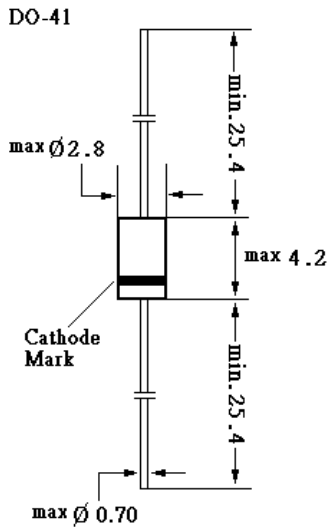
3 WATT ZENER VOLTAGE REGULATORS



Dimensions in mm

Features:

- Zener Voltage Range – 3.3V to 200V
- ESD Rating of Class 3 (>16KV) per Human Body Model
- Surge Rating of 98 W @ 1 ms
- Maximum Limits Guaranteed on up to Six Electrical Parameters
- Package No Larger than the Conventional 1W Package

Mechanical Characteristics:

- CASE: Void free, transfer-molded, thermosetting plastic
- FINISH: All external surfaces are corrosion resistant and leads are readily solderable
- MAXIMUM LEAD TEMPERATURE FOR SOLDERING PURPOSES: 230? ,1/16" from the case for 10 seconds
- POLARITY: Cathode indicated by polarity band
- MOUNTING POSITION: Any

Absolute Maximum Ratings (Ta = 25 ?)

	Symbol	Value	Unit
Max. Steady State Power Dissipation @ T_L = 75? , Lead Length = 3/8" Derate above 75?	P_{tot}	3 24	W mW/?
Steady State Power Dissipation T_a = 50? Derate above 50?	P_{tot}	1 6.67	W mW/?
Junction Temperature	T_j	-65 to +200	?
Storage Temperature Range	T_S	-65 to +200	?

1N5913B...1N5956B

Characteristics (T_a = 25℃ unless otherwise noted, V_F = 1.5V Max @ I_F = 200mA for all types)

Type (Note 1.)	Zener Voltage (Note 2.)				Zener Impedance (Note 3)			Leakage Current		I_{ZM}
	V_Z			@ I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}		I_R @ V_R		
	Min	Nom	Max	mA	Ω	Ω	mA	μA Max	V	mA
1N5913B	3.14	3.3	3.47	113.6	10	500	1	100	1	454
1N5914B	3.42	3.6	3.78	104.2	9	500	1	75	1	416
1N5915B	3.71	3.9	4.10	96.1	7.5	500	1	25	1	384
1N5916B	4.09	4.3	4.52	87.2	6	500	1	5	1	348
1N5917B	4.47	4.7	4.94	79.8	5	500	1	5	1.5	319
1N5918B	4.85	5.1	5.36	73.5	4	350	1	5	2	294
1N5919B	5.32	5.6	5.88	66.9	2	250	1	5	3	267
1N5920B	5.89	6.2	6.51	60.5	2	200	1	5	4	241
1N5921B	6.46	6.8	7.14	55.1	2.5	200	1	5	5.2	220
1N5922B	7.13	7.5	7.88	50	3	400	0.5	5	6	200
1N5923B	7.79	8.2	8.61	45.7	3.5	400	0.5	5	6.5	182
1N5924B	8.65	9.1	9.56	41.2	4	500	0.5	5	7	164
1N5925B	9.50	10	10.50	37.5	4.5	500	0.25	5	8	150
1N5926B	10.45	11	11.55	34.1	5.5	550	0.25	1	8.4	136
1N5927B	11.40	12	12.60	31.2	6.5	550	0.25	1	9.1	125
1N5928B	12.35	13	13.65	28.8	7	550	0.25	1	9.9	115
1N5929B	14.25	15	15.75	25.0	9	600	0.25	1	11.4	100
1N5930B	15.20	16	16.80	23.4	10	600	0.25	1	12.2	93
1N5931B	17.10	18	18.90	20.8	12	650	0.25	1	13.7	83
1N5932B	19.00	20	21.00	18.7	14	650	0.25	1	15.2	75
1N5933B	20.90	22	23.10	17.0	17.5	650	0.25	1	16.7	68
1N5934B	22.80	24	25.20	15.6	19	700	0.25	1	18.2	62
1N5935B	25.65	27	28.35	13.9	23	700	0.25	1	20.6	55
1N5936B	28.50	30	31.50	12.5	28	750	0.25	1	22.8	50
1N5937B	31.35	33	34.65	11.4	33	800	0.25	1	25.1	45
1N5938B	34.20	36	27.80	10.4	38	850	0.25	1	27.4	41
1N5939B	37.05	39	40.95	9.6	45	900	0.25	1	29.7	38
1N5940B	40.85	43	45.15	8.7	53	950	0.25	1	32.7	34
1N5941B	44.65	47	49.35	8.0	67	1000	0.25	1	35.8	31
1N5942B	48.45	51	53.55	7.3	70	1100	0.25	1	38.8	29
1N5943B	53.20	56	58.80	6.7	86	1300	0.25	1	42.6	26
1N5944B	58.90	62	65.10	6.0	100	1500	0.25	1	47.1	24
1N5945B	64.60	68	71.40	5.5	120	1700	0.25	1	51.7	22
1N5946B	71.25	75	78.75	5.0	140	2000	0.25	1	56	20
1N5947B	77.90	82	86.10	4.6	160	2500	0.25	1	62.2	18
1N5948B	86.45	91	95.55	4.1	200	3000	0.25	1	69.2	16
1N5949B	95	100	105	3.7	250	3100	0.25	1	76	15
1N5950B	104.5	110	115.5	3.4	300	4000	0.25	1	83.6	13
1N5951B	114	120	126	3.1	380	4500	0.25	1	91.2	12
1N5952B	123.5	130	136.5	2.9	450	5000	0.25	1	98.8	11
1N5953B	142.5	150	157.5	2.5	600	6000	0.25	1	114	10
1N5954B	152	160	168	2.3	700	6500	0.25	1	121.6	9
1N5955B	171	180	189	2.1	900	7000	0.25	1	136.8	8
1N5956B	190	200	210	1.9	1200	8000	0.25	1	152	7

