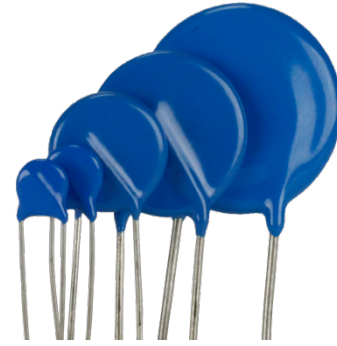




ZL SERIES

100 to 6500A, 11 to 420V
Metal Oxide Varistor



Features

- High Current Surge Rating
- Easy Tabbed Connections
- Maximum Power Dissipation
- Typical Response Time Less than 15 Nanoseconds

Specifications

Part Number	Values									
	Maximum Continuous Operating Voltage		Maximum Varistor Voltage At 0.1mA	Maximum Clamping Voltage		Maximum Peak Surge Current At 8/20 μ s	Maximum Energy At 2ms	Typical Capacitance At 1kHz	Maximum Power Dissipation	Device Marking
	V _{RMS AC} (V)	V _{DC} (V)	V _{N DC} (V)	V _C (V)	I _C (A)	I _P (A)	W _{MAX} (J)	C (pF)	P _{D MAX} (W)	-
Z5L180	11	14	18 (14.4 to 21.6)	40	1.0	100	0.3	1600	0.1	180
Z5L220	14	18	22 (17.6 to 26.4)	48	1.0	100	0.4	1300	0.1	220
Z5L270	17	22	27 (24.0 to 30.0)	60	1.0	100	0.5	1050	0.1	270
Z5L330	20	26	33 (30.0 to 36.0)	73	1.0	100	0.6	900	0.1	330
Z5L390	25	31	39 (35.0 to 43.0)	86	1.0	100	0.8	500	0.1	390
Z5L470	30	38	47 (42.0 to 52.0)	104	1.0	100	1.0	450	0.1	470
Z5L560	35	45	56 (50.0 to 62.0)	123	1.0	100	1.0	400	0.1	560
Z5L680	40	56	68 (61.0 to 75.0)	150	1.0	100	1.2	350	0.1	680
Z5L820	50	65	82 (74.0 to 90.0)	145	5.0	400	1.7	250	0.1	820
Z5L101	60	85	100 (90.0 to 110.0)	175	5.0	400	2.0	200	0.1	101
Z5L121	75	100	120 (108.0 to 132.0)	210	5.0	400	2.5	170	0.1	121
Z5L151	95	125	150 (135.0 to 165.0)	260	5.0	400	3.0	140	0.1	151
Z5L181	115	153	180 (162.0 to 198.0)	300	5.0	400	3.5	100	0.1	181
Z5L201	130	170	205 (185.0 to 225.0)	355	5.0	400	4.0	80	0.1	201
Z5L221	140	180	220 (198.0 to 242.0)	380	5.0	400	4.5	70	0.1	221
Z5L241	150	200	240 (216.0 to 264.0)	415	5.0	400	5.0	70	0.1	241
Z5L271	175	225	270 (243.0 to 297.0)	475	5.0	400	6.0	60	0.1	271
Z5L331	210	275	330 (297.0 to 363.0)	580	5.0	400	6.5	55	0.1	331
Z5L361	230	300	360 (324.0 to 396.0)	620	5.0	400	7.5	50	0.1	361
Z5L391	250	320	390 (351.0 to 429.0)	675	5.0	400	8.0	50	0.1	391
Z5L431	275	350	430 (387.0 to 473.0)	745	5.0	400	9.0	45	0.1	431
Z5L471	300	385	470 (423.0 to 517.0)	810	5.0	400	10.0	40	0.1	471
Z5L681	420	560	680 (612.0 to 748.0)	1120	5.0	400	12.0	35	0.1	681
Z7L180	11	14	18 (14.4 to 21.6)	36	2.5	250	0.8	3500	0.25	7L180
Z7L220	14	18	22 (17.6 to 26.4)	43	2.5	250	0.9	2800	0.25	7L220
Z7L270	17	22	27 (24.0 to 30.0)	53	2.5	250	1.0	2000	0.25	7L270
Z7L330	20	26	33 (30.0 to 36.0)	65	2.5	250	1.2	1500	0.25	7L330
Z7L390	25	31	39 (35.0 to 43.0)	77	2.5	250	1.5	1350	0.25	7L390
Z7L470	30	38	47 (42.0 to 52.0)	90	2.5	250	1.8	1150	0.25	7L470
Z7L560	35	45	56 (50.0 to 62.0)	105	2.5	250	2.3	950	0.25	7L560
Z7L680	40	56	68 (61.0 to 75.0)	125	2.5	250	3.0	700	0.25	7L680
Z7L820	50	65	82 (74.0 to 90.0)	135	10.0	1200	4.0	550	0.25	7L820



