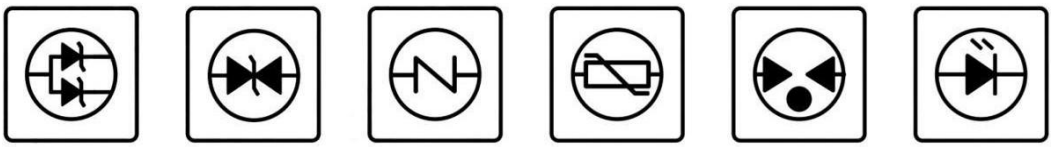
MSKSEMI 美森科
SEMICONDUCTOR



1SMA59XXBT3G-MS

Product specification

Features

- Standard Zener Breakdown Voltage Range − 3.3 V to 68 V
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- Flat Handling Surface for Accurate Placement
- Package Design for Top Slide or Bottom Circuit Board Mounting
- Low Profile Package
- Ideal Replacement for MELF Packages

Mechanical Characteristics:

CASE: Void-free, transfer-molded plastic

FINISH: All external surfaces are corrosion resistant with readily solderable leads

MAXIMUM CASE TEMPERATURE FOR SOLDERING PURPOSES:

260°C for 10 seconds

POLARITY: Cathode indicated by molded polarity notch or cathode band

FLAMMABILITY RATING: UL 94 V−0 @ 0.125 in

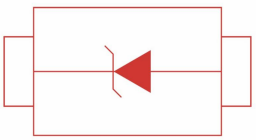
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Power Dissipation @ T_L = 75°C, Measured Zero Lead Length (Note 1) Derate above 75°C Thermal Resistance, Junction−to−Lead	P_D $R_{\theta JL}$	1.5 20 50	W mW/°C °C/W
DC Power Dissipation @ T_A = 25°C (Note 2) Derate above 25°C Thermal Resistance, Junction−to−Ambient	P_D $R_{\theta JA}$	0.5 4.0 250	W mW/°C °C/W
Operating and Storage Temperature Range	T_J, T_{stg}	−65 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed,damage may occur and reliability may be affected.

1. 1 in square copper pad, FR−4 board.
2. FR−4 Board, using **onsemi** minimum recommended footprint.

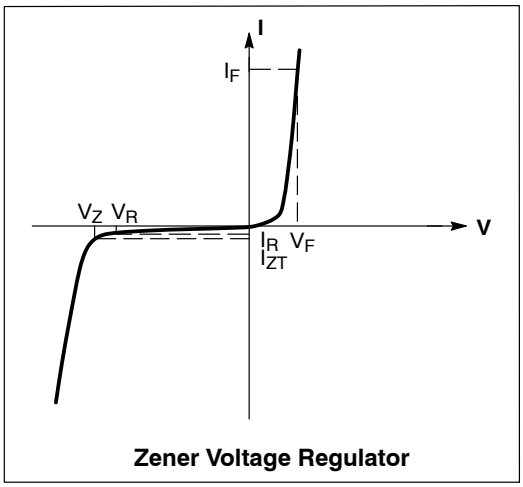
Reference News

PACKAGE OUTLINE	PIN CONFIGURATION
	
SMA(DO-214AC)	

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ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted, VF = 1.2 V Max. @ IF = 200 mA 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_A = 25°C unless otherwise noted, V_F = 1.2 V Max. @ I_F = 200 mA for all types)

