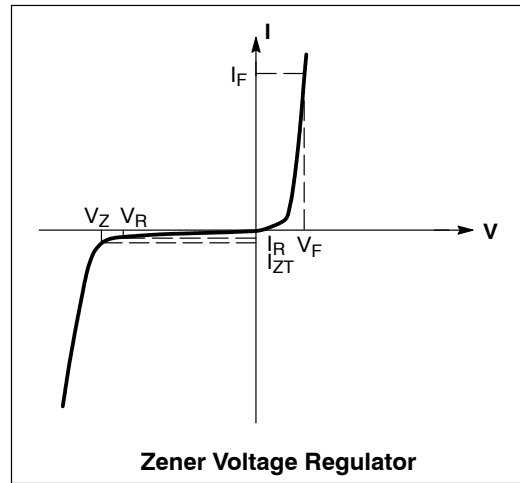


MMSZxxxT1G Series, SZMMSZxxxT1G Series

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.95\text{ V Max. @ } I_F = 10\text{ mA}$)

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



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.9\text{ V Max. @ } I_F = 10\text{ mA}$)

Device*	Device Marking	V _{Z1} (Volts) (Notes 3 and 4)				Z _{ZT1} (Note 5)	V _{Z2} (Volts) (Notes 3 and 4)		Z _{ZT2} (Note 5)	Max Reverse Leakage Current	
		@ I _{ZT1} = 5 mA					@ I _{ZT2} = 1 mA			I _R @ V _R	
		Min	Nom	Max	Ω		Min	Max	Ω	μA	Volts
MMSZ2V4T1G	T1	2.28	2.4	2.52	100		1.7	2.1	600	50	1
MMSZ2V7T1G	T2	2.57	2.7	2.84	100		1.9	2.4	600	20	1
MMSZ3V0T1G	T3	2.85	3.0	3.15	95		2.1	2.7	600	10	1
MMSZ3V3T1G	T4	3.14	3.3	3.47	95		2.3	2.9	600	5	1
MMSZ3V6T1G	T5	3.42	3.6	3.78	90		2.7	3.3	600	5	1
MMSZ3V9T1G	U1	3.71	3.9	4.10	90		2.9	3.5	600	3	1
MMSZ4V3T1G	U2	4.09	4.3	4.52	90		3.3	4.0	600	3	1
MMSZ4V7T1G	U3	4.47	4.7	4.94	80		3.7	4.7	500	3	2
MMSZ5V1T1G	U4	4.85	5.1	5.36	60		4.2	5.3	480	2	2
MMSZ5V6T1G/T3G	U5	5.32	5.6	5.88	40		4.8	6.0	400	1	2
MMSZ6V2T1G	V1	5.89	6.2	6.51	10		5.6	6.6	150	3	4
MMSZ6V8T1G	V2	6.46	6.8	7.14	15		6.3	7.2	80	2	4
MMSZ7V5T1G	V3	7.13	7.5	7.88	15		6.9	7.9	80	1	5
MMSZ8V2T1G	V4	7.79	8.2	8.61	15		7.6	8.7	80	0.7	5
MMSZ9V1T1G	V5	8.65	9.1	9.56	15		8.4	9.6	100	0.5	6
MMSZ10T1G/T3G	A1	9.50	10	10.50	20		9.3	10.6	150	0.2	7
MMSZ11T1G	A2	10.45	11	11.55	20		10.2	11.6	150	0.1	8
MMSZ12T1G	A3	11.40	12	12.60	25		11.2	12.7	150	0.1	8
MMSZ13T1G	A4	12.35	13	13.65	30		12.3	14.0	170	0.1	8
MMSZ15T1G	A5	14.25	15	15.75	30		13.7	15.5	200	0.05	10.5
MMSZ16T1G	X1	15.20	16	16.80	40		15.2	17.0	200	0.05	11.2
MMSZ18T1G/T3G	X2	17.10	18	18.90	45		16.7	19.0	225	0.05	12.6
MMSZ20T1G	X3	19.00	20	21.00	55		18.7	21.1	225	0.05	14
MMSZ22T1G	X4	20.90	22	23.10	55		20.7	23.2	250	0.05	15.4
MMSZ24T1G	X5	22.80	24	25.20	70		22.7	25.5	250	0.05	16.8

3. The type numbers shown have a standard tolerance of $\pm 5\%$ on the nominal Zener Voltage.

4. Tolerance and Voltage Designation: Zener Voltage (V_Z) is measured with the Zener Current applied for $PW = 1\text{ ms}$.

