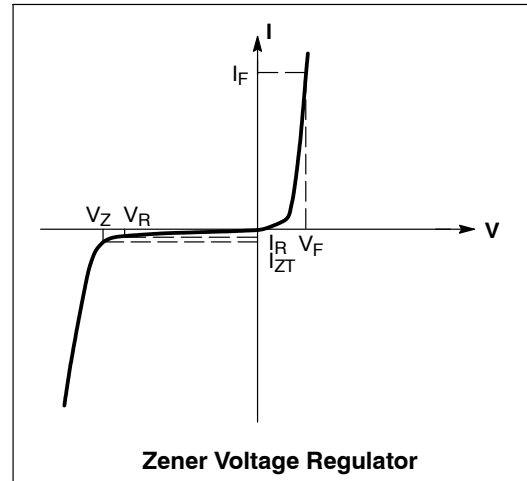


1SMB59xxBT3 Series, SZ1SMB59xxT3G Series

ELECTRICAL CHARACTERISTICS

($T_L = 30^\circ\text{C}$ unless otherwise noted,
 $V_F = 1.5\text{ V Max. @ } I_F = 200\text{ mA(dc)}$ for all types)

Symbol	Parameter
V_Z	Reverse Zener Voltage @ I_{ZT}
I_{ZT}	Reverse Current
Z_{ZT}	Maximum Zener Impedance @ I_{ZT}
I_{ZK}	Reverse Current
Z_{ZK}	Maximum Zener Impedance @ I_{ZK}
I_R	Reverse Leakage Current @ V_R
V_R	Reverse Voltage
I_F	Forward Current
V_F	Forward Voltage @ I_F
I_{ZM}	Maximum DC Zener Current



1SMB59xxBT3 Series, SZ1SMB59xxT3G Series

ELECTRICAL CHARACTERISTICS (Devices listed in **bold, italic** are ON Semiconductor Preferred devices.)

($T_L = 30^\circ\text{C}$ unless otherwise noted, $V_F = 1.5\text{ V Max.}$ @ $I_F = 200\text{ mA(dc)}$ for all types)

