



# DATA SHEET

## 1N5913B~1N5956B

### GLASS PASSIVATED JUNCTION SILICON ZENER DIODES

**VOLTAGE** 3.3 to 200 Volts **POWER** 1.5 Watts

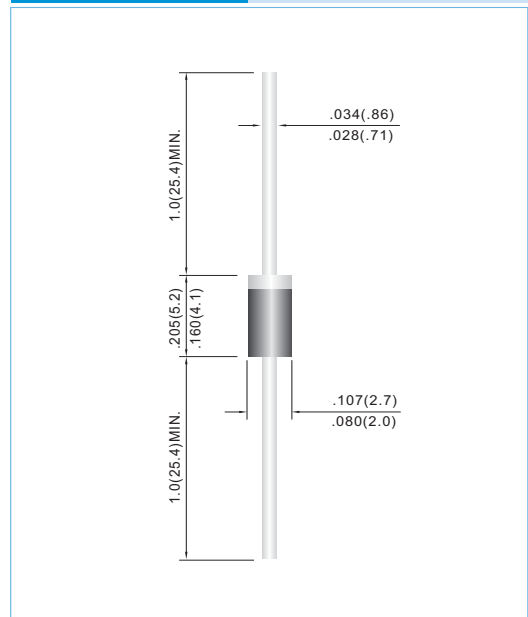
DO-41 Unit: inch(mm)

#### FEATURES

- Low profile package
- Built-in strain relief
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Pb free product are available : 99% Sn can meet RoHS environment substance directive request

#### MECHANICAL DATA

Case: JEDEC DO-41, Molded plastic over passivated junction.  
 Terminals: Solder plated, solderable per MIL-STD-750, Method 2026  
 Polarity: Color band denotes positive end (cathode)  
 Standard packing: 52mm tape  
 Weight: 0.012 ounce, 0.3 gram



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Units
DC Power Dissipation on TA=75 °C ,Measure at Zero Lead Length Derate above 75°C ( NOTE 1)	P <sub>D</sub>	1.5	Watts
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-50 to +150	°C

#### NOTES:

1. Mounted on 5.0mm<sup>2</sup> (.013mm thick) land areas.



Part Number	Nominal Zener Voltage			Maximum Zener Impedance				Maximum Leakage Current	
	V <sub>Z</sub> @ I <sub>ZT</sub>			Z <sub>ZT</sub> @ I <sub>ZT</sub>		Z <sub>ZK</sub> @ I <sub>ZK</sub>		I <sub>R</sub>	V <sub>R</sub>
	Nom. V	Min. V	Max. V	Ohms	mA	Ohms	mA	μA	V
1N5913B	3.3	3.14	3.47	10	113.6	500	1	50	1
1N5914B	3.6	3.42	3.78	9	104.2	500	1	35.5	1
1N5915B	3.9	3.71	4.1	7.5	96.1	500	1	12.5	1
1N5916B	4.3	4.09	4.52	6	87.2	500	1	2.5	1
1N5917B	4.7	4.47	4.94	5	79.8	500	1	2.5	1.5
1N5918B	5.1	4.85	5.36	4	73.5	350	1	2.5	2
1N5919B	5.6	5.32	5.88	2	66.9	250	1	2.5	3
1N5920B	6.2	5.89	6.51	2	60.5	200	1	2.5	4
1N5921B	6.8	6.46	7.14	2.5	55.1	200	1	2.5	5.2
1N5922B	7.5	7.13	7.88	3	50	400	0.5	2.5	6
1N5923B	8.2	7.79	8.61	3.5	45.7	400	0.5	2.5	6.5
1N5924B	9.1	8.65	9.56	4	41.2	500	0.5	2.5	7
1N5925B	10	9.5	10.5	4.5	37.5	500	0.25	2.5	8
1N5926B	11	10.45	11.55	5.5	34.1	550	0.25	0.5	8.4
1N5927B	12	11.4	12.6	6.5	31.2	550	0.25	0.5	9.1
1N5928B	13	12.35	13.65	7	28.8	550	0.25	0.5	9.9
1N5929B	15	14.25	15.75	9	25	600	0.25	0.5	11.4
1N5930B	16	15.2	16.8	10	23.4	600	0.25	0.5	12.2
1N5931B	18	17.1	18.9	12	20.8	650	0.25	0.5	13.7
1N5932B	20	19.0	21	14	18.7	650	0.25	0.5	15.2
1N5933B	22	20.9	23.1	17.5	17	650	0.25	0.5	16.7
1N5934B	24	22.8	25.2	19	15.6	700	0.25	0.5	18.2
1N5935B	27	25.65	28.35	23	13.9	700	0.25	0.5	20.6
1N5936B	30	28.5	31.5	26	12.5	750	0.25	0.5	22.8
1N5937B	33	31.35	34.65	33	11.4	800	0.25	0.5	25.1
1N5938B	36	34.2	37.8	38	10.4	850	0.25	0.5	27.4
1N5939B	39	37.05	40.95	45	9.6	900	0.25	0.5	29.7
1N5940B	43	40.85	45.15	53	8.7	950	0.25	0.5	32.7
1N5941B	47	44.65	49.35	67	8	1000	0.25	0.5	35.8
1N5942B	51	48.45	53.55	70	7.3	1100	0.25	0.5	38.8
1N5943B	56	53.2	58.8	86	6.7	1300	0.25	0.5	42.6
1N5944B	62	58.9	65.1	100	6	1500	0.25	0.5	47.1
1N5945B	68	64.6	71.4	120	5.5	1700	0.25	0.5	51.7
1N5946B	75	71.25	78.75	140	5	2000	0.25	0.5	56
1N5947B	82	77.9	86.1	160	4.6	2500	0.25	0.5	62.2
1N5948B	91	86.45	95.55	200	4.1	3000	0.25	0.5	69.2
1N5949B	100	95	105	250	3.7	3100	0.25	0.5	76
1N5950B	110	104.5	115.5	300	3.4	4000	0.25	0.5	83.6
1N5951B	120	114	126	380	3.1	4500	0.25	0.5	91.2