Device* (Note 3)	Device Marking	Zener Voltage (Note 4)				Zener Impedance			Leakage Current		I_{ZM}
		Vz(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)
1SMA5913BT3G-MS	MSKSEMI 813B	3.13	3.3	3.47	113.6	10	500	1.0	50	1.0	455
1SMA5914BT3G-MS	MSKSEMI 814B	3.42	3.6	3.78	104.2	9.0	500	1.0	35.5	1.0	417
1SMA5915BT3G-MS	MSKSEMI 815B	3.70	3.9	4.10	96.1	7.5	500	1.0	12.5	1.0	385
1SMA5916BT3G-MS	MSKSEMI 816B	4.08	4.3	4.52	87.2	6.0	500	1.0	2.5	1.0	349
1SMA5917BT3G-MS	MSKSEMI 817B	4.46	4.7	4.94	79.8	5.0	500	1.0	2.5	1.5	319
1SMA5918BT3G-MS	MSKSEMI 818B	4.84	5.1	5.36	73.5	4.0	350	1.0	2.5	2.0	294
1SMA5919BT3G-MS	MSKSEMI 819B	5.32	5.6	5.88	66.9	2.0	250	1.0	2.5	3.0	268
1SMA5920BT3G-MS	MSKSEMI 820B	5.89	6.2	6.51	60.5	2.0	200	1.0	2.5	4.0	242
1SMA5921BT3G-MS	MSKSEMI 821B	6.46	6.8	7.14	55.1	2.5	200	1.0	2.5	5.2	221
1SMA5922BT3G-MS	MSKSEMI 822B	7.12	7.5	7.88	50	3.0	400	0.5	2.5	6.0	200
1SMA5923BT3G-MS	MSKSEMI 823B	7.79	8.2	8.61	45.7	3.5	400	0.5	2.5	6.5	183
1SMA5924BT3G-MS	MSKSEMI 824B	8.64	9.1	9.56	41.2	4.0	500	0.5	2.5	7.0	165
1SMA5925BT3G-MS	MSKSEMI 825B	9.5	10	10.5	37.5	4.5	500	0.25	2.5	8.0	150
1SMA5926BT3G-MS	MSKSEMI 826B	10.45	11	11.55	34.1	5.5	550	0.25	0.5	8.4	136
1SMA5927BT3G-MS	MSKSEMI 827B	11.4	12	12.6	31.2	6.5	550	0.25	0.5	9.1	125
1SMA5928BT3G-MS	MSKSEMI 828B	12.35	13	13.65	28.8	7.0	550	0.25	0.5	9.9	115
1SMA5929BT3G-MS	MSKSEMI 829B	14.25	15	15.75	25	9.0	600	0.25	0.5	11.4	100
1SMA5930BT3G-MS	MSKSEMI 830B	15.2	16	16.8	23.4	10	600	0.25	0.5	12.2	94
1SMA5931BT3G-MS	MSKSEMI 831B	17.1	18	18.9	20.8	12	650	0.25	0.5	13.7	83
1SMA5932BT3G-MS	MSKSEMI 832B	19	20	21	18.7	14	650	0.25	0.5	15.2	75
1SMA5933BT3G-MS	MSKSEMI 833B	20.9	22	23.1	17	17.5	650	0.25	0.5	16.7	68
1SMA5934BT3G-MS	MSKSEMI 834B	22.8	24	25.2	15.6	19	700	0.25	0.5	18.2	63
1SMA5935BT3G-MS	MSKSEMI 835B	25.65	27	28.35	13.9	23	700	0.25	0.5	20.6	56
1SMA5936BT3G-MS	MSKSEMI 836B	28.5	30	31.5	12.5	26	750	0.25	0.5	22.8	50
1SMA5937BT3G-MS	MSKSEMI 837B	31.35	33	34.65	11.4	33	800	0.25	0.5	25.1	45
1SMA5938BT3G-MS	MSKSEMI 838B	34.2	36	37.8	10.4	38	850	0.25	0.5	27.4	42
1SMA5939BT3G-MS	MSKSEMI 839B	37.05	39	40.95	9.6	45	900	0.25	0.5	29.7	38
1SMA5940BT3G-MS	MSKSEMI 840B	40.85	43	45.15	8.7	53	950	0.25	0.5	32.7	35
1SMA5941BT3G-MS	MSKSEMI 841B	44.65	47	49.35	8.0	67	1000	0.25	0.5	35.8	32
1SMA5942BT3G-MS	MSKSEMI 842B	48.45	51	53.55	7.3	70	1100	0.25	0.5	38.8	29
1SMA5943BT3G-MS	MSKSEMI 843B	53.2	56	58.8	6.7	86	1300	0.25	0.5	42.6	27
1SMA5945BT3G-MS	MSKSEMI 845B	64.6	68	71.4	5.5	120	1700	0.25	0.5	51.7	22