Device* (Note 2)	Device Marking	Zener Voltage (Note 3)				Zener Impedance (Note 4)			Leakage Current		I_{ZM} mA(dc)
		V_Z (Volts)			@ I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}		I_R @ V_R		
		Min	Nom	Max	mA	Ω	Ω	mA	μA	Volts	
SZ/1SMB5913BT3, G	913B	3.13	3.3	3.47	113.6	10	500	1	100	1	454
SZ/1SMB5914BT3, G	914B	3.42	3.6	3.78	104.2	9	500	1	75	1	416
SZ/1SMB5915BT3, G	915B	3.70	3.9	4.10	96.1	7.5	500	1	25	1	384
1SMB5916BT3, G	916B	4.08	4.3	4.52	87.2	6	500	1	5	1	348
SZ/1SMB5917BT3, G	917B	4.46	4.7	4.94	79.8	5	500	1	5	1.5	319
SZ/1SMB5918BT3, G	918B	4.84	5.1	5.36	73.5	4	350	1	5	2	294
SZ/1SMB5919BT3, G	919B	5.32	5.6	5.88	66.9	2	250	1	5	3	267
SZ/1SMB5920BT3, G	920B	5.89	6.2	6.51	60.5	2	200	1	5	4	241
SZ/1SMB5921BT3, G	921B	6.46	6.8	7.14	55.1	2.5	200	1	5	5.2	220
SZ/1SMB5922BT3, G	922B	7.12	7.5	7.88	50	3	400	0.5	5	6	200
SZ/1SMB5923BT3, G	923B	7.79	8.2	8.61	45.7	3.5	400	0.5	5	6.5	182
SZ/1SMB5924BT3, G	924B	8.64	9.1	9.56	41.2	4	500	0.5	5	7	164
SZ/1SMB5925BT3, G	925B	9.5	10	10.5	37.5	4.5	500	0.25	5	8	150
SZ/1SMB5926BT3, G	926B	10.45	11	11.55	34.1	5.5	550	0.25	1	8.4	136
SZ/1SMB5927BT3, G	927B	11.4	12	12.6	31.2	6.5	550	0.25	1	9.1	125
SZ/1SMB5928BT3, G	928B	12.35	13	13.65	28.8	7	550	0.25	1	9.9	115
SZ/1SMB5929BT3, G	929B	14.25	15	15.75	25	9	600	0.25	1	11.4	100
SZ/1SMB5930BT3, G	930B	15.2	16	16.8	23.4	10	600	0.25	1	12.2	93
SZ/1SMB5931BT3, G	931B	17.1	18	18.9	20.8	12	650	0.25	1	13.7	83
SZ/1SMB5932BT3, G	932B	19	20	21	18.7	14	650	0.25	1	15.2	75
SZ/1SMB5933BT3, G	933B	20.9	22	23.1	17	17.5	650	0.25	1	16.7	68
SZ/1SMB5934BT3, G	934B	22.8	24	25.2	15.6	19	700	0.25	1	18.2	62
SZ/1SMB5935BT3, G	935B	25.65	27	28.35	13.9	23	700	0.25	1	20.6	55
SZ/1SMB5936BT3, G	936B	28.5	30	31.5	12.5	28	750	0.25	1	22.8	50
SZ/1SMB5937BT3, G	937B	31.35	33	34.65	11.4	33	800	0.25	1	25.1	45
SZ/1SMB5938BT3, G	938B	34.2	36	37.8	10.4	38	850	0.25	1	27.4	41
SZ/1SMB5939BT3, G	939B	37.05	39	40.95	9.6	45	900	0.25	1	29.7	38
SZ/1SMB5940BT3, G	940B	40.85	43	45.15	8.7	53	950	0.25	1	32.7	34
SZ/1SMB5941BT3, G	941B	44.65	47	49.35	8	67	1000	0.25	1	35.8	31
1SMB5942BT3, G	942B	48.45	51	53.55	7.3	70	1100	0.25	1	38.8	29
1SMB5943BT3, G	943B	53.2	56	58.8	6.7	86	1300	0.25	1	42.6	26
SZ/1SMB5944BT3, G	944B	58.9	62	65.1	6	100	1500	0.25	1	47.1	24
SZ/1SMB5945BT3, G	945B	64.6	68	71.4	5.5	120	1700	0.25	1	51.7	22
SZ/1SMB5946BT3, G	946B	71.25	75	78.75	5	140	2000	0.25	1	56	20
SZ/1SMB5947BT3, G	947B	77.9	82	86.1	4.6	160	2500	0.25	1	62.2	18
1SMB5948BT3, G	948B	86.45	91	95.55	4.1	200	3000	0.25	1	69.2	16
1SMB5949BT3, G	949B	95	100	105	3.7	250	3100	0.25	1	76	15
1SMB5950BT3, G	950B	104.5	110	115.5	3.4	300	4000	0.25	1	83.6	13
1SMB5951BT3, G	951B	114	120	126	3.1	380	4500	0.25	1	91.2	12
1SMB5952BT3, G	952B	123.5	130	136.5	2.9	450	5000	0.25	1	98.8	11
1SMB5953BT3, G	953B	142.5	150	157.5	2.5	600	6000	0.25	1	114	10
1SMB5954BT3, G	954B	152	160	168	2.3	700	6500	0.25	1	121.6	9
1SMB5955BT3, G	955B	171	180	189	2.1	900	7000	0.25	1	136.8	8
SZ/1SMB5956BT3, G	956B	190	200	210	1.9	1200	8000	0.25	1	152	7

2. **TOLERANCE AND TYPE NUMBER DESIGNATION** The type numbers listed indicate a tolerance of $\pm 5\%$.

3. **ZENER VOLTAGE (V_Z) MEASUREMENT**

Nominal Zener voltage is measured with the device junction in thermal equilibrium with ambient temperature at 25°C .

