1ZD6.8 - 1ZD390

SILICON ZENER DIODES

V_Z : 6.8 - 390 Volts
P_D : 1 Watt

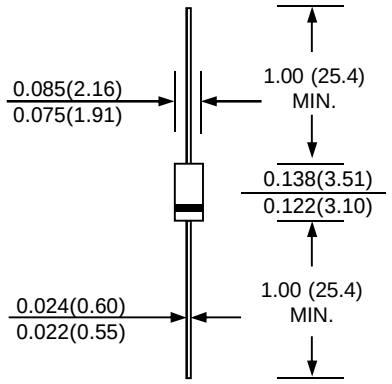
FEATURES :

* Complete voltage range 6.8 to 390 Volts
* High peak reverse power dissipation
* High reliability
* Low leakage current
* Pb / RoHS Free

MECHANICAL DATA :

* Case : M1A Molded plastic
* Epoxy : UL94V-0 rate flame retardant
* Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
* Polarity : Color band denotes cathode end
* Mounting position : Any
* Weight : 0.20 gram (approximately)

M1A



Dimensions in inches and (millimeters)

MAXIMUM RATINGS (Ta = 25 °C)

Rating		Symbol	Value	Unit
Power Dissipation		P_D	1.0	W
Maximum Forward Voltage	p/n 1ZD6.8 to 1ZD220-Z	V_F	1.2	V
at I_F = 200 mA	p/n 1ZD240 to 1ZD390		2.0	
Operating Junction Temperature Range		T_J	- 40 to + 150	°C
Storage Temperature Range		T_{STG}	- 40 to + 150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

Type No.	Zener Voltage			Test Current	Zener Impedance		Maximum Reverse Current		Temperature Coefficient of Zener Voltage	
	V_Z (V) @ I_{ZT}			I_{ZT}	Z_{ZT} @ I_{ZT}		I_R @ V_R		αT (mV/°C)	
	Min.	Nom.	Max	(mA)	(Ω)	(mA)	(μA)	(V)	Typ.	Max.
1ZD6.8	6.2	6.8	7.4	10	60	10	10	3.0	3	4
1ZD7.5	6.8	7.5	8.3	10	30	10	10	4.5	4	5
1ZD8.2	7.4	8.2	9.1	10	30	10	10	4.9	4	6
1ZD9.1	8.2	9.1	10.1	10	30	10	2	5.5	5	8
1ZD10	9.0	10	11.0	10	30	10	2	6.0	6	9
1ZD11	9.9	11	12.1	10	30	10	2	7.0	7	11
1ZD12	10.8	12	13.2	10	30	10	2	8.0	8	13
1ZD13	11.7	13	14.3	10	30	10	2	9.0	9	14
1ZD15	13.5	15	16.5	10	30	10	2	10.0	11	17
1ZD16	14.4	16	17.6	10	30	10	2	11.0	12	19
1ZD18	16.2	18	19.8	10	30	10	2	13.0	14	23
1ZD20S	18.8	19.4	20.0	10	30	10	2	14.0	16	26
1ZD20	18.0	20	22.0	10	30	10	2	14.0	16	26
1ZD22	19.8	22	24.2	10	30	10	2	16.0	18	28
1ZD24	21.6	24	26.4	10	30	10	2	17.0	20	32
1ZD27	24.3	27	29.7	10	30	10	2	19.0	23	36
1ZD30	27.0	30	33.0	10	30	10	2	21.0	25	40
1ZD33	29.7	33	36.3	10	30	10	2	26.4	26	41
1ZD36	32.4	36	39.6	9	30	9	2	28.8	28	45
1ZD43	38.7	43	47.3	7	40	7	2	34.4	33	53
1ZD43-Y	40.9	43	45.2	7	40	7	2	34.4	33	53
1ZD47	42.3	47	51.7	6	65	6	2	37.6	38	60
1ZD47-Y	44.7	47	49.4	6	65	6	2	37.6	38	60
1ZD51	45.9	51	56.1	6	65	6	2	40.8	43	68
1ZD51-Y	48.5	51	53.6	6	65	6	2	40.8	43	68
1ZD56	50.4	56	61.6	5	110	5	2	44.8	48	74
1ZD56-Y	53.2	56	58.8	5	110	5	2	44.8	48	74
1ZD62	55.8	62	68.2	4	120	4	2	49.6	53	82
1ZD62-Y	58.9	62	65.1	4	120	4	2	49.6	53	82
1ZD68	61.2	68	74.8	4	120	4	2	54.4	57	90
1ZD68-Y	64.6	68	71.4	4	120	4	2	54.4	57	90
1ZD75	67.5	75	82.5	4	150	4	2	60.0	66	104
1ZD75-Y	71.3	75	78.8	4	150	4	2	60.0	66	104
1ZD82	73.8	82	90.2	3	170	3	2	65.4	71	113
1ZD82-Y	77.9	82	86.1	3	170	3	2	65.4	71	113
1ZD91	81.9	91	100.1	3	250	3	2	72.8	80	125
1ZD91-Y	86.5	91	95.6	3	250	3	2	72.8	80	125
1ZD100	90	100	110	3	300	3	2	80	87	138
1ZD100-Y	95	100	105	3	300	3	2	80	87	138
1ZD100-S	98	100	102	3	300	3	2	80	87	138
1ZD110	99	110	121	3	300	3	2	88	96	152
1ZD110-Y	105	110	116	3	300	3	2	88	96	152
1ZD110-S	108	110	112	3	300	3	2	88	96	152

