1SMB5913BG THRU 1SMB5956BG

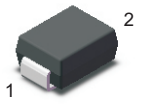
Surface Mount Zener Voltage Regulators

FEATURES
- Total power dissipation: Max. 3 W.
- Wide zener reverse voltage range 3.3V to 200V.
- Small plastic package suitable for surface mounted design.

MECHANICAL DATA
- Case: SMB
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.095g / 0.0034oz

PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode



Top View

Simplified outline SMB and symbol

Maximum Ratings and Electrical characteristics

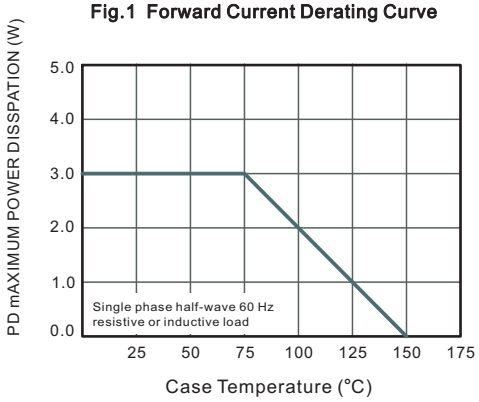
Ratings at 25 °C ambient temperature unless otherwise specified. Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20 %.

ABSOLUTE MAXIMUM RATINGS AND THERMAL PERFORMANCE (Ta = 25 °C)

Parameter	Symbol	Value	Unit
DC power dissipation at TL=75°C, measure at zero lead length (Note 1) derate above 75°C	P_D	3.0	W
		40	mW/°C
Maximum Steady State Power Dissipation @ TA=25°C Derate above 25°C	P_D	550	mW
		4.4	mW/°C
Junction to ambient thermal resistance	R_{thJA}	226	°C/W
Junction to lead thermal resistance	R_{thJL}	25	°C/W
Junction Temperature Range	T_J	- 55 to + 150	°C
Storage Temperature Range	T_{STG}	- 55 to + 150	°C

Note: 1. Mounted on Cu-Pad size 5mm x 5mm on PCB.

Fig.1 Forward Current Derating Curve



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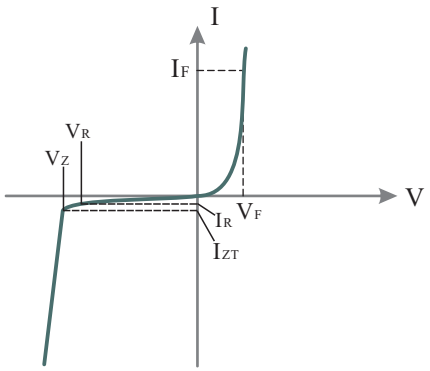
ELECTRICAL CHARACTERISTICS

(T_L = 30°C unless otherwise noted, V_F = 1.5 V Max. @ I_F = 200 mA(DC) for all types)

Symbol	Parameter
Vz	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

Notes On Page 3:

1. Tolerance and type number designation the type numbers listed indicate a tolerance of 5%
2. Zener voltage (Vz) measurement Nominal Zener v oltage is measured with the device junction in thermal equilibrium with ambient temperature 25°C
3. Zener impedance (Zz) 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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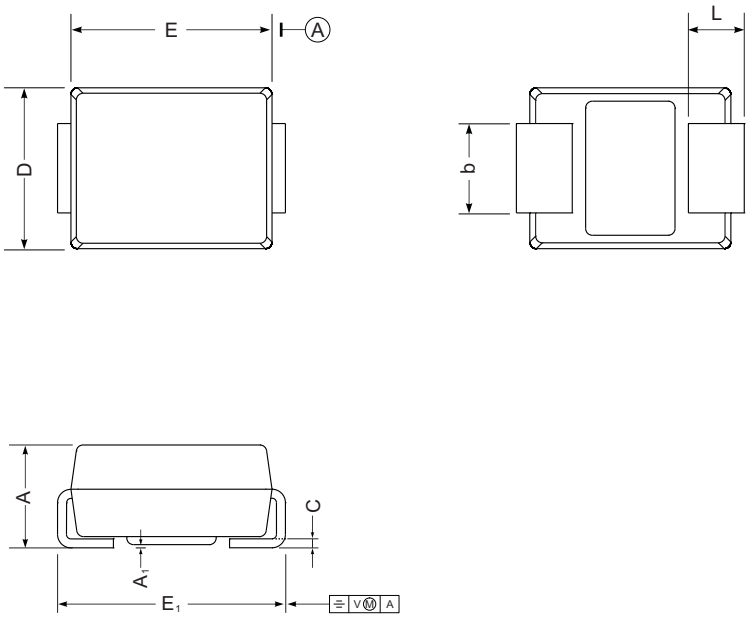
Characteristics at Ta = 25°C(Devices listed in bold, italic are ON Semiconductor Preferred devices.)
(TL = 30°C unless otherwise noted, VF = 1.5 V Max. @ IF = 200 mA(DC) for all types)

