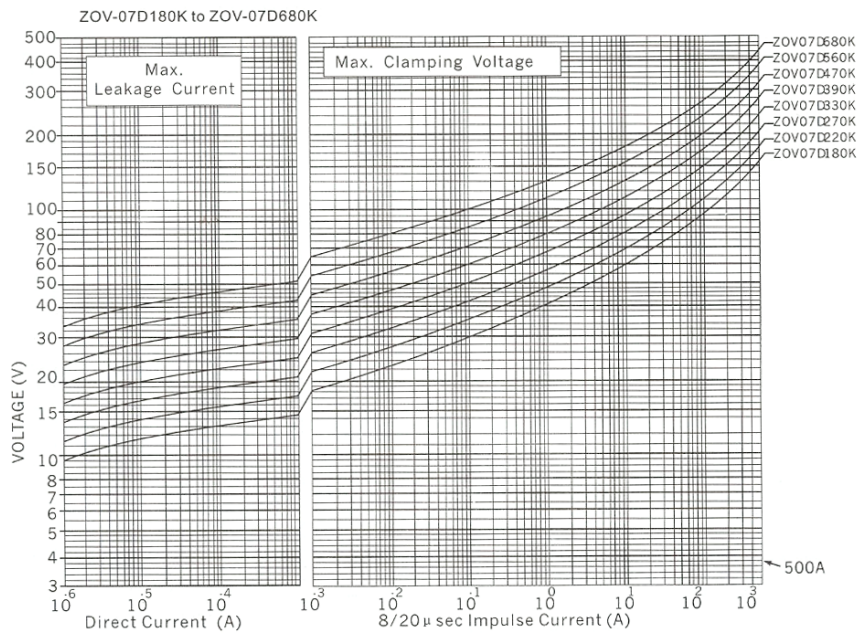
Put "Z" In Free Code Stands For High Surge Series

ZOV Part Number		Maximum Allowable Voltage		Varistor Voltage V <sub>1.0mA</sub>	Clamping voltage (Max.)		Maximum Peak Current (8/20µs)		Maximum Energy (10/1000µs)		Rated Power (W)	Typical Capacitance (Reference) @ 1 KHz (pf)	UL	SP	VDE	CQC
		AC.rms	DC		VC	IP	Standard	High Surge	Standard	High Surge						
Ø7.0mm		(V)		(V)	(V)	(A)	(A)		(JOULE)							
Standard	High Surge															
07D180K	Z	11	14	18(15-21.6)	36	2.5	250	500	0.9	2.0	0.02	2800	*	*	*	*
07D220K	Z	14	18	22(19.5-26)	43				1.1	2.4		2300	*	*	*	*
07D270K	Z	17	22	27(24-31)	53				1.4	3.0		1800	*	*	*	*
07D330K	Z	20	26	33(29.5-36.5)	65				2.1	3.5		1500	*	*	*	*
07D390K	Z	25	31	39(35-43)	77				2.5	4.0		1300	*	*	*	*
07D470K	Z	30	38	47(42-52)	93				3.1	5.0		1100	*	*	*	*
07D560K	Z	35	45	56(50-62)	110				3.6	6.0		890	*	*	*	*
07D680K	Z	40	56	68(61-75)	135				5.5	10		740	*	*	*	*
07D820K	Z	50	65	82(74-90)	135	10	1200	1750	5.5	10	0.25	600	*	*	*	*
07D101K	Z	60	85	100(90-110)	165				6.5	12		500	*	*	*	*
07D121K	Z	75	100	120(108-132)	200				7.8	13		420	*	*	*	*
07D151K	Z	95	125	150(135-165)	250				9.7	15		330	*	*	*	*
07D181K	Z	115	150	180(162-198)	300				11.7	16		280	*	*	*	*
07D201K	Z	130	170	200(185-225)	340				13.0	17		250	*	*	*	*
07D221K	Z	140	180	220(198-242)	360				14.0	19		230	*	*	*	*
07D241K	Z	150	200	240(216-264)	395				15.0	21		210	*	*	*	*
07D271K	Z	175	225	270(243-297)	455				18.0	24		185	*	*	*	*
07D301K	Z	190	250	300(270-330)	500				20.0	26		165	*	*	*	*
07D331K	Z	210	275	330(297-363)	550				23.0	28		150	*	*	*	*
07D361K	Z	230	300	360(324-396)	595				24.0	32		140	*	*	*	*
07D391K	Z	250	320	390(351-429)	650				26.0	35		130	*	*	*	*
07D431K	Z	275	350	430(387-473)	710				28.0	40		115	*	*	*	*
07D471K	Z	300	385	470(423-517)	775				29.0	42		105	*	*	*	*
07D511K	Z	320	415	510(459-561)	845				31.0	45		100	*	*	*	*
07D561K	Z	350	460	560(504-616)	925				35.0	49		90	*	*	*	*
07D621K	Z	385	505	620(558-682)	1025				38.0	55		80	*	*	*	*
07D681K	Z	420	560	680(612-748)	1120				42.0	60		75	*	*	*	*
07D751K	Z	460	615	750(675-825)	1240				45.0	64		70	*			*
07D781K	Z	485	640	780(702-858)	1290	48.0	69	65	*			*				
07D821K	Z	510	670	820(738-902)	1355	52.0	73	60	*			*				
07D911K	Z	550	745	910(819-1001)	1500	57.0	78	55	*			*				

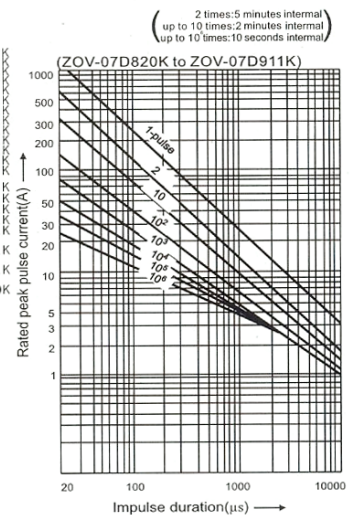
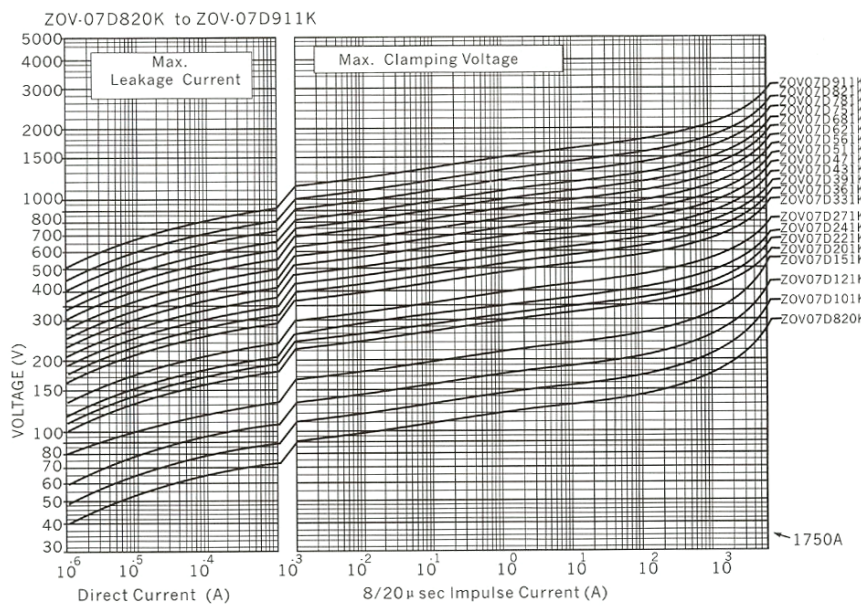
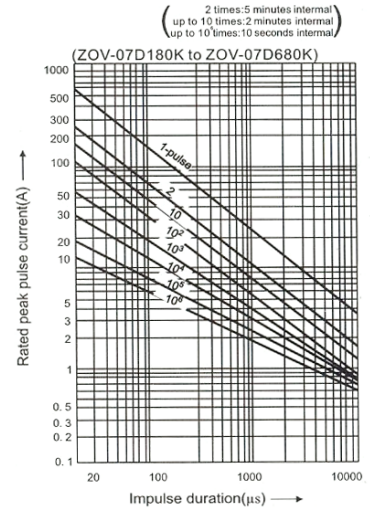
# Metal Oxide Varistor