5. 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 = 1 kHz.

*Include SZ-prefix devices where applicable.

MMSZxxxT1G Series, SZMMSZxxxT1G Series

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.9\text{ V Max. @ } I_F = 10\text{ mA}$)

Device*	Device Marking	V _{Z1} (Volts) (Notes 6 and 7)			Z _{ZT1} (Note 8)	V _{Z2} (Volts) (Notes 6 and 7)		Z _{ZT2} (Note 8)	Max Reverse Leakage Current	
		@ I _{ZT1} = 2 mA				@ I _{ZT2} = 0.1 mA		@ I _{ZT2} = 0.5 mA	I _R @ V _R	
		Min	Nom	Max	Ω	Min	Max	Ω	μA	Volts
MMSZ27T1G/T3G	Y1	25.65	27	28.35	80	25	28.9	300	0.05	18.9
MMSZ30T1G	Y2	28.50	30	31.50	80	27.8	32	300	0.05	21
MMSZ33T1G	Y3	31.35	33	34.65	80	30.8	35	325	0.05	23.1
MMSZ36T1G	Y4	34.20	36	37.80	90	33.8	38	350	0.05	25.2
MMSZ39T1G	Y5	37.05	39	40.95	130	36.7	41	350	0.05	27.3
MMSZ43T1G	Z1	40.85	43	45.15	150	39.7	46	375	0.05	30.1
MMSZ47T1G	Z2	44.65	47	49.35	170	43.7	50	375	0.05	32.9
MMSZ51T1G	Z3	48.45	51	53.55	180	47.6	54	400	0.05	35.7
MMSZ56T1G/T3G	Z4	53.20	56	58.80	200	51.5	60	425	0.05	39.2

6. The type numbers shown have a standard tolerance of $\pm 5\%$ on the nominal Zener Voltage.

7. Tolerance and Voltage Designation: Zener Voltage (V_Z) is measured with the Zener Current applied for $PW = 1\text{ ms}$.

8. 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 = 1 kHz.

*Include SZ-prefix devices where applicable.

MMSZxxxT1G Series, SZMMSZxxxT1G Series

TYPICAL CHARACTERISTICS

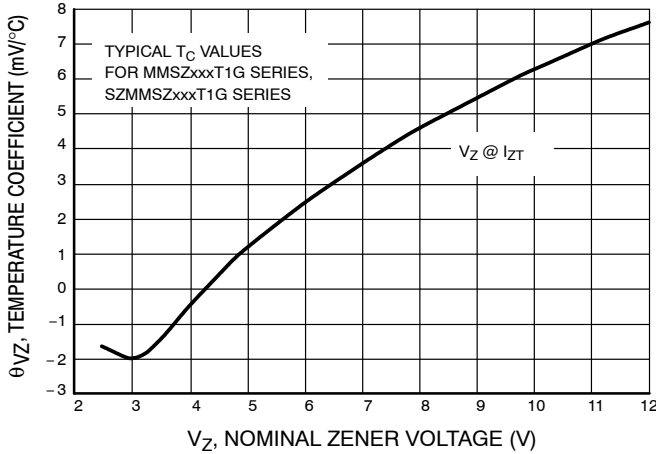


Figure 1. Temperature Coefficients
(Temperature Range -55°C to +150°C)

