



## Features

- Total power dissipation: Max. 3 W.
- Wide zener reverse voltage range 3.3V to 200V.
- Package Design for Top Side or Bottom Circuit Board Mounting.



**SMB  
(DO-214AA)**



## Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
1SMB59xxBT3G	SMB (DO-214AA)	XX	3000

XX=Device code, see table on page2 the marking code.

The marking bar indicates the cathode.

## Absolute Maximum Ratings(Ta=25°C)

Characteristic	Symbol	Value	Unit
Forward voltage @I <sub>F</sub> =200mA	V <sub>F</sub>	1.5	V
Power Dissipation	P <sub>D</sub>	3	W
Thermal Resistance, Junction to Ambient Air	R <sub>θJA</sub>	226	°C/W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 ~ +150	°C

Notes: Device mounted on ceramic PCB;5.0mm×7.0mm with pad areas 35 mm<sup>2</sup>



**Electrical Characteristics (Ta=25°C unless otherwise specified)**

Device* (Note 1)	Device Marking	Zener Voltage (Note 2)				Zener Impedance (Note 3)			Leakage Current		I <sub>ZM</sub> mA(dc)
		V <sub>Z</sub> (Volts)			@ I <sub>ZT</sub>	Z <sub>TT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @ I <sub>ZK</sub>		I <sub>R</sub> @ V <sub>R</sub>		
		Min	Nom	Max	mA	Ω	Ω	mA	μA	Volts	
1SMB5913BT3G	913B	3.13	3.3	3.47	113.6	10	500	1	100	1	454
1SMB5914BT3G	914B	3.42	3.6	3.78	104.2	9	500	1	75	1	416
1SMB5915BT3G	915B	3.70	3.9	4.10	96.1	7.5	500	1	25	1	384
1SMB5916BT3G	916B	4.08	4.3	4.52	87.2	6	500	1	5	1	348
1SMB5917BT3G	917B	4.46	4.7	4.94	79.8	5	500	1	5	1.5	319
1SMB5918BT3G	918B	4.84	5.1	5.36	73.5	4	350	1	5	2	294
1SMB5919BT3G	919B	5.32	5.6	5.88	66.9	2	250	1	5	3	267
1SMB5920BT3G	920B	5.89	6.2	6.51	60.5	2	200	1	5	4	241
1SMB5921BT3G	921B	6.46	6.8	7.14	55.1	2.5	200	1	5	5.2	220
1SMB5922BT3G	922B	7.12	7.5	7.88	50	3	400	0.5	5	6	200
1SMB5923BT3G	923B	7.79	8.2	8.61	45.7	3.5	400	0.5	5	6.5	182
1SMB5924BT3G	924B	8.64	9.1	9.56	41.2	4	500	0.5	5	7	164
1SMB5925BT3G	925B	9.5	10	10.5	37.5	4.5	500	0.25	5	8	150