1. **TOLERANCE AND TYPE NUMBER DESIGNATION**
   Tolerance designation-device tolerance of ±5% are indicated by a “B” suffix.
2. **ZENER VOLTAGE (V_Z) MEASUREMENT**
   The zener voltage when measured at 90 seconds while maintaining the lead temperature (T_L) at 30℃±1℃, 3/8” from the diode body.
3. **ZENER IMPEDANCE (Z_Z) DERIVATION**
   The zener impedance is derived from 60 seconds AC voltage, which results when an AC current having an rms value equal to 10% of the DC zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK}.
4. Tested with pulses tp = 20 ms.

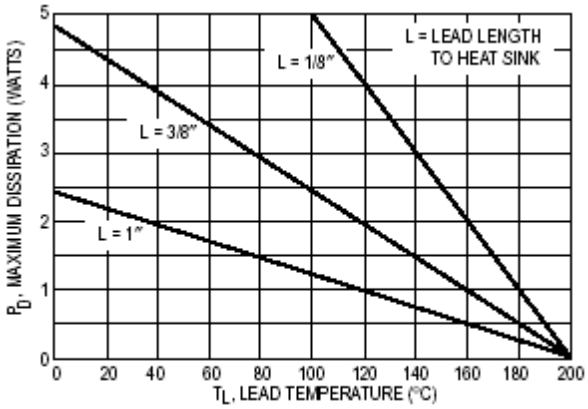


Figure 1. Power Temperature Derating Curve

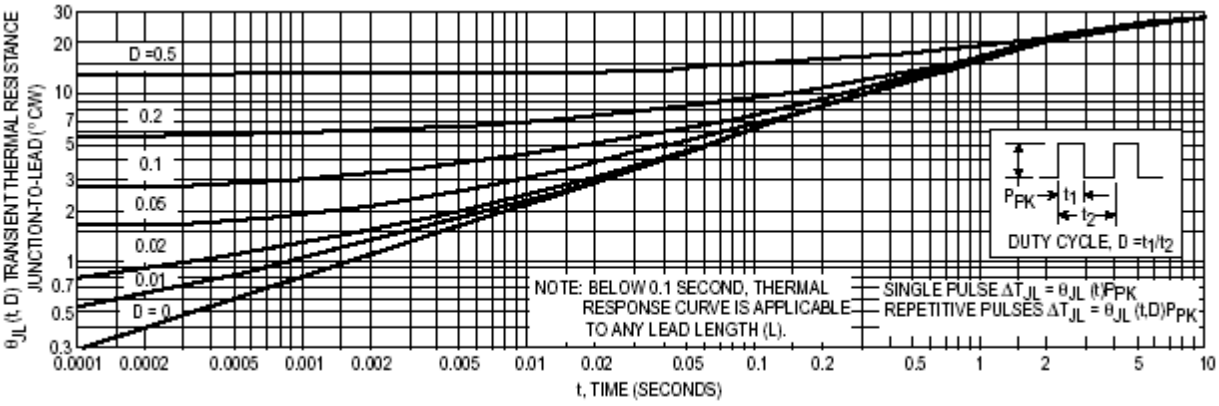


Figure 2. Typical Thermal Response L, Lead Length = 3/8 Inch

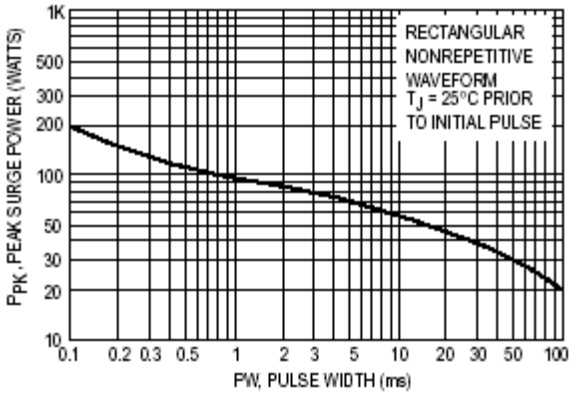


Figure 3. Maximum Surge Power

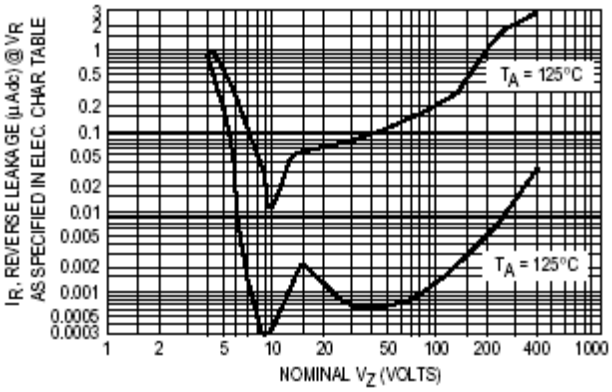


Figure 4. Typical Reverse Leakage

