IV. Zener Diode

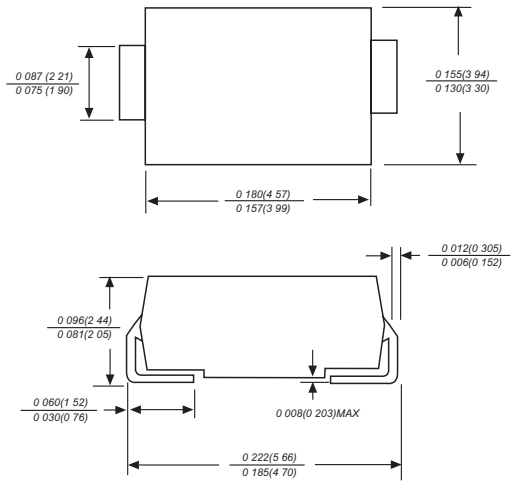
SMD Zener Diode (3.0 Watt)
1SMB5913B~1SMB5956B (Package: SMB (DO-214AA))

FEATURES

- Low profile package for surface mount (flat handling surface for accurate placement).
- Zener voltage 3.3V to 200V.
- High surge current capability.
- For surface mounted applications in order to optimize board space.
- Built-in strain relief.
- High temperature soldering guaranteed: 260℃/10 seconds at terminals.

MECHANICAL DATA

- Case : Void-free, transfer molded plastic
- Polarity : Cathode band
- Marking : Type number
- Weight : 0.090 grams



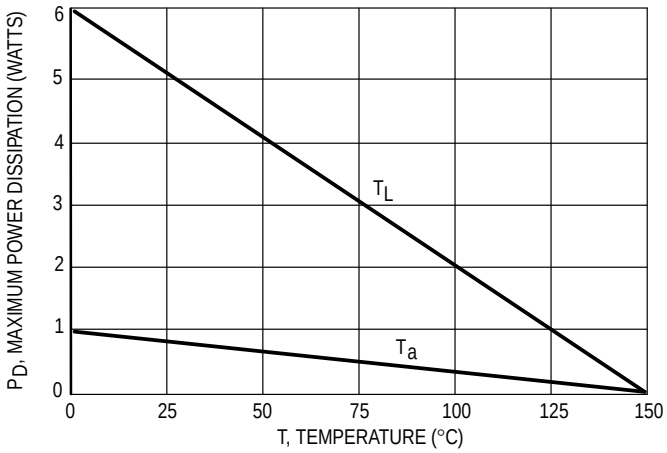
Case: SMB
Dimensions in inches and (millimeters)

Ratings & Electrical Characteristics

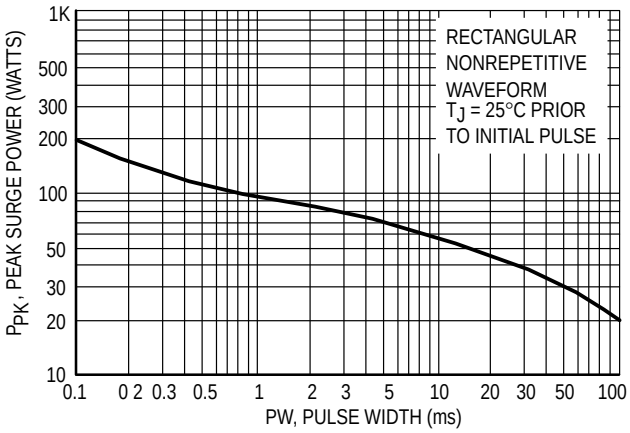
Ratings at 25℃ ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
DC power dissipation @ T_L = 75℃, measured at zero lead length	P_D	3.0	Watts
Derate above 75℃		40	mW/℃
DC power dissipation @ Ta = 25℃*	P_D	830	mW
Derate above 25℃		6.6	mW/℃
Operating and storage temperatures range	Tj, Tstg	-65 to +150	℃

* FR4 Board, within 1” to device.