ZL SERIES

Part Number	Values									
	Maximum Continuous Operating Voltage		Maximum Varistor Voltage At 0.1mA	Maximum Clamping Voltage		Maximum Peak Surge Current At 8/20µs	Maximum Energy At 2ms	Typical Capacitance At 1kHz	Maximum Power Dissipation	Device Marking
	V _{RMS AC} (V)	V _{DC} (V)	V _{N DC} (V)	V _C (V)	I _C (A)	I _P (A)	W _{MAX} (J)	C (pF)	P _{D MAX} (W)	-
Z7L101	75	100	100 (90.0 to 110.0)	165	10.0	1200	5.0	500	0.25	7L101
Z7L121	95	125	120 (108.0 to 132.0)	200	10.0	1200	6.0	450	0.25	7L121
Z7L151	115	153	150 (135.0 to 165.0)	250	10.0	1200	8.0	350	0.25	7L151
Z7L181	130	170	180 (162.0 to 198.0)	300	10.0	1200	10.0	220	0.25	7L181
Z10L180	11	14	18 (14.4 to 21.6)	36	5.0	500	1.5	7500	0.4	10L180
Z10L220	14	18	22 (17.6 to 26.4)	43	5.0	500	2.0	6000	0.4	10L220
Z10L270	17	22	27 (24.0 to 30.0)	53	5.0	500	2.5	4000	0.4	10L270
Z10L330	20	26	33 (30.0 to 36.0)	65	5.0	500	3.0	3000	0.4	10L330
Z10L390	25	31	39 (35.0 to 43.0)	77	5.0	500	3.5	2600	0.4	10L390
Z10L470	30	38	47 (42.0 to 52.0)	90	5.0	500	4.5	2200	0.4	10L470
Z10L560	35	45	56 (50.0 to 62.0)	105	5.0	500	5.5	1800	0.4	10L560
Z10L680	40	56	68 (61.0 to 75.0)	125	5.0	500	6.5	1300	0.4	10L680
Z10L820	50	65	82 (74.0 to 90.0)	135	25.0	2500	8.0	1800	0.4	10L820
Z10L101	60	95	100 (90.0 to 110.0)	165	25.0	2500	10.0	1400	0.4	10L101
Z10L121	75	100	120 (108.0 to 132.0)	200	25.0	2500	12.0	1100	0.4	10L121
Z10L151	95	125	150 (135.0 to 165.0)	250	25.0	2500	16.0	900	0.4	10L151
Z10L181	115	153	180 (162.0 to 198.0)	300	25.0	2500	18.0	550	0.4	10L181
Z15L180	11	14	18 (14.4 to 21.6)	36	10.0	1000	3.5	18000	0.6	Z15L180
Z15L220	14	18	22 (17.6 to 26.4)	43	10.0	1000	4.0	15000	0.6	Z15L220
Z15L270	17	22	27 (24.0 to 30.0)	53	10.0	1000	5.0	10000	0.6	Z15L270
Z15L330	20	26	33 (30.0 to 36.0)	65	10.0	1000	6.0	7500	0.6	Z15L330
Z15L390	25	31	39 (35.0 to 43.0)	77	10.0	1000	7.2	6500	0.6	Z15L390
Z15L470	30	38	47 (42.0 to 52.0)	90	10.0	1000	8.8	5500	0.6	Z15L470
Z15L560	35	45	56 (50.0 to 62.0)	105	10.0	1000	10.0	4500	0.6	Z15L560
Z15L680	40	56	68 (61.0 to 75.0)	125	10.0	1000	13.0	3300	0.6	Z15L680
Z15L820	50	65	82 (74.0 to 90.0)	135	50.0	4500	14.5	2900	0.6	Z15L820
Z15L101	60	95	100 (90.0 to 110.0)	165	50.0	4500	20.0	2400	0.6	Z15L101
Z15L121	75	100	120 (108.0 to 132.0)	200	50.0	4500	22.0	1900	0.6	Z15L121
Z15L151	95	125	150 (135.0 to 165.0)	250	50.0	4500	30.0	1500	0.6	Z15L151
Z15L181	115	153	180 (162.0 to 198.0)	300	50.0	4500	35.0	1200	0.6	Z15L181
Z21L180	11	14	18 (14.4 to 21.6)	36	20.0	2000	10.0	18000	1.0	Z21L180
Z21L220	14	18	22 (17.6 to 26.4)	43	20.0	2000	13.0	15000	1.0	Z21L220
Z21L270	17	22	27 (24.0 to 30.0)	53	20.0	2000	15.0	10000	1.0	Z21L270
Z21L330	20	26	33 (30.0 to 36.0)	65	20.0	2000	20.0	7500	1.0	Z21L330
Z21L390	25	31	39 (35.0 to 43.0)	77	20.0	2000	24.0	6500	1.0	Z21L390
Z21L470	30	38	47 (42.0 to 52.0)	90	20.0	2000	30.0	5500	1.0	Z21L470
Z21L560	35	45	56 (50.0 to 62.0)	105	20.0	2000	35.0	4500	1.0	Z21L560
Z21L680	40	56	68 (61.0 to 75.0)	125	20.0	2000	40.0	3300	1.0	Z21L680
Z21L820	50	65	82 (74.0 to 90.0)	135	100.0	6500	27.0	2900	1.0	Z21L820
Z21L211	60	95	100 (90.0 to 110.0)	165	100.0	6500	30.0	2400	1.0	Z21L211
Z21L121	75	100	120 (108.0 to 132.0)	200	100.0	6500	40.0	1190	1.0	Z21L121
Z21L151	95	125	150 (135.0 to 165.0)	250	100.0	6500	50.0	1500	1.0	Z21L151

