



Features

Zener voltage: 3.3V~200V
High reliability
High temperature soldering guaranteed:
260°C/10 seconds,0.375"(9.5mm) lead length

Mechanical Data

Case: Molded plastic DO-15
Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
Polarity: Color band denotes cathode



DO-15

Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

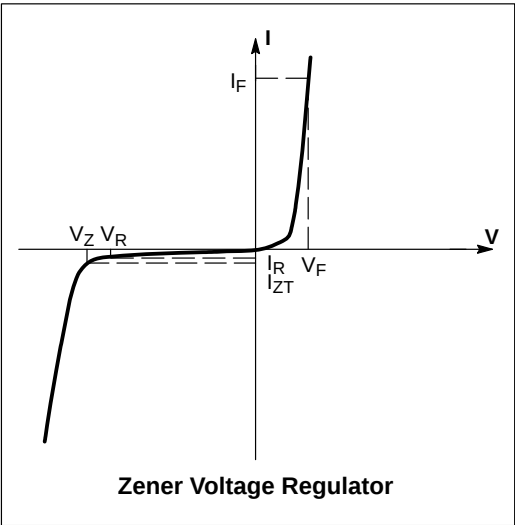
Parameter	Symbols	Value	Units
Power Dissipation	P _D	5	W
Thermal Resistance Junction to Ambient Air	R _{θJA}	50	°C/W
Thermal Resistance Junction to Leads	R _{θJL}	25	°C/W
Storage Temperature Range	T _{STG}	-65 to 200	°C
Operating Junction Temperature Range	T _J	-65 to 200	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Max operating temperature for DC conditions is 150°C, but not to exceed 200°C for pulsed conditions with low duty cycle or non-repetitive.

Electrical Characteristics (T_A=25°C)

Symbol	Parameter
V _Z	Reverse Zener Voltage @ I _{ZT}
I _{ZT}	Reverse Current
Z _{ZT}	Maximum Zener Impedance @ I _{ZT}
I _{ZK}	Reverse Current
Z _{ZK}	Maximum Zener Impedance @ I _{ZK}
I _R	Reverse Leakage Current @ V _R
V _R	Breakdown Voltage
I _F	Forward Current
V _F	Forward Voltage @ I _F
I _R	Maximum Surge Current @ T _A = 25°C
V _Z	Reverse Zener Voltage Change
I _{ZM}	Maximum DC Zener Current





1N5333B thru 1N5388B

5W Zener Diodes

Electrical Characteristics (T_A=25°C)

