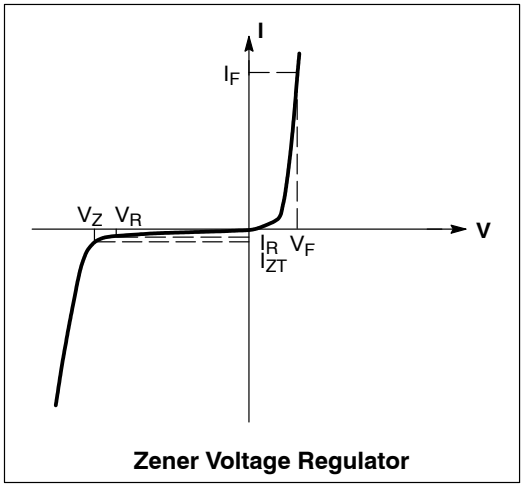
ELECTRICAL CHARACTERISTICS

(T_L = 30°C unless otherwise noted,
V_F = 1.5 V Max. @ I_F = 200 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



Zener Voltage Regulator

ELECTRICAL CHARACTERISTICS (T_L = 30°C unless otherwise noted, V_F = 1.5 V Max. @ I_F = 200 mA(dc) for all types)
(Devices listed in ***bold, italic*** are **onsemi** Preferred devices.)

Device* (Note 2)	Device Marking	Zener Voltage (Note 3)				Zener Impedance (Note 4)			Leakage Current		I_{ZM}
		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	mA(dc)
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***
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

2. **TOLERANCE AND TYPE NUMBER DESIGNATION** The type numbers listed indicate a tolerance of ±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.

*Include SZ-prefix devices where applicable.