3. Tolerance and Voltage Regulation Designation − The type number listed indicates a tolerance of ±5%.

4. Vz limits are to be guaranteed at thermal equilibrium.

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RATING AND TYPICAL CHARACTERISTIC CURVES (TA = 25°C)

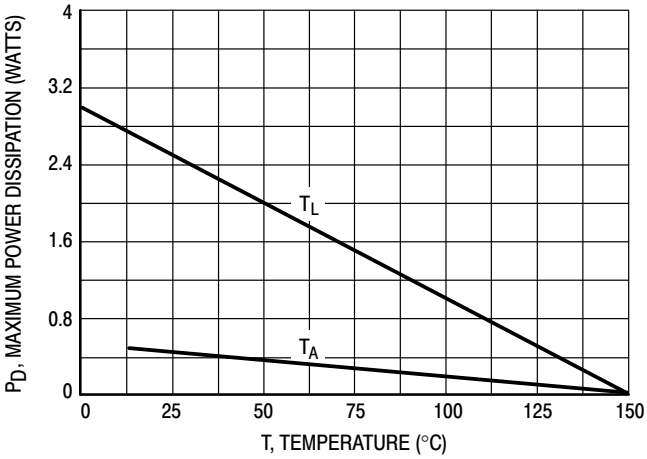


Figure 1. Steady State Power Derating

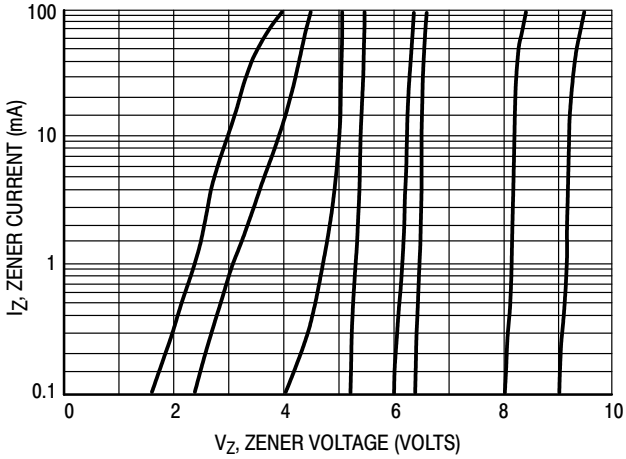


Figure 2. V_Z – 3.3 thru 10 Volts

