



**THE DATASHEET OF  
1SMB5927B**



**Surface Mount SILICON ZENER DIODES**

**Zener Voltage 3.3 to 200 Volts 3 Watt Power Dissipation**

**FEATURES**

- \* Glass passivated chip
- \* Built-in strain relief
- \* Low inductance
- \* High peak reverse power dissipation
- \* Low reverse leakage
- \* For use in stabilizing and clipping with high power rating
- \* ESD Rating of Class 3 (> 20 kV) per Human Body Model

**MECHANICAL DATA**

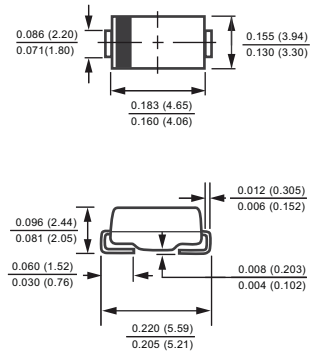
- \* Epoxy: Device has UL flammability classification 94V-0
- \* Lead: Solderable per MIL-STD-750, method 2026

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.  
Resistive or inductive load.



**SMB**



Dimensions in inches and (millimeters)

**Absolute Maximum Ratings (Ta = 25°C)**

Parameter	Symbol	Rating	Unit
Power dissipation @ TL = 75°C	P	3000	mW
Thermal Resistance, Junction to Lead	R $\theta$ JL	25	°C/W
Maximum forward voltage at if=200mA	VF	1.2	V
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method)	IFSM	50	A
Typical Current Square Time	I <sup>2</sup> T	10.37	A <sup>2</sup> S
Storage temperature and Junction temperature	Tstg , Tj	-55 to +150	°C

