

# 1SMB5913B thru 1SMB5956B

Zener Diodes

Vz Range: 3.3 to 200V Power Dissipation: 3W

## Features

- A complete voltage range - 3.3 to 200 volts
- Flat handling surface for accurate placement
- Package design for top side or bottom circuit board mounting
- High forward surge current capability
- High temperature soldering guaranteed:
- 250°C / 10 seconds, 0.375" (9.5mm) lead length, 5 lbs. (2.3kg) tension



Package: DO-214AA (SMB)



**RoHS**  
COMPLIANT

## Mechanical Data

- Case: Void - free, transfer - molded plastic
- Terminal: All external surfaces are corrosion resistant with readily solderable leads
- Polarity: Color band denotes cathode end
- Weight: 0.003 ounce, 0.093 grams

## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
DC Power Dissipation @T <sub>L</sub> =75°C, Measured at Zero Lead Length Derate above 75°C	P <sub>D</sub>	3 40	W mW/°C
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

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## Electrical Characteristics (T<sub>L</sub>=30°C unless otherwise noted, V<sub>F</sub>=1.5V Max. @I<sub>F</sub>=200mA (dc) for all types)

MPN	Marking Code	Zener Voltage @ I <sub>ZT</sub>			Test Current	Zener Impedance			Leakage Current		I <sub>ZM</sub>	
		V <sub>Z</sub> (V)				I <sub>ZT</sub> (mA)	Z <sub>ZT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @ I <sub>ZK</sub>		I <sub>R</sub> @ V <sub>R</sub>		
		Min	Nom	Max				Ω	Ω	mA		uA
1SMB5913B	913B	3.13	3.3	3.47	113.6	10	500	1	100	1	454	
1SMB5914B	914B	3.42	3.6	3.78	104.2	9	500	1	75	1	416	
1SMB5915B	915B	3.7	3.9	4.1	96.1	7.5	500	1	25	1	384	
1SMB5916B	916B	4.08	4.3	4.52	87.2	6	500	1	5	1	348	
1SMB5917B	917B	4.46	4.7	4.94	79.8	5	500	1	5	1.5	319	
1SMB5918B	918B	4.84	5.1	5.36	73.5	4	350	1	5	2	294	
1SMB5919B	919B	5.32	5.6	5.88	66.9	2	250	1	5	3	267	
1SMB5920B	920B	5.89	6.2	6.51	60.5	2	200	1	5	4	241	
1SMB5921B	921B	6.46	6.8	7.14	55.1	2.5	200	1	5	5.2	220	
1SMB5922B	922B	7.12	7.5	7.88	50	3	400	0.5	5	6	200	
1SMB5923B	923B	7.79	8.2	8.61	45.7	3.5	400	0.5	5	6.5	182	
1SMB5924B	924B	8.64	9.1	9.56	41.2	4	500	0.5	5	7	164	
1SMB5925B	925B	9.5	10	10.5	37.5	4.5	500	0.25	5	8	150	
1SMB5926B	926B	10.45	11	11.55	34.1	5.5	550	0.25	1	8.4	136	
1SMB5927B	927B	11.4	12	12.6	31.2	6.5	550	0.25	1	9.1	125	
1SMB5928B	928B	12.35	13	13.65	28.8	7	550	0.25	1	9.9	115	
1SMB5929B	929B	14.25	15	15.75	25	9	600	0.25	1	11.4	100	
1SMB5930B	930B	15.2	16	16.8	23.4	10	600	0.25	1	12.2	93	
1SMB5931B	931B	17.1	18	18.9	20.8	12	650	0.25	1	13.7	83	
1SMB5932B	932B	19	20	21	18.7	14	650	0.25	1	15.2	75	
1SMB5933B	933B	20.9	22	23.1	17	17.5	650	0.25	1	16.7	68	
1SMB5934B	934B	22.8	24	25.2	15.6	19	700	0.25	1	18.2	62	
1SMB5935B	935B	25.65	27	28.35	13.9	23	700	0.25	1	20.6	55	
1SMB5936B	936B	28.5	30	31.5	12.5	28	750	0.25	1	22.8	50	
1SMB5937B	937B	31.35	33	34.65	11.4	33	800	0.25	1	25.1	45	
1SMB5938B	938B	34.2	36	37.8	10.4	38	850	0.25	1	27.4	41	