## ● 07D SERIES

V-I curve



Impulse Lifetime Ratings





# Metal Oxide Varistor

## ● 10D Specification

Put "Z" In Free Code Stands For High Surge Series

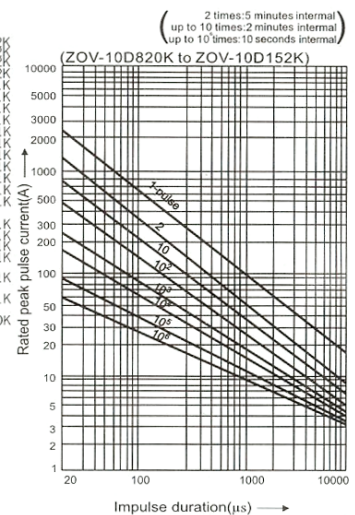
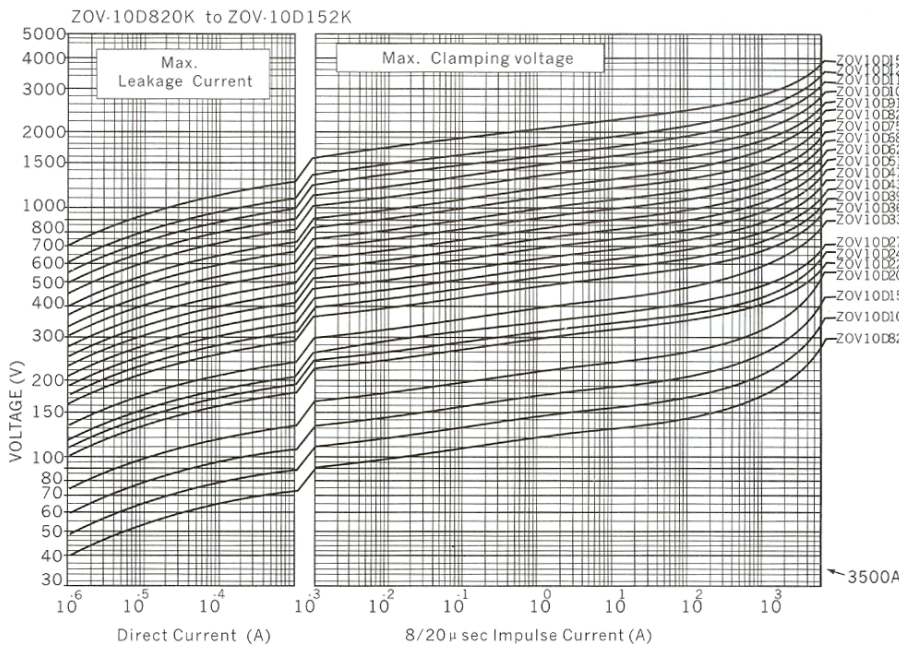
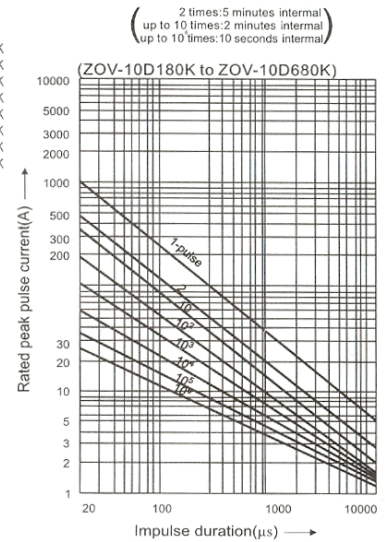
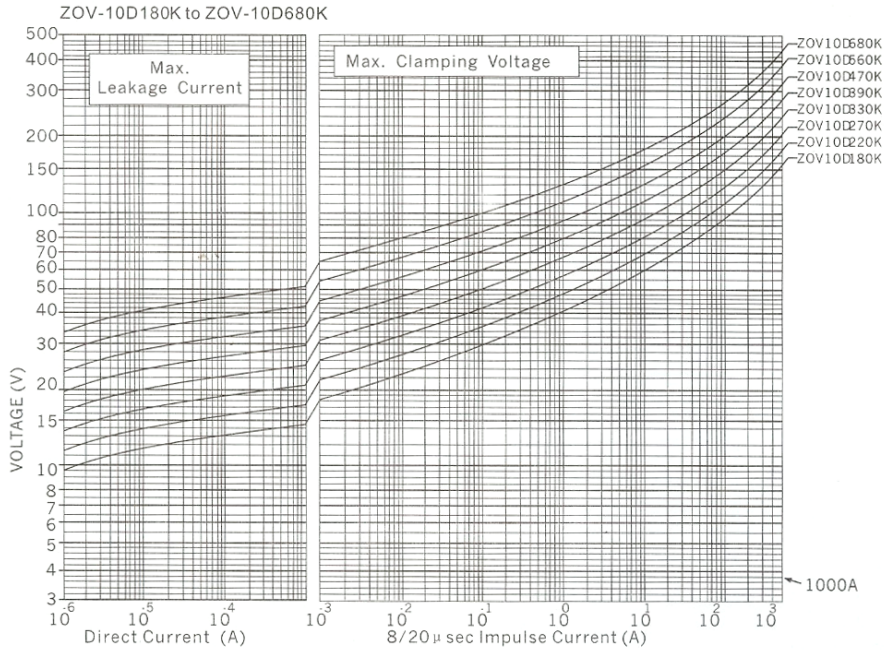
ZOV Part Number	Maximum Allowable Voltage		Varistor Voltage V <sub>1.0mA</sub>	Clamping voltage (Max.)		Maximum Peak Current (8/20µs)		Maximum Energy (10/1000µs)		Rated Power (W)	Typical Capacitance (Reference) @ 1 KHz (pf)	UL	SP	VDE	CQC	
	AC.rms	DC		VC	IP	Standard	High Surge	Standard	High Surge							
	∅ 10.0mm	(V)		(V)	(V)	(A)	(A)		(JOULE)							
10D180K	Z	11	14	18(15-21.6)	36	5	500	1000	2.1	3.0	0.05	5600	*	*	*	*
10D220K	Z	14	18	22(19.5-26)	43				2.5	5.0		4500	*	*	*	*
10D270K	Z	17	22	27(24-31)	53				3.0	6.0		3700	*	*	*	*
10D330K	Z	20	26	33(29.5-36.5)	65				4.0	7.0		3000	*	*	*	*
10D390K	Z	25	31	39(35-43)	77				4.6	9.0		2400	*	*	*	*
10D470K	Z	30	38	47(42-52)	93				5.5	11		2100	*	*	*	*
10D560K	Z	35	45	56(50-62)	110				7.0	13		1800	*	*	*	*
10D680K	Z	40	56	68(61-75)	135				8.2	15		1500	*	*	*	*
10D820K	Z	50	65	82(74-90)	135				12.0	17		1200	*	*	*	*
10D101K	Z	60	85	100(90-110)	165				15.0	18		1000	*	*	*	*
10D121K	Z	75	100	120(108-132)	200	18.0	21	830	*	*	*	*				
10D151K	Z	95	125	150(135-165)	250	22.0	25	670	*	*	*	*				
10D181K	Z	115	150	180(162-198)	300	27.0	30	560	*	*	*	*				
10D201K	Z	130	170	200(185-225)	340	30.0	35	500	*	*	*	*				
10D221K	Z	140	180	220(198-242)	360	32.0	39	450	*	*	*	*				
10D241K	Z	150	200	240(216-264)	395	35.0	42	420	*	*	*	*				
10D271K	Z	175	225	270(243-297)	455	37.0	49	370	*	*	*	*				
10D301K	Z	190	250	300(270-330)	500	40.0	54	330	*	*	*	*				
10D331K	Z	210	275	330(297-363)	550	43.0	58	300	*	*	*	*				
10D361K	Z	230	300	360(324-396)	595	47.0	65	280	*	*	*	*				
10D391K	Z	250	320	390(351-429)	650	60.0	70	260	*	*	*	*				
10D431K	Z	275	350	430(387-473)	710	65.0	80	230	*	*	*	*				
10D471K	Z	300	385	470(423-517)	775	67.0	85	210	*	*	*	*				
10D511K	Z	320	415	510(459-561)	845	69.0	90	200	*	*	*	*				
10D561K	Z	350	460	560(504-616)	925	70.0	92	180	*	*	*	*				
10D621K	Z	385	505	620(558-682)	1025	72.0	95	160	*	*	*	*				
10D681K	Z	420	560	680(612-748)	1120	75.0	98	150	*	*	*	*				
10D751K	Z	460	615	750(675-825)	1240	77.0	100	130	*	*	*	*				
10D781K	Z	485	640	780(702-858)	1290	80.0	105	125	*	*	*	*				
10D821K	Z	510	670	820(738-902)	1355	85.0	110	120	*	*	*	*				
10D911K	Z	550	745	910(819-1001)	1500	93.0	130	110	*	*	*	*				
10D102K	Z	625	825	1000(900-1100)	1650	102.0	140	100	*	*	*	*				
10D112K	Z	680	895	1100(990-1210)	1815	115.0	155	90	*	*	*	*				
10D122K	Z	750	990	1200(1080-1320)	1980	127.0	165	80	*							
10D152K	Z	930	1200	1500(1350-1650)	2475	135.0	180	70	*							