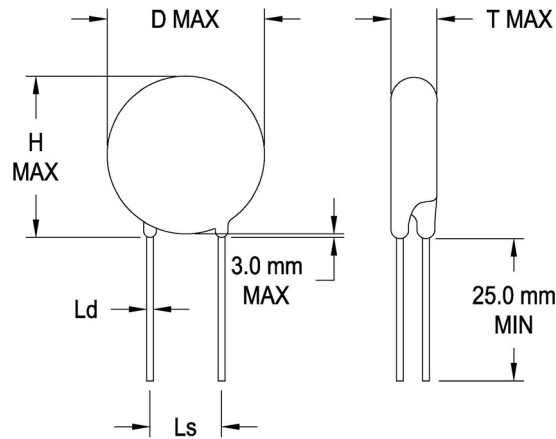


ZL SERIES

Part Number	Values									Device Marking
	Maximum Continuous Operating Voltage		Maximum Varistor Voltage At 0.1mA	Maximum Clamping Voltage		Maximum Peak Surge Current At 8/20 μ s	Maximum Energy At 2ms	Typical Capacitance At 1kHz	Maximum Power Dissipation	
	V _{RMS AC} (V)	V _{DC} (V)	V _{N DC} (V)	V _C (V)	I _C (A)	I _P (A)	W _{MAX} (J)	C (pF)	P _{D MAX} (W)	-
Z21L181	115	153	180 (162.0 to 198.0)	300	100.0	6500	60.0	1200	1.0	Z21L181

Temperature		
T _{STG}	Storage Temperature	-55 to 125°C
T _{OP}	Operating Temperature	-55 to 125°C

Drawings and Curves



Dimensions in mm

Part Number	Dimensions				
	D (mm)	T (mm)	Ls (mm)	Ld (mm)	H (mm)
Z5L180	7.5	4.5	5.0	0.6	10.5
Z5L220	7.5	4.6	5.0	0.6	10.5
Z5L270	7.5	4.7	5.0	0.6	10.5
Z5L330	7.5	4.9	5.0	0.6	10.5
Z5L390	7.5	4.8	5.0	0.6	10.5
Z5L470	7.5	4.9	5.0	0.6	10.5
Z5L560	7.5	5.0	5.0	0.6	10.5
Z5L680	7.5	5.2	5.0	0.6	10.5
Z5L820	7.5	4.1	5.0	0.6	10.5
Z5L101	7.5	4.3	5.0	0.6	10.5
Z5L121	7.5	4.5	5.0	0.6	10.5
Z5L151	7.5	4.8	5.0	0.6	10.5
Z5L181	7.5	4.3	5.0	0.6	10.5