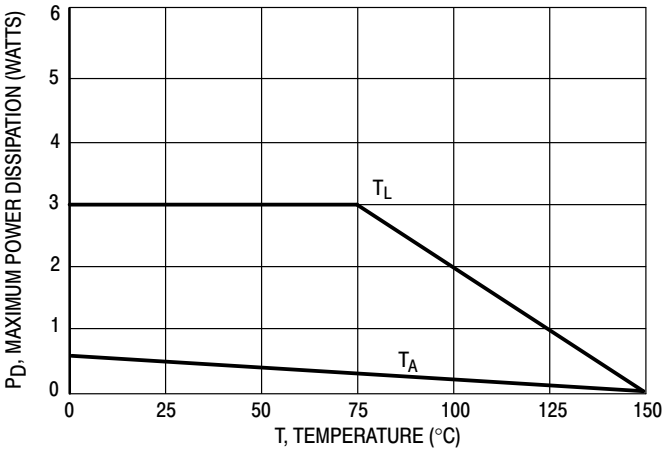


Figure 1. Steady State Power Derating

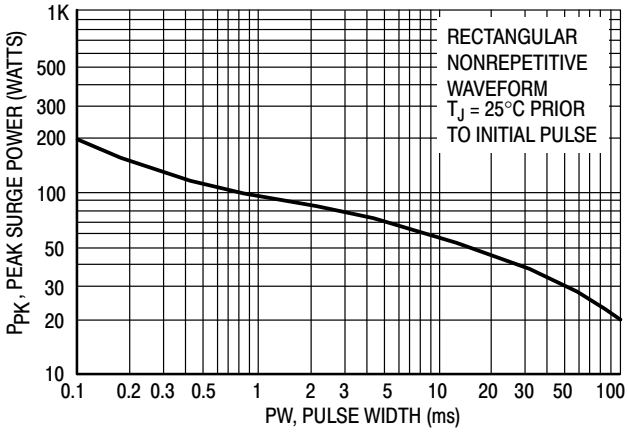


Figure 2. Maximum Surge Power

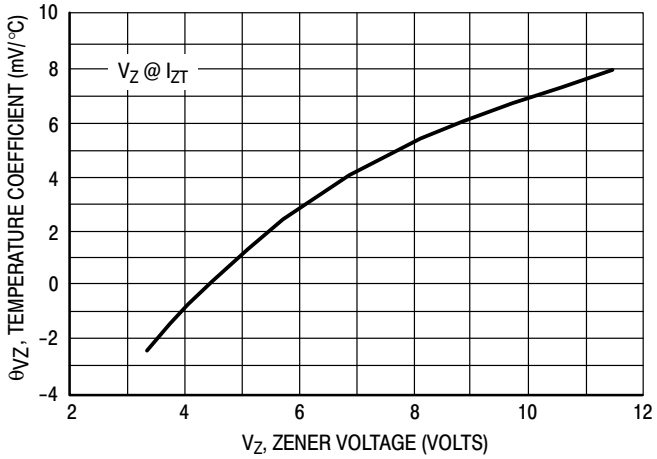


Figure 3. Zener Voltage – To 12 Volts

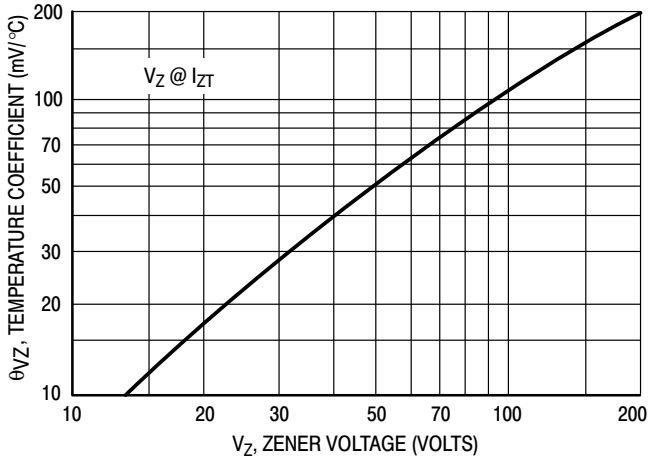


Figure 4. Zener Voltage – 14 To 200 Volts

