TAIWAN SEMICONDUCTOR

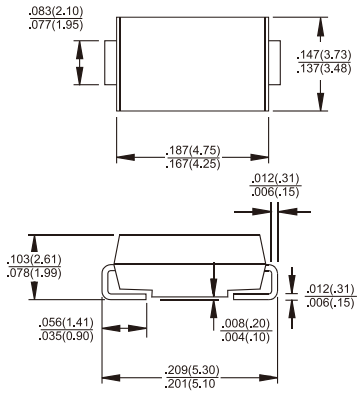
RoHS COMPLIANCE

1SMB5926 - 1SMB5956

3.0 Watts Surface Mount Silicon Zener Diode

SMB/DO-214AA





Dimensions in inches and (millimeters)

Features

- ✧ For surface mounted applications in order to optimize board space
- ✧ Low profile package
- ✧ Built-in strain relief
- ✧ Glass passivated junction
- ✧ Low inductance
- ✧ High temperature soldering guaranteed: 260°C / 10 seconds at terminals
- ✧ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode

Mechanical Data

- ✧ Case: Molded plastic over passivated junction
- ✧ Terminals: Pure tin plated lead free,, solderable per MIL-STD-750, Method 2026
- ✧ Polarity: Color Band denotes positive end (cathode)
- ✧ Standard packaging: 12mm tape (EIA-481)
- ✧ Weight: 0.107 grams

Marking Diagram



9XXB = Specific Device Code
G = Green Compound
Y = Year
M = Work Month

Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.

Type Number	Symbol	Value	Units
DC Power Dissipation at T_L=75°C, measure at Zero Lead Length Derate above 75 °C	P_D	3.0 4.0	Watts mW/°C
DC Power Dissipation @ T_A=25°C Derate above 25°C	P_D	550 4.4	mW mW/°C
Thermal Resistance from Junction-to-Lead	$R_{\theta JL}$	25	°C/W
Thermal Resistance from Junction-to-Ambient	$R_{\theta JA}$	226	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to + 150	°C

Maximum ratings are those values beyond which device damage can occur.
Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be attached.

ELECTRICAL CHARACTERISTICS (T_A =25℃ unless otherwise noted)

Device (Notes 1)	Device Marking Code	Zener Voltage Range (Notes 2)				Zener Impedance (Notes 3)			Leakage Current		Maximum DC Zener Current
		V_Z @ I_{ZT}			I_{ZT}	Z_{ZT}@ I_{ZT}	Z_{ZK}@ I_{ZK}		I_R @ V_R		I_{ZM}
		V			mA	Ω	Ω	mA	uA	V	mA (DC)
		Nom.	Min.	Max.							
1SMB5926	926B	11	10.45	11.55	34.1	5.5	550	0.25	1	8.4	136
1SMB5927	927B	12	11.40	12.60	31.2	6.5	550	0.25	1	9.1	125
1SMB5928	928B	13	12.35	13.65	28.8	7.0	550	0.25	1	9.9	115
1SMB5929	929B	15	14.25	15.75	25.0	9.0	600	0.25	1	11.4	100
1SMB5930	930B	16	15.20	16.80	23.4	10.0	600	0.25	1	12.2	93
1SMB5931	931B	18	17.10	18.90	20.8	12.0	650	0.25	1	13.7	83
1SMB5932	932B	20	19.00	21.00	18.7	14.0	650	0.25	1	15.2	75
1SMB5933	933B	22	20.90	23.10	17.0	17.5	650	0.25	1	16.7	66
1SMB5934	934B	24	22.80	25.20	15.6	19.0	700	0.25	1	18.2	62
1SMB5935	935B	27	25.65	28.35	13.9	23.0	700	0.25	1	20.6	55
1SMB5936	936B	30	28.50	31.50	12.5	26.0	750	0.25	1	22.8	50
1SMB5937	937B	33	31.35	34.65	11.4	33.0	800	0.25	1	25.1	45
1SMB5938	938B	36	34.20	37.80	10.4	38.0	850	0.25	1	27.4	41
1SMB5939	939B	39	37.05	40.95	9.6	45.0	900	0.25	1	29.7	38
1SMB5940	940B	43	40.85	45.15	8.7	53.0	950	0.25	1	32.7	34
1SMB5941	941B	47	44.65	49.35	8.0	67.0	1000	0.25	1	35.8	31
1SMB5942	942B	51	48.45	53.55	7.3	70.0	1100	0.25	1	38.8	29
1SMB5943	943B	56	53.20	58.80	6.7	86.0	1300	0.25	1	42.6	26
1SMB5944	944B	62	58.90	65.10	6.0	100.0	1500	0.25	1	47.1	24
1SMB5945	945B	68	64.60	71.40	5.5	120.0	1700	0.25	1	51.7	22
1SMB5946	946B	75	71.25	78.75	5.0	140.0	2000	0.25	1	56.0	20
1SMB5947	947B	82	77.90	86.10	4.6	160.0	2500	0.25	1	62.2	18
1SMB5948	948B	91	86.45	95.55	4.1	200.0	3000	0.25	1	69.2	16
1SMB5949	949B	100	95.00	105.00	3.7	250.0	3100	0.25	1	76.0	15
1SMB5950	950B	110	104.50	115.50	3.4	300.0	4000	0.25	1	83.6	13
1SMB5951	951B	120	114.00	126.00	3.1	360.0	4500	0.25	1	91.2	12
1SMB5952	952B	130	123.50	136.50	2.9	450.0	5000	0.25	1	98.8	11
1SMB5953	953B	150	142.50	157.50	2.5	600.0	6000	0.25	1	114.0	10
1SMB5954	954B	160	152.00	168.00	2.3	700.0	6500	0.25	1	121.6	9
1SMB5955	955B	180	171.00	189.00	2.1	900.0	7000	0.25	1	136.8	8
1SMB5956	956B	200	190.00	210.00	1.9	1200.0	8000	0.25	1	152.0	7

