

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

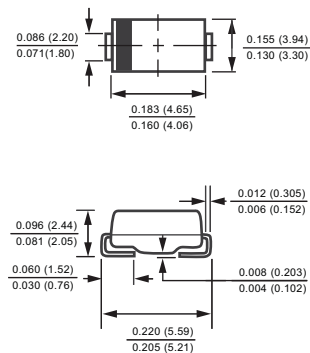
- * Epoxy: Device has UL flammability classification 94V-O
- * Lead: Solderable per MIL-STD-750, method 2026

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 _{θJL}	25	°C/W
Maximum forward voltage at if=200mA	V _F	1.2	V
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method)	I _{FSM}	50	A
Typical Current Square Time	I ² T	10.37	A ² S
Storage temperature and Junction temperature	T _{stg} , T _j	-55 to +150	°C

RATING AND CHARACTERISTICS CURVES (1SMB5913B THRU 1SMB5956B)

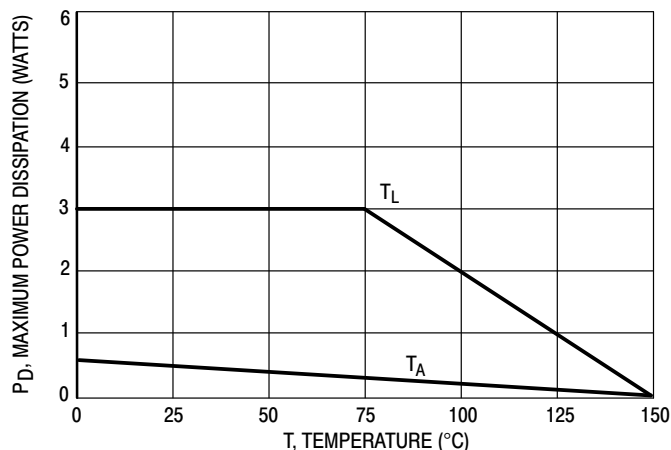


Figure 1. Steady State Power Derating

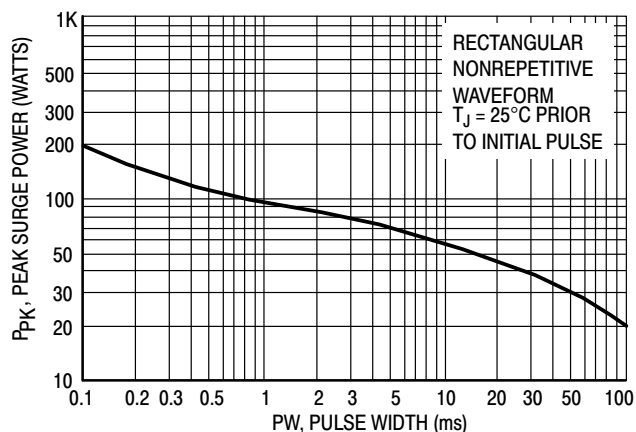


Figure 2. Maximum Surge Power

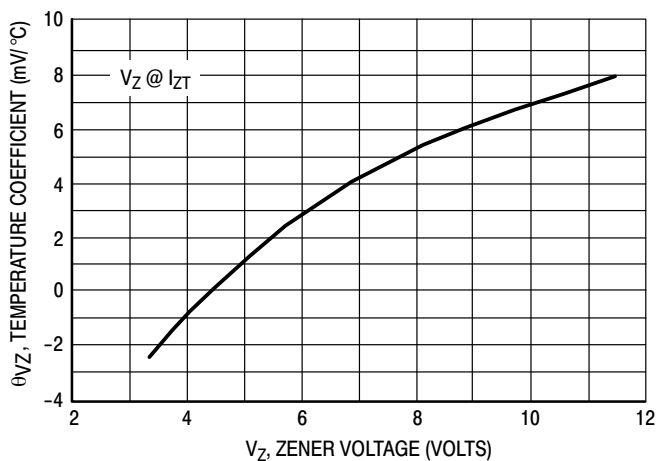


Figure 3. Zener Voltage - To 12 Volts

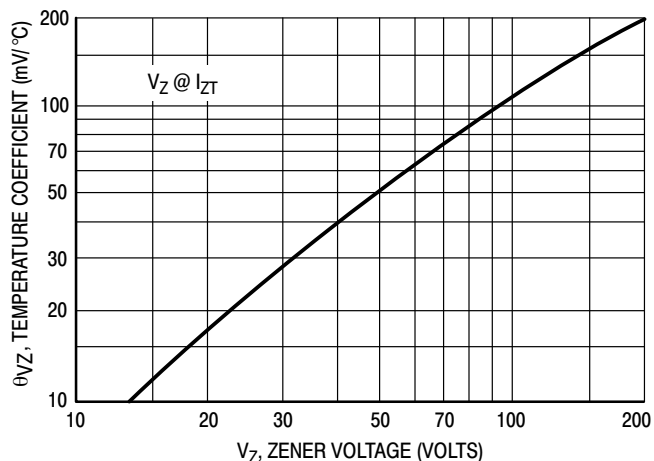


Figure 4. Zener Voltage - 14 To 200 Volts

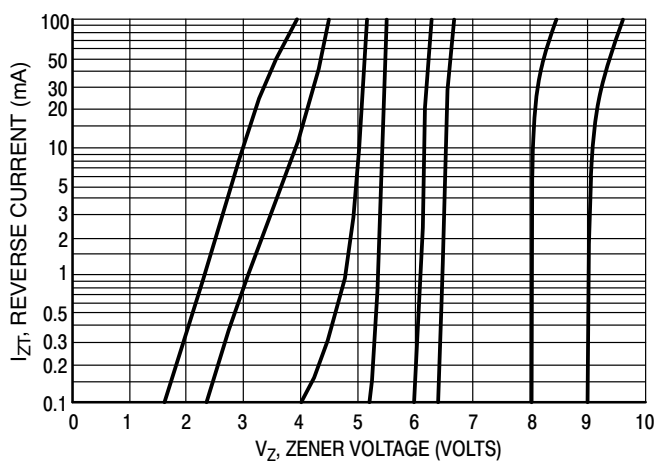


Figure 5. $V_Z = 3.3$ thru 10 Volts

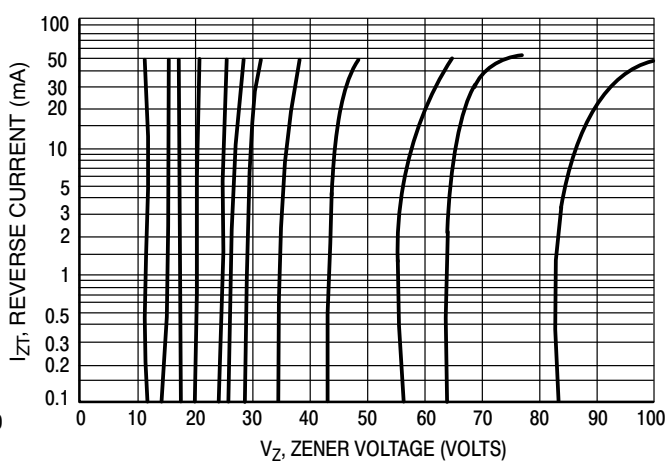


Figure 6. $V_Z = 12$ thru 82 Volts

RATING AND CHARACTERISTICS CURVES (1SMB5913B THRU 1SMB5956B)