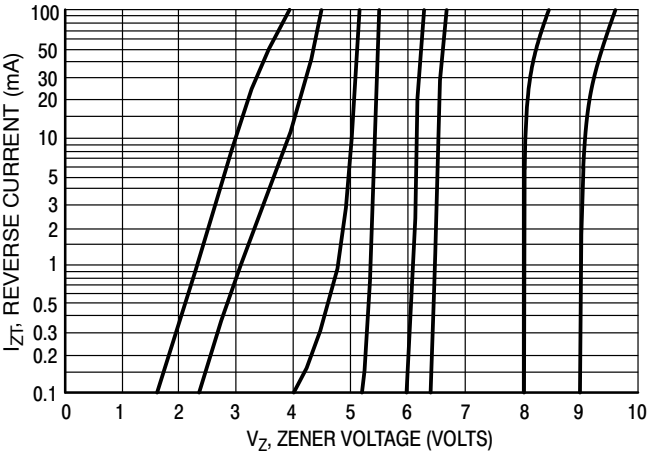


Figure 5. V_Z = 3.3 thru 10 Volts

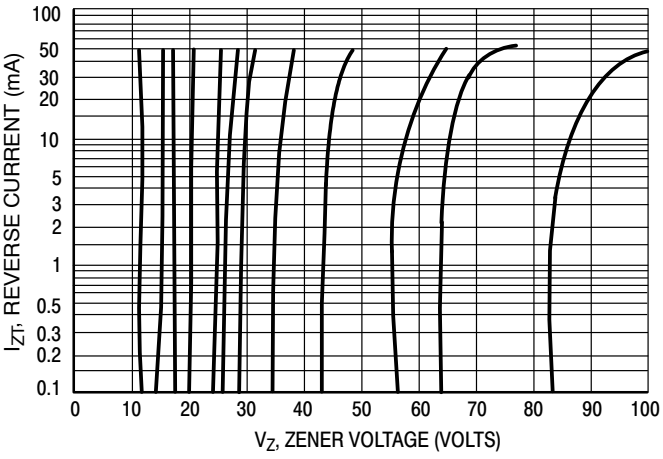


Figure 6. V_Z = 12 thru 82 Volts

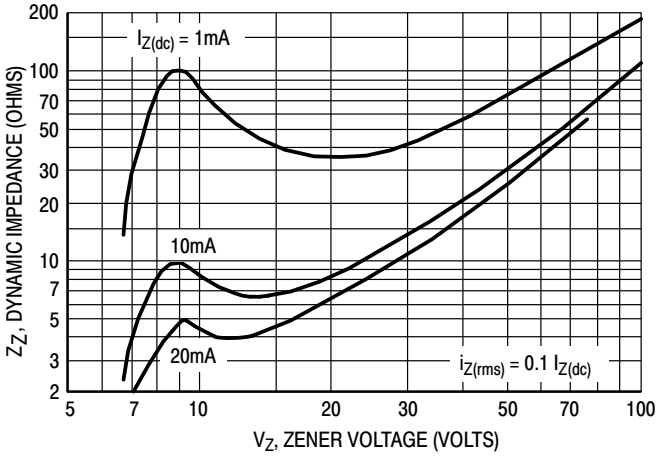


Figure 7. Effect of Zener Voltage

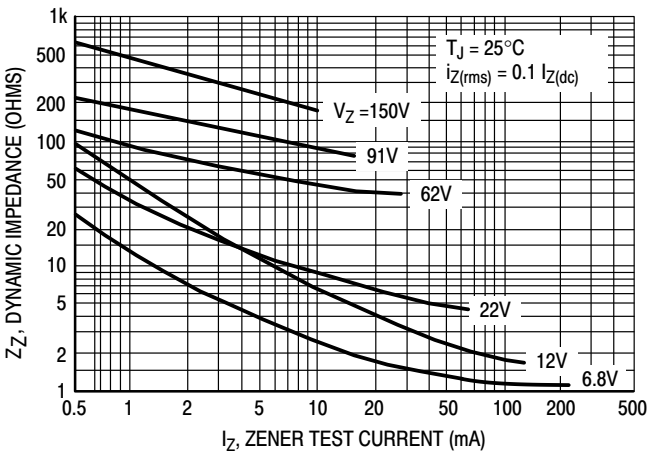


Figure 8. Effect of Zener Current

Rating and Typical Characteristic Curves (T_A = 25°C)