Notes: 1. Tolerance and type number designation the type numbers listed indicate a tolerance of ±5%

2. Zener voltage (V_Z) measurement
   Nominal Zener voltage is measured with the device junction in thermal equilibrium with ambient temperature at 25℃

3. 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 Iz(AC) = 0.1 Iz(DC) with the AC frequency = 60 Hz

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RATINGS AND CHARACTERISTIC CURVES (1SMB5926 THRU 1SMB5956)

FIG.1- STEADY STATE POWER DERATING

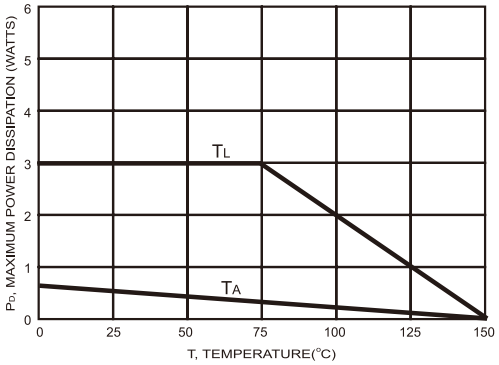


FIG.2- MAXIMUM SURGE POWER

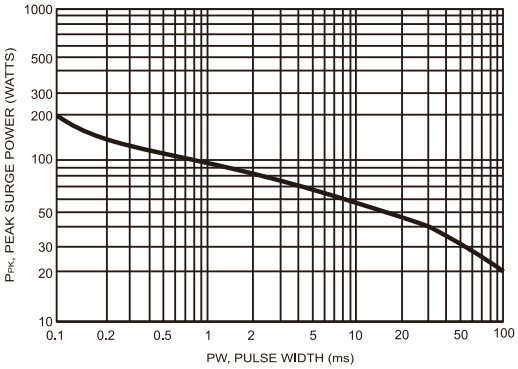


FIG.3- ZENER VOLTAGE - TO 12 VOLTAGES

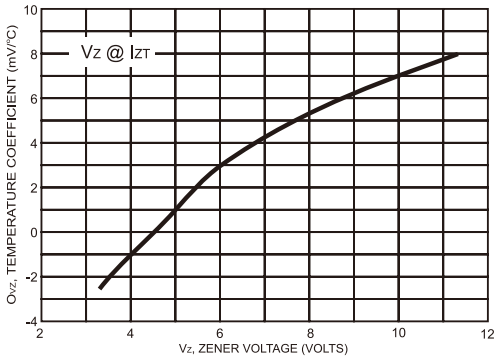