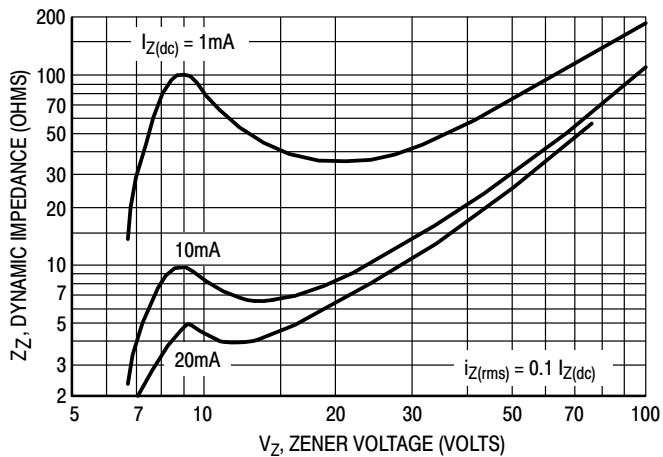


Figure 7. Effect of Zener Voltage

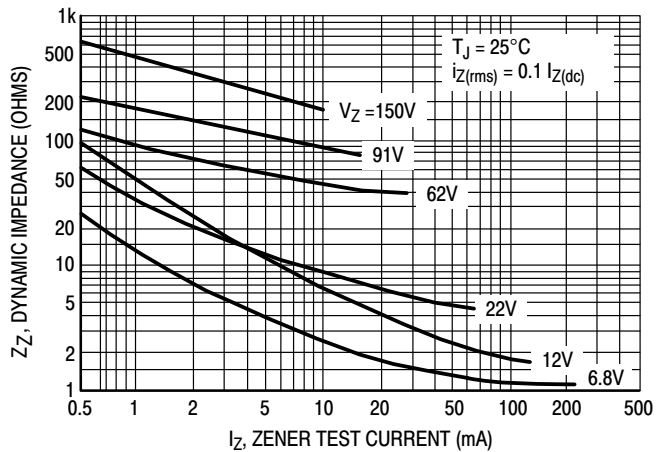


Figure 8. Effect of Zener Current

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

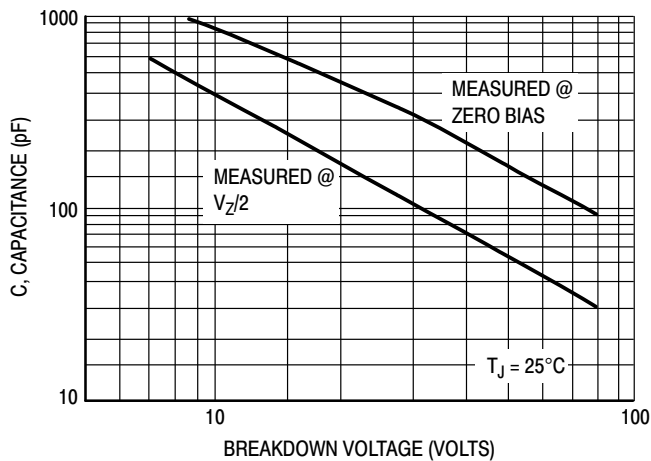