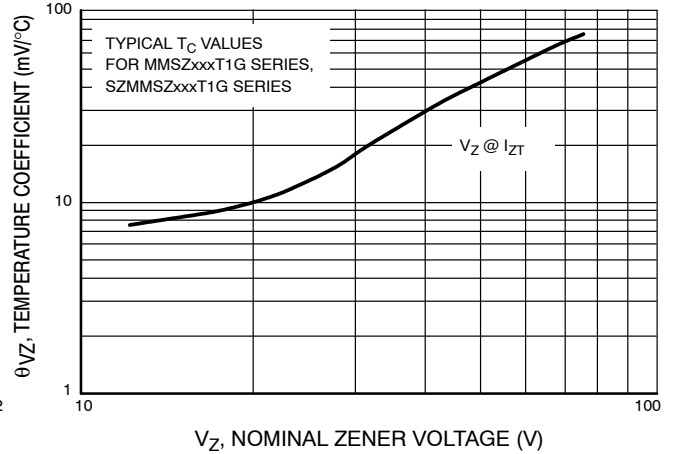


Figure 2. Temperature Coefficients
(Temperature Range -55°C to +150°C)

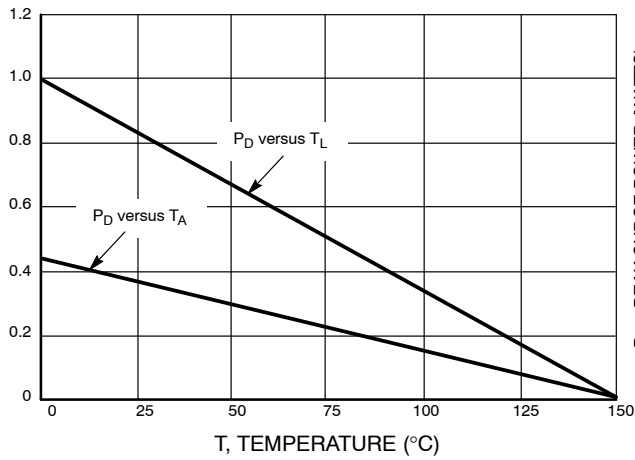


Figure 3. Steady State Power Derating

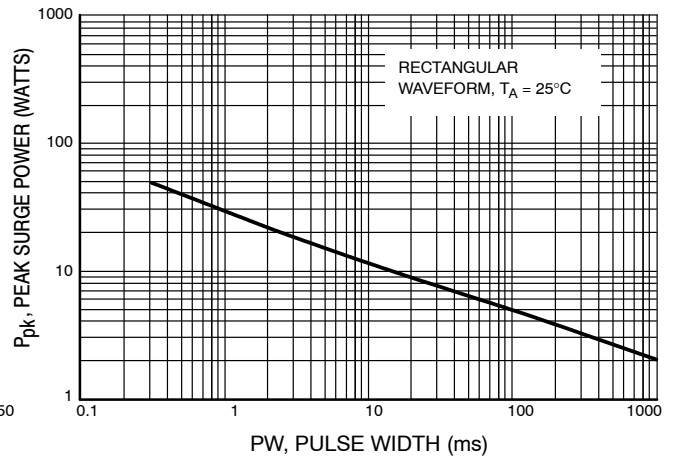


Figure 4. Maximum Nonrepetitive Surge Power

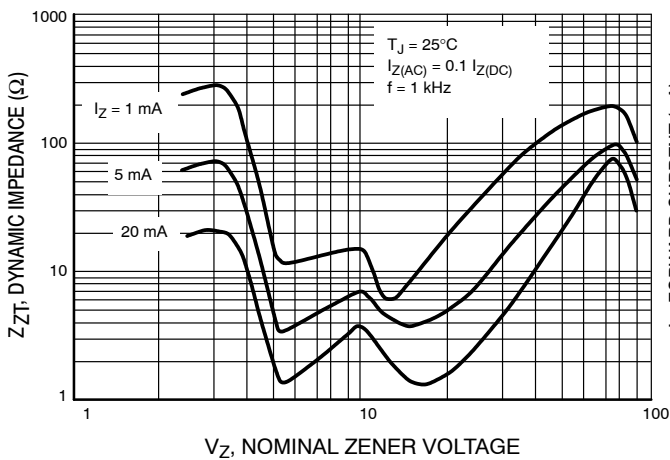


Figure 5. Effect of Zener Voltage on
Zener Impedance