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MPN	Marking Code	Zener Voltage			Test Current	Zener Impedance			Leakage Current		I <sub>ZM</sub>
		V <sub>Z</sub> (V)				I <sub>ZT</sub> (mA)	Z <sub>ZT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @ I <sub>ZK</sub>		I <sub>R</sub> @ V <sub>R</sub>	
		Min	Nom	Max	Ω		Ω	mA	μA	V	mA (dc)
1SMB5939B	939B	37.05	39	40.95	9.6	45	900	0.25	1	29.7	38
1SMB5940B	940B	40.85	43	45.15	8.7	53	950	0.25	1	32.7	34
1SMB5941B	941B	44.65	47	49.35	8	67	1000	0.25	1	35.8	31
1SMB5942B	942B	48.45	51	53.55	7.3	70	1100	0.25	1	38.8	29
1SMB5943B	943B	53.2	56	58.8	6.7	86	1300	0.25	1	42.6	26
1SMB5944B	944B	58.9	62	65.1	6	100	1500	0.25	1	47.1	24
1SMB5945B	945B	64.6	68	71.4	5.5	120	1700	0.25	1	51.7	22
1SMB5946B	946B	71.25	75	78.75	5	140	2000	0.25	1	56	20
1SMB5947B	947B	77.9	82	86.1	4.6	160	2500	0.25	1	62.2	18
1SMB5948B	948B	86.45	91	95.55	4.1	200	3000	0.25	1	69.2	16
1SMB5949B	949B	95	100	105	3.7	250	3100	0.25	1	76	15
1SMB5950B	950B	104.5	110	115.5	3.4	300	4000	0.25	1	83.6	13
1SMB5951B	951B	114	120	126	3.1	380	4500	0.25	1	91.2	12
1SMB5952B	952B	123.5	130	136.5	2.9	450	5000	0.25	1	98.8	11
1SMB5953B	953B	142.5	150	157.5	2.5	600	6000	0.25	1	114	10
1SMB5954B	954B	152	160	168	2.3	700	6500	0.25	1	121.6	9
1SMB5955B	955B	171	180	189	2.1	900	7000	0.25	1	136.8	8
1SMB5956B	956B	190	200	210	1.9	1200	8000	0.25	1	152	7

Notes: Standard voltage tolerance is ±5%.