Figure 9. Capacitance Curve

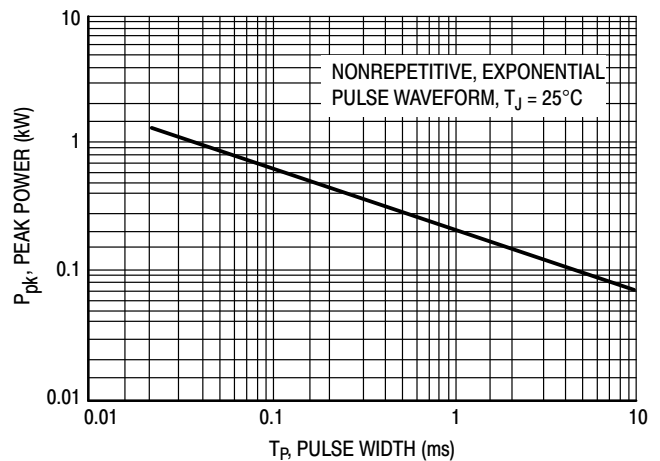


Figure 10. Typical Pulse Rating Curve

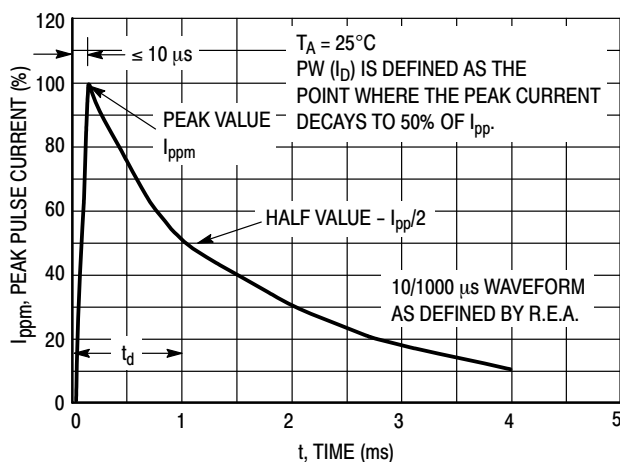


Figure 11. Pulse Waveform

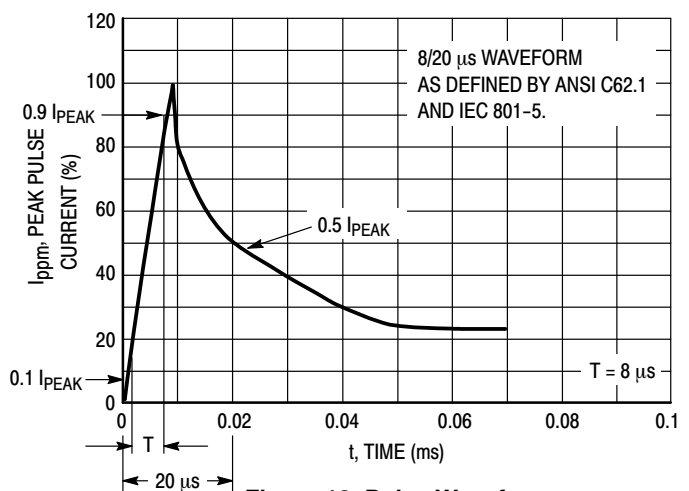
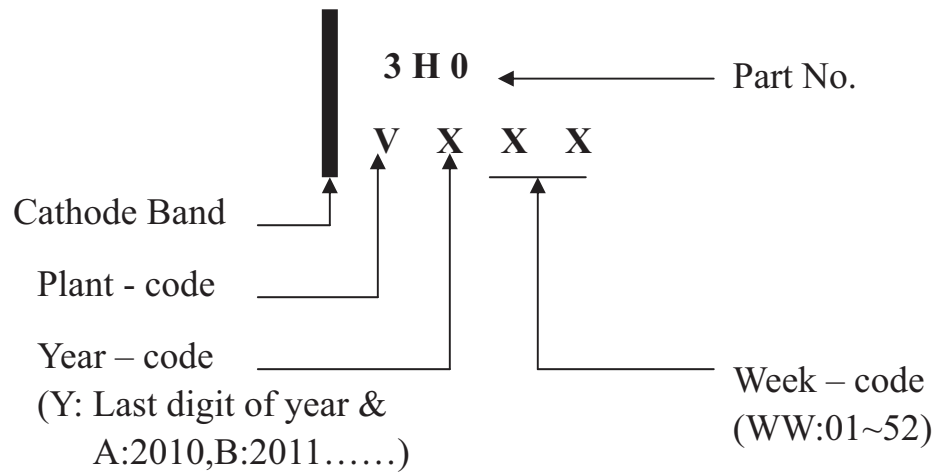