# RATING AND CHARACTERISTICS CURVES (1SMB5913B THRU 1SMB5956B)

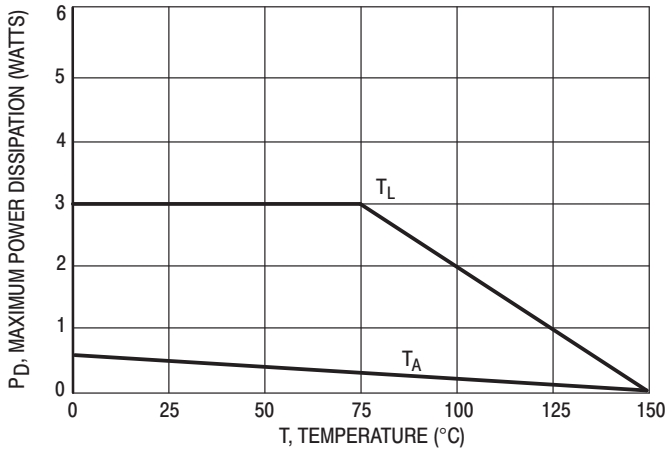


Figure 1. Steady State Power Derating

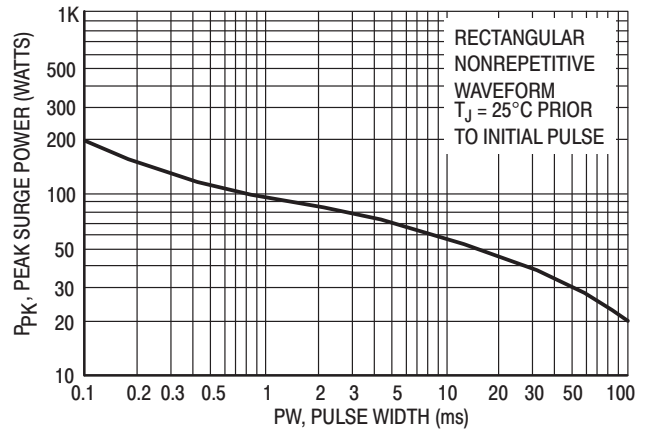


Figure 2. Maximum Surge Power

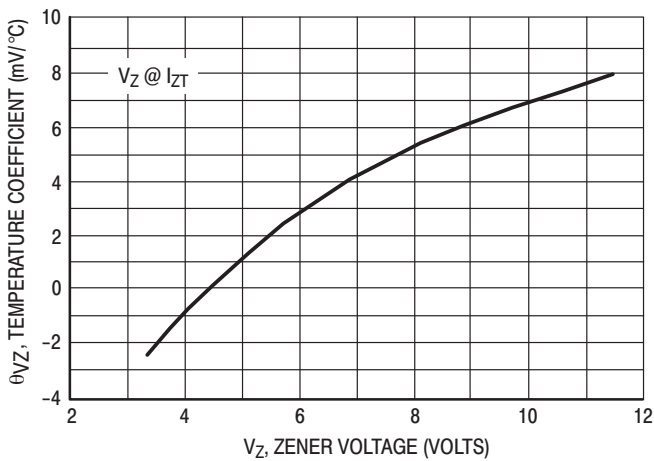


Figure 3. Zener Voltage - To 12 Volts

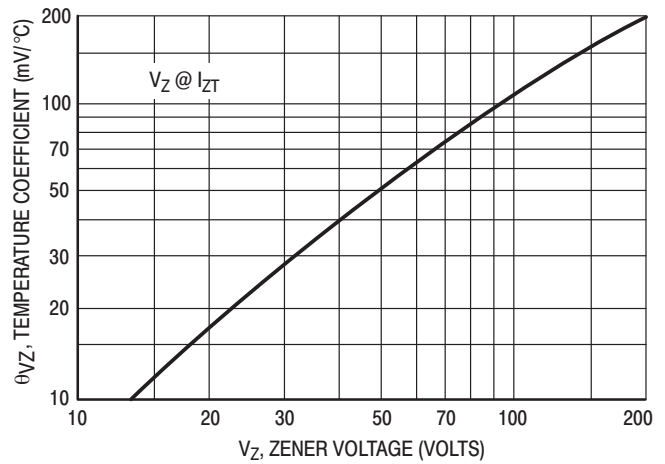


Figure 4. Zener Voltage - 14 To 200 Volts