# Metal Oxide Varistor

## ● 10D SERIES

V-I curve

Impulse Lifetime Ratings








# Metal Oxide Varistor

## ● 14D Specification

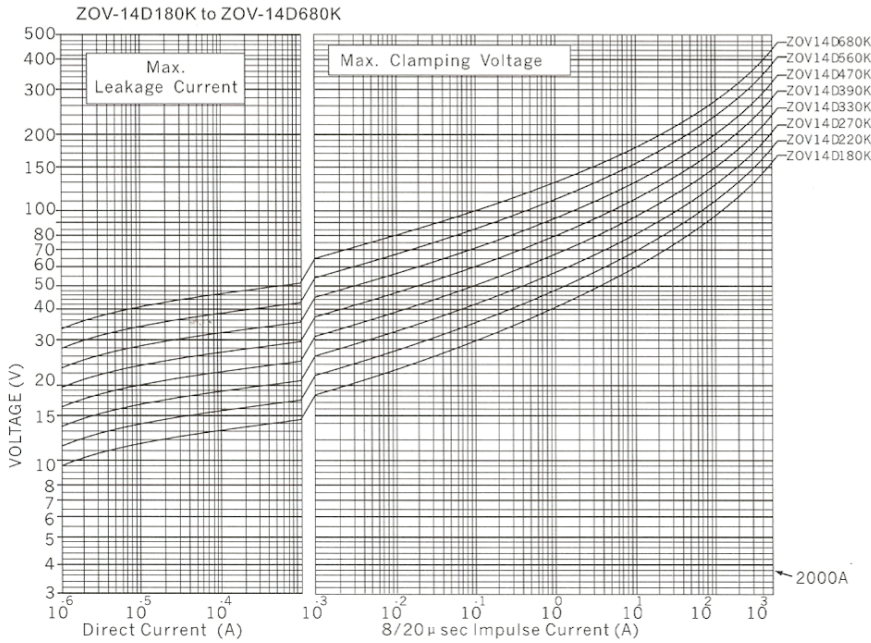
Put "Z" In Free Code Stands For High Surge Series

ZOV Part Number	Maximum Allowable Voltage		Varistor Voltage $V_{1.0mA}$ (V)	Clamping voltage (Max.)		Maximum Peak Current (8/20 $\mu$ s)		Maximum Energy (10/1000 $\mu$ s)		Rated Power	Typical Capacitance (Reference) @ 1 KHz (pf)	  	CQC							
	$\varnothing$ 14.0mm	AC,rms		DC	VC	IP	Standard	High Surge	Standard					High Surge						
		Standard	High Surge	(V)	(V)	(V)	(A)	(A)	(JOULE)	(JOULE)										
14D180K	Z	11	14	18(15-21.6)	36	10	1000	2000	4.0	7.0	0.1	11100	*	*	*	*				
14D220K	Z	14	18	22(19.5-26)	43				5.0	8.0		9100	*	*	*	*				
14D270K	Z	17	22	27(29.5-36.5)	53				6.0	10		7400	*	*	*	*				
14D330K	Z	20	26	33(30-36)	65				7.5	12		6100	*	*	*	*				
14D390K	Z	25	31	39(35-43)	77				8.6	13		5100	*	*	*	*				
14D470K	Z	30	38	47(42-52)	93				10.0	17		4300	*	*	*	*				
14D560K	Z	35	45	56(50-62)	110				11.0	20		3600	*	*	*	*				
14D680K	Z	40	56	68(61-75)	135				14.0	24		2900	*	*	*	*				
14D820K	Z	50	65	82(74-90)	135				50	4500		6000	22.0	27	0.6	2400	*	*	*	*
14D101K	Z	60	85	100(90-110)	165								28.0	33		2000	*	*	*	*
14D121K	Z	75	100	120(108-132)	200	32.0	40	1700			*		*	*		*				
14D151K	Z	95	125	150(135-165)	250	40.0	53	1300			*		*	*		*				
14D181K	Z	115	150	180(162-198)	300	50.0	60	1100			*		*	*		*				
14D201K	Z	130	170	200(185-225)	340	57.0	70	1000			*		*	*		*				
14D221K	Z	140	180	220(198-242)	360	60.0	78	900			*		*	*		*				
14D241K	Z	150	200	240(216-264)	395	63.0	84	830			*		*	*		*				
14D271K	Z	175	225	270(243-297)	455	70.0	99	740			*		*	*		*				
14D301K	Z	190	250	300(270-330)	500	77.0	108	670			*		*	*		*				
14D331K	Z	210	275	330(297-363)	550	85.0	115	610			*		*	*		*				
14D361K	Z	230	300	360(324-396)	595	93.0	130	560			*		*	*		*				
14D391K	Z	250	320	390(351-429)	650	100	140	510			*		*	*		*				
14D431K	Z	275	350	430(387-473)	710	115	155	460			*		*	*		*				
14D471K	Z	300	385	470(423-517)	775	118	175	430			*		*	*		*				
14D511K	Z	320	415	510(459-561)	845	121	180	390			*		*	*		*				
14D561K	Z	350	460	560(504-616)	925	125	185	360			*		*	*		*				
14D621K	Z	385	505	620(558-682)	1025	128	190	320			*		*	*		*				
14D681K	Z	420	560	680(612-748)	1120	130	200	290			*		*	*		*				
14D751K	Z	460	615	750(675-825)	1240	143	210	270			*		*	*		*				
14D781K	Z	485	640	780(702-858)	1290	148	220	260	*	*	*	*								
14D821K	Z	510	670	820(738-902)	1355	157	235	240	*	*	*	*								
14D911K	Z	550	745	910(819-1001)	1500	175	255	220	*	*	*	*								
14D102K	Z	625	825	1000(900-1100)	1650	190	280	200	*	*	*	*								
14D112K	Z	680	895	1100(990-1210)	1815	213	310	180	*	*	*	*								
14D122K	Z	750	990	1200(1080-1320)	1980	232	324	160	*	*	*	*								
14D142K	Z	880	1140	1400(1260-1540)	2310	238	327	150	*	*	*	*								
14D162K	Z	1000	1280	1600(1440-1760)	2640	243	331	140	*	*	*	*								
14D182K	Z	1100	1465	1800(1620-1980)	2970	5000	250	335	130	*	*	*								