1SMB5926BT3G	926B	10.45	11	11.55	34.1	5.5	550	0.25	1	8.4	136
1SMB5927BT3G	927B	11.4	12	12.6	31.2	6.5	550	0.25	1	9.1	125
1SMB5928BT3G	928B	12.35	13	13.65	28.8	7	550	0.25	1	9.9	115
1SMB5929BT3G	929B	14.25	15	15.75	25	9	600	0.25	1	11.4	100
1SMB5930BT3G	930B	15.2	16	16.8	23.4	10	600	0.25	1	12.2	93
1SMB5931BT3G	931B	17.1	18	18.9	20.8	12	650	0.25	1	13.7	83
1SMB5932BT3G	932B	19	20	21	18.7	14	650	0.25	1	15.2	75
1SMB5933BT3G	933B	20.9	22	23.1	17	17.5	650	0.25	1	16.7	68
1SMB5934BT3G	934B	22.8	24	25.2	15.6	19	700	0.25	1	18.2	62
1SMB5935BT3G	935B	25.65	27	28.35	13.9	23	700	0.25	1	20.6	55
1SMB5936BT3G	936B	28.5	30	31.5	12.5	28	750	0.25	1	22.8	50
1SMB5937BT3G	937B	31.35	33	34.65	11.4	33	800	0.25	1	25.1	45
1SMB5938BT3G	938B	34.2	36	37.8	10.4	38	850	0.25	1	27.4	41
1SMB5939BT3G	939B	37.05	39	40.95	9.6	45	900	0.25	1	29.7	38
1SMB5940BT3G	940B	40.85	43	45.15	8.7	53	950	0.25	1	32.7	34
1SMB5941BT3G	941B	44.65	47	49.35	8	67	1000	0.25	1	35.8	31
1SMB5942BT3G	942B	48.45	51	53.55	7.3	70	1100	0.25	1	38.8	29
1SMB5943BT3G	943B	53.2	56	58.8	6.7	86	1300	0.25	1	42.6	26
1SMB5944BT3G	944B	58.9	62	65.1	6	100	1500	0.25	1	47.1	24
1SMB5945BT3G	945B	64.6	68	71.4	5.5	120	1700	0.25	1	51.7	22
1SMB5946BT3G	946B	71.25	75	78.75	5	140	2000	0.25	1	56	20
1SMB5947BT3G	947B	77.9	82	86.1	4.6	160	2500	0.25	1	62.2	18
1SMB5948BT3G	948B	86.45	91	95.55	4.1	200	3000	0.25	1	69.2	16
1SMB5949BT3G	949B	95	100	105	3.7	250	3100	0.25	1	76	15
1SMB5950BT3G	950B	104.5	110	115.5	3.4	300	4000	0.25	1	83.6	13
1SMB5951BT3G	951B	114	120	126	3.1	380	4500	0.25	1	91.2	12
1SMB5952BT3G	952B	123.5	130	136.5	2.9	450	5000	0.25	1	98.8	11
1SMB5953BT3G	953B	142.5	150	157.5	2.5	600	6000	0.25	1	114	10
1SMB5954BT3G	954B	152	160	168	2.3	700	6500	0.25	1	121.6	9
1SMB5955BT3G	955B	171	180	189	2.1	900	7000	0.25	1	136.8	8
1SMB5956BT3G	956B	190	200	210	1.9	1200	8000	0.25	1	152	7