Type	Marking	Nominal Zener Voltage (3)				Zener Impedance (4)			Leakage Current		Maximum DC Zener Current
		V_z			I_{ZT}	Z_{ZT}@ I_{ZT}	Z_{ZK}@ I_{ZK}		I_R @ V_R		
		Min (V)	Nom (V) (2)	Max (V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	I_{ZM}(mA)(DC)
1SMB5913BG	913B	3.13	3.3	3.47	113.6	10	500	1	100	1	454
1SMB5914BG	914B	3.42	3.6	3.78	104.2	9	500	1	75	1	416
1SMB5915BG	915B	3.70	3.9	4.10	96.1	7.5	500	1	25	1	384
1SMB5916BG	916B	4.08	4.3	4.52	87.2	6	500	1	5	1	348
1SMB5917BG	917B	4.46	4.7	4.94	79.8	5	500	1	5	1.5	319
1SMB5918BG	918B	4.84	5.1	5.36	73.5	4	350	1	5	2	294
1SMB5919BG	919B	5.32	5.6	5.88	66.9	2	250	1	5	3	267
1SMB5920BG	920B	5.89	6.2	6.51	60.5	2	200	1	5	4	241
1SMB5921BG	921B	6.46	6.8	7.14	55.1	2.5	200	1	5	5.2	220
1SMB5922BG	922B	7.12	7.5	7.88	50	3	400	0.5	5	6	200
1SMB5923BG	923B	7.79	8.2	8.61	45.7	3.5	400	0.5	5	6.5	182
1SMB5924BG	924B	8.64	9.1	9.56	41.2	4	500	0.5	5	7	164
1SMB5925BG	925B	9.5	10	10.5	37.5	4.5	500	0.25	5	8	150
1SMB5926BG	926B	10.45	11	11.55	34.1	5.5	550	0.25	1	8.4	136
1SMB5927BG	927B	11.4	12	12.6	31.2	6.5	550	0.25	1	9.1	125
1SMB5928BG	928B	12.35	13	13.65	28.8	7	550	0.25	1	9.9	115
1SMB5929BG	929B	14.25	15	15.75	25	9	600	0.25	1	11.4	100
1SMB5930BG	930B	15.2	16	16.8	23.4	10	600	0.25	1	12.2	93
1SMB5931BG	931B	17.1	18	18.9	20.8	12	650	0.25	1	13.7	83
1SMB5932BG	932B	19	20	21	18.7	14	650	0.25	1	15.2	75
1SMB5933BG	933B	20.9	22	23.1	17	17.5	650	0.25	1	16.7	68
1SMB5934BG	934B	22.8	24	25.2	15.6	19	700	0.25	1	18.2	62
1SMB5935BG	935B	25.65	27	28.35	13.9	23	700	0.25	1	20.6	55
1SMB5936BG	936B	28.5	30	31.5	12.5	28	750	0.25	1	22.8	50
1SMB5937BG	937B	31.35	33	34.65	11.4	33	800	0.25	1	25.1	45
1SMB5938BG	938B	34.2	36	37.8	10.4	38	850	0.25	1	27.4	41
1SMB5939BG	939B	37.05	39	40.95	9.6	45	900	0.25	1	29.7	38
1SMB5940BG	940B	40.85	43	45.15	8.7	53	950	0.25	1	32.7	34
1SMB5941BG	941B	44.65	47	49.35	8	67	1000	0.25	1	35.8	31
1SMB5942BG	942B	48.45	51	53.55	7.3	70	1100	0.25	1	38.8	29
1SMB5943BG	943B	53.2	56	58.8	6.7	86	1300	0.25	1	42.6	26
1SMB5944BG	944B	58.9	62	65.1	6	100	1500	0.25	1	47.1	24
1SMB5945BG	945B	64.6	68	71.4	5.5	120	1700	0.25	1	51.7	22
1SMB5946BG	946B	71.25	75	78.75	5	140	2000	0.25	1	56	20
1SMB5947BG	947B	77.9	82	86.1	4.6	160	2500	0.25	1	62.2	18
1SMB5948BG	948B	86.45	91	95.55	4.1	200	3000	0.25	1	69.2	16
1SMB5949BG	949B	95	100	105	3.7	250	3100	0.25	1	76	15
1SMB5950BG	950B	104.5	110	115.5	3.4	300	4000	0.25	1	83.6	13
1SMB5951BG	951B	114	120	126	3.1	380	4500	0.25	1	91.2	12
1SMB5952BG	952B	123.5	130	136.5	2.9	450	5000	0.25	1	98.8	11
1SMB5953BG	953B	142.5	150	157.5	2.5	600	6000	0.25	1	114	10
1SMB5954BG	954B	152	160	168	2.3	700	6500	0.25	1	121.6	9
1SMB5955BG	955B	171	180	189	2.1	900	7000	0.25	1	136.8	8
1SMB5956BG	956B	190	200	210	1.9	1200	8000	0.25	1	152	7

PACKAGE OUTLINE

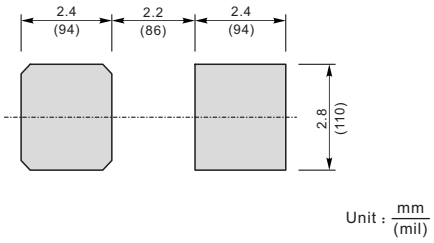
Plastic surface mounted package; 2 leads SMB



SMB mechanical data

UNIT		A	E	D	E_1	A_1	L	C	b
mm	max	2.44	4.70	3.94	5.59	0.20	1.5	0.305	2.2
	min	2.13	4.06	3.3	5.08	0.05	0.8	0.152	1.9
mil	max	96	185	155	220	7.9	59	12	87
	min	84	160	130	200	2.0	32	6	75

The recommended mounting pad size



Unit : mm / (mil)