

# 1SMB5913B THRU 1SMB5956B

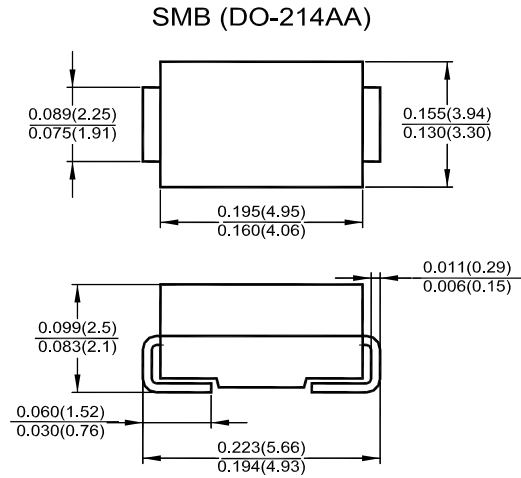
## Surface Mount Silicon Zener Diodes

### Features

- High peak reverse power dissipation
- Low leakage current

### Mechanical Data

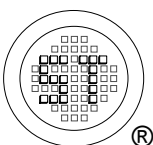
- Case: SMB (DO-214AA) molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: Cathode indicated by polarity band
- Mounting position: Any



Dimensions in inches and (millimeters)

### Maximum Ratings

Parameter	Symbol	Value	Unit
Maximum Steady State Power Dissipation at $T_L = 75\text{ }^\circ\text{C}$ , Measured at Zero Lead Length	$P_{tot}$	3	W
Derate Above $75\text{ }^\circ\text{C}$		40	mW/ $^\circ\text{C}$
Thermal Resistance from Junction to Lead	$R_{\theta JL}$	25	$^\circ\text{C}/\text{W}$
Maximum Steady State Power Dissipation at $T_a = 25\text{ }^\circ\text{C}$ , Measured at Zero Lead Length	$P_{tot}$	550	mW
Derate Above $25\text{ }^\circ\text{C}$		4.4	mW/ $^\circ\text{C}$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	226	$^\circ\text{C}/\text{W}$
Maximum Forward Voltage at $I_F = 200\text{ mA}$	$V_F$	1.5	V
Operating Temperature Range	$T_j$	- 65 to + 150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 65 to + 150	$^\circ\text{C}$



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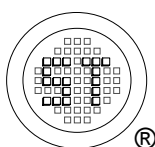
Dated: 11/04/2012 E Rev: 04

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## Electrical Characteristics (Rating at $T_L = 30^\circ\text{C}$ unless otherwise specified)