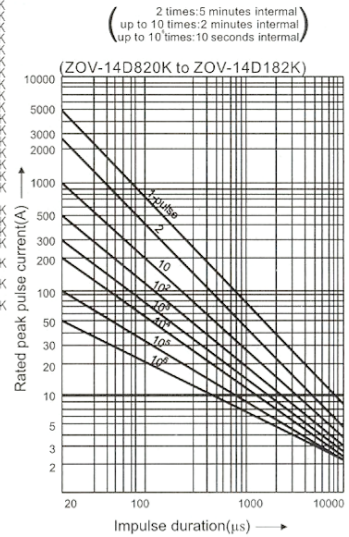
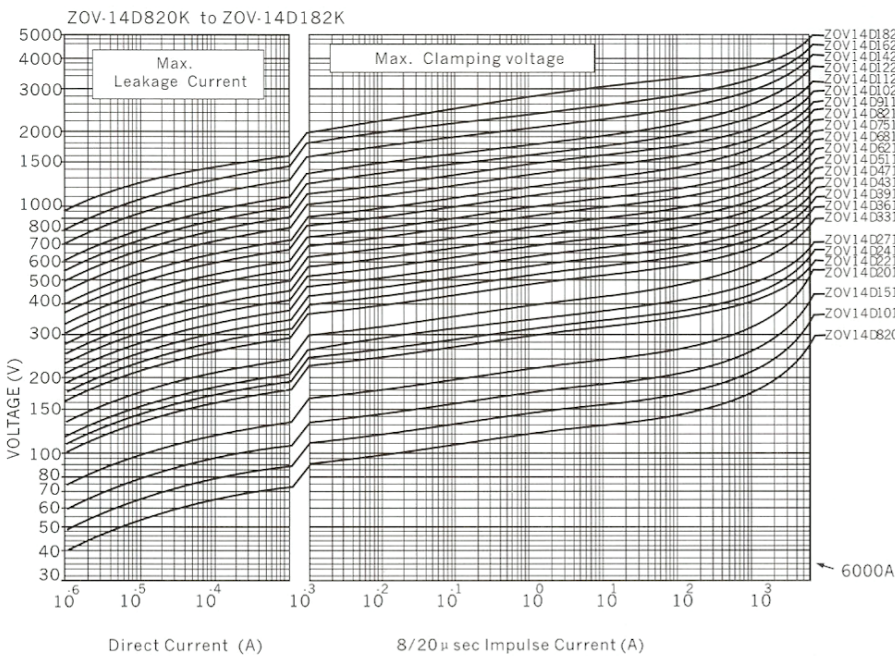
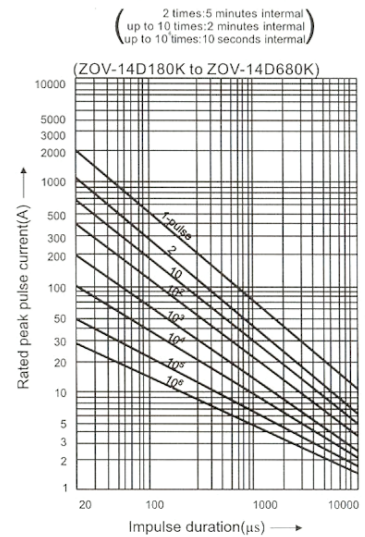
# Metal Oxide Varistor

## ● 14D SERIES

### V-I curve



### Surge Lifetime Ratings








# Metal Oxide Varistor

## ● 20D Specification

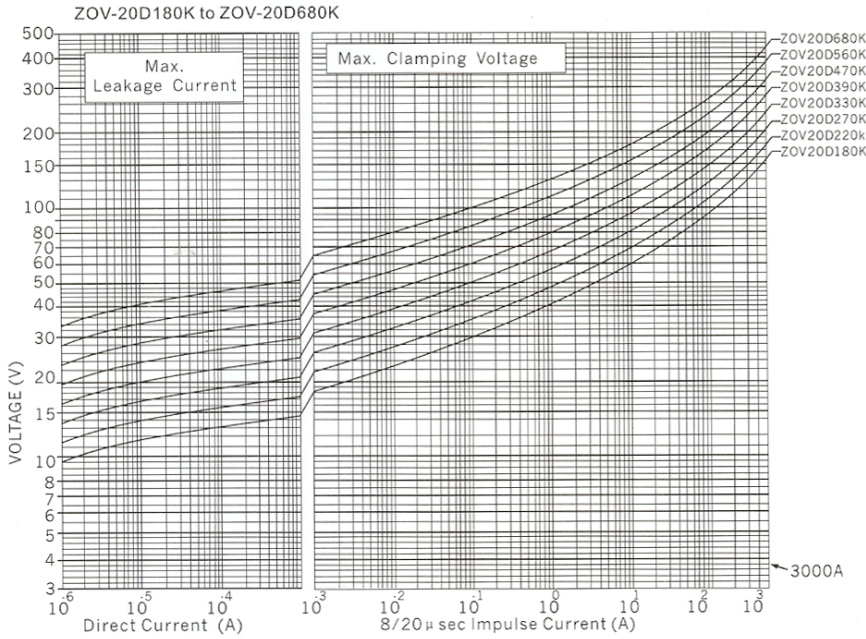
Put "Z" In Free Code Stands For High Surge Series

ZOV Part Number		Maximum Allowable Voltage		Varistor Voltage $V_{1.0mA}$ (V)	Clamping voltage (Max.)		Maximum Peak Current (8/20 $\mu$ s)		Maximum Energy (10/1000 $\mu$ s)		Rated Power (W)	Typical Capacitance (Reference) @ 1 KHz (pf)	  	CQC		
$\varnothing$ 20.0mm		AC.rms	DC		VC	IP	Standard	High Surge	Standard	High Surge						
Standard	High Surge	(V)	(V)	(V)	(V)	(A)	(A)	(JOULE)	(JOULE)	(W)	(pf)					
20D180K	Z	11	14	18(15-21.6)	36	20	2000	3000	11	13	0.20	28500	*	*	*	*
20D220K	Z	14	18	22(19.5-26)	43				14	16		18500	*	*	*	*
20D270K	Z	17	22	27(24-31)	53				16	19		13000	*	*	*	*
20D330K	Z	20	26	33(29.5-36.5)	65				23	24		11500	*	*	*	*
20D390K	Z	25	31	39(35-43)	77				26	28		8500	*	*	*	*
20D470K	Z	30	38	47(42-52)	93				30	34		7400	*	*	*	*
20D560K	Z	35	45	56(50-62)	110				38	44		6500	*	*	*	*
20D680K	Z	40	56	68(61-75)	135				41	49		5800	*	*	*	*
20D820K	Z	50	65	82(74-90)	135				45	56		4900	*	*	*	*
20D101K	Z	60	85	100(90-110)	165				50	70		4000	*	*	*	*
20D121K	Z	75	100	120(108-132)	200	55	85	3300	*	*	*	*				
20D151K	Z	95	125	150(135-165)	250	70	106	2700	*	*	*	*				
20D181K	Z	115	150	180(162-198)	300	85	130	2200	*	*	*	*				
20D201K	Z	130	170	200(185-225)	340	95	140	2000	*	*	*	*				
20D221K	Z	140	180	220(198-242)	360	100	155	1800	*	*	*	*				
20D241K	Z	150	200	240(216-264)	395	108	168	1650	*	*	*	*				
20D271K	Z	175	225	270(243-297)	455	127	190	1500	*	*	*	*				
20D301K	Z	190	250	300(270-330)	500	136	210	1300	*	*	*	*				
20D331K	Z	210	275	330(297-363)	550	150	228	1200	*	*	*	*				
20D361K	Z	230	300	360(324-396)	595	163	255	1100	*	*	*	*				
20D391K	Z	250	320	390(351-429)	650	180	275	1000	*	*	*	*				
20D431K	Z	275	350	430(387-473)	710	190	305	930	*	*	*	*				
20D471K	Z	300	385	470(423-517)	775	204	350	850	*	*	*	*				
20D511K	Z	320	415	510(459-561)	845	210	360	780	*	*	*	*				
20D561K	Z	350	460	560(504-616)	925	215	380	710	*	*	*	*				
20D621K	Z	385	505	620(558-682)	1025	224	390	650	*	*	*	*				
20D681K	Z	420	560	680(612-748)	1120	230	400	600	*	*	*	*				
20D751K	Z	460	615	750(675-825)	1240	255	420	530	*	*	*	*				
20D781K	Z	485	640	780(702-858)	1290	265	440	510	*	*	*	*				
20D821K	Z	510	670	820(738-902)	1355	282	460	500	*	*	*	*				
20D911K	Z	550	745	910(819-1001)	1500	310	510	440	*	*	*	*				
20D102K	Z	625	825	1000(900-1100)	1650	342	565	400	*	*	*	*				
20D112K	Z	680	895	1100(990-1210)	1815	383	620	360	*	*	*	*				
20D122K	Z	750	990	1200(1080-1320)	1980	408	660	350	*	*	*	*				
20D142K	Z	880	1140	1400(1260-1540)	2310	532	784	340	*	*	*	*				
20D162K	Z	1000	1280	1600(1440-1760)	2640	606	896	330	*	*	*	*				
20D182K	Z	1100	1465	1800(1620-1980)	2970	625	990	320	*	*	*	*				