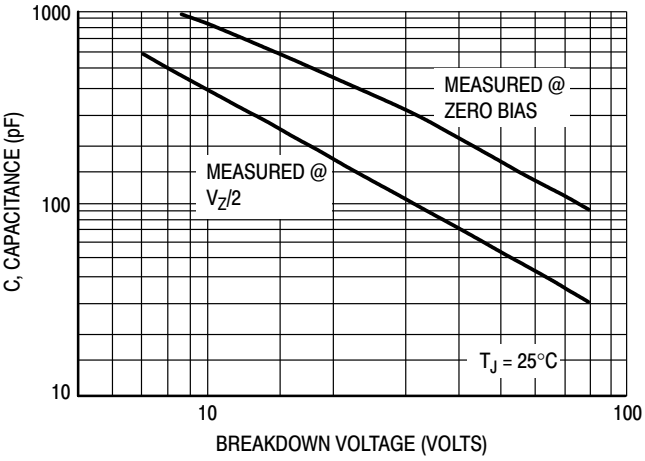


Figure 9. Capacitance Curve

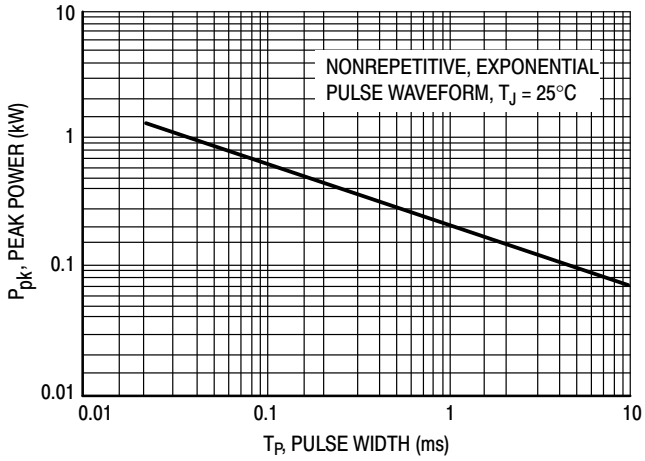


Figure 10. Typical Pulse Rating Curve

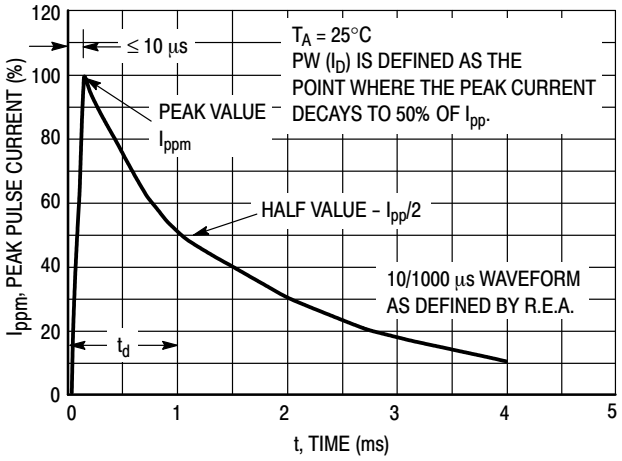


Figure 11. Pulse Waveform

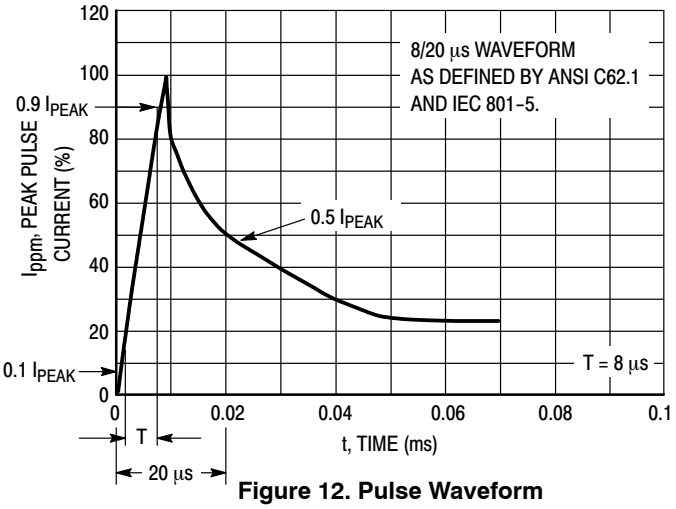


Figure 12. Pulse Waveform

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

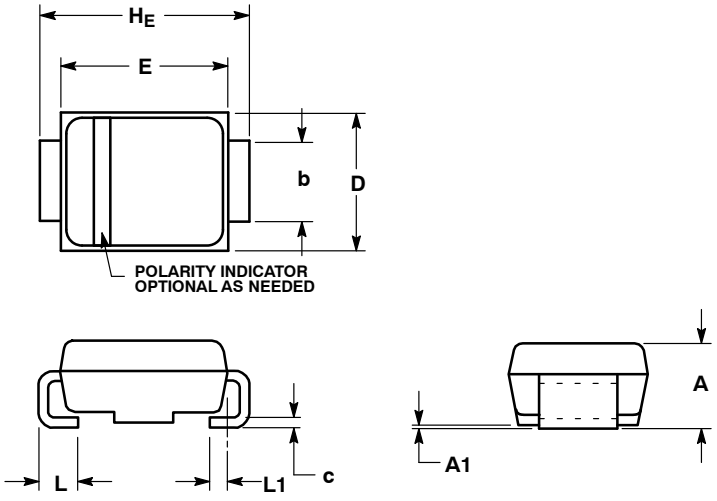
ON Semiconductor®

SMB
CASE 403A−03
ISSUE J

DATE 19 JUL 2012

SCALE 1:1
Polarity Band

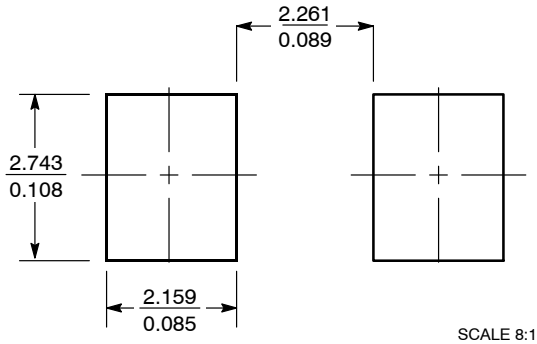
SCALE 1:1
Non−Polarity Band



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION b SHALL BE MEASURED WITHIN DIMENSION L1.

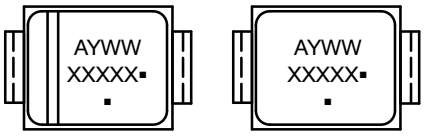
	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	1.95	2.30	2.47	0.077	0.091	0.097
A1	0.05	0.10	0.20	0.002	0.004	0.008
b	1.96	2.03	2.20	0.077	0.080	0.087
c	0.15	0.23	0.31	0.006	0.009	0.012
D	3.30	3.56	3.95	0.130	0.140	0.156
E	4.06	4.32	4.60	0.160	0.170	0.181
H_E	5.21	5.44	5.60	0.205	0.214	0.220
L	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.

GENERIC MARKING DIAGRAM*



Polarity Band **Non−Polarity Band**

XXXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present.

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