Part Number	Dimensions				
	D (mm)	T (mm)	Ls (mm)	Ld (mm)	H (mm)
Z5L201	7.5	4.4	5.0	0.6	10.5
Z5L221	7.5	4.5	5.0	0.6	10.5
Z5L241	7.5	4.6	5.0	0.6	10.5
Z5L271	7.5	4.9	5.0	0.6	10.5
Z5L331	7.5	5.1	5.0	0.6	10.5
Z5L361	7.5	5.2	5.0	0.6	10.5
Z5L391	7.5	5.4	5.0	0.6	10.5
Z5L431	7.5	5.7	5.0	0.6	10.5
Z5L471	7.5	6.0	5.0	0.6	10.5
Z5L681	7.5	6.0	5.0	0.6	10.5
Z7L180	9.0	4.5	5.0	0.6	12.0
Z7L220	9.0	4.6	5.0	0.6	12.0
Z7L270	9.0	4.7	5.0	0.6	12.0



ZL SERIES

Part Number	Dimensions				
	D (mm)	T (mm)	Ls (mm)	Ld (mm)	H (mm)
Z7L330	9.0	4.9	5.0	0.6	12.0
Z7L390	9.0	4.9	5.0	0.6	12.0
Z7L470	9.0	4.9	5.0	0.6	12.0
Z7L560	9.0	5.0	5.0	0.6	12.0
Z7L680	9.0	5.2	5.0	0.6	12.0
Z7L820	9.0	4.1	5.0	0.6	12.0
Z7L101	9.0	4.3	5.0	0.6	12.0
Z7L121	9.0	4.5	5.0	0.6	12.0
Z7L151	9.0	4.8	5.0	0.6	12.0
Z7L181	9.0	4.3	5.0	0.6	12.0
Z10L180	14.0	4.6	7.5	0.8	16.5
Z10L220	14.0	4.7	7.5	0.8	16.5
Z10L270	14.0	4.8	7.5	0.8	16.5
Z10L330	14.0	5.0	7.5	0.8	16.5
Z10L390	14.0	5.3	7.5	0.8	16.5
Z10L470	14.0	5.4	7.5	0.8	16.5
Z10L560	14.0	5.5	7.5	0.8	16.5
Z10L680	14.0	5.6	7.5	0.8	16.5
Z10L820	14.0	4.7	7.5	0.8	16.5
Z10L101	14.0	4.9	7.5	0.8	16.5
Z10L121	14.0	5.1	7.5	0.8	16.5
Z10L151	14.0	5.4	7.5	0.8	16.5
Z10L181	14.0	5.0	7.5	0.8	16.5
Z15L180	17.0	4.6	7.5	0.8	20.5
Z15L220	17.0	4.7	7.5	0.8	20.5

Part Number	Dimensions				
	D (mm)	T (mm)	Ls (mm)	Ld (mm)	H (mm)
Z15L270	17.0	4.8	7.5	0.8	20.5
Z15L330	17.0	5.0	7.5	0.8	20.5
Z15L390	17.0	5.3	7.5	0.8	20.5
Z15L470	17.0	5.4	7.5	0.8	20.5
Z15L560	17.0	5.5	7.5	0.8	20.5
Z15L680	17.0	5.6	7.5	0.8	20.5
Z15L820	17.0	4.7	7.5	0.8	20.5
Z15L101	17.0	4.9	7.5	0.8	20.5
Z15L121	17.0	5.1	7.5	0.8	20.5
Z15L151	17.0	5.4	7.5	0.8	20.5
Z15L181	17.0	5.0	7.5	0.8	20.5
Z21L180	25.0	4.8	10.0	1.0	26.5
Z21L220	25.0	4.9	10.0	1.0	26.5
Z21L270	25.0	5.0	10.0	1.0	26.5
Z21L330	25.0	5.2	10.0	1.0	26.5
Z21L390	25.0	5.5	10.0	1.0	26.5
Z21L470	25.0	5.6	10.0	1.0	26.5
Z21L560	25.0	5.7	10.0	1.0	26.5
Z21L680	25.0	5.8	10.0	1.0	26.5
Z21L820	25.0	4.9	10.0	1.0	26.5
Z21L211	25.0	5.1	10.0	1.0	26.5
Z21L121	25.0	5.3	10.0	1.0	26.5
Z21L151	25.0	5.6	10.0	1.0	26.5
Z21L181	25.0	5.2	10.0	1.0	26.5



Note: Specifications subject to change without notice. Photo is representation only.