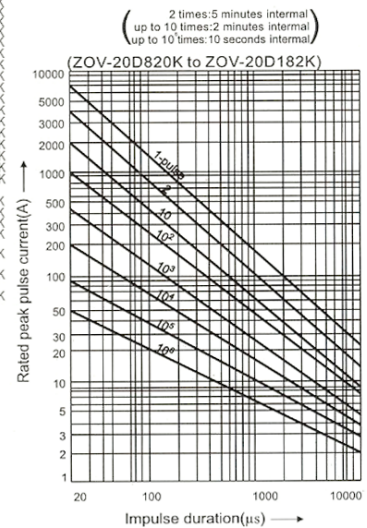
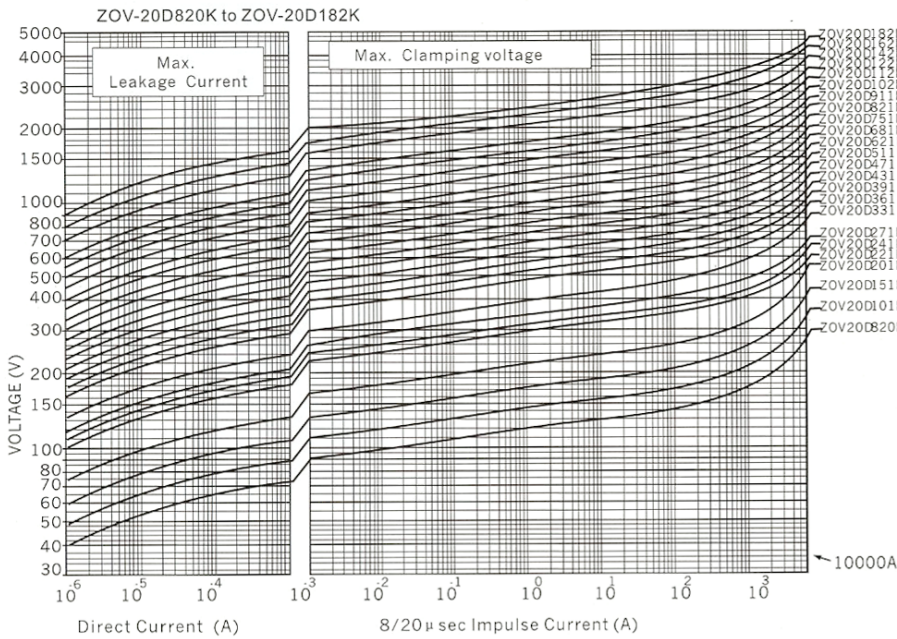
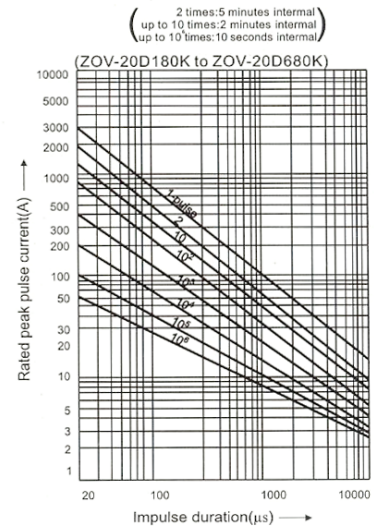
# Metal Oxide Varistor

## ● 20D SERIES

V-I curve



Impulse Lifetime Ratings








# Metal Oxide Varistor

## ● 25D Specifiation

Put "Z" In Free Code Stands For High Surge Series

ZOV Part Number ∅25.0mm	Maximum Allowable Voltage		Varistor Voltage V <sub>1.0mA</sub> (V)	Clamping voltage (Max.)		Maximum Peak Current (8/20µs)		Maximum Energy (10/1000µs)		Rated Power (W)	Typical Capacitance (Reference) @ 1 KHz (pf)			
	AC.rms	DC		VC	IP	Standard	High Surge	Standard	High Surge					
	(V)	(V)	(V)	(V)	(A)	(A)	(A)	(JOULE)	(W)	(pf)				
25D180K	Z	11	14	18(15-21.6)	36	30	3000	4500	13	20	0.25		*	*
25D220K	Z	14	18	22(19.5-26)	43				16	25		29000	*	*
25D270K	Z	17	22	27(24-31)	53				19	30		26500	*	*
25D330K	Z	20	26	33(29.5-36.5)	65				24	35		18000	*	*
25D390K	Z	25	31	39(35-43)	77				28	40		13500	*	*
25D470K	Z	30	38	47(42-52)	93				34	50		11500	*	*
25D560K	Z	35	45	56(50-62)	110				41	60		10500	*	*
25D680K	Z	40	56	68(61-75)	135				49	70		9050	*	*
25D820K	Z	50	65	82(74-90)	135				56	80		7700	*	*
25D101K	Z	60	85	100(90-110)	165				70	100		6300	*	*
25D121K	Z	75	100	120(108-132)	200	85	120	5200	*	*				
25D151K	Z	95	125	150(135-165)	250	106	160	4300	*	*				
25D181K	Z	115	150	180(162-198)	300	130	175	3500	*	*				
25D201K	Z	130	170	200(185-225)	340	140	190	3200	*	*	*			
25D221K	Z	140	180	220(198-242)	360	155	200	2900	*	*	*			
25D241K	Z	150	200	240(216-264)	395	168	220	2650	*	*	*			
25D271K	Z	175	225	270(243-297)	455	190	255	2400	*	*	*			
25D301K	Z	190	250	300(270-330)	500	210	275	2100	*	*	*			
25D331K	Z	210	275	330(297-363)	550	228	300	1900	*	*	*			
25D361K	Z	230	300	360(324-396)	595	255	330	1750	*	*	*			
25D391K	Z	250	320	390(351-429)	650	275	360	1600	*	*	*			
25D431K	Z	275	350	430(387-473)	710	305	380	1500	*	*	*			
25D471K	Z	300	385	470(423-517)	775	350	400	1400	*	*	*			
25D511K	Z	320	415	510(459-561)	845	361	420	1250	*	*	*			
25D561K	Z	350	460	560(504-616)	925	380	440	1150	*	*	*			
25D621K	Z	385	505	620(558-682)	1025	396	450	1050	*	*	*			
25D681K	Z	420	560	680(612-748)	1120	408	460	950	*	*	*			
25D751K	Z	460	615	750(675-825)	1240	420	510	850	*	*	*			
25D781K	Z	485	640	780(702-858)	1290	440	530	800	*	*	*			
25D821K	Z	510	670	820(738-902)	1355	460	570	750	*	*	*			
25D911K	Z	550	745	910(819-1001)	1500	510	620	700	*	*	*			
25D102K	Z	625	825	1000(900-1100)	1650	565	685	650	*	*	*			
25D112K	Z	680	895	1100(990-1210)	1815	620	720	600	*	*	*			
25D122K	Z	750	990	1200(1080-1320)	1980	631	792	550	*	*	*			
25D142K	Z	880	1140	1400(1260-1540)	2310	697	850	500	*	*	*			
25D162K	Z	1000	1280	1600(1440-1760)	2640	805	970	450	*	*	*			
25D182K	Z	1100	1465	1800(1620-1980)	2970	896	1092	400	*	*	*			

