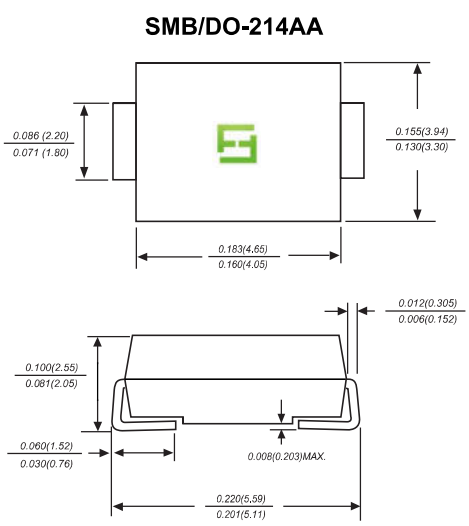
1SMB5913BT3G~1SMB5956BT3G

3.0W Surface Mount Zener Diode

Features

- Batch process design, excellent power dissipation offers better reverse leakage current and thermal resistance.
- Wide zener reverse voltage range 3.3V to 200V.
- Small package size for high density applications.
- Ideally suited for automated assembly processes.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

Package outline



Dimensions in inches and (millimeters)

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AA/ SMB
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.093gram

Maximum ratings (at T_A=25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Maximum Steady State Power Dissipation at T_L = 75°C, Measured at Zero Lead Length	P_D	3.0	W
Derate Above 75 °C		40	mW/°C
Thermal Resistance From Junction to Lead	$R_{\theta JL}$	25	°C/W
Maximum Steady State Power Dissipation at Ta = 25 °C Measured at Zero Lead Length	P_D	550	mW
Derate Above 25 °C		4.4	mW/°C
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	226	°C/W
Maximum Forward Voltage at I_F = 200 mA	V_F	1.5	Volts
Junction Temperature Range	T_J	- 65 to + 150	°C
Storage Temperature Range	Tstg	- 65 to + 150	°C

Electrical characteristics (at T_A=25°C unless otherwise noted)