4. **ZENER IMPEDANCE (Z_Z) DERIVATION** Z_{ZT} and Z_{ZK} are measured by dividing the ac voltage drop across the device by the ac current applied. The specified limits are for $I_{Z(ac)} = 0.1 I_{Z(dc)}$ with the ac frequency = 60 Hz.

*The "G" suffix indicates Pb-Free package available.

1SMB59xxBT3 Series, SZ1SMB59xxT3G Series

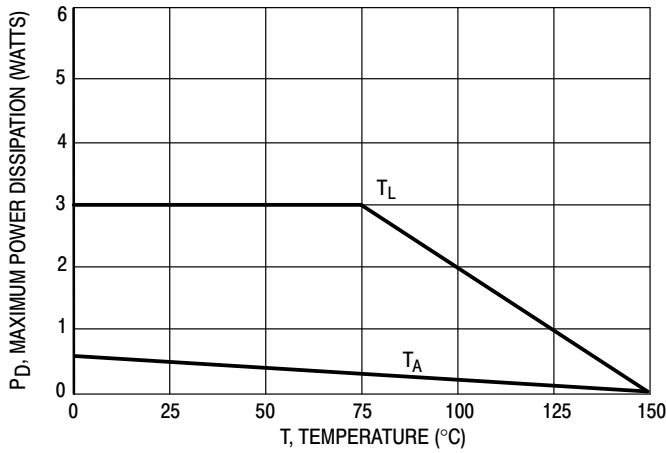


Figure 1. Steady State Power Derating

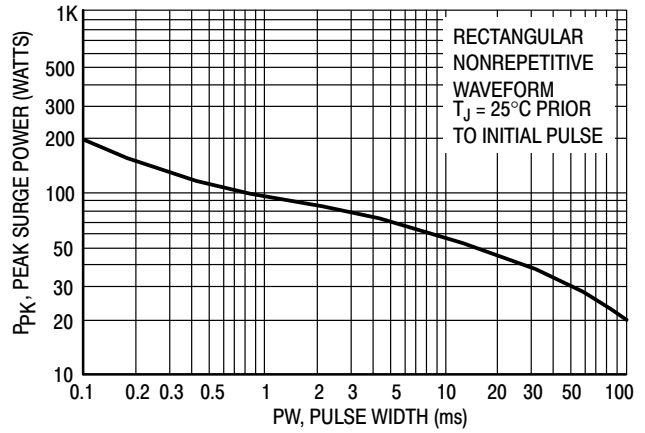


Figure 2. Maximum Surge Power