Device ^{Note 1}	Device Marking	Zener Voltage ^{Note 2}				Zener Impedance ^{Note 2}			Leakage Current		I _R ^{Note 3}	V _Z ^{Note 4}	I _{ZM} ^{Note 5}
		V _Z (Volts)			@ I _{ZT}	Z _{KT} @I _{ZT}	Z _{KK} @I _{ZK}	I _{ZK}	I _R @ V _R				
		Min	Nom	Max	mA	Ω	Ω	mA	μA Max	Volts			
1N5333B	1N5333B	3.14	3.3	3.47	380	3	400	1	300	1	20	0.85	1440
1N5334B	1N5334B	3.42	3.6	3.78	350	2.5	500	1	150	1	18.7	0.8	1320
1N5335B	1N5335B	3.71	3.9	4.10	320	2	500	1	50	1	17.6	0.54	1220
1N5336B	1N5336B	4.09	4.3	4.52	290	2	500	1	10	1	16.4	0.49	1100
1N5337B	1N5337B	4.47	4.7	4.94	260	2	450	1	5	1	15.3	0.44	1010
1N5338B	1N5338B	4.85	5.1	5.36	240	1.5	400	1	1	1	14.4	0.39	930
1N5339B	1N5339B	5.32	5.6	5.88	220	1	400	1	1	2	13.4	0.25	865
1N5340B	1N5340B	5.70	6.0	6.30	200	1	300	1	1	3	12.7	0.19	790
1N5341B	1N5341B	5.89	6.2	6.51	200	1	200	1	1	3	12.4	0.1	765
1N5342B	1N5342B	6.46	6.8	7.14	175	1	200	1	10	5.2	11.5	0.15	700
1N5343B	1N5343B	7.13	7.5	7.88	175	1.5	200	1	10	5.7	10.7	0.15	630
1N5344B	1N5344B	7.79	8.2	8.61	150	1.5	200	1	10	6.2	10	0.2	580
1N5345B	1N5345B	8.27	8.7	9.14	150	2	200	1	10	6.6	9.5	0.2	545
1N5346B	1N5346B	8.65	9.1	9.56	150	2	150	1	7.5	6.9	9.2	0.22	520
1N5347B	1N5347B	9.50	10	10.5	125	2	125	1	5	7.6	8.6	0.22	475
1N5348B	1N5348B	10.45	11	11.55	125	2.5	125	1	5	8.4	8.0	0.25	430
1N5349B	1N5349B	11.4	12	12.6	100	2.5	125	1	2	9.1	7.5	0.25	395
1N5350B	1N5350B	12.35	13	13.65	100	2.5	100	1	1	9.9	7.0	0.25	365
1N5351B	1N5351B	13.3	14	14.7	100	2.5	75	1	1	10.6	6.7	0.25	340
1N5352B	1N5352B	14.25	15	15.75	75	2.5	75	1	1	11.5	6.3	0.25	315
1N5353B	1N5353B	15.2	16	16.8	75	2.5	75	1	1	12.2	6.0	0.3	295
1N5354B	1N5354B	16.15	17	17.85	70	2.5	75	1	0.5	12.9	5.8	0.35	280
1N5355B	1N5355B	17.1	18	18.9	65	2.5	75	1	0.5	13.7	5.5	0.4	264
1N5356B	1N5356B	18.05	19	19.95	65	3	75	1	0.5	14.4	5.3	0.4	250
1N5357B	1N5357B	19	20	21	65	3	75	1	0.5	15.2	5.1	0.4	237
1N5358B	1N5358B	20.9	22	23.1	50	3.5	75	1	0.5	16.7	4.7	0.45	216
1N5359B	1N5359B	22.8	24	25.2	50	3.5	100	1	0.5	18.2	4.4	0.55	198
1N5360B	1N5360B	23.75	25	26.25	50	4	110	1	0.5	19	4.3	0.55	190
1N5361B	1N5361B	25.65	27	28.35	50	5	120	1	0.5	20.6	4.1	0.6	176
1N5362B	1N5362B	26.6	28	29.4	50	6	130	1	0.5	21.2	3.9	0.6	170
1N5363B	1N5363B	28.5	30	31.5	40	8	140	1	0.5	22.8	3.7	0.6	158
1N5364B	1N5364B	31.35	33	34.65	40	10	150	1	0.5	25.1	3.5	0.6	144
1N5365B	1N5365B	34.2	36	37.8	30	11	160	1	0.5	27.4	3.5	0.65	132
1N5366B	1N5366B	37.05	39	40.95	30	14	170	1	0.5	29.7	3.1	0.65	122



1N5333B thru 1N5388B

5W Zener Diodes

Device ^{Note1}	Device Marking	Zener Voltage ^{Note 2}				Zener Impedance ^{Note 2}			Leakage Current		I _R ^{Note 3}	V _Z ^{Note 4}	I _{ZM} ^{Note 5}
		V _Z (Volts)			@I _{ZT}	Z _{ZT} @I _{ZT}	Z _{ZK} @I _{ZK}	I _{ZK}	I _R @ V _R				
		Min	Nom	Max	mA			mA	μA Max	Volts			
1N5367B	1N5367B	40.85	43	45.15	30	20	190	1	0.5	32.7	2.8	0.7	110
1N5368B	1N5368B	44.65	47	49.35	25	25	210	1	0.5	35.8	2.7	0.8	100
1N5369B	1N5369B	48.45	51	53.55	25	27	230	1	0.5	38.8	2.5	0.9	93
1N5370B	1N5370B	53.2	56	58.8	20	35	280	1	0.5	42.6	2.3	1.0	86
1N5371B	1N5371B	57	60	63	20	40	350	1	0.5	45.5	2.2	1.2	79
1N5372B	1N5372B	58.9	62	65.1	20	42	400	1	0.5	47.1	2.1	1.35	76
1N5373B	1N5373B	64.6	68	71.4	20	44	500	1	0.5	51.7	2.0	1.52	70
1N5374B	1N5374B	71.25	75	78.75	20	45	620	1	0.5	56	1.9	1.6	63
1N5375B	1N5375B	77.9	82	86.1	15	65	720	1	0.5	62.2	1.8	1.8	58
1N5377B	1N5377B	86.45	91	95.55	15	75	760	1	0.5	69.2	1.6	2.2	52.5
1N5378B	1N5378B	95	100	105	12	90	800	1	0.5	76	1.5	2.5	47.5
1N5380B	1N5380B	114	120	126	10	170	1150	1	0.5	91.2	1.3	2.5	39.5
1N5381B	1N5381B	123.5	130	136.5	10	190	1250	1	0.5	98.8	1.2	2.5	36.6
1N5383B	1N5383B	142.5	150	157.5	8	330	1500	1	0.5	114	1.1	3.0	31.6
1N5384B	1N5384B	152	160	168	8	350	1650	1	0.5	122	1.1	3.0	29.4
1N5386B	1N5386B	171	180	189	5	430	1750	1	0.5	137	1.0	4.0	26.4
1N5387B	1N5387B	180.5	190	199.5	5	450	1850	1	0.5	144	0.9	5.0	25
1N5388B	1N5388B	190	200	210	5	480	1850	1	0.5	152	0.9	5.0	23.6