Steady State Power Derating



Maximum Surge Power

IV. Zener Diode

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Type Number*	Marking Code	Nominal Zener Voltage (Note1)		Maximum Zener Impedance (Note2)			Maximum Reverse Leakage Current		Maximum DC Zener Current
		V_Z @ I_{ZT}	I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	I_R @ V_R		I_{ZM}
		V	mA	Ω	Ω	mA	μA	V	mA
1SMB5913B	913B	3.3	113.6	10	500	1.0	100	1.0	454
1SMB5914B	914B	3.6	104.2	9.0	500	1.0	75	1.0	416
1SMB5915B	915B	3.9	96.1	7.5	500	1.0	25	1.0	384
1SMB5916B	916B	4.3	87.2	6.0	500	1.0	5.0	1.0	348
1SMB5917B	917B	4.7	79.8	5.0	500	1.0	5.0	1.5	319
1SMB5918B	918B	5.1	73.5	4.0	350	1.0	5.0	2.0	294
1SMB5919B	919B	5.6	66.9	2.0	250	1.0	5.0	3.0	267
1SMB5920B	920B	6.2	60.5	2.0	200	1.0	5.0	4.0	241
1SMB5921B	921B	6.8	55.1	2.5	200	1.0	5.0	5.2	220
1SMB5922B	922B	7.5	50.0	3.0	400	0.5	5.0	6.0	200
1SMB5923B	923B	8.2	45.7	3.5	400	0.5	5.0	6.5	182
1SMB5924B	924B	9.1	41.2	4.0	500	0.5	5.0	7.0	164
1SMB5925B	925B	10	37.5	4.5	500	0.25	5.0	8.0	150
1SMB5926B	926B	11	34.1	5.5	550	0.25	1.0	8.4	136
1SMB5927B	927B	12	31.2	6.5	550	0.25	1.0	9.1	125
1SMB5928B	928B	13	28.8	7.0	550	0.25	1.0	9.9	115
1SMB5929B	929B	15	25.0	9.0	600	0.25	1.0	11.4	100
1SMB5930B	930B	16	23.4	10	600	0.25	1.0	12.2	93
1SMB5931B	931B	18	20.8	12	650	0.25	1.0	13.7	83
1SMB5932B	932B	20	18.7	14	650	0.25	1.0	15.2	75
1SMB5933B	933B	22	17.0	17.5	650	0.25	1.0	16.7	68
1SMB5934B	934B	24	15.6	19	700	0.25	1.0	18.2	62
1SMB5935B	935B	27	13.9	23	700	0.25	1.0	20.6	55
1SMB5936B	936B	30	12.5	26	750	0.25	1.0	22.8	50
1SMB5937B	937B	33	11.4	33	800	0.25	1.0	25.1	45
1SMB5938B	938B	36	10.4	38	850	0.25	1.0	27.4	41
1SMB5939B	939B	39	9.6	45	900	0.25	1.0	29.7	38
1SMB5940B	940B	43	8.7	53	950	0.25	1.0	32.7	34
1SMB5941B	941B	47	8.0	67	1000	0.25	1.0	35.8	31
1SMB5942B	942B	51	7.3	70	1100	0.25	1.0	38.8	29
1SMB5943B	943B	56	6.7	86	1300	0.25	1.0	42.6	26
1SMB5944B	944B	62	6.0	100	1500	0.25	1.0	47.1	24
1SMB5945B	945B	68	5.5	120	1700	0.25	1.0	51.7	22
1SMB5946B	946B	75	5.0	140	2000	0.25	1.0	56.0	20
1SMB5947B	947B	82	4.6	160	2500	0.25	1.0	62.2	18
1SMB5948B	948B	91	4.1	200	3000	0.25	1.0	69.2	16
1SMB5949B	949B	100	3.7	250	3100	0.25	1.0	76.0	15
1SMB5950B	950B	110	3.4	300	4000	0.25	1.0	83.6	13
1SMB5951B	951B	120	3.1	380	4500	0.25	1.0	91.2	12
1SMB5952B	952B	130	2.9	450	5000	0.25	1.0	98.8	11
1SMB5953B	953B	150	2.5	600	6000	0.25	1.0	114.0	10
1SMB5954B	954B	160	2.3	700	6500	0.25	1.0	121.6	9.0
1SMB5955B	955B	180	2.1	900	7000	0.25	1.0	136.8	8.0
1SMB5956B	956B	200	1.9	1200	8000	0.25	1.0	152.0	7.0

Notes :
1. Nominal zener voltage is measured with the device junction in thermal equilibrium with ambient temperature at 25℃.
2. 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 = 60 Hz.

*Tolerance and type number designation:
The type numbers listed have a standard tolerance on the nominal zener voltage of +/-5%.