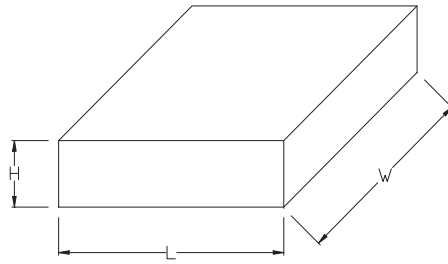
Figure 12. Pulse Waveform

Part Number	Device Marking Code	Nominal Zener Voltage @I _T			I _{ZT} (mA)	Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current
		V _{Z AVE.} (V)	V _{Z MIN.} (V)	V _{Z MAX.} (V)		Z _{ZT MAX.} (Ω) @I _{ZT}	Z _{ZK MAX.} (Ω) @I _{ZK}	I _{ZK} (mA)	I _R (μA)@V _R	V _R (V)	
1SMB5913B	3H0	3.3	3.14	3.47	227.3	10.0	500.0	1.00	100.0	1.0	817.0
1SMB5914B	3H1	3.6	3.42	3.78	208.3	9.0	500.0	1.00	100.0	1.0	749.0
1SMB5915B	3H2	3.9	3.71	4.10	192.0	4.5	400.0	1.00	100.0	1.0	691.0
1SMB5916B	3H3	4.3	4.09	4.52	174.0	4.5	400.0	1.00	50.0	1.0	627.0
1SMB5917B	3H4	4.7	4.47	4.94	160.0	4.0	500.0	1.00	50.0	1.0	573.0
1SMB5918B	3H5	5.1	4.85	5.36	147.0	3.5	550.0	1.00	10.0	1.0	528.0
1SMB5919B	3H6	5.6	5.32	5.88	134.0	2.5	600.0	1.00	10.0	2.0	481.0
1SMB5920B	3A0	6.2	5.89	6.51	121.0	1.5	700.0	1.00	10.0	3.0	435.0
1SMB5921B	3A1	6.8	6.46	7.14	110.0	2.0	700.0	1.00	10.0	4.0	393.0
1SMB5922B	3A2	7.5	7.13	7.88	100.0	2.0	700.0	0.50	10.0	5.0	360.0
1SMB5923B	3A3	8.2	7.79	8.61	91.0	2.3	700.0	0.50	10.0	6.0	330.0
1SMB5924B	3A4	9.1	8.65	9.56	82.0	2.5	700.0	0.50	10.0	7.0	297.0
1SMB5925B	3A5	10.0	9.50	10.50	75.0	3.5	700.0	0.25	10.0	7.6	270.0
1SMB5926B	3A6	11.0	10.45	11.55	68.0	4.0	700.0	0.25	0.5	8.4	225.0
1SMB5927B	3A7	12.0	11.40	12.60	63.0	4.5	700.0	0.25	0.5	9.1	246.0
1SMB5928B	3A8	13.0	12.35	13.65	58.0	4.5	700.0	0.25	0.5	9.9	208.0
1SMB5929B	3B0	15.0	14.25	15.75	50.0	5.5	700.0	0.25	0.5	11.4	180.0
1SMB5930B	3B1	16.0	15.20	16.80	47.0	5.5	700.0	0.25	0.5	12.2	169.0
1SMB5931B	3B3	18.0	17.10	18.90	42.0	6.0	750.0	0.25	0.5	13.7	150.0
1SMB5932B	3B5	20.0	19.00	21.00	37.0	7.0	750.0	0.25	0.5	15.2	135.0
1SMB5933B	3B6	22.0	20.90	23.10	34.0	8.0	750.0	0.25	0.5	16.7	123.0
1SMB5934B	3B7	24.0	22.80	25.20	31.0	9.0	750.0	0.25	0.5	18.2	112.0