- TOLERANCE AND TYPE NUMBER DESIGNATION** The type numbers listed indicate a tolerance of ±5%.
- ZENER VOLTAGE (V<sub>Z</sub>) MEASUREMENT**  
Nominal Zener voltage is measured with the device junction in thermal equilibrium with ambient temperature at 25°C.
- ZENER IMPEDANCE (Z<sub>Z</sub>) DERIVATION** Z<sub>TT</sub> and Z<sub>ZK</sub> are measured by dividing the ac voltage drop across the device by the ac current applied. The specified limits are for I<sub>Z(ac)</sub> = 0.1 I<sub>Z(dc)</sub> with the ac frequency = 60 Hz.



### Typical Characteristics

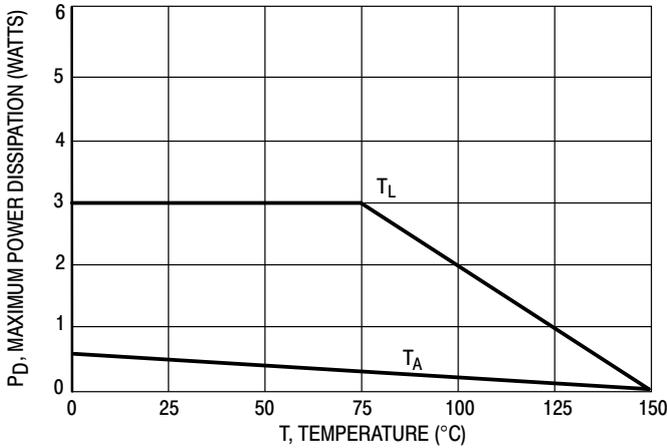


Figure 1. Steady State Power Derating

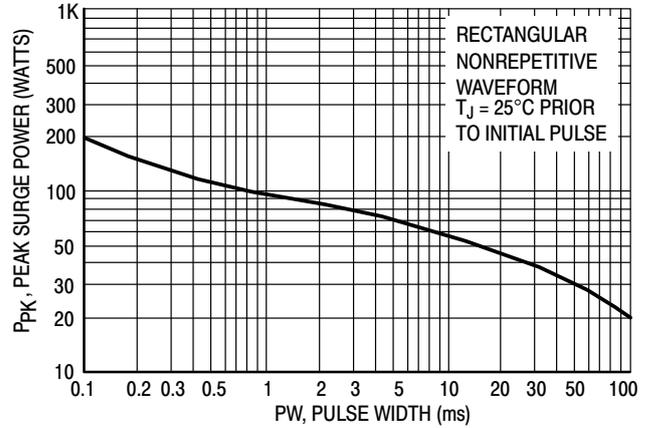


Figure 2. Maximum Surge Power

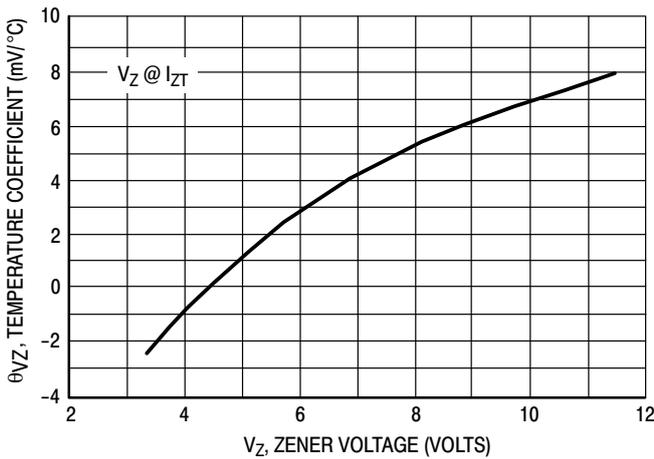


Figure 3. Zener Voltage - To 12 Volts

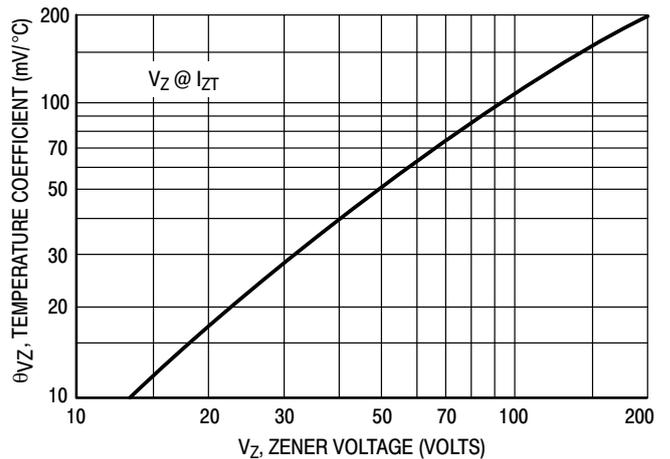


Figure 4. Zener Voltage - 14 To 200 Volts