Type	Zener Voltage Range <sup>1)</sup>				Zener Impedance			Reverse Current		Maximum DC Zener Current
	$V_{Znom}$	$V_{ZT}$		at $I_{ZT}$	$Z_{ZT}$	$Z_{ZK}$	at $I_{ZK}$	$I_R$	at $V_R$	
	(V)	Min. (V)	Max. (V)	(mA)	Max. ( $\Omega$ )	Max. ( $\Omega$ )	(mA)	Max. ( $\mu\text{A}$ )	(V)	$I_{ZM}$ (mA)
1SMB5913B	3.3	3.13	3.47	113.6	10	500	1	100	1	454
1SMB5914B	3.6	3.42	3.78	104.2	9	500	1	75	1	416
1SMB5915B	3.9	3.7	4.1	96.1	7.5	500	1	25	1	384
1SMB5916B	4.3	4.08	4.52	87.2	6	500	1	5	1	348
1SMB5917B	4.7	4.46	4.94	79.8	5	500	1	5	1.5	319
1SMB5918B	5.1	4.84	5.36	73.5	4	350	1	5	2	294
1SMB5919B	5.6	5.32	5.88	66.9	2	250	1	5	3	267
1SMB5920B	6.2	5.89	6.51	60.5	2	200	1	5	4	241
1SMB5921B	6.8	6.46	7.14	55.1	2.5	200	1	5	5.2	220
1SMB5922B	7.5	7.12	7.88	50	3	400	0.5	5	6	200
1SMB5923B	8.2	7.79	8.61	45.7	3.5	400	0.5	5	6.5	182
1SMB5924B	9.1	8.64	9.56	41.2	4	500	0.5	5	7	164
1SMB5925B	10	9.5	10.5	37.5	4.5	500	0.25	5	8	150
1SMB5926B	11	10.45	11.55	34.1	5.5	550	0.25	1	8.4	136
1SMB5927B	12	11.4	12.6	31.2	6.5	550	0.25	1	9.1	125
1SMB5928B	13	12.35	13.65	28.8	7	550	0.25	1	9.9	115
1SMB5929B	15	14.25	15.75	25	9	600	0.25	1	11.4	100
1SMB5930B	16	15.2	16.8	23.4	10	600	0.25	1	12.2	93
1SMB5931B	18	17.1	18.9	20.8	12	650	0.25	1	13.7	83
1SMB5932B	20	19	21	18.7	14	650	0.25	1	15.2	75
1SMB5933B	22	20.9	23.1	17	17.5	650	0.25	1	16.7	68
1SMB5934B	24	22.8	25.2	15.6	19	700	0.25	1	18.2	62
1SMB5935B	27	25.65	28.35	13.9	23	700	0.25	1	20.6	55
1SMB5936B	30	28.5	31.5	12.5	28	750	0.25	1	22.8	50
1SMB5937B	33	31.35	34.65	11.4	33	800	0.25	1	25.1	45
1SMB5938B	36	34.2	37.8	10.4	38	850	0.25	1	27.4	41
1SMB5939B	39	37.05	40.95	9.6	45	900	0.25	1	29.7	38
1SMB5940B	43	40.85	45.15	8.7	53	950	0.25	1	32.7	34
1SMB5941B	47	44.65	49.35	8	67	1000	0.25	1	35.8	31
1SMB5942B	51	48.45	53.55	7.3	70	1100	0.25	1	38.8	29
1SMB5943B	56	53.2	58.8	6.7	86	1300	0.25	1	42.6	26
1SMB5944B	62	58.9	65.1	6	100	1500	0.25	1	47.1	24
1SMB5945B	68	64.6	71.4	5.5	120	1700	0.25	1	51.7	22
1SMB5946B	75	71.25	78.75	5	140	2000	0.25	1	56	20
1SMB5947B	82	77.9	86.1	4.6	160	2500	0.25	1	62.2	18
1SMB5948B	91	86.45	95.55	4.1	200	3000	0.25	1	69.2	16
1SMB5949B	100	95	105	3.7	250	3100	0.25	1	76	15
1SMB5950B	110	104.5	115.5	3.4	300	4000	0.25	1	83.6	13
1SMB5951B	120	114	126	3.1	380	4500	0.25	1	91.2	12
1SMB5952B	130	123.5	136.5	2.9	450	5000	0.25	1	98.8	11
1SMB5953B	150	142.5	157.5	2.5	600	6000	0.25	1	114	10
1SMB5954B	160	152	168	2.3	700	6500	0.25	1	121.6	9
1SMB5955B	180	171	189	2.1	900	7000	0.25	1	136.8	8
1SMB5956B	200	190	210	1.9	1200	8000	0.25	1	152	7

<sup>1)</sup> Suffix "A" indicates  $\pm 10\%$  tolerance, Suffix "B" indicates  $\pm 5\%$  tolerance.