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

Type No.	Zener Voltage			Test Current	Zener Impedance		Maximum Reverse Current		Temperature Coefficient of Zener Voltage	
	V_Z (V) @ I_{ZT}			I_{ZT}	Z_{ZT} @ I_{ZT}		I_R @ V_R		αT (mV/°C)	
	Min.	Nom.	Max	(mA)	(Ω)	(mA)	(μA)	(V)	Typ.	Max.
1ZD120	108.0	120	132.0	2	450	2	2	96	107	167
1ZD120-Y	114	120	126	2	450	2	2	96	107	167
1ZD120-S	117.6	120	122.4	2	450	2	2	96	107	167
1ZD150	135	150	165	2	450	2	2	120	136	212
1ZD150-Y	143	150	158	2	450	2	2	120	136	212
1ZD150-S	147	150	153	2	450	2	2	120	136	212
1ZD180	162	180	198	1.5	500	1.5	2	144	161	255
1ZD180-Y	171	180	189	1.5	500	1.5	2	144	161	255
1ZD180-S	176	180	184	1.5	500	1.5	2	144	161	255
1ZD200	180	200	220	0.5	1900	0.5	2	160	170	269
1ZD200-Y	190	200	210	0.5	1900	0.5	2	160	170	269
1ZD200-S	196	200	204	0.5	1900	0.5	2	160	170	269
1ZD200-Z	200	210	220	0.5	1900	0.5	2	168	178	289
1ZD220	198	220	242	0.5	5000	0.5	2	176	200	309
1ZD220-Y	210	220	230	0.5	5000	0.5	2	176	200	309
1ZD220-S	216	220	224	0.5	5000	0.5	2	176	200	309
1ZD220-Z	220	230	240	0.5	5000	0.5	2	184	207	320
1ZD240	216	240	264	0.5	5000	0.5	2	192	215	343
1ZD240-Y	230	240	250	0.5	5000	0.5	2	216	215	325
1ZD240-S	235	240	245	0.5	5000	0.5	2	216	215	325
1ZD240-Z	240	250	260	0.5	5000	0.5	2	225	225	338
1ZD270	243	270	297	0.5	5000	0.5	2	216	243	385
1ZD270-X	250	260	270	0.5	5000	0.5	2	234	221	350
1ZD270-Y	260	270	280	0.5	5000	0.5	2	243	228	362
1ZD270-S	265	270	275	0.5	5000	0.5	2	243	228	362
1ZD270-Z	270	280	290	0.5	5000	0.5	2	252	236	374
1ZD300	270	300	330	0.5	5000	0.5	2	240	270	428
1ZD300-X	280	290	300	0.5	5000	0.5	2	261	244	388
1ZD300-Y	290	300	310	0.5	5000	0.5	2	270	253	402
1ZD300-S	294	300	306	0.5	5000	0.5	2	270	253	402
1ZD300-Z	300	310	320	0.5	5000	0.5	2	279	261	415
1ZD330	297	330	363	0.5	5000	0.5	2	264	296	470
1ZD330-X	310	320	330	0.5	5000	0.5	2	288	270	428
1ZD330-Y	320	330	340	0.5	5000	0.5	2	297	278	441
1ZD330-S	323	330	337	0.5	5000	0.5	2	297	278	441
1ZD330-Z	330	340	350	0.5	5000	0.5	2	306	287	455
1ZD390	351	390	429	0.5	10000	0.5	2	312	350	555
1ZD390-Y	371	390	410	0.5	10000	0.5	2	312	350	555
1ZD390-S	382	390	398	0.5	10000	0.5	2	312	350	555