Ratings and Characteristic Curves of 1SMB5913B~1SMB5956B

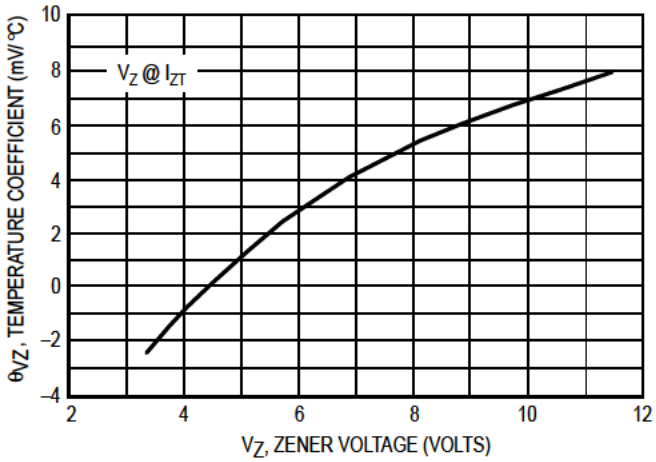

Figure 1. Zener Voltage — To 12 Volts

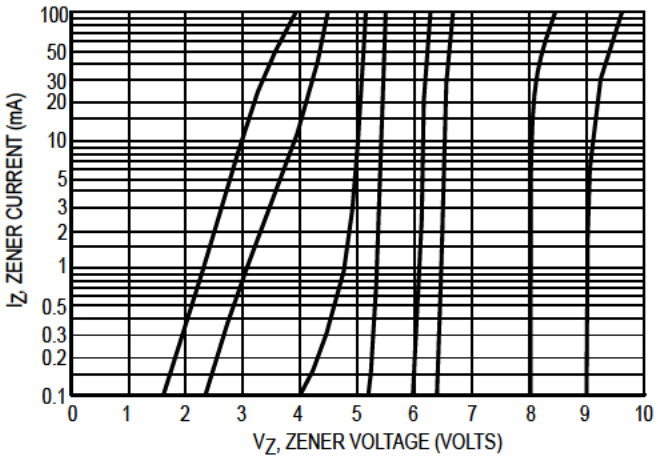

Figure 2. V_Z = 3.3 thru 10 Volts

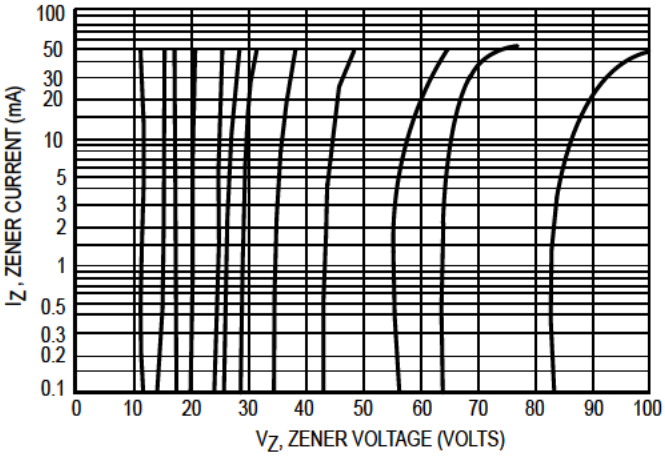

Figure 3. V_Z = 12 thru 82 Volts

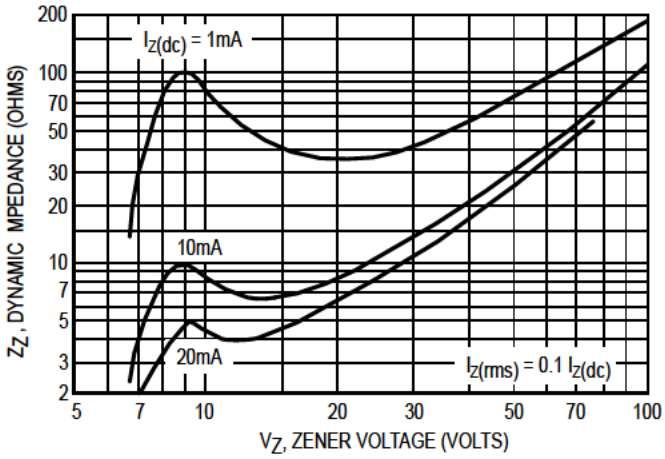

Figure 4. Effect of Zener Voltage

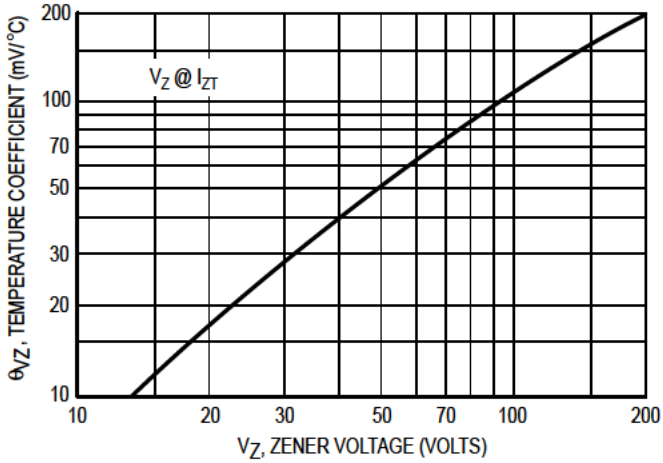

Figure 5. Zener Voltage — 14 To 200 Volts

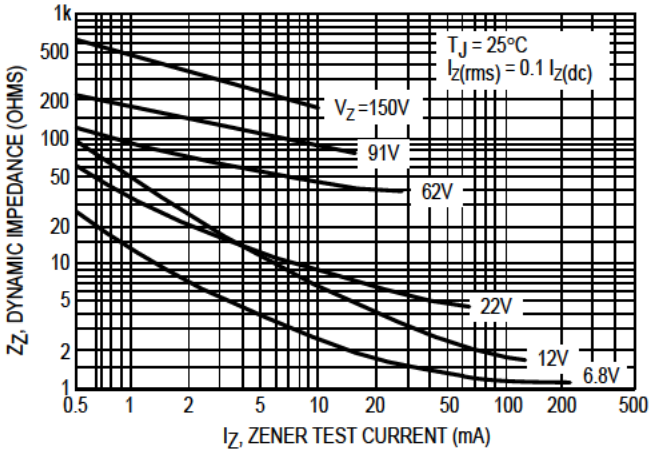

Figure 6. Effect of Zener Current

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