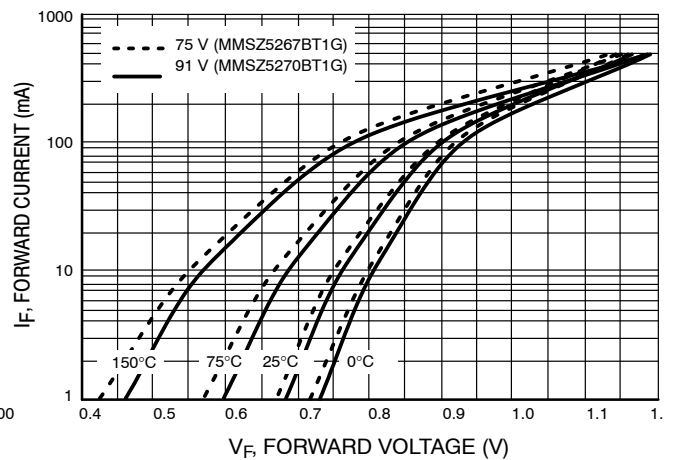


Figure 6. Typical Forward Voltage

MMSZxxxT1G Series, SZMMSZxxxT1G Series

TYPICAL CHARACTERISTICS

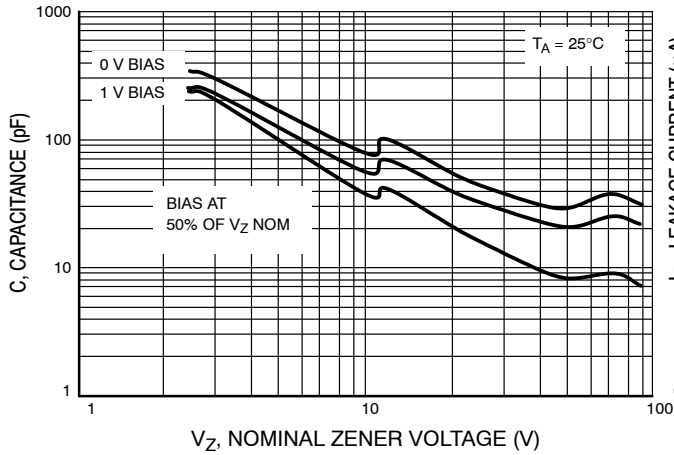


Figure 7. Typical Capacitance

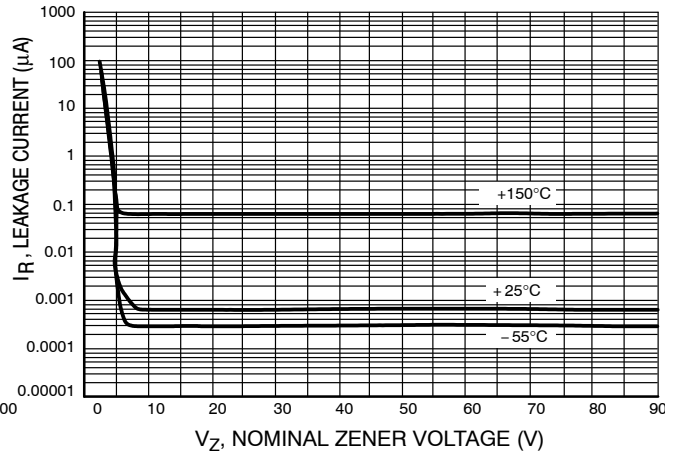


Figure 8. Typical Leakage Current

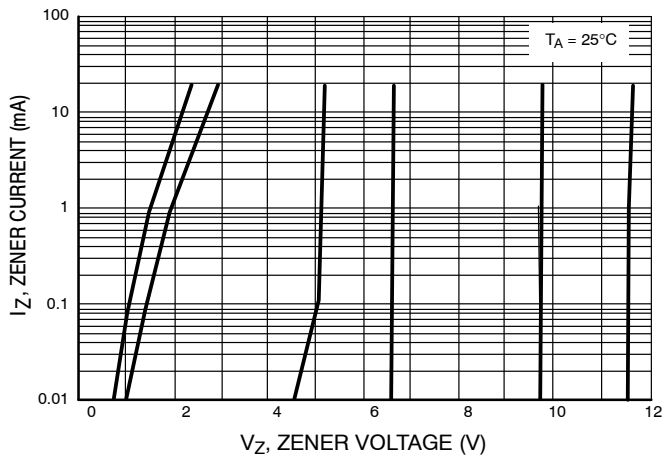


Figure 9. Zener Voltage versus Zener Current (V_Z Up to 12 V)