Part Number	Nominal Zener Voltage			Maximum Zener Impedance				Maximum Leakage Current	
	V <sub>Z</sub> @ I <sub>ZT</sub>			Z <sub>ZT</sub> @ I <sub>ZT</sub>		Z <sub>ZK</sub> @ I <sub>ZK</sub>		I <sub>R</sub>	V <sub>R</sub>
	Nom. V	Min. V	Max. V	Ohms	mA	Ohms	mA	μA	V
1N5952B	130	123.5	136.5	450	2.9	5000	0.25	0.5	98.8
1N5953B	150	142.5	157.5	600	2.5	6000	0.25	0.5	114
1N5954B	160	152	168	700	2.3	6500	0.25	0.5	121.6
1N5955B	180	171	189	900	2.1	7000	0.25	0.5	136.8
1N5956B	200	190	210	1200	1.9	8000	0.25	0.5	152

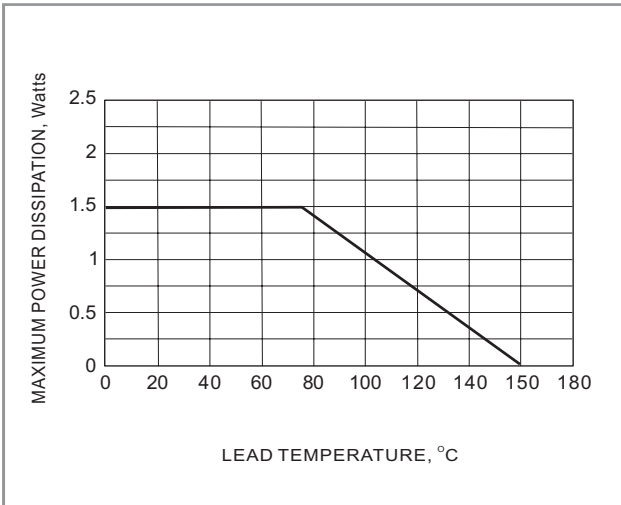


Fig. 1 Steady State Power Derating

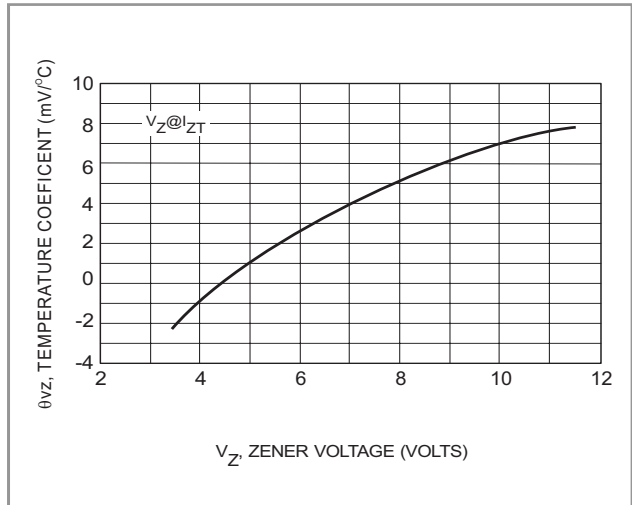


Fig. 2 Temperature coefficient v.s. zener voltage, Vz(V)

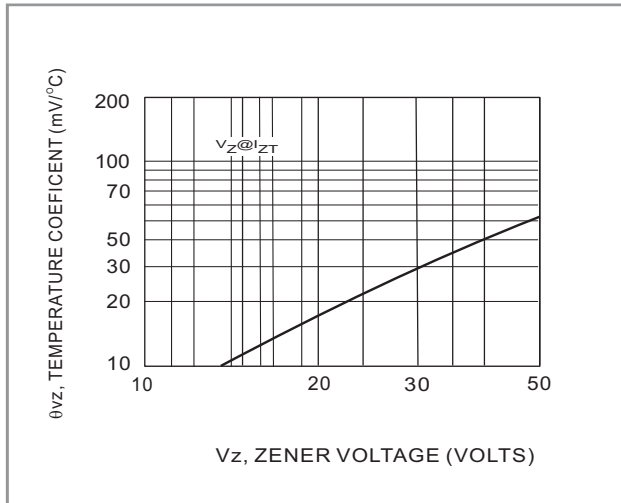


Fig. 3 Temperature coefficient v.s. zener voltage, Vz(V)