# Metal Oxide Varistor

## ※ 22S SPECIFICATION

Model Number 19.5×19.5 (mm)	Maximum Allowable Voltage		Varistor Voltage		Clamping voltage (max.)		Maximum Peak Current (8/20μs)		Maximum Energy (JOULE)	Rated Power	Typical Capacitance (Reference)
	AC.Rms	DC	V1.0mA(V)		VC	IP	1 time	2 times	10/1000	(W)	@1 KHz
	(V)	(V)	min.	max.	(V)	(A)	(A)		μs		(pf)
22S180K	11	14	15	21	36	25	3000	1500	15.6	0.20	34000
22S220K	14	18	20	25	43	25			19.1		22200
22S270K	17	22	24	31	53	25			23		15600
22S330K	20	26	30	36	65	25			29		13800
22S390K	25	31	35	43	77	25			33.5		10200
22S470K	30	38	42	52	93	25	5000	2500	41	0.20	8880
22S560K	35	45	50	62	110	25			49		7800
22S680K	40	56	61	75	135	25			59		7000
22S820K	50	65	74	90	135	115	10000	5000	67	1.10	5880
22S101K	60	85	90	110	165	115			84		4800
22S121K	75	100	108	132	200	115			102		4000
22S151K	95	125	135	165	250	115			127		3200
22S181K	115	150	162	198	300	115			156		2650
22S201K	130	170	185	225	340	115	15000	10000	170	1.00	2400
22S221K	140	180	198	242	360	115			185		2160
22S241K	150	200	216	264	395	115			200		2000
22S271K	175	225	243	297	455	115			230		1800
22S301K	190	250	270	330	500	115			250		1560
22S331K	210	275	297	363	550	115			270		1440
22S361K	230	300	324	396	595	115			305		1320
22S391K	250	320	351	429	650	115			330		1200
22S431K	275	350	387	473	710	115			365		1160
22S471K	300	385	423	517	775	115			420		1020
22S511K	320	415	459	561	845	115			430		935
22S561K	350	460	504	616	925	115			455		850
22S621K	385	505	558	682	1025	115			465		780
22S681K	420	560	612	748	1120	115			480		720
22S751K	460	615	675	825	1240	115			500		635
22S781K	485	640	702	858	1290	115			525		610
22S821K	510	670	738	902	1355	115			550		600
22S911K	550	745	819	1001	1500	115			610		525
22S102K	625	825	900	1100	1650	115			675		480
22S112K	680	895	990	1210	1815	115			740		430
22S122K	750	990	1080	1320	1980	115			790		380
22S142K	880	1140	1260	1540	2310	115			938		360
22S162K	1000	1280	1440	1760	2640	115			1072		310
22S182K	1100	1465	1620	1980	2970	115			1260		300





# Metal Oxide Varistor

## ※ 22S SPECIFICATION

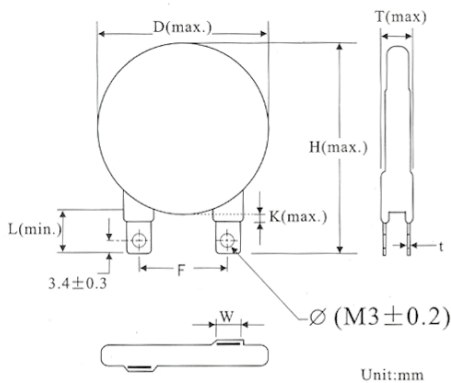
Model Number 22.5×25.5(mm)	Maximum Allowable Voltage		Varistor Voltage		Clamping voltage (max.)		Maximum Peak Current (8/20μs)		Maximum Energy (JOULE)	Rated Power	Typical Capacitance (Reference)
	AC.Rms	DC	V1.0mA(V)		VC	IP	1 time	2 times	10/1000	(W)	@1 KHz (pf)
	(V)	(V)	min.	max.	(V)	(A)	(A)		μs		
22S180K	11	14	15	21	36	35	5000	2500	23	0.25	45000
22S220K	14	18	20	25	43	35			28		37000
22S240K	15	20	22	27	48	35			30		33600
22S270K	17	22	24	31	53	35			33		30000
22S330K	20	26	30	37	65	35			42		24500
22S390K	25	31	35	44	77	35			49		21000
22S470K	30	38	42	52	93	35			60		17250
22S560K	35	45	50	63	110	35	10000	72	0.25	14500	
22S680K	40	56	61	75	135	35		85		9500	
22S820K	50	65	74	90	135	175	18000	9000	1.20	8800	
22S101K	60	85	90	110	165	175		122		7200	
22S121K	75	100	108	132	200	175	23000	10000	146	1.20	6000
22S131K	82	108	117	143	216	175			160		5550
22S151K	95	125	135	165	250	175			185		4400
22S181K	115	150	162	198	300	175			218		3650
22S201K	130	170	185	225	340	175			252		3300
22S221K	140	180	198	242	360	175			280		3000
22S241K	150	200	216	264	395	175			302		2800
22S271K	175	225	243	297	455	175			340		2450
22S301K	190	250	270	330	500	175			375		2200
22S331K	210	275	297	363	550	175			410		2050
22S361K	230	300	324	396	595	175			465		1850
22S391K	250	320	351	429	650	175			520		1700
22S431K	275	350	387	473	710	175			575		1600
22S471K	300	385	423	517	775	175			630		1450
22S511K	320	415	459	561	845	175			665		1300
22S561K	350	460	504	616	925	175			720		1200
22S621K	385	505	558	682	1025	175			770		1100
22S681K	420	560	612	748	1120	175			801		1000
22S751K	460	615	675	825	1240	175			825		900
22S781K	485	640	702	858	1290	175			860		850
22S821K	510	670	738	902	1355	175			900		810
22S911K	550	745	819	1001	1500	175			950		750
22S951K	575	780	855	1045	1570	175			980		700
22S102K	625	825	900	1100	1650	175			1040		660
22S112K	680	895	990	1210	1815	175			1130		605
22S122K	750	990	1150	1320	1980	175			1170		555
22S142K	850	1120	1315	1540	2310	175			1200		475
22S152K	930	1220	1450	1650	2475	175	1250	445			
22S162K	1000	1320	1550	1760	2640	175	1300	415			

# Metal Oxide Varistor

## ※ 32D SPECIFICATION

Model Number Ø32mm	Maximum Allowable Voltage		Varistor Voltage V <sub>1.0mA</sub> (V)	Clamping voltage (max.)		Maximum Peak Current (8/20µs)		Maximum Energy (JOULE) 10/1000 µs	Typical Capacitance (Reference) @1 KHz (pf)	 	
	AC.Rms (V)	DC (V)		VC (V)	IP (A)	1 time (A)	2 times (A)				
	ZOV-32D201K	130	170	200(185-225)	340	200	25000	20000	250		
ZOV-32D241K	150	200	240(216-264)	395	290				5100	*	*
ZOV-32D271K	175	225	270(243-297)	455	300				4800	*	*
ZOV-32D331K	210	275	330(297-363)	550	360				4300	*	*
ZOV-32D361K	230	300	360(324-396)	595	380				3900	*	*
ZOV-32D391K	250	320	390(351-429)	650	400				3200	*	*
ZOV-32D431K	275	350	430(387-473)	710	430				3100	*	*
ZOV-32D471K	300	385	470(423-517)	775	460				2800	*	*
ZOV-32D511K	320	415	510(459-561)	845	510				2700	*	*
ZOV-32D621K	385	505	620(558-682)	1025	570				2400	*	*
ZOV-32D681K	420	560	680(612-748)	1120	600				2200	*	*
ZOV-32D751K	460	615	750(675-825)	1240	620				2000	*	*
ZOV-32D781K	485	640	780(702-858)	1290	660				1900	*	*
ZOV-32D821K	510	670	820(738-902)	1355	700				1800	*	*
ZOV-32D911K	550	745	910(819-1001)	1500	750				1300	*	*
ZOV-32D951K	575	765	950(855-1045)	1570	780				1200	*	*
ZOV-32D102K	625	825	1000(900-1100)	1650	810				1100	*	*
ZOV-32D112K	680	895	1100(990-1210)	1815	910				1000	*	*
ZOV-32D122K	750	990	1200(1080-1320)	1980	960				920	*	*
ZOV-32D142K	880	1140	1400(1260-1540)	2310	1020				800	*	*
ZOV-32D162K	1000	1280	1600(1440-1760)	2640	1080	700	*	*			

### DIMENSIONS





D(max.)	38
H(max.)	56.3
T(max.)	参右表
F(±0.5)	25.4
t(±0.25)	0.5
L(min)	14.5
K(max.)	3.18
W(±0.5)	7.0
Ø(M3±0.2)	3.8

Model	T(max)	Model	T(max)	Model	T(max)
201K	6.2	751K	9.4		
241K	6.4	781K	9.6		
271K	6.6	821K	9.8		
331K	6.9	911K	10.4		
361K	7.1	951K	10.6		
391K	7.3	102K	11.2		
431K	7.5	112K	11.8		
471K	7.8	122K	12.3		
511K	8.0	142K	13.3		
621K	8.7	162K	14.3		
681K	9.0				