1. TOLERANCE AND TYPE NUMBER DESIGNATION: The JEDEC type numbers shown indicate a tolerance of $\pm 5\%$.
2. ZENER VOLTAGE (V_Z) and IMPEDANCE (I_{ZT} and I_{ZK}): Test conditions for zener voltage and impedance are as follows: I_Z is applied 40 $\pm$ 10 ms prior to reading. Mounting contacts are located 3/8" to 1/2" from the inside edge of mounting clips to the body of the diode (T_A = 25°C +8°C, -2°C).
3. SURGE CURRENT (I_R): Surge current is specified as the maximum allowable peak, non-recurrent square-wave current with a pulse width, PW, of 8.3 ms. The data given in Figure 6 may be used to find the maximum surge current for a square wave of any pulse width between 1 ms and 1000 ms by plotting the applicable points on logarithmic paper. Examples of this, using the 3.3 V and 200 V zener are shown in Figure 7. Mounting contact located as specified in Note 2 (T_A = 25°C +8°C, -2°C).
4. VOLTAGE REGULATION ($\square$ V_Z): The conditions for voltage regulation are as follows: V_Z measurements are made at 10% and then at 50% of the I_Z max value listed in the electrical characteristics table. The test current time duration for each V_Z measurement is 40 $\pm$ 10 ms. Mounting contact located as specified in Note 2 (T_A = 25°C +8°C, -2°C).
5. MAXIMUM REGULATOR CURRENT (I_{ZM}): The maximum current shown is based on the maximum voltage of a 5% type unit, therefore, it applies only to the B-suffix device. The actual I_{ZM} for any device may not exceed the value of 5 watts divided by the actual V_Z of the device. T_L = 25°C at 3/8" maximum from the device body.