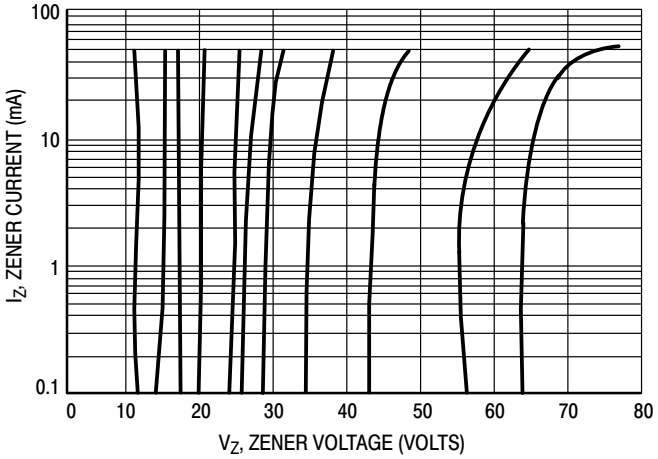


Figure 3. V_Z = 12 thru 68 Volts

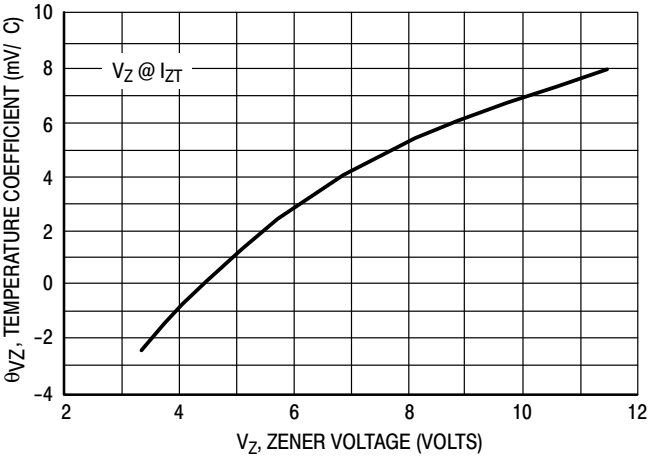


Figure 4. Zener Voltage – 3.3 to 12 Volts

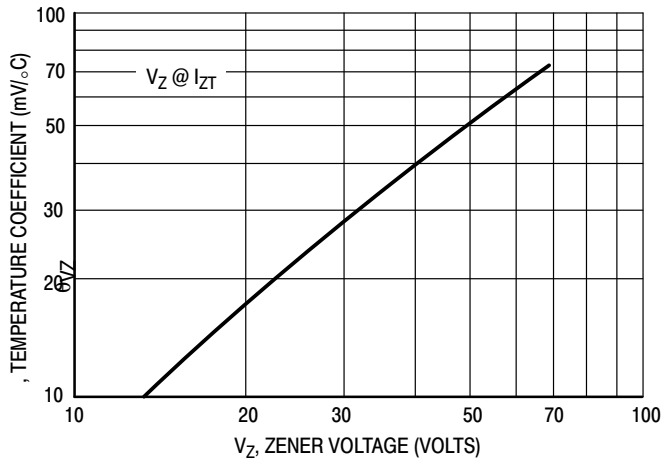


Figure 5. Zener Voltage – 12 to 68 Volts

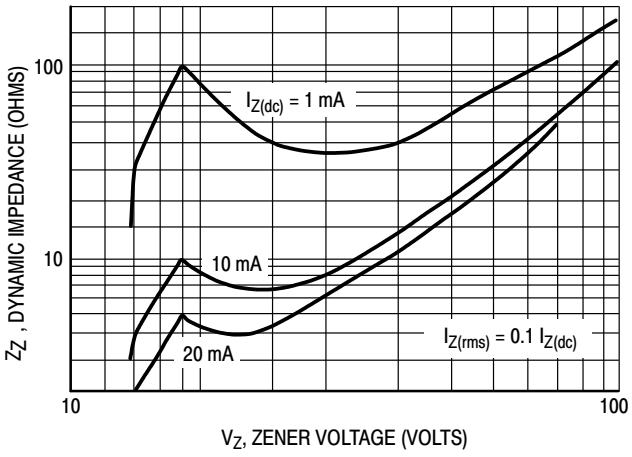


Figure 6. Effect of Zener Voltage

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RATING AND TYPICAL CHARACTERISTIC CURVES (TA = 25°C)