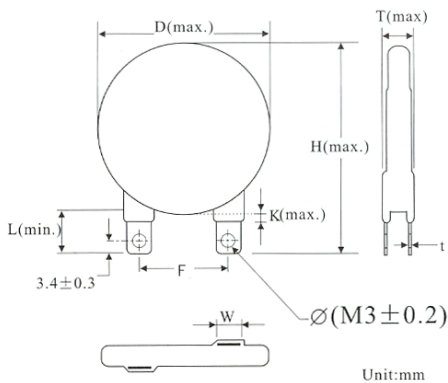


# Metal Oxide Varistor

## ※ 40D SPECIFICATION

Model Number Ø40mm	Maximum Allowable Voltage		Varistor Voltage $V_{1.0mA}$ (V)	Clamping voltage (max.)		Maximum Peak Current (8/20µs)		Maximum Energy (JOULE) 10/1000 µs	Typical Capacitance (Reference) @1 KHz (pf)	 	
	AC.Rms (V)	DC (V)		VC (V)	IP (A)	1 time (A)	2 times (A)				
ZOV-40D201K	130	170	200(185-225)	340	300	40000	30000	370	8400	*	*
ZOV-40D241K	150	200	240(216-264)	395				430	8000	*	*
ZOV-40D271K	175	225	270(243-297)	455				470	7600	*	*
ZOV-40D331K	210	275	330(297-363)	550				550	6700	*	*
ZOV-40D361K	230	300	360(324-396)	595				570	6200	*	*
ZOV-40D391K	250	320	390(351-429)	650				590	5100	*	*
ZOV-40D431K	275	350	430(387-473)	710				660	4900	*	*
ZOV-40D471K	300	385	470(423-517)	775				720	4300	*	*
ZOV-40D511K	320	415	510(459-561)	845				770	4200	*	*
ZOV-40D621K	385	505	620(558-682)	1025				860	3800	*	*
ZOV-40D681K	420	560	680(612-748)	1120				900	3500	*	*
ZOV-40D751K	460	615	750(675-825)	1240				940	3200	*	*
ZOV-40D781K	485	640	780(702-858)	1290				980	3000	*	*
ZOV-40D821K	510	670	820(738-902)	1355				1080	2900	*	*
ZOV-40D911K	550	745	910(819-1001)	1500				1150	2200	*	*
ZOV-40D951K	575	765	950(855-1045)	1570				1200	2000	*	*
ZOV-40D102K	625	825	1000(900-1100)	1650				1260	1800	*	*
ZOV-40D112K	680	895	1100(990-1210)	1815				1380	1600	*	*
ZOV-40D122K	750	990	1200(1080-1320)	1980				1460	1500	*	*
ZOV-40D142K	880	1140	1400(1260-1540)	2310				1550	1300	*	*
ZOV-40D162K	1000	1280	1600(1440-1760)	2640	1700	1150	*	*			

### DIMENSIONS



D(max.)	45
H(max.)	60.2
T(max.)	参右表
F(±0.5)	25.4
t(±0.25)	0.5
L(min.)	14.5
K(max.)	3.18
W(±0.5)	7.0
Ø(M3±0.2)	3.8

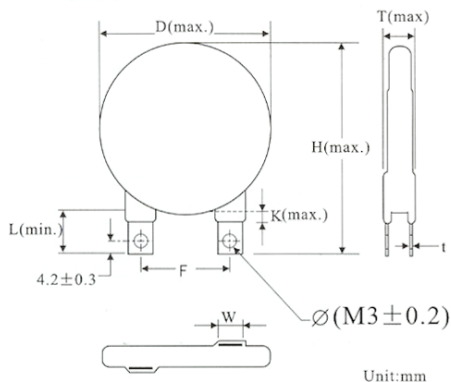
Model	T(max)	Model	T(max)	Model	T(max)
201K	6.2	681K	9.0		
241K	6.4	751K	9.4		
271K	6.6	781K	9.6		
331K	6.9	821K	9.8		
361K	7.1	911K	10.4		
391K	7.3	951K	10.6		
431K	7.5	102K	11.2		
471K	7.8	112K	11.8		
511K	8.0	122K	12.3		
621K	8.7	142K	13.3		
		162K	14.3		

# Metal Oxide Varistor

## ※ 53D SPECIFICATION

Model Number Ø53mm	Maximum Allowable Voltage		Varistor Voltage $V_{1.0mA}$	Clamping voltage (max.)		Maximum Peak Current (8/20µs)		Maximum Energy (JOULE) µs	Typical Capacitance (Reference) @1 KHz (pf)	RUI	SP
	AC.Rms	DC		VC	IP	1 time	2 times				
	(V)	(V)	(V)	(A)	(A)						
ZOV-53D201K	130	170	200(185-225)	340	500	70000	50000	550	15000	*	*
ZOV-53D241K	150	200	240(216-264)	395				650	12500	*	*
ZOV-53D271K	175	225	270(243-297)	455				700	11000	*	*
ZOV-53D331K	210	275	330(297-363)	550				825	9000	*	*
ZOV-53D361K	230	300	360(324-396)	595				850	8500	*	*
ZOV-53D391K	250	320	390(351-429)	650				885	7500	*	*
ZOV-53D431K	275	350	430(387-473)	710				990	7000	*	*
ZOV-53D471K	300	385	470(423-517)	775				1080	6500	*	*
ZOV-53D511K	320	415	510(459-561)	845				1150	6000	*	*
ZOV-53D621K	385	505	620(558-682)	1025				1300	5000	*	*
ZOV-53D681K	420	560	680(612-748)	1120				1350	4500	*	*
ZOV-53D751K	460	615	750(675-825)	1240				1400	4000	*	*
ZOV-53D781K	485	640	780(702-858)	1290				1450	3900	*	*
ZOV-53D821K	510	670	820(738-902)	1355				1600	3700	*	*
ZOV-53D911K	550	745	910(819-1001)	1500				1700	3300	*	*
ZOV-53D951K	575	765	950(855-1045)	1570				1800	3200	*	*
ZOV-53D102K	625	825	1000(900-1100)	1650				1890	3000	*	*
ZOV-53D112K	680	895	1100(990-1210)	1815				2050	2700	*	*
ZOV-53D122K	750	990	1200(1080-1320)	1980				2160	2500	*	*
ZOV-53D142K	880	1140	1400(1260-1540)	2310				2300	2150	*	*
ZOV-53D162K	1000	1280	1600(1440-1760)	2640	2500	1900	*	*			

### DIMENSIONS



D(max.)	60
H(max.)	78.2
T(max.)	参右表
F(±0.5)	25.4
t(±0.25)	0.7
L(min.)	14.5
K(max.)	3.18
W(±0.5)	9.7
Ø(M3±0.2)	4.15

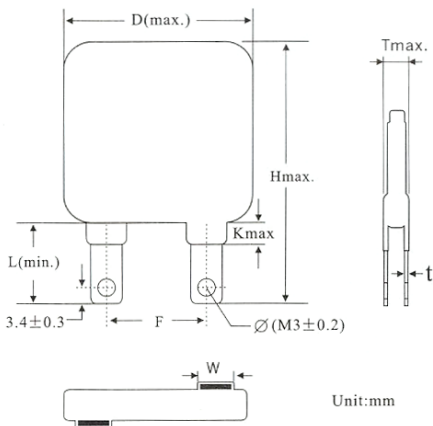
Model	T(max)	Model	T(max)	Model	T(max)
201K	6.3	751K	9.5		
241K	6.5	781K	9.7		
271K	6.7	821K	9.9		
331K	7.0	911K	10.5		
361K	7.2	951K	10.7		
391K	7.4	102K	11.3		
431K	7.6	112K	11.9		
471K	7.9	122K	12.4		
511K	8.1	142K	13.4		
621K	8.8	162K	14.4		
681K	9.1				



