



# SMBJ5913 THRU SMBJ5956B

## 1.5W SILICON SURFACE MOUNT ZENER DIODES



### FEATURES

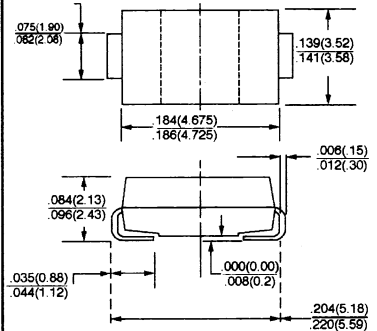
- \* Surface mount equivalent to 1N5913 thru 1N5956B
- \* Ideal for high density, low profile mounting
- \* Zener voltage 3.3V to 200V
- \* Withstands large surge stresses

### MECHANICAL CHARACTERISTICS

- \* Case: Molded surface mountable
- \* Terminals: Tin lead plated
- \* Polarity: Cathode indicated by band
- \* Packaging: Standard 12mm tape (see EIA Std. RS-481)
- \* Thermal resistance: 25°C/Watt (typical) junction to lead (tab) at mounting plane

VOLTAGE RANGE  
3.0 to 200 Volts

### SMB/DO-214AA



### MAXIMUM RATINGS

Junction and Storage: -55°C to +200°C; DC Power Dissipation: 1.5 Watt  
12mW/°C above 75°C; Forward Voltage @ 200 mA: 1.2 Volts

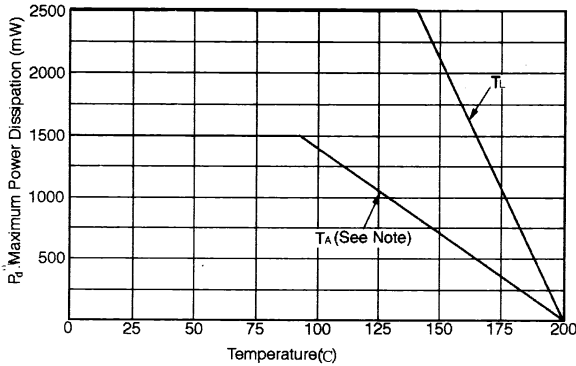
TYPE NUMBER	ZENER VOLTAGE	TEST CURRENT	DYNAMIC IMPEDANCE	KNEE CURRENT	KNEE IMPEDANCE	REVERSE CURRENT	REVERSE VOLTAGE	MAX. DC CURRENT
	V <sub>Z</sub>	I <sub>ZT</sub>	Z <sub>KT</sub>	I <sub>ZK</sub>	Z <sub>ZK</sub>	I <sub>R</sub>	V <sub>R</sub>	I <sub>ZM</sub>
	Volts	mA	Ω	mA	Ω	μA <sub>dc</sub>	Volts	mA
SMBJ5913	3.3	113.6	10.0	1.0	500	100.0	1.0	454
SMBJ5914	3.6	104.2	9.0	1.0	500	75.0	1.0	416
SMBJ5915	3.9	96.1	7.5	1.0	500	25.0	1.0	364
SMBJ5916	4.3	87.2	6.0	1.0	500	5.0	1.0	348
SMBJ5917	4.7	79.8	5.0	1.0	500	5.0	1.5	319
SMBJ5918	5.1	73.5	4.0	1.0	350	5.0	2.0	294
SMBJ5919	5.6	66.9	2.0	1.0	250	5.0	3.0	267
SMBJ5920	6.2	60.5	2.0	1.0	200	5.0	4.0	241
SMBJ5921	6.8	55.1	2.5	1.0	200	5.0	5.2	220
SMBJ5922	7.5	50.0	3.0	0.5	400	5.0	6.0	200
SMBJ5923	8.2	45.7	3.5	0.5	400	5.0	6.5	182
SMBJ5924	9.1	41.2	4.0	0.5	500	5.0	7.0	164
SMBJ5925	10	37.5	4.5	0.25	500	5.0	8.0	150
SMBJ5926	11	34.1	5.5	0.25	550	1.0	8.4	136
SMBJ5927	12	31.2	6.5	0.25	550	1.0	9.1	125
SMBJ5928	13	28.8	7.0	0.25	550	1.0	9.9	115
SMBJ5929	15	25.0	9.0	0.25	600	1.0	11.4	100
SMBJ5930	16	23.4	10.0	0.25	600	1.0	12.2	93
SMBJ5931	18	20.8	12.0	0.25	650	1.0	13.7	83
SMBJ5932	20	18.7	14.0	0.25	650	1.0	15.2	75
SMBJ5933	22	17.0	17.5	0.25	650	1.0	16.7	68
SMBJ5934	24	15.6	19.0	0.25	700	1.0	18.2	62
SMBJ5935	27	13.9	23.0	0.25	700	1.0	20.6	55
SMBJ5936	30	12.5	28.0	0.25	750	1.0	22.8	50
SMBJ5937	33	11.4	33.0	0.25	800	1.0	25.1	45
SMBJ5938	36	10.4	38.0	0.25	850	1.0	27.4	41
SMBJ5939	39	9.6	45.0	0.25	900	1.0	29.7	38
SMBJ5940	43	8.7	53.0	0.25	950	1.0	32.7	34
SMBJ5941	47	8.0	67.0	0.25	1000	1.0	35.8	31
SMBJ5942	51	7.3	70.0	0.25	1100	1.0	38.8	29
SMBJ5943	56	6.7	86.0	0.25	1300	1.0	42.6	26
SMBJ5944	62	6.0	100.0	0.25	1500	1.0	47.1	24
SMBJ5945	68	5.5	120.0	0.25	1700	1.0	51.2	22
SMBJ5946	75	5.0	140.0	0.25	2000	1.0	55.0	20
SMBJ5947	82	4.6	160.0	0.25	2500	1.0	62.2	18
SMBJ5948	91	4.1	200.0	0.25	3000	1.0	69.2	16
SMBJ5949	100	3.7	250.0	0.25	3100	1.0	76.0	15
SMBJ5950	110	3.4	300.0	0.25	4000	1.0	83.6	13
SMBJ5951	120	3.1	380.0	0.25	4500	1.0	91.2	12
SMBJ5952	130	2.9	450.0	0.25	5000	1.0	98.8	11
SMBJ5953	150	2.5	600.0	0.25	6000	1.0	114.0	10
SMBJ5954	160	2.3	700.0	0.25	6500	1.0	121.6	9
SMBJ5955	180	2.1	900.0	0.25	7000	1.0	136.8	8
SMBJ5956	200	1.9	1200.0	0.25	8000	1.0	152.0	7