1SMB5935B	3B8	27.0	25.65	28.35	28.0	10.0	750.0	0.25	0.5	20.6	100.0
1SMB5936B	3B9	30.0	28.50	31.50	25.0	16.0	1000.0	0.25	0.5	22.5	90.0
1SMB5937B	3C0	33.0	31.35	34.65	23.0	20.0	1000.0	0.25	0.5	25.1	82.0
1SMB5938B	3C1	36.0	34.20	37.80	21.0	22.0	1000.0	0.25	0.5	27.4	75.0
1SMB5939B	3C2	39.0	37.05	40.95	19.0	28.0	1000.0	0.25	0.5	29.7	69.0
1SMB5940B	3C3	43.0	40.85	45.15	17.0	33.0	1500.0	0.25	0.5	32.7	63.0
1SMB5941B	3C4	47.0	44.65	49.35	16.0	38.0	1500.0	0.25	0.5	35.6	57.0
1SMB5942B	3C5	51.0	48.45	53.55	15.0	45.0	1500.0	0.25	0.5	38.8	53.0
1SMB5943B	3C6	56.0	53.20	58.80	13.0	50.0	2000.0	0.25	0.5	42.6	48.0
1SMB5944B	3C7	62.0	58.90	65.10	12.0	55.0	2000.0	0.25	0.5	47.1	44.0
1SMB5945B	3C8	68.0	64.60	71.40	11.0	70.0	2000.0	0.25	0.5	51.7	40.0
1SMB5946B	3C9	75.0	71.25	78.75	10.0	85.0	2000.0	0.25	0.5	56.0	36.0
1SMB5947B	3F0	82.0	77.90	86.10	9.1	95.0	3000.0	0.25	0.5	62.2	33.0
1SMB5948B	3F1	91.0	86.45	95.55	8.2	115.0	3000.0	0.25	0.5	69.2	30.0
1SMB5949B	3F2	100.0	95.00	105.00	7.5	160.0	3000.0	0.25	0.5	76.0	27.0
1SMB5950B	3F3	110.0	104.50	115.50	6.8	225.0	4000.0	0.25	0.5	83.6	25.0
1SMB5951B	3F4	120.0	114.00	126.00	6.3	300.0	4500.0	0.25	0.5	91.2	22.0
1SMB5952B	3F5	130.0	123.50	136.50	5.8	375.0	5000.0	0.25	0.5	98.8	21.0
1SMB5953B	3F7	150.0	142.50	157.50	5.0	550.0	6000.0	0.25	0.5	114.0	18.0
1SMB5954B	3F8	160.0	152.00	168.00	4.7	625.0	6500.0	0.25	0.5	121.6	17.0
1SMB5955B	3G1	180.0	171.00	189.00	4.2	700.0	7000.0	0.25	0.5	136.8	15.0
1SMB5956B	3G3	200.0	190.00	210.00	3.7	875.0	8000.0	0.25	0.5	152.0	13.0

Marking on the body

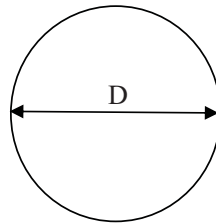


1. BOX



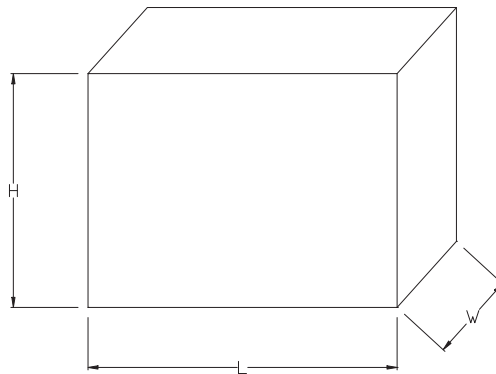
Packing Code	L (mm)	W (mm)	H (mm)
-W/-T	338	338	40

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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