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Fig. 1 - STEADY STATE POWER DERATING CURVE

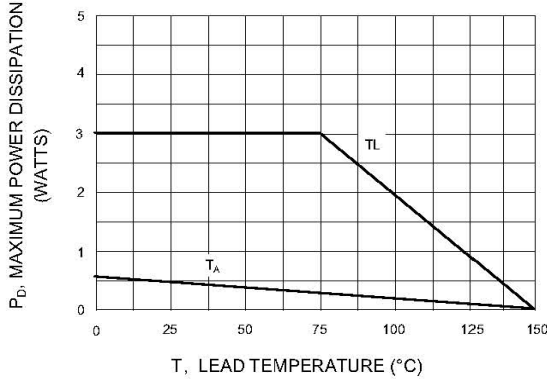


Fig. 2 - MAXIMUM SURGE POWER

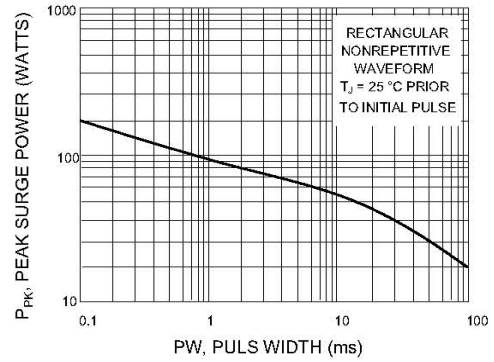


Fig.3 - TEMPERATURE COEFFICIENT RANGES UNITS TO 12 VOLTS

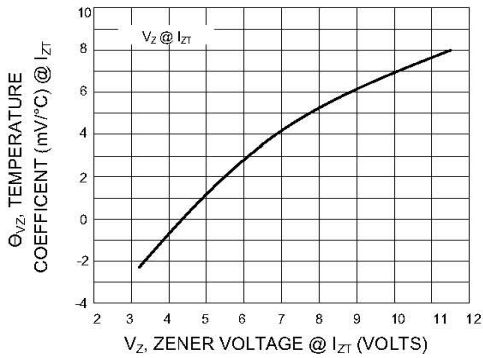


Fig. 4 - TEMPERATURE COEFFICIENT RANGES UNITS 10 TO 400 VOLTS

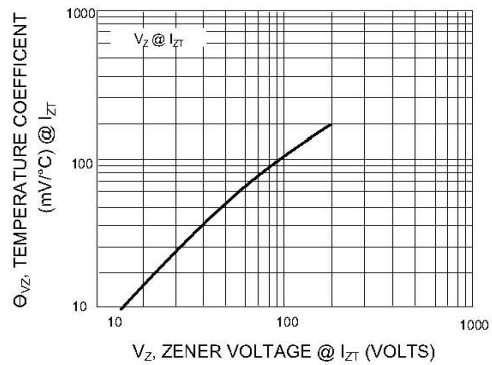


Fig. 5 - ZENER VOLTAGE VS. ZENER CURRENT V<sub>Z</sub> = 3.3 thru 10 VOLTS

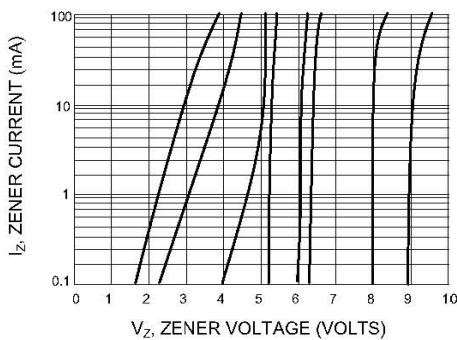
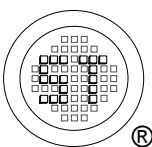
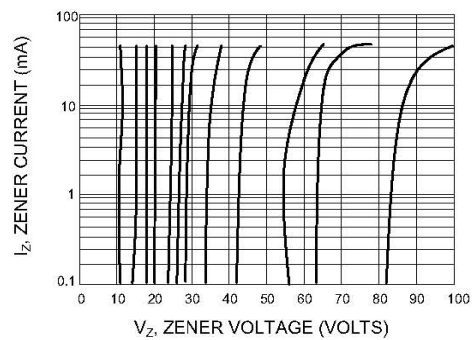


Fig. 6 ZENER VOLTAGE VS. ZENER CURRENT V<sub>Z</sub> = 12 thru 82 VOLTS



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