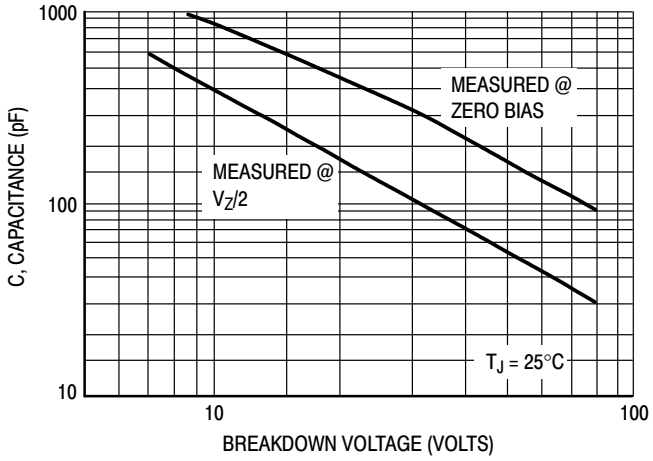


Figure 7. Capacitance Curve

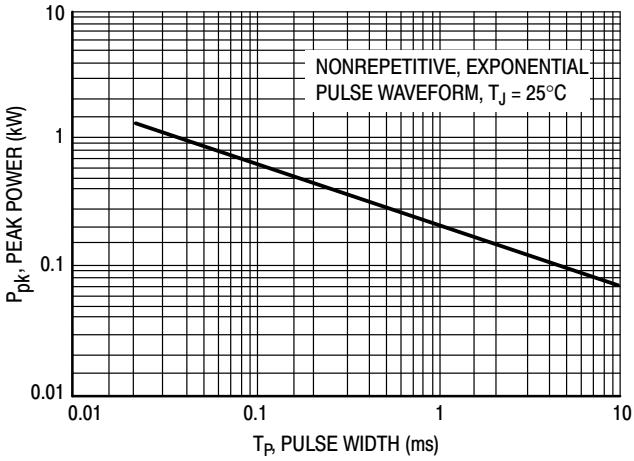


Figure 8. Typical Pulse Rating Curve

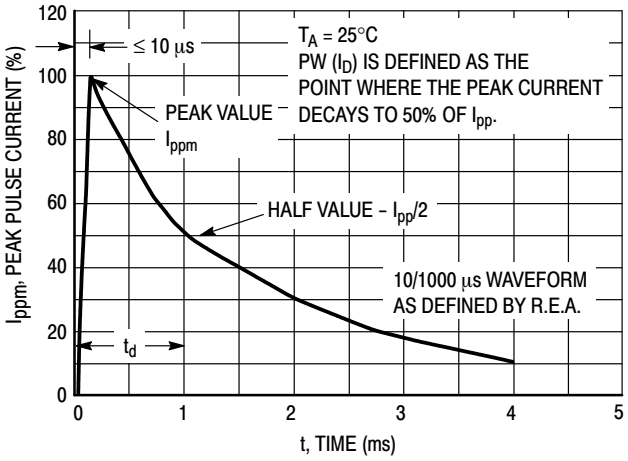


Figure 9. Pulse Waveform

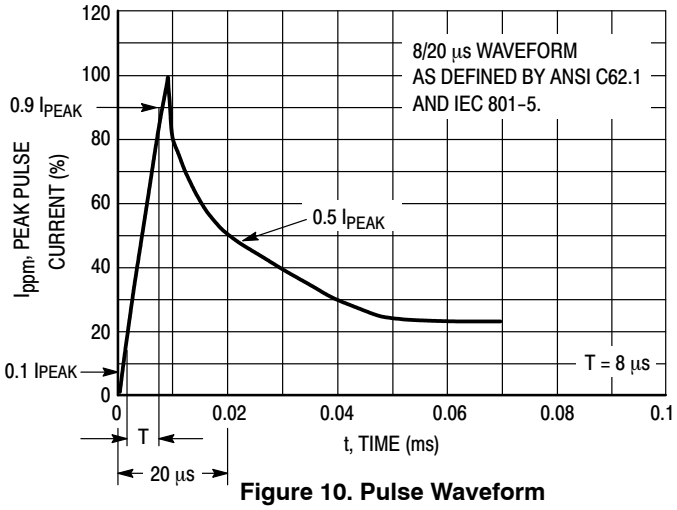
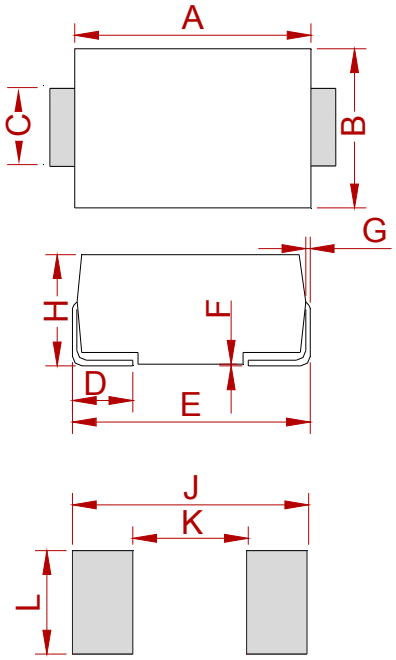


Figure 10. Pulse Waveform

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PACKAGE MECHANICAL DATA



DO-214AC (SMA)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.25	4.65	0.167	0.183
B	2.50	2.90	0.098	0.114
C	1.35	1.65	0.053	0.065
D	0.76	1.52	0.030	0.060
E	4.93	5.28	0.194	0.208
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	1.98	2.41	0.078	0.095
J	6.50		0.256	
K		2.30		0.090
L	1.70		0.067	

REEL SPECIFICATION

P/N	PKG	QTY
1SMA59XXBT3G-MS	SMA	2000

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