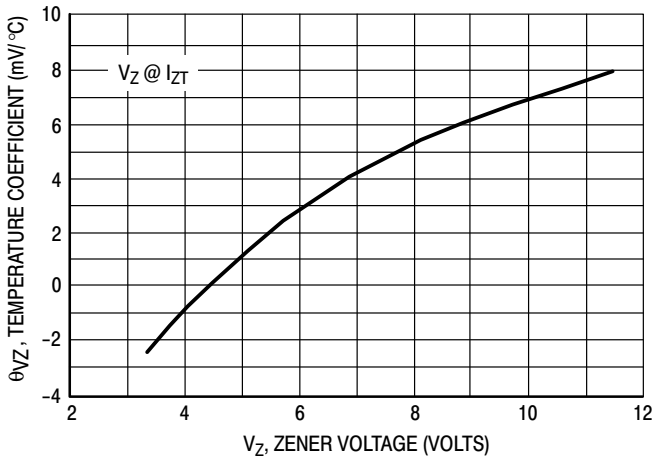


Figure 3. Zener Voltage - To 12 Volts

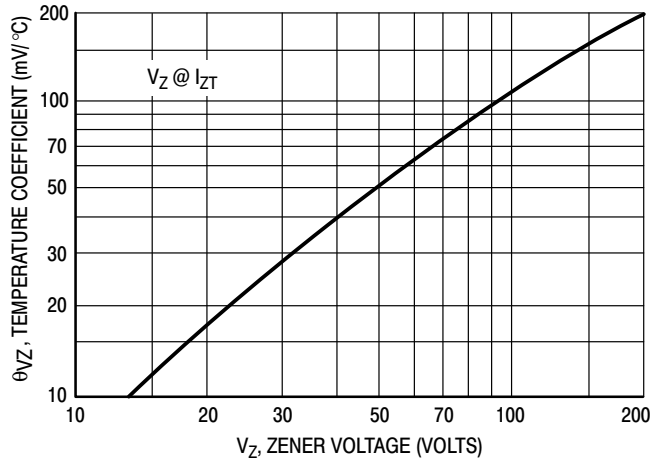


Figure 4. Zener Voltage - 14 To 200 Volts

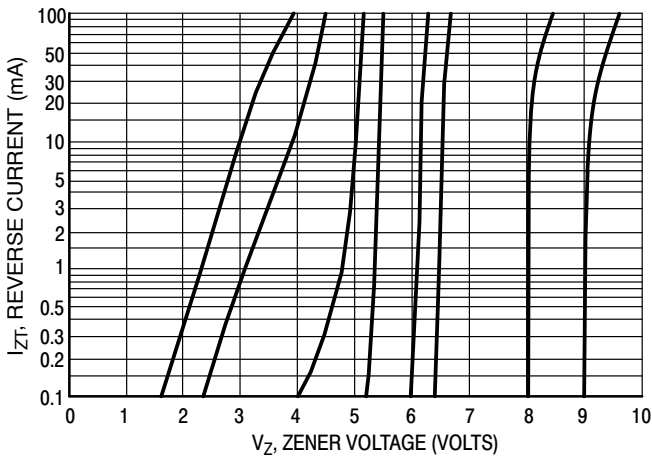


Figure 5. $V_Z = 3.3$ thru 10 Volts

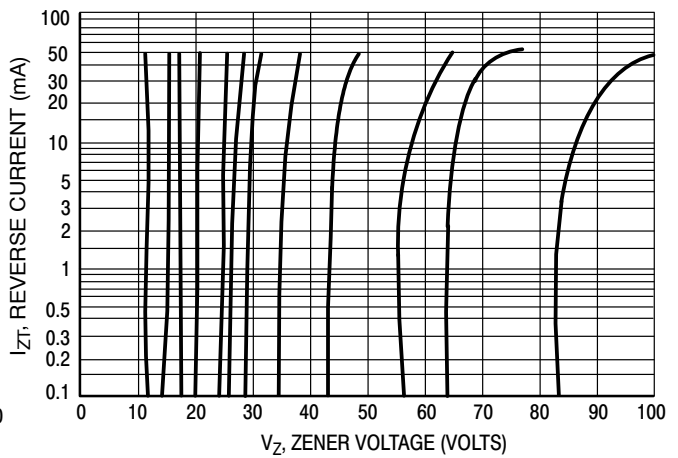


Figure 6. $V_Z = 12$ thru 82 Volts

1SMB59xxBT3 Series, SZ1SMB59xxT3G Series

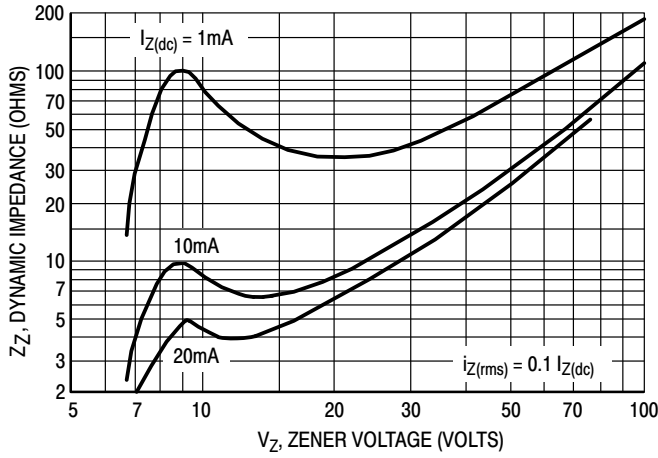


Figure 7. Effect of Zener Voltage

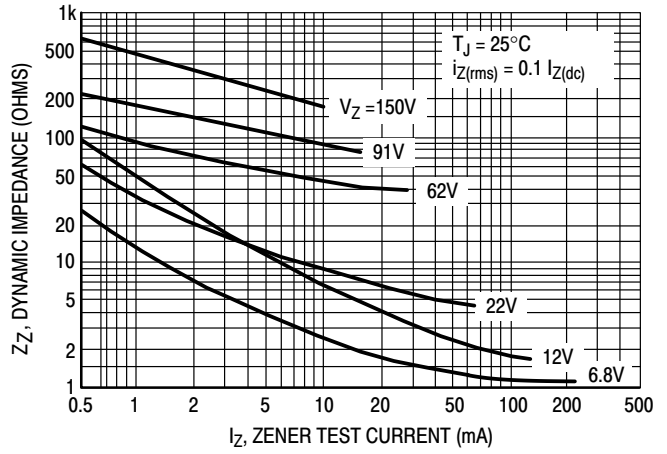


Figure 8. Effect of Zener Current

