

## Z7D Series

### Specifications

Part No.	Varistor Voltage	Maximum Allowable Voltage		Clamping Voltage (max.)	Rated Power	Maximum Energy		Maximum Peak Current (8/20 $\mu$ s) 2 times	Capacitance (TYP) 1kHz
		V <sub>1mA</sub> (V)	AC <sub>rms</sub> (V)			DC(V)	V(V)		
Z7D180	18(16-20)	11	14	36 at 2.5A	0.02	1.1	0.9	250	3800
Z7D220	22(20-24)	14	18	43		1.3	1.1		3600
Z7D270	27(24-30)	17	22	53		1.6	1.3		3400
Z7D330	33(30-36)	20	26	65		2.0	1.6		2900
Z7D390	39(35-43)	25	31	77		2.4	1.9		1600
Z7D470	47(42-52)	30	38	93		2.8	2.3		1550
Z7D560	56(50-62)	35	45	110		3.4	2.7		1500
Z7D680	68(61-75)	40	56	135		4.1	3.3		1200
*1 Z7D820	82(74-90)	50	65	135 at 10A		7	5		810
*1 Z7D101	100(90-110)	60	85	165		8.5	6		700
*1 Z7D121	120(108-132)	75	100	200	10	7	590		
*1 Z7D151	150(135-165)	95	125	250	13	9	500		
*1 Z7D201	200(185-225)	130	170	340	17.5	12.5	200		
*1 Z7D221	220(198-242)	140	180	360	19	13.5	190		
*1 Z7D241	240(216-264)	150	200	395	21	15	170		
*1 Z7D271	270(247-303)	175	225	455	24	17	150		
*1 Z7D331	330(297-363)	210	270	545	28	20	130		
*1 Z7D361	360(324-396)	230	300	595	32	23	130		
*1 Z7D391	390(351-429)	250	320	650	35	25	130		
*1 Z7D431	430(387-473)	275	350	710	40	27.5	120		
*1 Z7D471	470(423-517)	300	385	775	42	30	100 *2		
*1 Z7D511	510(459-561)	320	410	845	45	32	90 *2		

1. Operating temperature range: -40 to 85°C

2. Storage temperature range: -40 to 125°C

\*1 UL 1449 approved model

\*2 Measured at 1MHz

## Z10D Series

### Specifications

Part No.	Varistor Voltage	Maximum Allowable Voltage		Clamping Voltage (max.)	Rated Power	Maximum Energy		Maximum Peak Current (8/20 $\mu$ s) 2 times	Capacitance (TYP) 1kHz
		V <sub>1mA</sub> (V)	AC <sub>rms</sub> (V)			DC(V)	V(V)		
Z10D180	18(16-20)	11	14	36 at 5A	0.05	2.6	2.2	500	16000
Z10D220	22(20-24)	14	18	43		3.2	2.6		11000
Z10D270	27(24-30)	17	22	53		3.9	3.2		8000
Z10D330	33(30-36)	20	26	65		4.8	4.0		6300
Z10D390	39(35-43)	25	31	77		5.6	4.7		5200
Z10D470	47(42-52)	30	38	93		6.8	5.6		4600
Z10D560	56(50-62)	35	45	110		8.1	6.7		3750
Z10D680	68(61-75)	40	56	135		9.8	8.2		2800
* Z10D820	82(74-90)	50	65	135 at 25A		14	10		2000
* Z10D101	100(90-110)	60	85	165		17	12		1700
* Z10D121	120(108-132)	75	100	200	20	14.5	1400		
* Z10D151	150(135-165)	95	125	250	25	18	1100		
* Z10D201	200(185-225)	130	170	340	35	25	430		
* Z10D221	220(198-242)	140	180	360	39	27.5	410		
* Z10D241	240(216-264)	150	200	395	42	30	380		
* Z10D271	270(247-303)	175	225	455	49	35	350		
* Z10D331	330(297-363)	210	270	545	58	42	300		
* Z10D361	360(324-396)	230	300	595	65	45	300		
* Z10D391	390(351-429)	250	320	650	70	50	300		
* Z10D431	430(387-473)	275	350	710	80	55	270		
* Z10D471	470(423-517)	300	385	775	85	60	230		
* Z10D511	510(459-561)	320	410	845	92	67	210		
* Z10D561	560(504-616)	350	450	930	92	67	200		
* Z10D681	680(612-748)	420	560	1120	92	67	170		
* Z10D751	750(675-825)	460	615	1240	100	70	160		
* Z10D821	820(738-902)	510	670	1355	110	80	140		
* Z10D911	910(819-1001)	550	745	1500	130	90	120		
* Z10D102	1000(900-1100)	625	825	1650	140	100	110		