## Typical Electrical Characteristic Curves

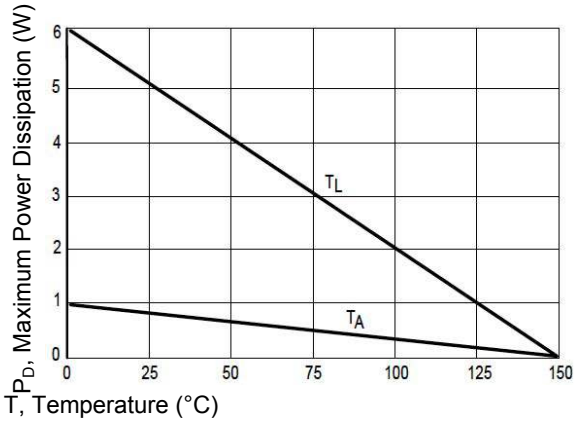


Figure.1 Steady State Power Derating

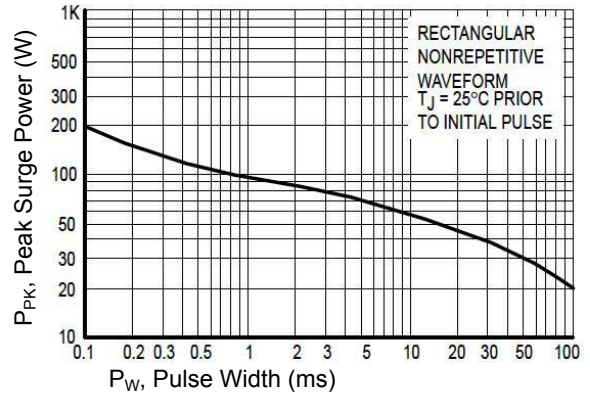


Figure.2 Maximum Surge Power

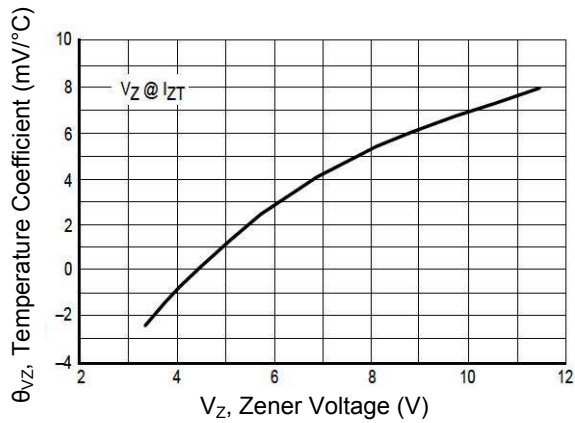


Figure.3 Zener Voltage - To 12V

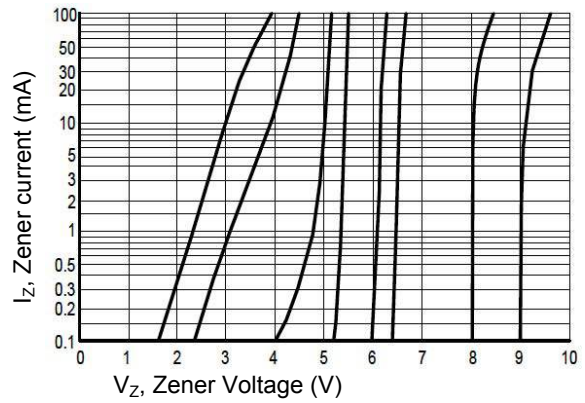


Figure.4 V<sub>Z</sub>=3.3V thru 10 V

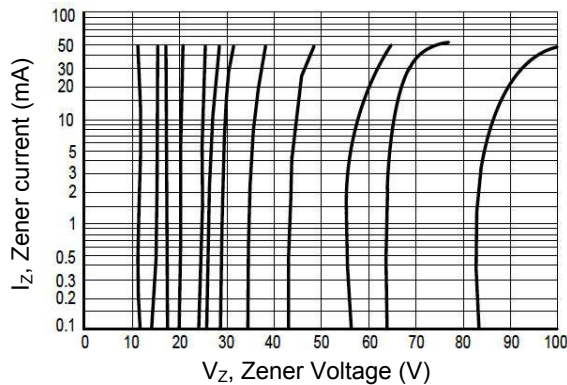


Figure 5. V<sub>Z</sub>=12V thru 82 V

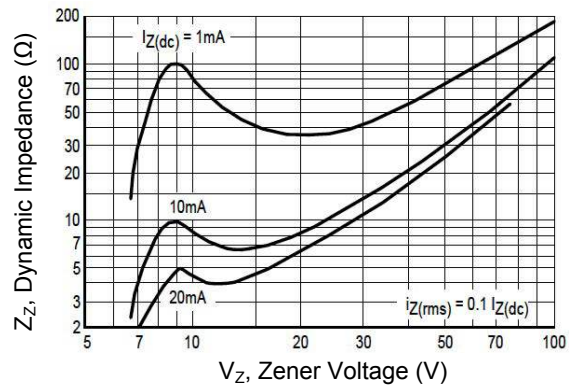


Figure 6. Effect of Zener Voltage

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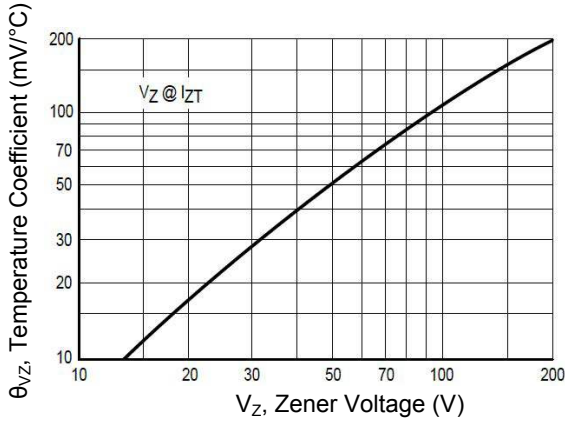