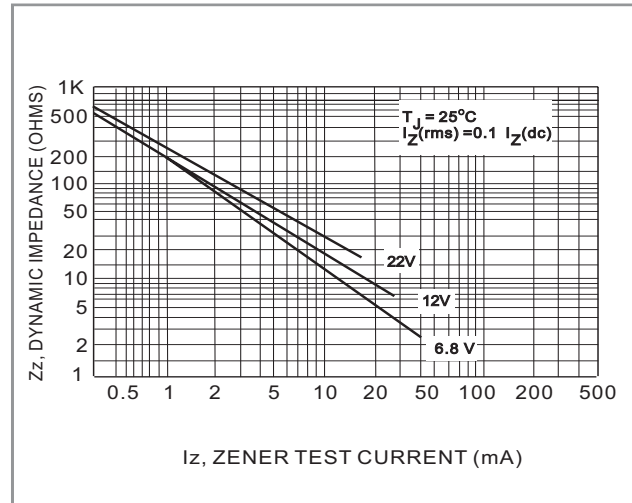


Fig. 4 Zener impedance v.s. zener current

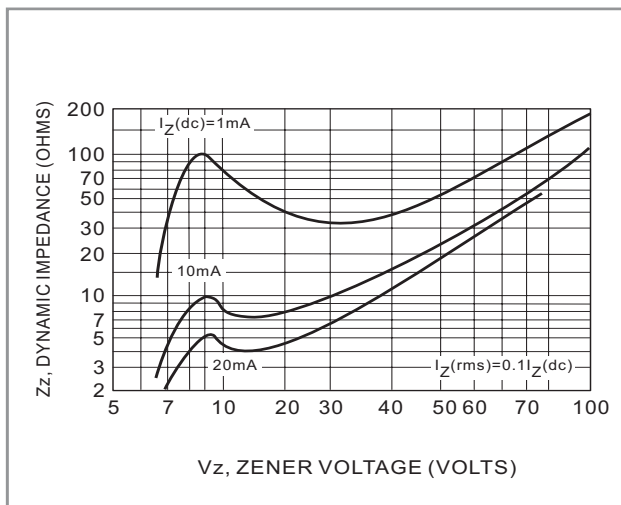


Fig. 5 Zener impedance v.s. zener voltage

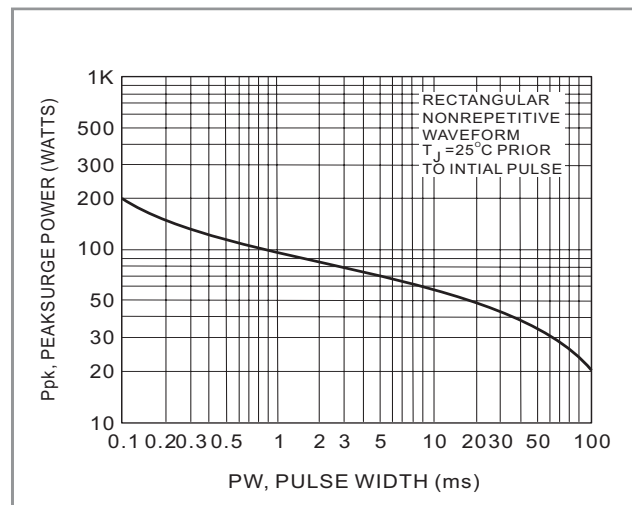
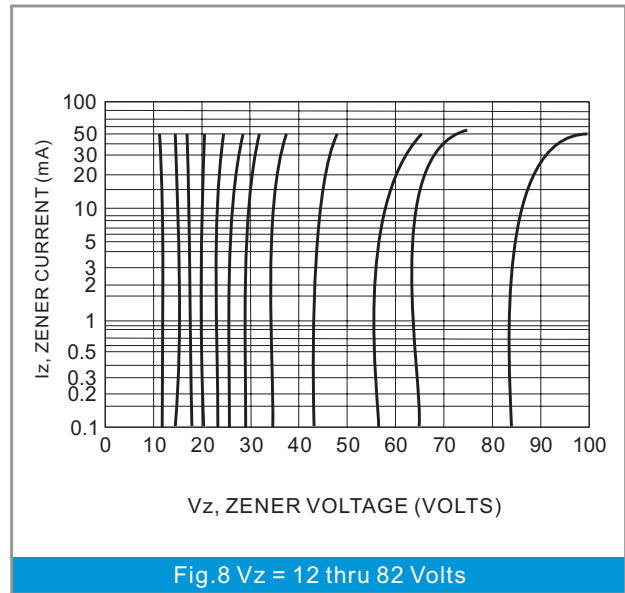
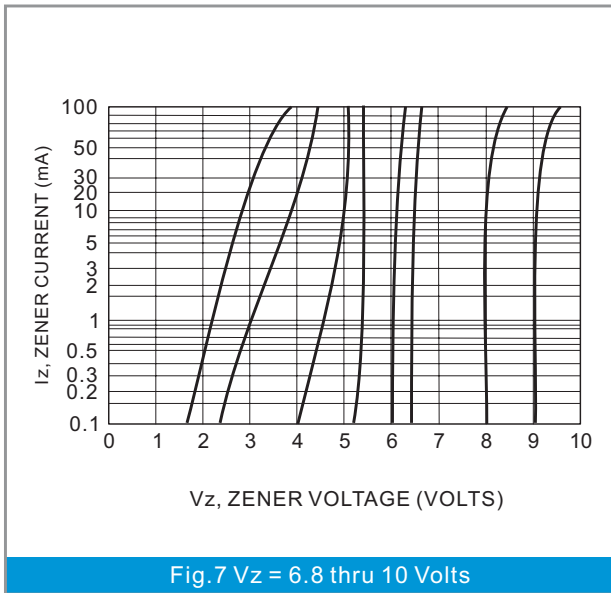


Fig. 6 Maximum Surge Power



**NOTE 3. ZENER VOLTAGE ( $V_z$ ) MEASUREMENT**

Nominal zener voltage is measured with the device function in thermal equilibrium with ambient temperature at 25°C

**NOTE 4. ZENER IMPEDANCE ( $Z_z$ ) DERIVATION**

$Z_{zt}$  and  $Z_{zk}$  are measured by dividing the ac voltage drop across the device by the ac current applied. The specified limits are for  $I_z(ac) = 0.1 I_z(dc)$  with the ac frequency = 60Hz