1. Operating temperature range: -40 to 85°C

2. Storage temperature range: -40 to 125°C

\* UL 1449 approved model

## Z15D Series

### Specifications

Part No.	Varistor Voltage	Maximum Allowable Voltage		Clamping Voltage (max.)	Rated Power	Maximum Energy		Maximum Peak Current (8/20 $\mu$ s) 2 times	Capacitance (TYP) 1kHz
		V <sub>1mA</sub> (V)	AC <sub>rms</sub> (V)			DC(V)	V(V)		
Z15D180	18(16-20)	11	14	36 at 10A	0.1	5.2	4.3	1000	25000
Z15D220	22(20-24)	14	18	43		6.3	5.3		20000
Z15D270	27(24-30)	17	22	53		7.8	6.5		16000
Z15D330	33(30-36)	20	26	65		9.5	7.9		12200
Z15D390	39(35-43)	25	31	77		11	9.4		7000
Z15D470	47(42-52)	30	38	93		14	11		6750
Z15D560	56(50-62)	35	45	110		16	13		6500
Z15D680	68(61-75)	40	56	135		20	16		5500
* Z15D820	82(74-90)	50	65	135 at 50A		28	20		3700
* Z15D101	100(90-110)	60	85	165		35	25		3200
* Z15D121	120(108-132)	75	100	200		42	30		2700
* Z15D151	150(135-165)	95	125	250		53	37.5		2200
* Z15D201	200(185-225)	130	170	340		70	50		770
* Z15D221	220(198-242)	140	180	360		78	55		740
* Z15D241	240(216-264)	150	200	395	84	60	700		
* Z15D271	270(247-303)	175	225	455	99	70	640		
* Z15D331	330(297-363)	210	270	545	115	80	580		
* Z15D361	360(324-396)	230	300	595	130	90	540		
* Z15D391	390(351-429)	250	320	650	140	100	500		
* Z15D431	430(387-473)	275	350	710	155	110	450		
* Z15D471	470(423-517)	300	385	775	175	125	400		
* Z15D511	510(459-561)	320	410	845	190	136	350		
* Z15D561	560(504-616)	350	450	930	190	136	340		
* Z15D681	680(612-748)	420	560	1120	190	136	320		
* Z15D751	750(675-825)	460	615	1240	210	150	310		
* Z15D821	820(738-902)	510	670	1355	235	165	280		
* Z15D911	910(819-1001)	550	745	1500	255	180	250		
* Z15D102	1000(900-1100)	625	825	1650	280	200	230		