# Metal Oxide Varistor

## ※ 34S SPECIFICATION

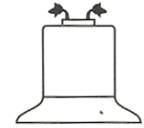
Model Number 34×34(mm)	Maximum Allowable Voltage		Varistor Voltage $V_{1.0mA}$ (V)	Clamping voltage (max.)		Maximum Peak Current (8/20 $\mu$ s)		Maximum Energy (JOULE) 10/1000 $\mu$ s	Typical Capacitance (Reference) @1 KHz (pf)	UL	SP
	AC.Rms (V)	DC (V)		VC (V)	IP (A)	1 time (A)	2 times (A)				
	ZOV-34S201K	130	170	200(185-225)	340	300	40000	30000	330	8000	*
ZOV-34S221K	140	180	220(198-242)	360	360				7800	*	*
ZOV-34S241K	150	200	240(216-264)	395	390				7600	*	*
ZOV-34S271K	175	225	270(243-297)	455	420				7200	*	*
ZOV-34S331K	210	275	330(297-363)	550	500				6400	*	*
ZOV-34S361K	230	300	360(324-396)	595	510				6000	*	*
ZOV-34S391K	250	320	390(351-429)	650	530				4800	*	*
ZOV-34S431K	275	350	430(387-473)	710	600				4600	*	*
ZOV-34S471K	300	385	470(423-517)	775	650				4100	*	*
ZOV-34S511K	320	415	510(459-561)	845	700				4000	*	*
ZOV-34S561K	350	460	560(504-616)	925	730				3800	*	*
ZOV-34S621K	385	505	620(558-682)	1025	780				3600	*	*
ZOV-34S681K	420	560	680(612-748)	1120	810				3300	*	*
ZOV-34S751K	460	615	750(675-825)	1240	850				3000	*	*
ZOV-34S781K	485	640	780(702-858)	1290	930				2850	*	*
ZOV-34S821K	510	670	820(738-902)	1355	970				2700	*	*
ZOV-34S911K	550	745	910(819-1001)	1500	1050				2100	*	*
ZOV-34S951K	575	765	950(855-1045)	1570	1080				1900	*	*
ZOV-34S102K	625	825	1000(900-1100)	1650	1120				1700	*	*
ZOV-34S112K	680	895	1100(990-1210)	1815	1250				1520	*	*
ZOV-34S122K	750	990	1200(1080-1320)	1980	1340	1400	*	*			
ZOV-34S142K	880	1140	1400(1260-1540)	2310	1400	1250	*	*			
ZOV-34S162K	1000	1280	1600(1440-1760)	2640	1500	1100		*			



D(max.)	44.0
H(max.)	56.6
T(max.)	参右表
F(±0.5)	25.4
t(±0.1)	0.5
L(min.)	14.5
K(max.)	3.18
W(±0.5)	7.0
Ø(M3±0.2)	3.8

Model	T(max)	Model	T(max)	Model	T(max)
201K	6.2	621K	8.7	162K	14.3
221K	6.3	681K	9.0		
241K	6.4	751K	9.4		
271K	6.6	781K	9.6		
331K	6.9	821K	9.8		
361K	7.1	911K	10.4		
391K	7.3	951K	10.6		
431K	7.5	102K	11.2		
471K	7.8	112K	11.8		
511K	8.0	122K	12.3		
561K	8.3	142K	13.3		

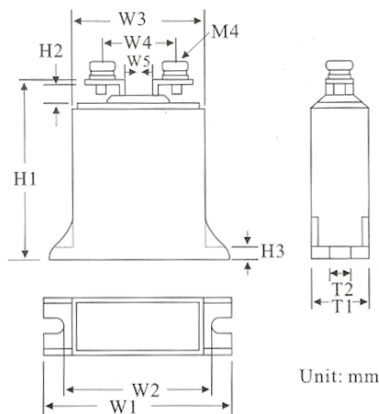
# Metal Oxide Varistor



## ※ 34B (BLOCK VARISTOR)

## SPECIFICATION

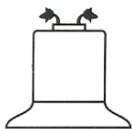
Model Number 34×34(mm)	Maximum Allowable Voltage		Varistor Voltage $V_{1.0mA}$ (V)	Clamping voltage (max.)		Maximum Peak Current (8/20μs)		Maximum Energy (JOULE) 10/1000 μs	Typical Capacitance (Reference) @ 1 KHz (pf)
	AC.Rms (V)	DC (V)		VC (V)	IP (A)	1 time (A)	2 times (A)		
	ZOV-34B201K	130	170	200(185-225)	340	300	40000	30000	330
ZOV-34B221K	140	180	220(198-242)	360	360				7800
ZOV-34B241K	150	200	240(216-264)	395	390				7600
ZOV-34B271K	175	225	270(243-297)	455	420				7200
ZOV-34B331K	210	275	330(297-363)	550	500				6400
ZOV-34B361K	230	300	360(324-396)	595	510				6000
ZOV-34B391K	250	320	390(351-429)	650	530				4800
ZOV-34B431K	275	350	430(387-473)	710	600				4600
ZOV-34B471K	300	385	470(423-517)	775	650				4100
ZOV-34B511K	320	415	510(459-561)	845	700				4000
ZOV-34B561K	350	460	560(504-616)	925	730				3800
ZOV-34B621K	385	505	620(558-682)	1025	780				3600
ZOV-34B681K	420	560	680(612-748)	1120	810				3300
ZOV-34B751K	460	615	750(675-825)	1240	850				3000
ZOV-34B781K	485	640	780(702-858)	1290	930				2850
ZOV-34B821K	510	670	820(738-902)	1355	970				2700
ZOV-34B911K	550	745	910(819-1001)	1500	1050				2100
ZOV-34B951K	575	765	950(855-1045)	1570	1080				1900
ZOV-34B102K	625	825	1000(900-1100)	1650	1120				1700
ZOV-34B112K	680	895	1100(990-1210)	1815	1250				1520



Unit: mm

H1 (Max.)	57.0
H2 (±0.5)	5.0
H3 (±0.5)	3.5
W1 (±2.5)	60.0
W2 (±0.5)	51.0
W3 (±0.5)	42.0
W4 (±1.5)	24.0
W5 (±1.5)	12.0
T1 (±0.5)	14.0
T2 (±0.5)	4.3



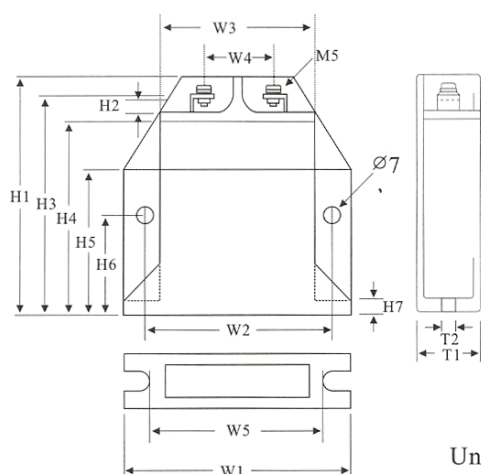


# Metal Oxide Varistor

## ※ 60B (BLOCK VARISTOR)

## SPECIFICATION

Model Number ∅53mm	Maximum Allowable Voltage		Varistor Voltage $V_{1.0mA}$ (V)	Clamping voltage (max.)		Maximum Peak Current (8/20μs)		Maximum Energy (JOULE) 10/1000 μs	Typical Capacitance (Reference) @1 KHz (pf)
	AC.Rms (V)	DC (V)		VC (V)	IP (A)	1 time (A)	2 times (A)		
	ZOV-60B201K	130	170	200(185-225)	340	500	70000	50000	550
ZOV-60B241K	150	200	240(216-264)	395	650				12500
ZOV-60B271K	175	225	270(243-297)	455	700				11000
ZOV-60B331K	210	275	330(297-363)	550	825				9000
ZOV-60B361K	230	300	360(324-396)	595	850				8500
ZOV-60B391K	250	320	390(351-429)	650	885				7500
ZOV-60B431K	275	350	430(387-473)	710	990				7000
ZOV-60B471K	300	385	470(423-517)	775	1080				6500
ZOV-60B511K	320	415	510(459-561)	845	1150				6000
ZOV-60B621K	385	505	620(558-682)	1025	1300				5000
ZOV-60B681K	420	560	680(612-748)	1120	1350				4500
ZOV-60B751K	460	615	750(675-825)	1240	1400				4000
ZOV-60B781K	485	640	780(702-858)	1290	1450				3900
ZOV-60B821K	510	670	820(738-902)	1355	1600				3700
ZOV-60B911K	550	745	910(819-1001)	1500	1700				3300
ZOV-60B951K	575	765	950(855-1045)	1570	1800				3200
ZOV-60B102K	625	825	1000(900-1100)	1650	1890	3000			
ZOV-60B112K	680	895	1100(990-1210)	1815	2050	2700			



H1 (max.)	100.0
H2 (±0.5)	5.0
H3 (max.)	92.0
H4 (max.)	83.0
H5 (max.)	45.0
H6 (max.)	30.0
H7 (max.)	5.0
T1 (max.)	24.0
T2 (max.)	7.0
W1 (max.)	100.0
W2 (max.)	86.0
W3 (max.)	71.0
W4 (max.)	40.0
W5 (max.)	80.0