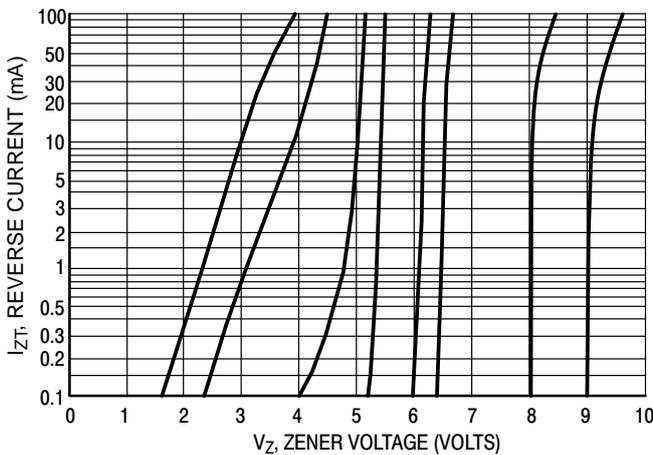


Figure 5.  $V_Z = 3.3$  thru 10 Volts

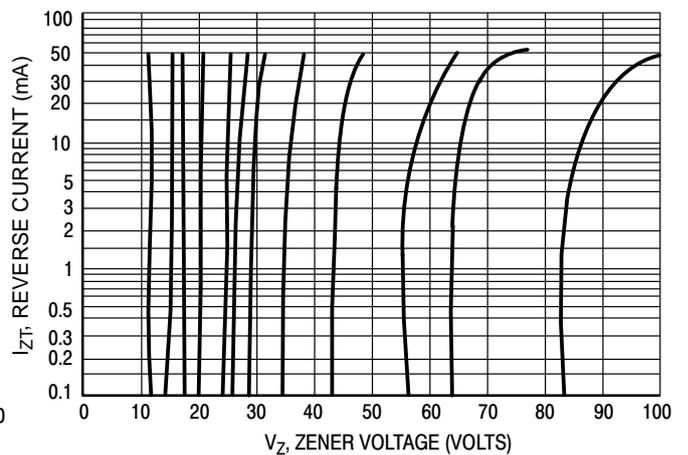


Figure 6.  $V_Z = 12$  thru 82 Volts

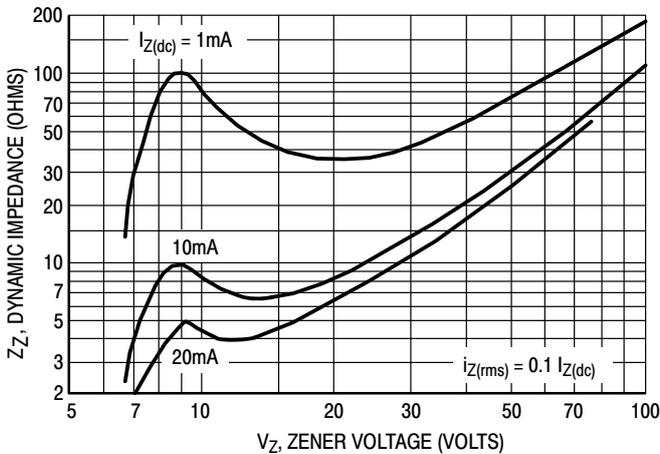


Figure 7. Effect of Zener Voltage

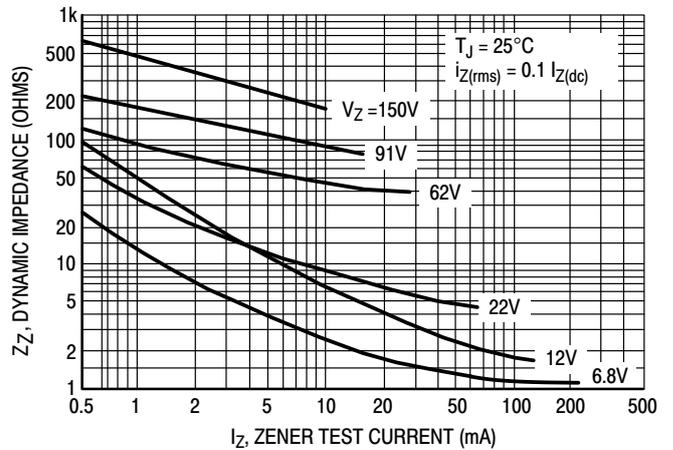


Figure 8. Effect of Zener Current

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

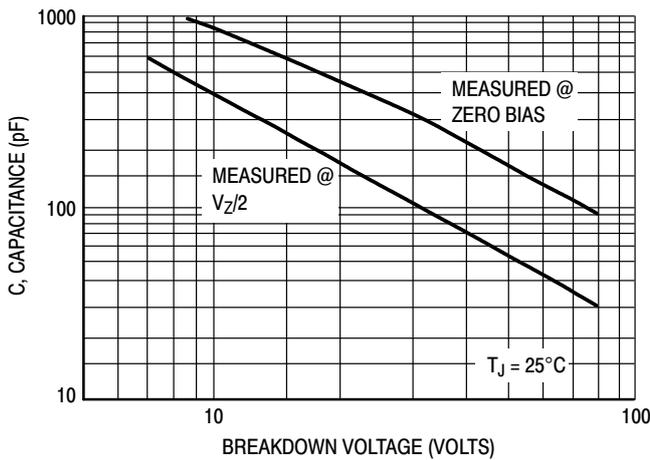