1. Operating temperature range: -40 to 85°C
2. Storage temperature range: -40 to 125°C

\* UL 1449 approved model

## Z21D Series

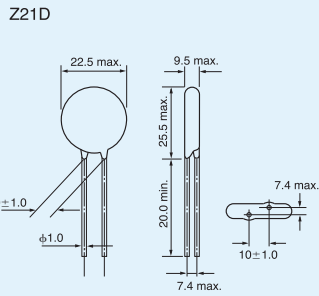
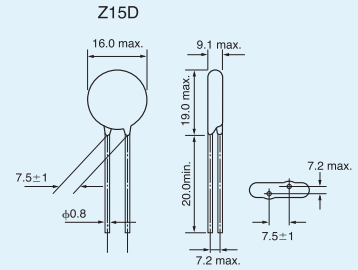
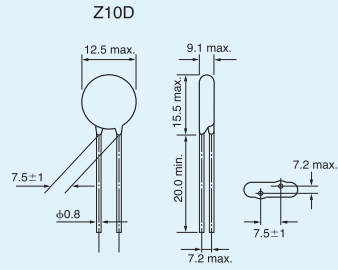
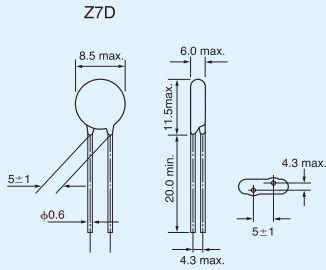
### Specifications

Part No.	Varistor Voltage	Maximum Allowable Voltage		Clamping Voltage (max.)	Rated Power	Maximum Energy		Maximum Peak Current (8/20 $\mu$ s) 2 times	Capacitance (TYP) 1kHz
		V <sub>1mA</sub> (V)	AC <sub>rms</sub> (V)			DC(V)	V(V)		
Z21D180	18(16-20)	11	14	36 at 20A	0.2	13	12	2000	40000
Z21D220	22(20-24)	14	18	43		16	14		30000
Z21D270	27(24-30)	17	22	53		19	17		24500
Z21D330	33(30-36)	20	26	65		24	21		20000
Z21D390	39(35-43)	25	31	77		28	25		13800
Z21D470	47(42-52)	30	38	93		34	30		13500
Z21D560	56(50-62)	35	45	110		41	36		12200
Z21D680	68(61-75)	40	56	135		49	44		11500
* Z21D820	82(74-90)	50	65	135 at 100A		56	40		7500
* Z21D101	100(90-110)	60	85	165		70	50		6500
* Z21D121	120(108-132)	75	100	200		85	60		5500
* Z21D151	150(135-165)	95	125	250		106	75		4500
* Z21D201	200(185-225)	130	170	340		140	100		1700
* Z21D221	220(198-242)	140	180	360		155	110		1600
* Z21D241	240(216-264)	150	200	395	168	120	1500		
* Z21D271	270(247-303)	175	225	455	190	135	1300		
* Z21D331	330(297-363)	210	270	545	228	160	1100		
* Z21D361	360(324-396)	230	300	595	255	180	1100		
* Z21D391	390(351-429)	250	320	650	275	195	1100		
* Z21D431	430(387-473)	275	350	710	303	215	1000		
* Z21D471	470(423-517)	300	385	775	350	250	900		
* Z21D511	510(459-561)	320	410	845	382	273	800		
* Z21D561	560(504-616)	350	450	930	382	273	750		
* Z21D681	680(612-748)	420	560	1120	382	273	650		
* Z21D751	750(675-825)	460	615	1240	420	300	600		
* Z21D821	820(738-902)	510	670	1355	460	325	530		
* Z21D911	910(819-1001)	550	745	1500	510	360	500		
* Z21D102	1000(900-1100)	625	825	1650	565	400	450		

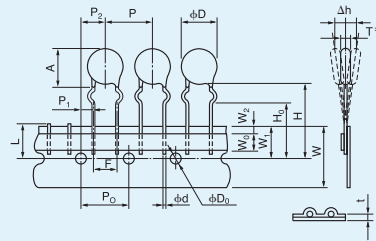
1. Operating temperature range: -40 to 85°C
2. Storage temperature range: -40 to 125°C

\* UL 1449 approved model

Dimensions



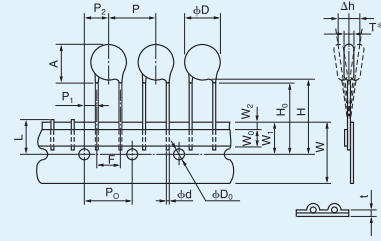
Crimped Leads and Taped  
Z7D□□□ T4C



\*Dimension "T": Conforms to each individual specification  
\*Packing quantity: 1000pcs/BOX