Figure 7. Zener Voltage - 14V To 200 V

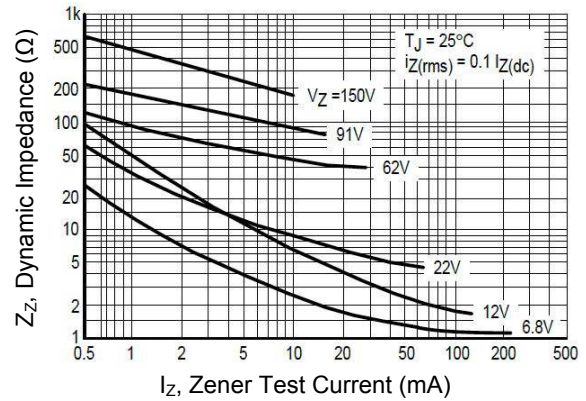
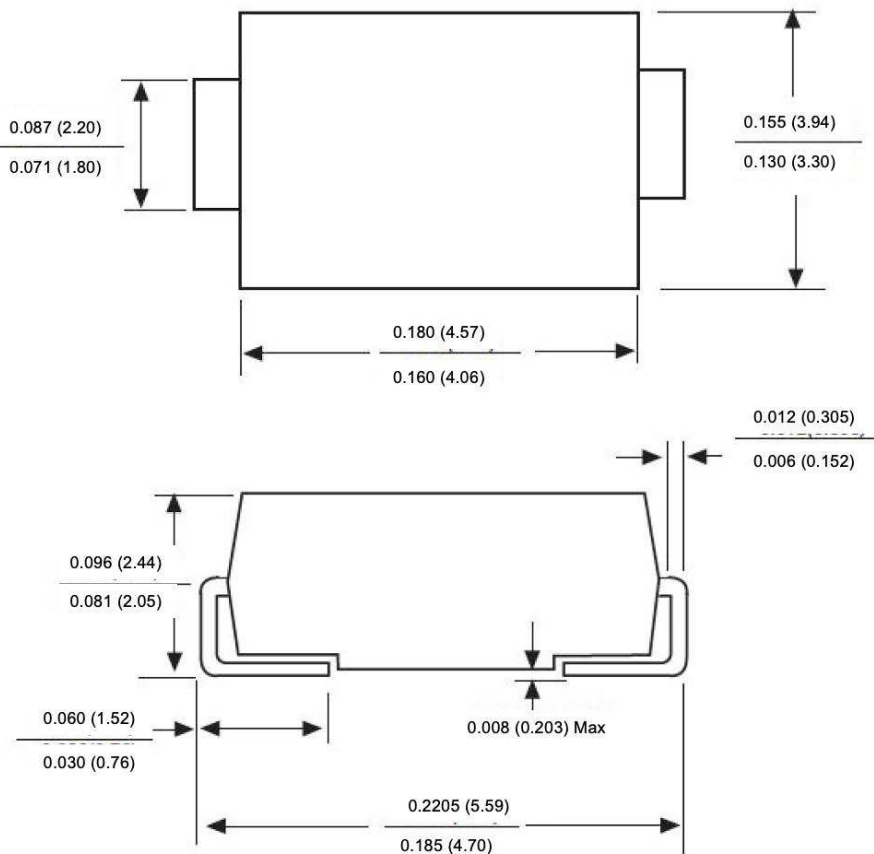


Figure 8. Effect of Zener Current

## Package Outline Dimensions DO-214AA (SMB)



Dimensions in inches and (millimeters)