FIG.4- ZENER VOLTAGE - 14 TO 200 VOLTAGES

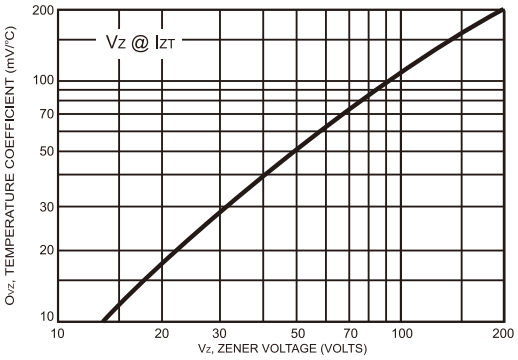


FIG.5- VZ = 3.3 THRU 10 VOLTS

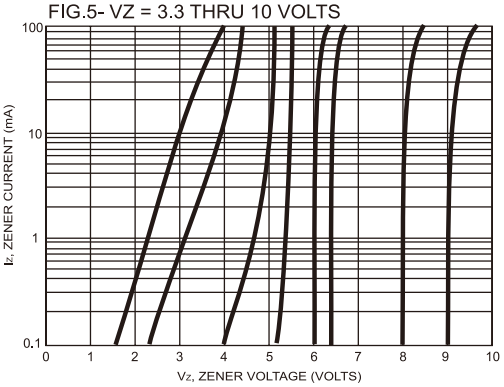
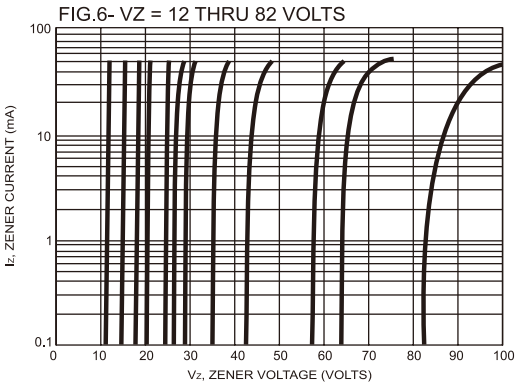


FIG.6- VZ = 12 THRU 82 VOLTS



RATINGS AND CHARACTERISTIC CURVES (1SMB5926 THRU 1SMB5956)

FIG.7- EFFECT OF ZENER VOLTAGE

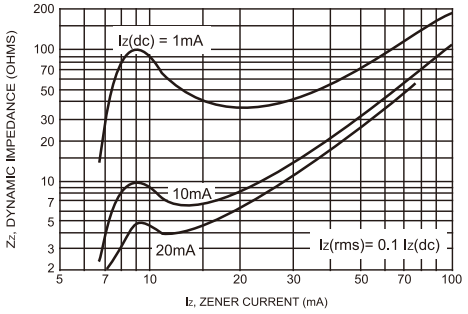


FIG.8- EFFECT OF ZENER CURRENT

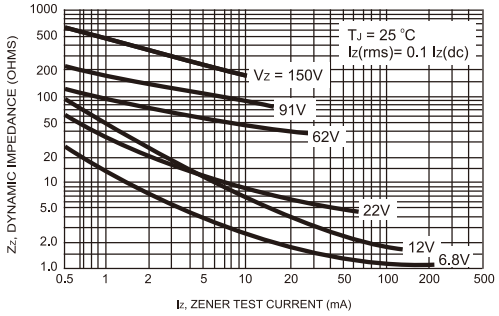


FIG.9- CAPACITANCE CURVE

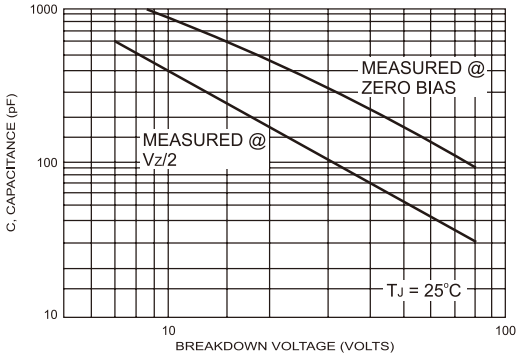


FIG.10- TYPICAL PULSE RATING CURVE

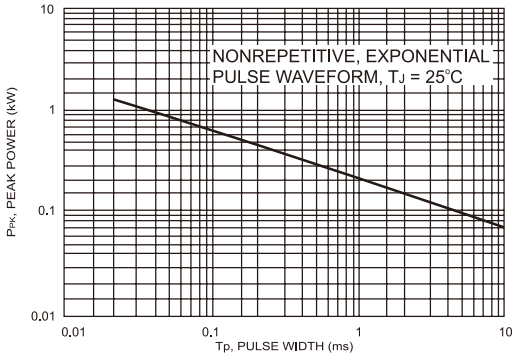


FIG.11- PULSE WAVEFORM

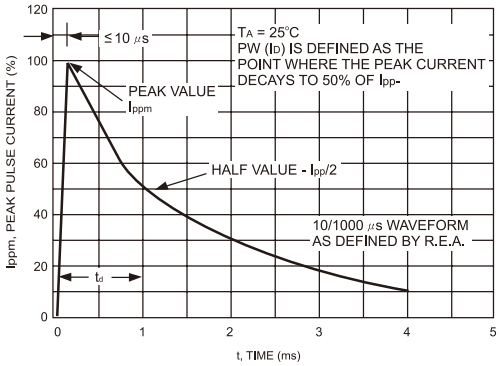


FIG.12- PULSE WAVEFORM