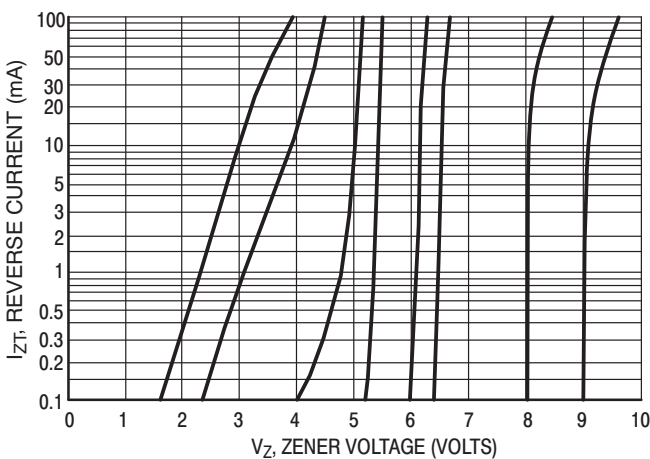


Figure 5.  $V_Z = 3.3$  thru 10 Volts

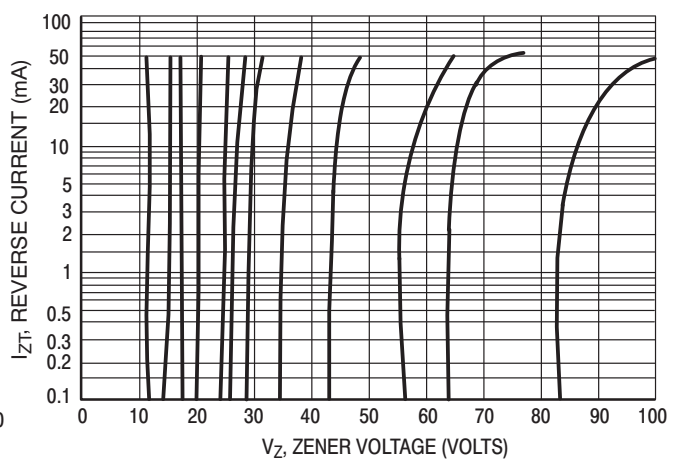


Figure 6.  $V_Z = 12$  thru 82 Volts

# RATING AND CHARACTERISTICS CURVES (1SMB5913B THRU 1SMB5956B)

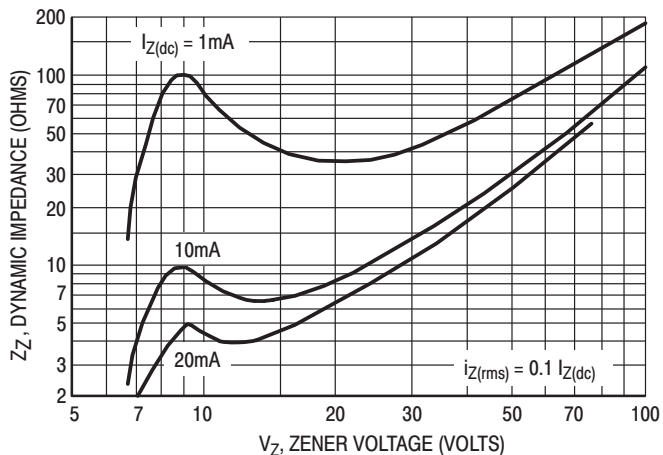


Figure 7. Effect of Zener Voltage

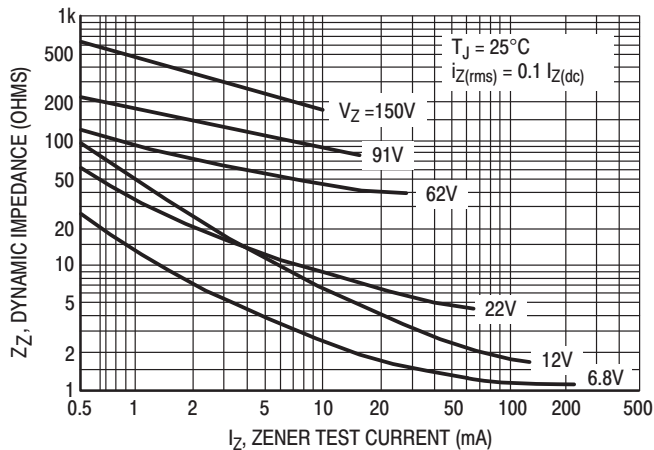


Figure 8. Effect of Zener Current