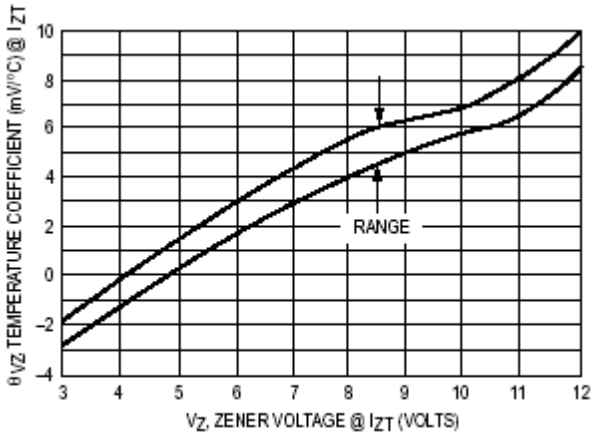


Figure 5. Units To 12 Volts

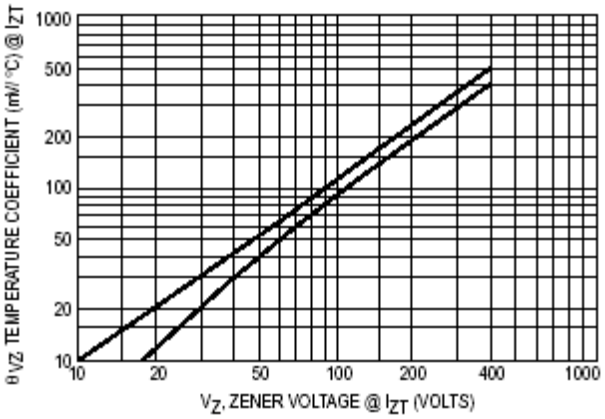


Figure 6. Units 10 To 400 Volts

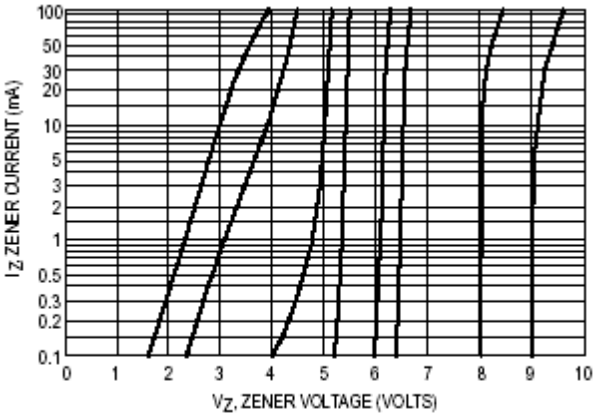


Figure 7. VZ = 3.3 thru 10 Volts

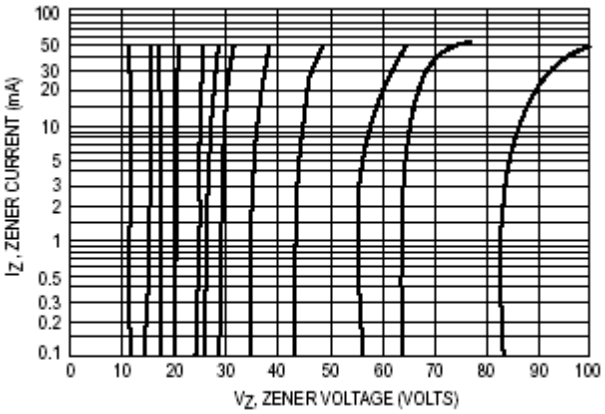


Figure 8. VZ = 12 thru 82 Volts

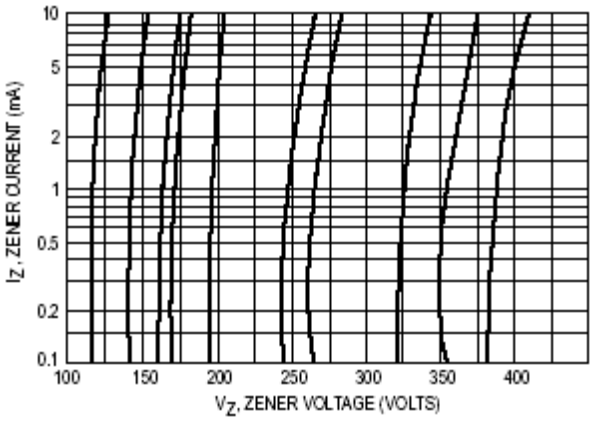


Figure 9. VZ = 100 thru 400 Volts

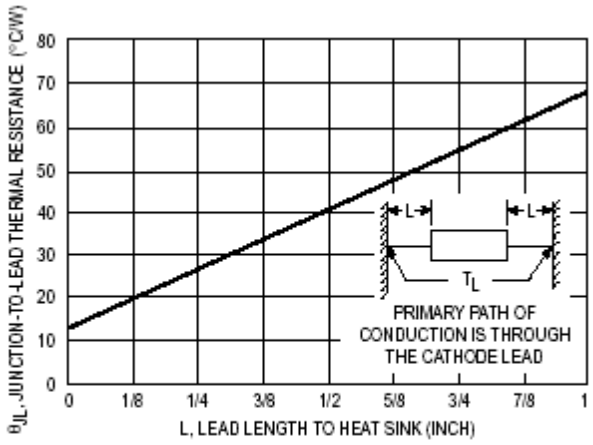


Figure 10. Typical Thermal Resistance