Figure 9. Capacitance Curve

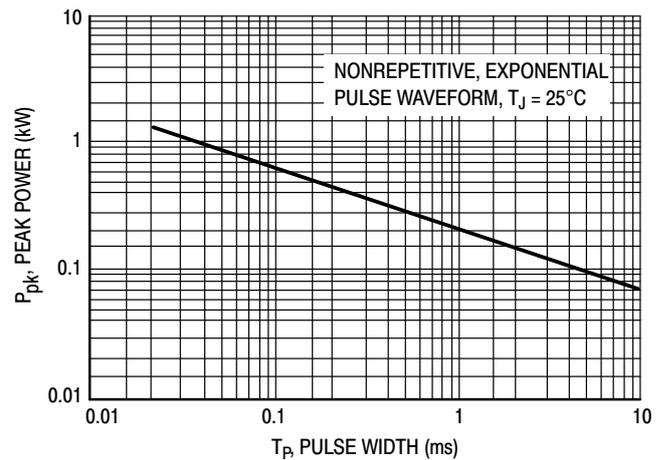


Figure 10. Typical Pulse Rating Curve

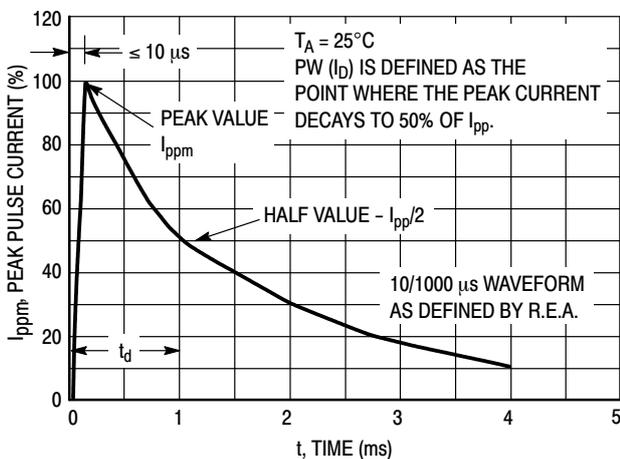


Figure 11. Pulse Waveform

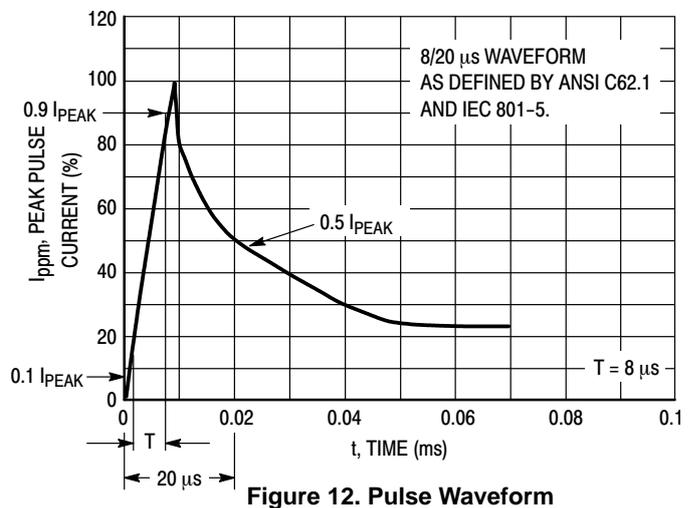
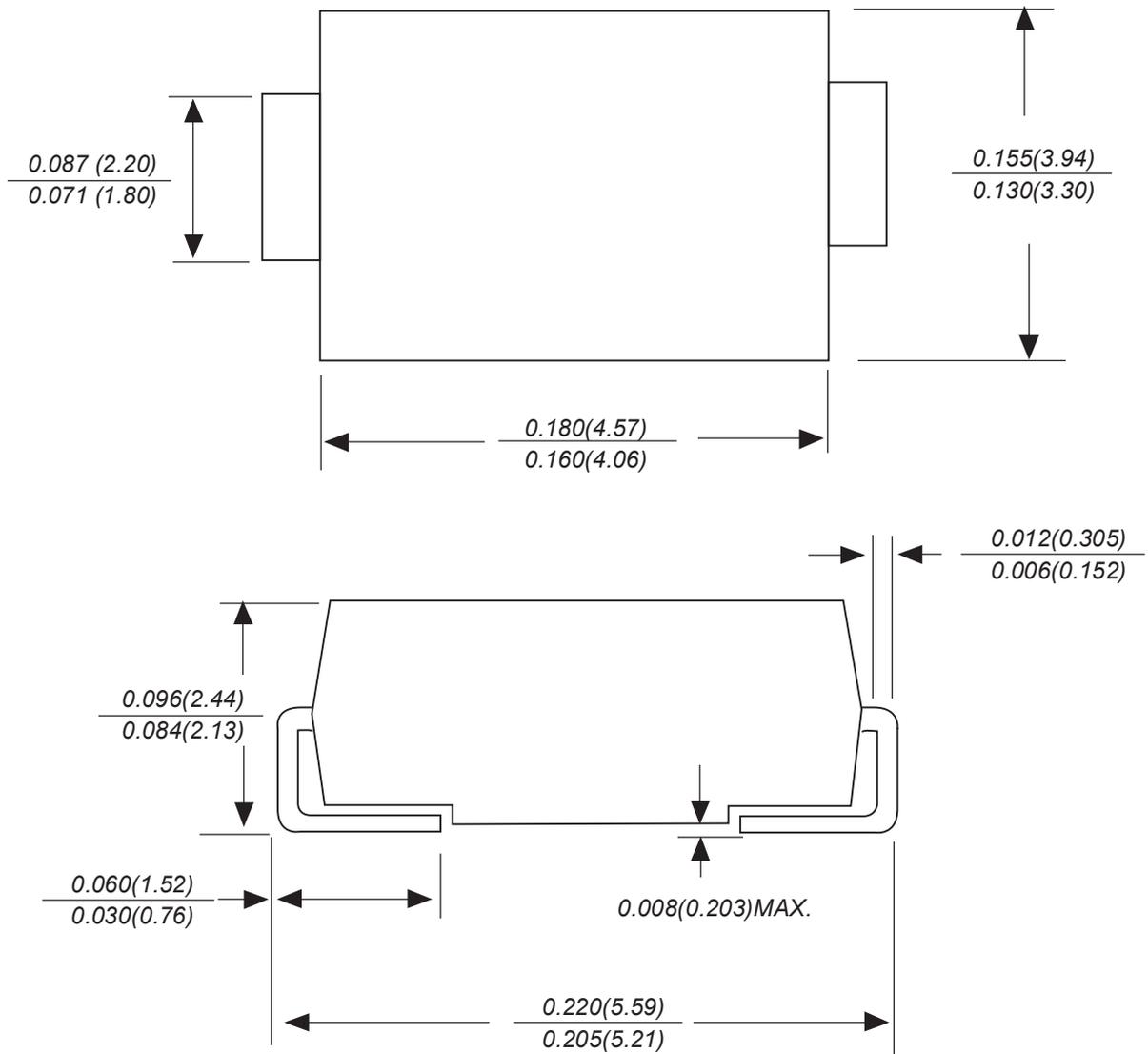


Figure 12. Pulse Waveform



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



*Dimensions in inches and (millimeters)*



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