## Rating and Typical Characteristic Curves ( $T_A = 25^\circ C$ )

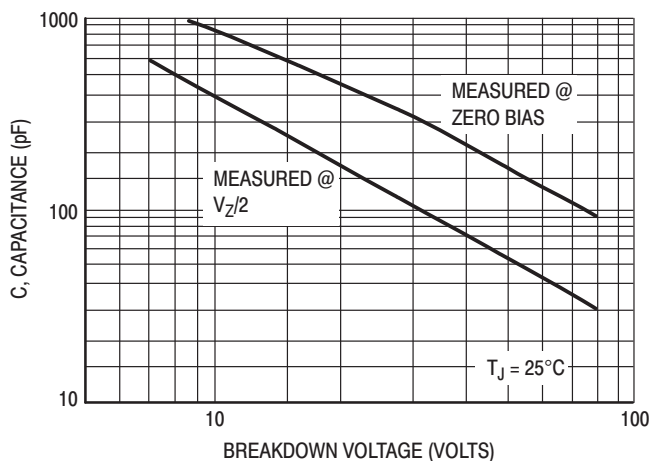


Figure 9. Capacitance Curve

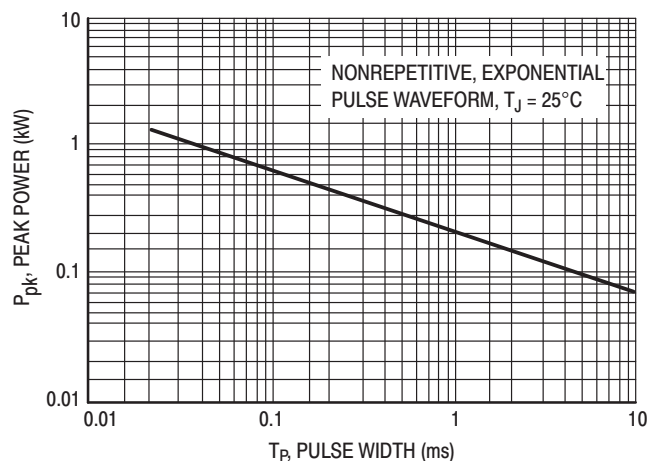


Figure 10. Typical Pulse Rating Curve

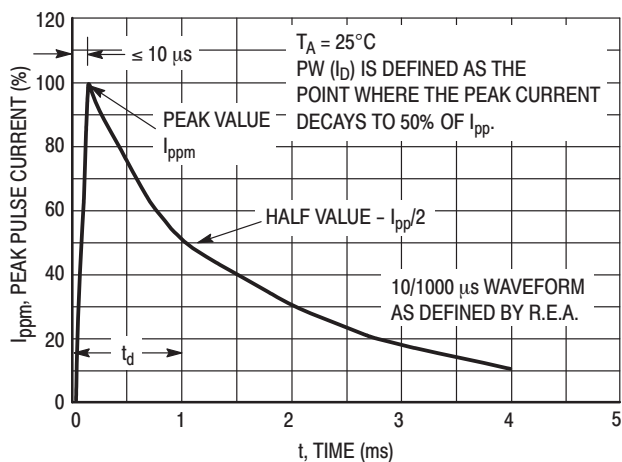


Figure 11. Pulse Waveform

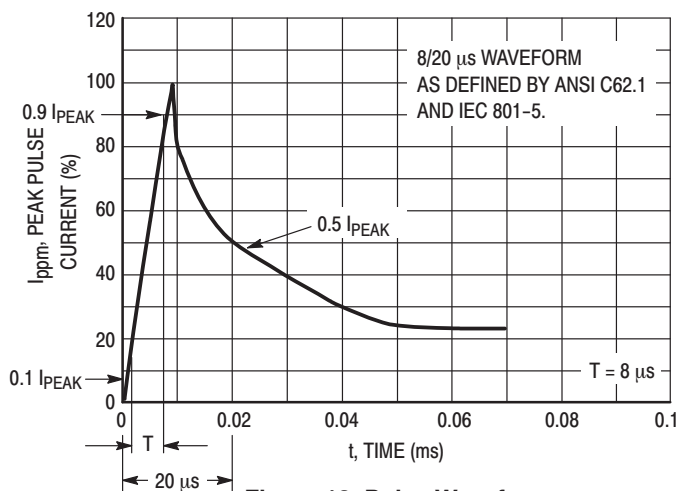
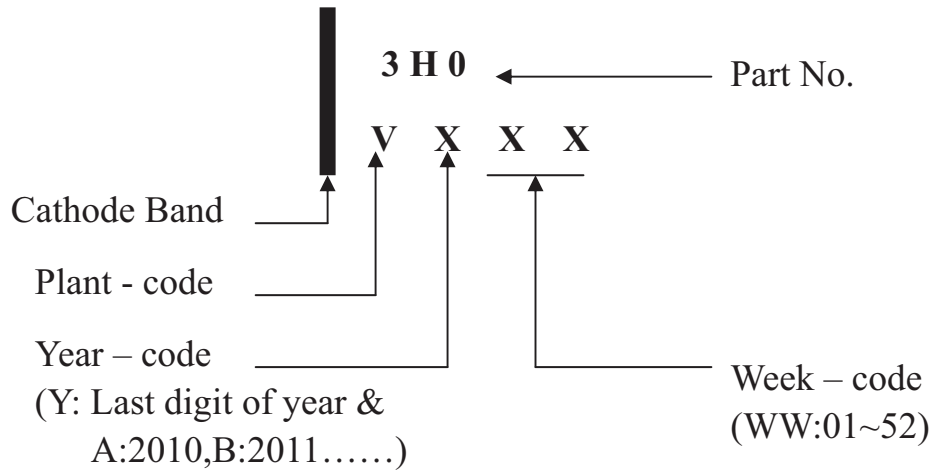