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

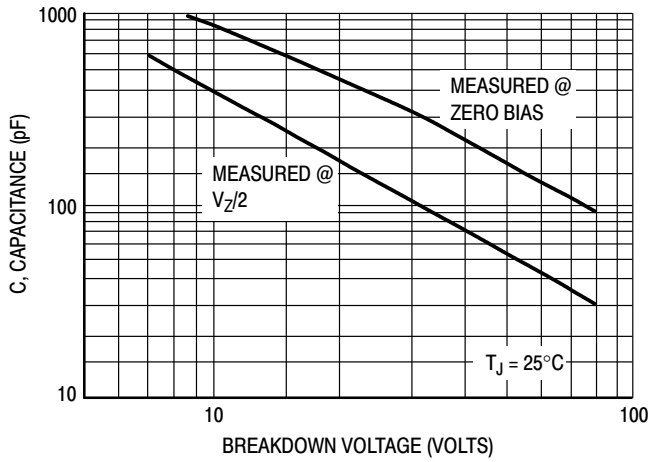


Figure 9. Capacitance Curve

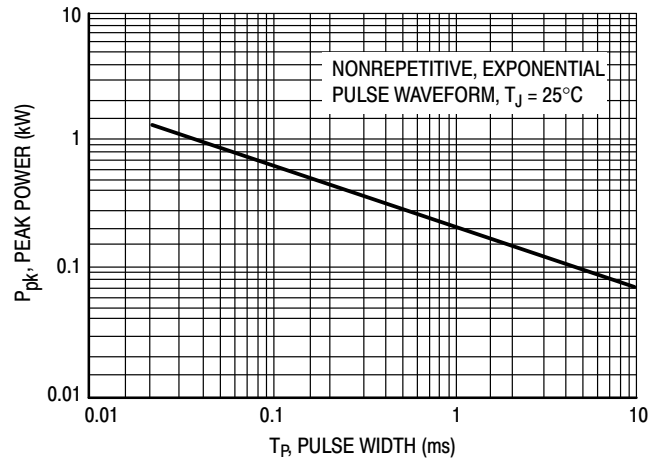


Figure 10. Typical Pulse Rating Curve

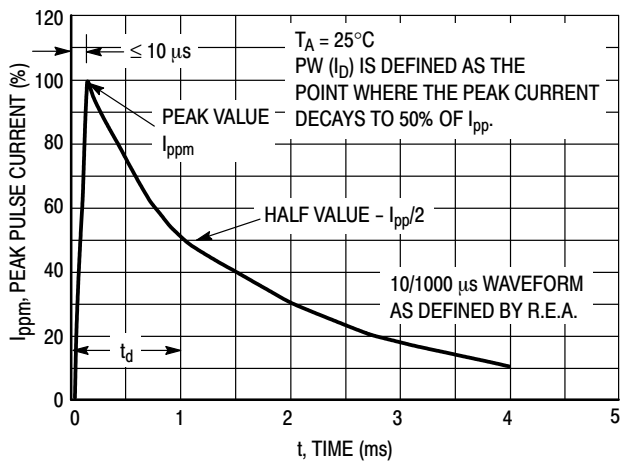


Figure 11. Pulse Waveform

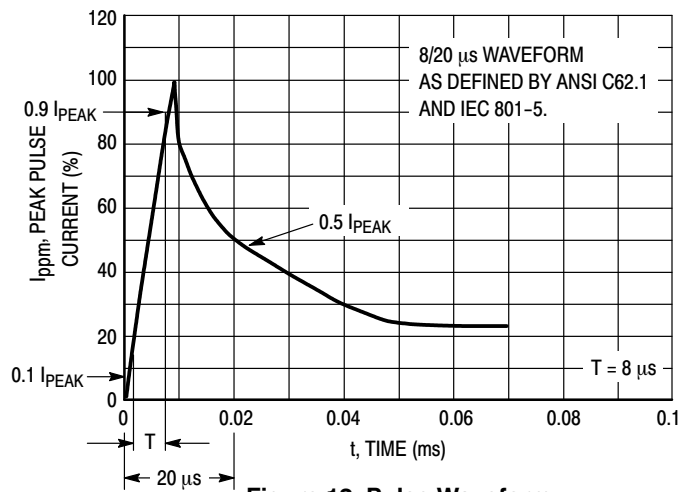
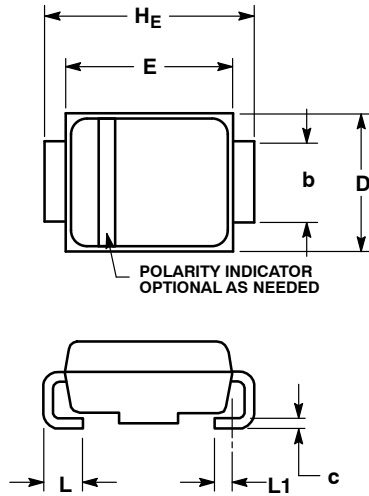


Figure 12. Pulse Waveform

1SMB59xxBT3 Series, SZ1SMB59xxT3G Series

PACKAGE DIMENSIONS

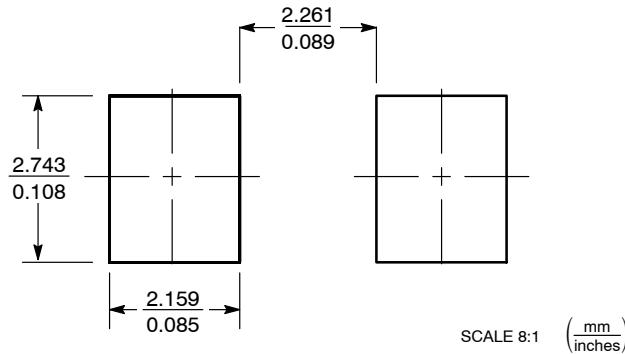
SMB CASE 403A-03 ISSUE H



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.90	2.20	2.28	0.075	0.087	0.090
A1	0.05	0.10	0.19	0.002	0.004	0.007
b	1.96	2.03	2.20	0.077	0.080	0.087
c	0.15	0.23	0.31	0.006	0.009	0.012
D	3.30	3.56	3.95	0.130	0.140	0.156
E	4.06	4.32	4.60	0.160	0.170	0.181
HE	5.21	5.44	5.60	0.205	0.214	0.220
L	0.76	1.02	1.60	0.030	0.040	0.063
L1	0.51 REF			0.020 REF		

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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