NOTE 1 No suffix indicates a ± 20% tolerance on nominal V<sub>Z</sub>. Suffix A denotes a ± 10% tolerance, B denotes a ± 5% tolerance, C denotes a ± 2% tolerance, and D denotes a ± 1% tolerance.

NOTE 2 Zener voltage (V<sub>Z</sub>) is measured at T<sub>L</sub> = 30°C. Voltage measurement to be performed 90 seconds after application of dc current.

NOTE 3 The zener impedance is derived from the 60 Hz ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current (I<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed on I<sub>ZT</sub> or I<sub>ZK</sub>.

### RATINGS AND CHARACTERISTIC CURVES (SMBJ5913 THRU SMBJ5956B)



Note: Lead temperature ( $T_L$ ) at mounting plane for typical pc board thermal Resistance design of  $50^\circ\text{C}/\text{W}$  will result in  $75^\circ\text{C}$  lead temperatures above ambient ( $T_A$ ), if operating at the full rated 1.5 watts.

FIGURE 1 – Power Derating Curve

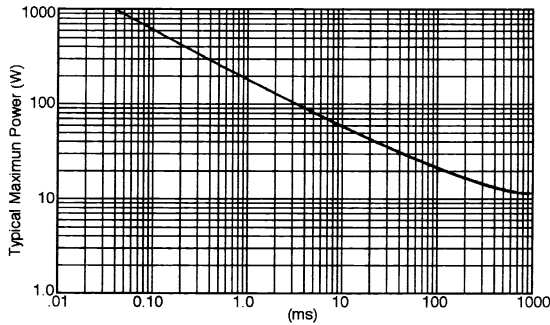


FIGURE 2 – Transient Surge Capability square Wave Pulse Width (Non-Repetitive) In Milliseconds

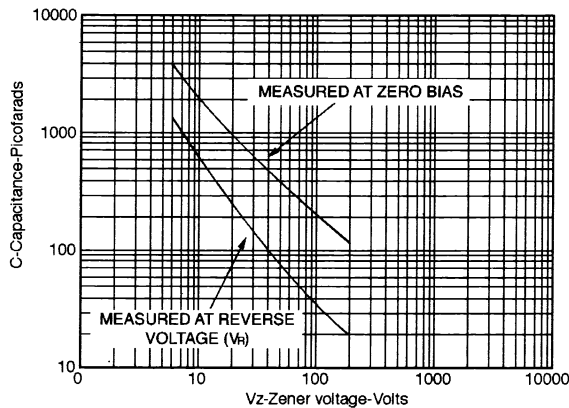


FIGURE 3 – Typical Capacitance Vs. Zener Voltage