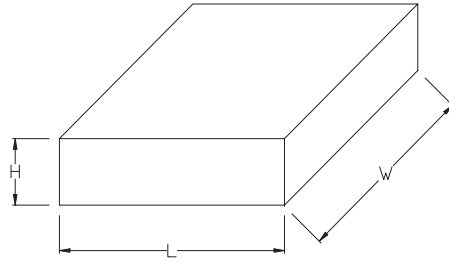
Figure 12. Pulse Waveform

Part Number	Device Marking	Zener Voltage			Zener Impedance				Leakage Current		I <sub>ZM</sub> mA(dc)
		V <sub>Z</sub> (V)			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	mA	Ω	mA	uA	V	
1SMB5913B	3H0	3.13	3.3	3.47	10	113.6	500	1	100	1	454
1SMB5914B	3H1	3.42	3.6	3.78	9	104.2	500	1	75	1	416
1SMB5915B	3H2	3.7	3.9	4.1	7.5	96.1	500	1	25	1	384
1SMB5916B	3H3	4.08	4.3	4.52	6	87.2	500	1	5	1	348
1SMB5917B	3H4	4.46	4.7	4.94	5	79.8	500	1	5	1.5	319
1SMB5918B	3H5	4.84	5.1	5.36	4	73.5	350	1	5	2	294
1SMB5919B	3H6	5.32	5.6	5.88	2	66.9	250	1	5	3	267
1SMB5920B	3A0	5.89	6.2	6.51	2	60.5	200	1	5	4	241
1SMB5921B	3A1	6.46	6.8	7.14	2.5	55.1	200	1	5	5.2	220
1SMB5922B	3A2	7.12	7.5	7.88	3	50	400	0.5	5	6	200
1SMB5923B	3A3	7.79	8.2	8.61	3.5	45.7	400	0.5	5	6.5	182
1SMB5924B	3A4	8.64	9.1	9.56	4	41.2	500	0.5	5	7	164
1SMB5925B	3A5	9.5	10	10.5	4.5	37.5	500	0.25	5	8	150
1SMB5926B	3A6	10.45	11	11.55	5.5	34.1	550	0.25	1	8.4	136
1SMB5927B	3A7	11.4	12	12.6	6.5	31.2	550	0.25	1	9.1	125
1SMB5928B	3A8	12.35	13	13.65	7	28.8	550	0.25	1	9.9	115
1SMB5929B	3B0	14.25	15	15.75	9	25	600	0.25	1	11.4	100
1SMB5930B	3B1	15.2	16	16.8	10	23.4	600	0.25	1	12.2	93
1SMB5931B	3B3	17.1	18	18.9	12	20.8	650	0.25	1	13.7	83
1SMB5932B	3B5	19	20	21	14	18.7	650	0.25	1	15.2	75
1SMB5933B	3B6	20.9	22	23.1	17.5	17	650	0.25	1	16.7	68
1SMB5934B	3B7	22.8	24	25.2	19	15.6	700	0.25	1	18.2	62
1SMB5935B	3B8	25.65	27	28.35	23	13.9	700	0.25	1	20.6	55
1SMB5936B	3B9	28.5	30	31.5	28	12.5	750	0.25	1	22.8	50
1SMB5937B	3C0	31.35	33	34.65	33	11.4	800	0.25	1	25.1	45
1SMB5938B	3C1	34.2	36	37.8	38	10.4	850	0.25	1	27.4	41
1SMB5939B	3C2	37.05	39	40.95	45	9.6	900	0.25	1	29.7	38
1SMB5940B	3C3	40.85	43	45.15	53	8.7	950	0.25	1	32.7	34
1SMB5941B	3C4	44.65	47	49.35	67	8	1000	0.25	1	35.8	31
1SMB5942B	3C5	48.45	51	53.55	70	7.3	1100	0.25	1	38.8	29
1SMB5943B	3C6	53.2	56	58.8	86	6.7	1300	0.25	1	42.6	26
1SMB5944B	3C7	58.9	62	65.1	100	6	1500	0.25	1	47.1	24
1SMB5945B	3C8	64.6	68	71.4	120	5.5	1700	0.25	1	51.7	22
1SMB5946B	3C9	71.25	75	78.75	140	5	2000	0.25	1	56	20
1SMB5947B	3F0	77.9	82	86.1	160	4.6	2500	0.25	1	62.2	18
1SMB5948B	3F1	86.45	91	95.55	200	4.1	3000	0.25	1	69.2	16
1SMB5949B	3F2	95	100	105	250	3.7	3100	0.25	1	76	15
1SMB5950B	3F3	104.5	110	115.5	300	3.4	4000	0.25	1	83.6	13
1SMB5951B	3F4	114	120	126	380	3.1	4500	0.25	1	91.2	12
1SMB5952B	3F5	123.5	130	136.5	450	2.9	5000	0.25	1	98.8	11
1SMB5953B	3F7	142.5	150	157.5	600	2.5	6000	0.25	1	114	10
1SMB5954B	3F8	152	160	168	700	2.3	6500	0.25	1	121.6	9
1SMB5955B	3G1	171	180	189	900	2.1	7000	0.25	1	136.8	8
1SMB5956B	3G3	190	200	210	1200	1.9	8000	0.25	1	152	7

## Marking on the body

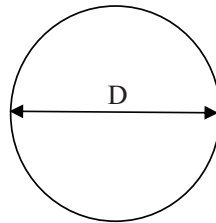


1. BOX



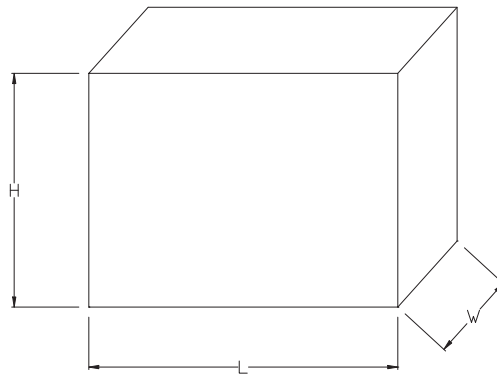
Packing Code	L (mm)	W (mm)	H (mm)
-W/-T	338	338	40

2. REEL



Packing Code	D (mm)
-W/-T	330

3. CARTON



Packing Code	L (mm)	W (mm)	H (mm)
-W/-T	360	355	360

## PACKAGING OF DIODE AND BRIDGE RECTIFIERS

### REEL PACK

PACKAGE	PACKING CODE	EA PER REEL	EA PER INNER BOX	COMPONENT SPACE (mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SMB	-W/-T	3,000	6,000	---	---	330	360*355*360	48,000	13.90

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