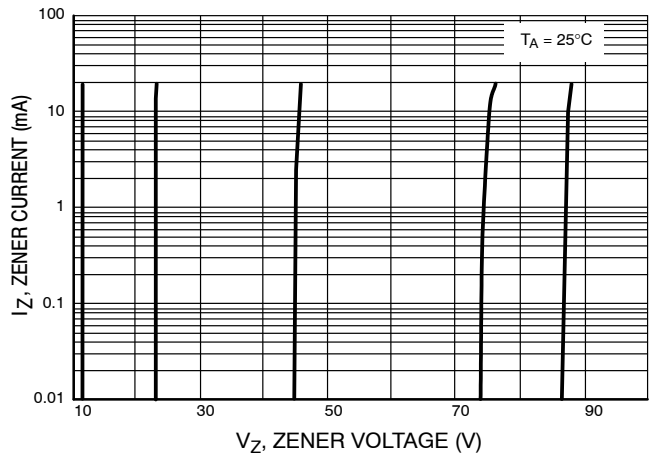


Figure 10. Zener Voltage versus Zener Current (12 V to 91 V)

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

ON Semiconductor®

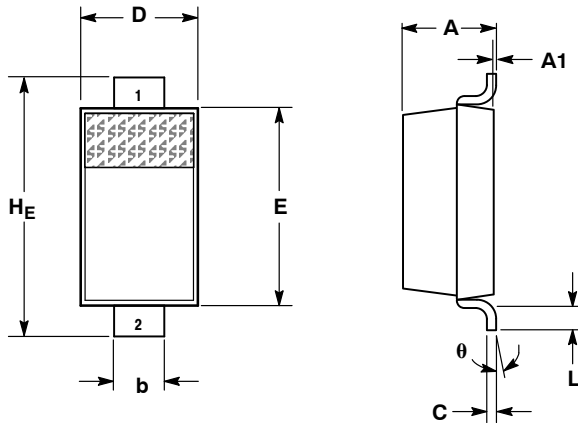
ON



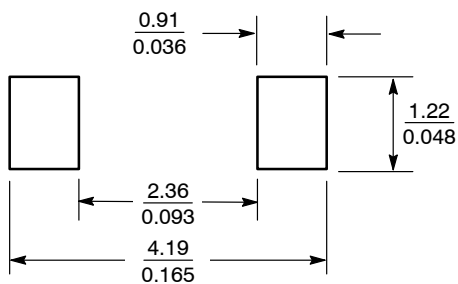
SCALE 5:1

SOD-123
CASE 425-04
ISSUE G

DATE 07 OCT 2009



SOLDERING FOOTPRINT*



SCALE 10:1 $\left(\frac{\text{mm}}{\text{inches}} \right)$

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.94	1.17	1.35	0.037	0.046	0.053
A1	0.00	0.05	0.10	0.000	0.002	0.004
b	0.51	0.61	0.71	0.020	0.024	0.028
c	---	---	0.15	---	---	0.006
D	1.40	1.60	1.80	0.055	0.063	0.071
E	2.54	2.69	2.84	0.100	0.106	0.112
H _E	3.56	3.68	3.86	0.140	0.145	0.152
L	0.25	---	---	0.010	---	---
θ	0°	---	10°	0°	---	10°

GENERIC MARKING DIAGRAM*



XXX = Specific Device Code
M = Date Code
■ = 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.

STYLE 1:
PIN 1. CATHODE
2. ANODE

*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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