RATING AND CHARACTERISTIC CURVES (1ZD6.8 - 1ZD390)

Fig. 1 POWER TEMPERATURE DERATING CURVE

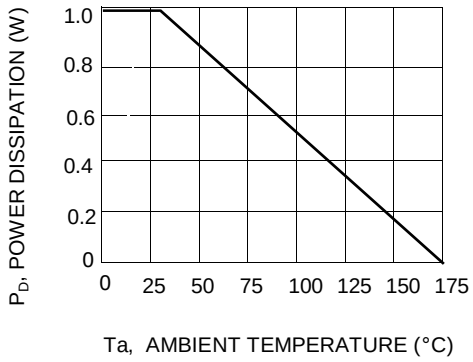


Fig. 2 TEMPERATURE COEFFICIENT

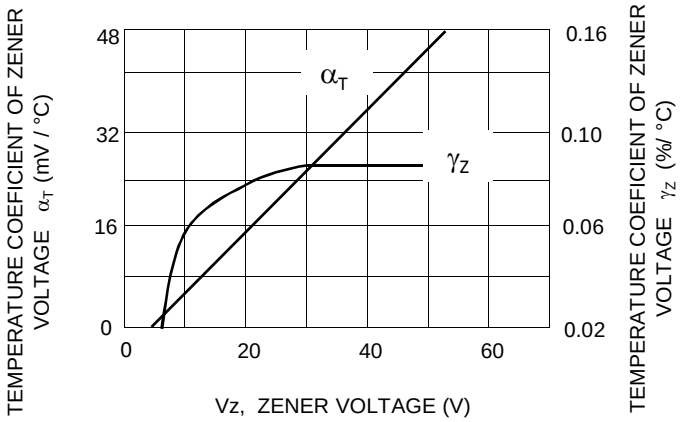


Fig. 3 TYPICAL REVERSE POWER CHARACTERISTICS

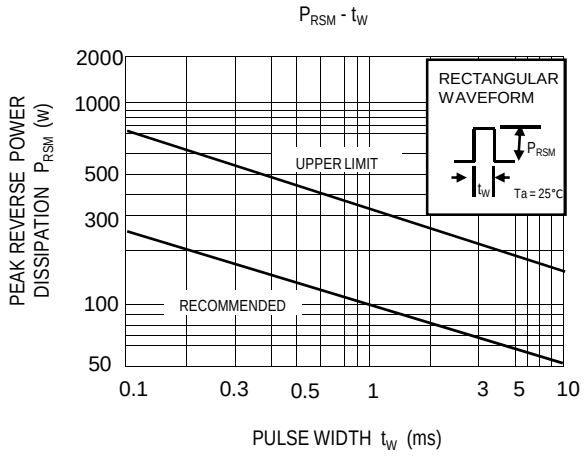


Fig. 4 TYPICAL TRANSIENT THERMAL IMPEDANCE