Symbol	Type I	Symbol	Type I
P	12.7±1.0	W <sub>0</sub>	5.0min
P <sub>0</sub>	12.7±0.3	W <sub>1</sub>	9.0±0.5
P <sub>1</sub>	3.85±0.70	W <sub>2</sub>	3max
P <sub>2</sub>	6.35±1.30	H	Approx. 22
φd	0.60 <sup>+0.06</sup> <sub>-0.05</sub>	H <sub>0</sub>	17.0±0.5
F	5.0±0.5	φD <sub>0</sub>	φ4.0±0.2
Δh	0±2	t	0.6±0.3
W	18.0 <sup>+1.0</sup> <sub>-0.5</sub>	L	11max
φD	Z7D:8.5max		

Straight Leads and Taped  
Z7D□□□ T4D



\*Dimension "T": Conforms to each individual specification  
\*Packing quantity: 1000pcs/BOX

Symbol	Type I	Symbol	Type I
P	12.7±1.0	W <sub>0</sub>	5.0min
P <sub>0</sub>	12.7±0.3	W <sub>1</sub>	9.0±0.5
P <sub>1</sub>	3.85±0.70	W <sub>2</sub>	3max
P <sub>2</sub>	6.35±1.30	H	Approx. 20
φd	0.60 <sup>+0.06</sup> <sub>-0.05</sub>	H <sub>0</sub>	17.0±0.5
F	5.0±0.5	φD <sub>0</sub>	φ4.0±0.2
Δh	0±2	t	0.6±0.3
W	18.0 <sup>+1.0</sup> <sub>-0.5</sub>	L	11max
		φD	Z7D:8.5max

Unit(mm)

# Z25M, Z33M Series

## Specifications

Part No.	Varistor voltage $V_{1mA}(V)$		Maximum allowable voltage		Clamping voltage	Rated power	Maximum energy (2ms)	Withstanding surge current (8/20 $\mu$ s)	Capacitance (TYP) (1kHz)		
			AC	DC							
	Min	Max	$V_{rms}$	V	V	W	J	2 Times (A)	pF		
Z25M221S	220(187 ~ 253 )		120	165	380 at 150A	1.0	125	10000	3300		
Z25M271S	270(229.5 ~ 310.5)		150	210	465		155		2200		
Z25M331S	330(280.5 ~ 379.5)		175	245	570		185		1900		
Z25M391S	390(331.5 ~ 448.5)		210	295	675		215		1700		
Z25M441S	440(374 ~ 506 )		240	335	760		225		1500		
Z25M471S	470(399.5 ~ 540.5)		250	350	810		235		1500		
Z25M561S	560(476 ~ 644 )		300	420	970		260		1400		
Z25M681S	680(578 ~ 782 )		365	510	1175		280		1250		
Z25M821S	820(697 ~ 943 )		440	615	1415		330		800		
Z25M102S	1000(850 ~ 1,150)		520	730	1725		375		500		
Z33M221S	220(187 ~ 253 )		120	165	380 at 200A		1.2		200	20000	5500
Z33M271S	270(229.5 ~ 310.5)		150	210	465				255		4200
Z33M331S	330(280.5 ~ 379.5)		175	245	570	310		3700			
Z33M391S	390(331.5 ~ 448.5)		210	295	675	360		3200			
Z33M441S	440(374 ~ 506 )		240	335	760	370		2800			
Z33M471S	470(399.5 ~ 540.5)		250	350	810	385		2600			
Z33M561S	560(476 ~ 644 )		300	420	970	425		2200			
Z33M681S	680(578 ~ 782 )		365	510	1175	460		1800			
Z33M821S	820(697 ~ 943 )		440	615	1415	580		1500			
Z33M102S	1000(850 ~ 1150)		520	730	1725	620		1000			

1. Operating temperature range: -40 to 85°C
2. Storage temperature range: -40 to 125°C

## Dimensions