1N5333B thru 1N5388B

5W Zener Diodes

Electrical Characteristics Curves

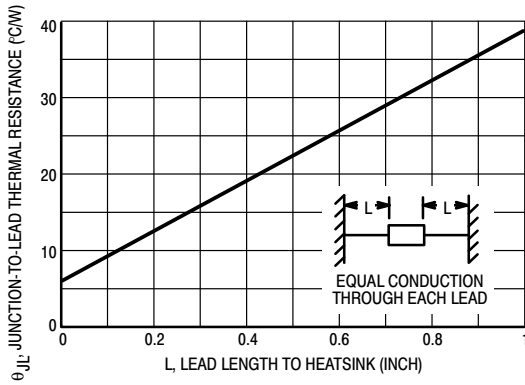


Figure 1. Typical Thermal Resistance

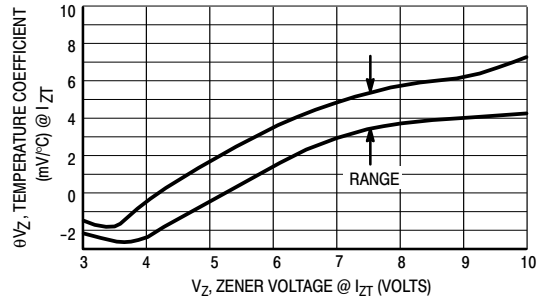


Figure 2. Temperature Coefficient-Range for Units 3 to 10 Volts

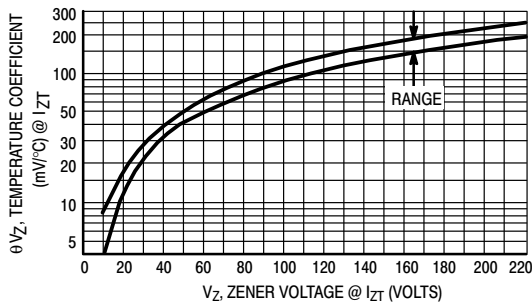


Figure 3. Temperature Coefficient-Range for Units 10 to 220 Volts

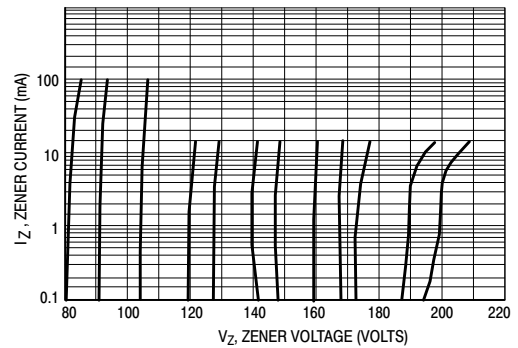


Figure 4. Zener Voltage versus Zener Current
 $V_Z = 82$ thru 200 Volts



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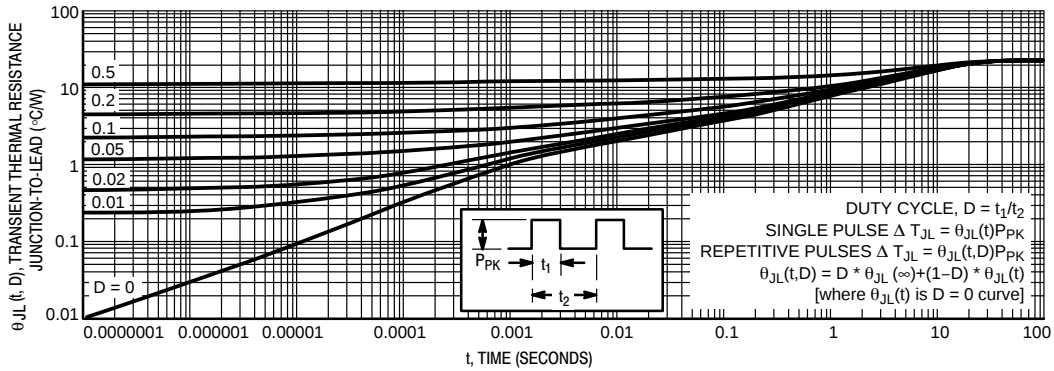


Figure 5. Typical Thermal Response
L, Lead Length = 3/8 Inch

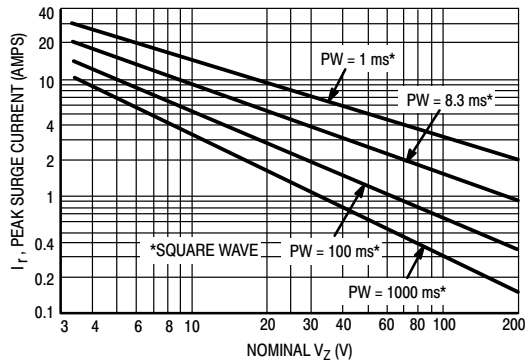


Figure 6. Maximum Non-Repetitive Surge Current
versus Nominal Zener Voltage
(See Note 4)

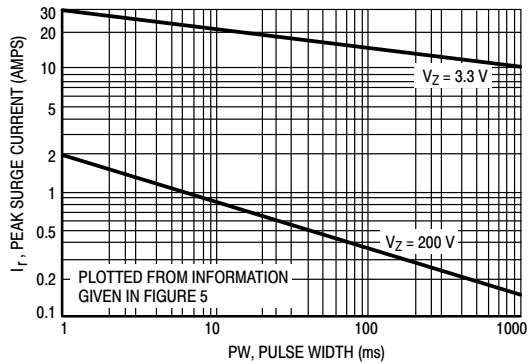


Figure 7. Peak Surge Current versus Pulse Width
(See Note 4)

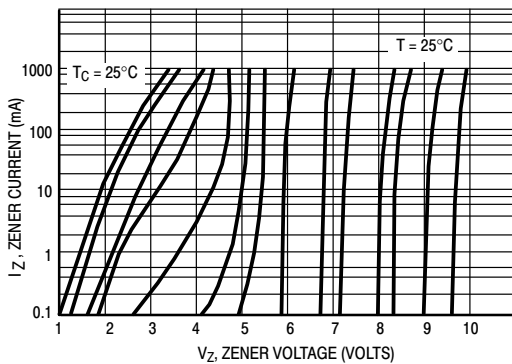


Figure 8. Zener Voltage versus Zener Current
V_Z = 3.3 thru 10 Volts

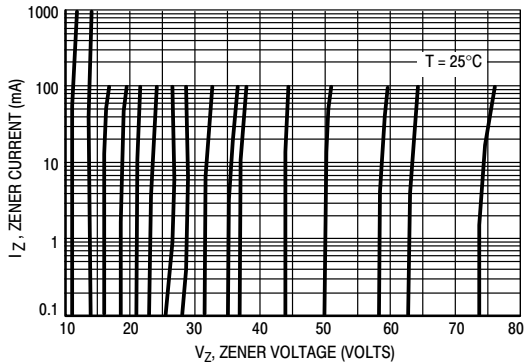


Figure 9. Zener Voltage versus Zener Current
V_Z = 11 thru 75 Volts



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5W Zener Diodes

Package Outline (DO-15)

Dimensions in inches and (millimeters)