Type	Zener voltage Vz (V)				Zener Impedance			Leakage Current		I_{ZM} (mA) (dc)	Marking
	Min.	Mom.	Max.	@ I_{ZT} (mA)	Z_{ZT} @ I_{ZT} (Ω)	Z_{ZK} (Ω)	@ I_{ZK} (mA)	I_R (μA)	@ V_R (V)		
1SMB5913BT3G	3.13	3.3	3.47	113.6	10	500	1.0	100	1.0	454	913B
1SMB5914BT3G	3.42	3.6	3.78	104.2	9.0	500	1.0	75	1.0	416	914B
1SMB5915BT3G	3.70	3.9	4.10	96.1	7.5	500	1.0	25	1.0	384	915B
1SMB5916BT3G	4.08	4.3	4.52	87.2	6.0	500	1.0	5	1.0	348	916B
1SMB5917BT3G	4.46	4.7	4.94	79.8	5.0	500	1.0	5	1.5	319	917B
1SMB5918BT3G	4.84	5.1	5.36	73.5	4.0	350	1.0	5	2.0	294	918B
1SMB5919BT3G	5.32	5.6	5.88	66.9	2.0	250	1.0	5	3.0	267	919B
1SMB5920BT3G	5.89	6.2	6.51	60.5	2.0	200	1.0	5	4.0	241	920B
1SMB5921BT3G	6.46	6.8	7.14	55.1	2.5	200	1.0	5	5.2	220	921B
1SMB5922BT3G	7.12	7.5	7.88	50	3.0	400	0.5	5	6.0	200	922B
1SMB5923BT3G	7.79	8.2	8.61	45.7	3.5	400	0.5	5	6.5	182	923B
1SMB5924BT3G	8.64	9.1	9.56	41.2	4.0	500	0.5	5	7.0	164	924B
1SMB5925BT3G	9.5	10	10.5	37.5	4.5	500	0.25	5	8.0	150	925B
1SMB5926BT3G	10.45	11	11.55	34.1	5.5	550	0.25	1	8.4	136	926B
1SMB5927BT3G	11.4	12	12.6	31.2	6.5	550	0.25	1	9.1	125	927B
1SMB5928BT3G	12.35	13	13.65	28.8	7.0	550	0.25	1	9.9	115	928B
1SMB5929BT3G	14.25	15	15.75	25	9.0	600	0.25	1	11.4	100	929B
1SMB5930BT3G	15.2	16	16.8	23.4	10	600	0.25	1	12.2	93	930B
1SMB5931BT3G	17.1	18	18.9	20.8	12	650	0.25	1	13.7	83	931B
1SMB5932BT3G	19	20	21	18.7	14	650	0.25	1	15.2	75	932B
1SMB5933BT3G	20.9	22	23.1	17	17.5	650	0.25	1	16.7	68	933B
1SMB5934BT3G	22.8	24	25.2	15.6	19	700	0.25	1	18.2	62	934B
1SMB5935BT3G	25.65	27	28.35	13.9	23	700	0.25	1	20.6	55	935B
1SMB5936BT3G	28.5	30	31.5	12.5	28	750	0.25	1	22.8	50	936B
1SMB5937BT3G	31.35	33	34.65	11.4	33	800	0.25	1	25.1	45	937B
1SMB5938BT3G	34.2	36	37.8	10.4	38	850	0.25	1	27.4	41	938B
1SMB5939BT3G	37.05	39	40.95	9.6	45	900	0.25	1	29.7	38	939B
1SMB5940BT3G	40.85	43	45.15	8.7	53	950	0.25	1	32.7	34	940B
1SMB5941BT3G	44.65	47	49.35	8.0	67	1000	0.25	1	35.8	31	941B
1SMB5942BT3G	48.45	51	53.55	7.3	70	1100	0.25	1	38.8	29	942B
1SMB5943BT3G	53.2	56	58.8	6.7	86	1300	0.25	1	42.6	26	943B
1SMB5944BT3G	58.9	62	65.1	6.0	100	1500	0.25	1	47.1	24	944B
1SMB5945BT3G	64.6	68	71.4	5.5	120	1700	0.25	1	51.7	22	945B
1SMB5946BT3G	71.25	75	78.75	5	140	2000	0.25	1	56	20	946B
1SMB5947BT3G	77.9	82	86.1	4.6	160	2500	0.25	1	62.2	18	947B
1SMB5948BT3G	86.45	91	95.55	4.1	200	3000	0.25	1	69.2	16	948B
1SMB5949BT3G	95	100	105	3.7	250	3100	0.25	1	76	15	949B
1SMB5950BT3G	104.5	110	115.5	3.4	300	4000	0.25	1	83.6	13	950B
1SMB5951BT3G	114	120	126	3.1	380	4500	0.25	1	91.2	12	951B
1SMB5952BT3G	123.5	130	136.5	2.9	450	5000	0.25	1	98.8	11	952B
1SMB5953BT3G	142.5	150	157.5	2.5	600	6000	0.25	1	114	10	953B
1SMB5954BT3G	152	160	168	2.3	700	6500	0.25	1	121.6	9	954B
1SMB5955BT3G	171	180	189	2.1	900	7000	0.25	1	136.8	8	955B
1SMB5956BT3G	190	200	210	1.9	1200	8000	0.25	1	152	7	956B

Note :

(1) Suffix " B " indicates ± 5% tolerance, suffix " A " indicates ± 10% tolerance.

Ratings And Characteristic Curves

FIG. 1 - POWER TEMPERATURE DERATING CURVE

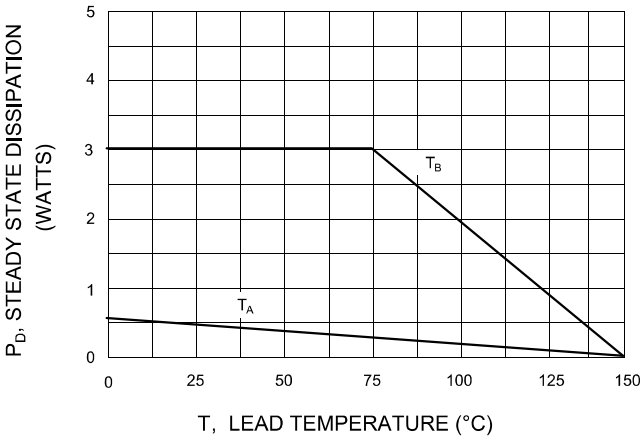


FIG. 3 - MAXIMUM SURGE POWER

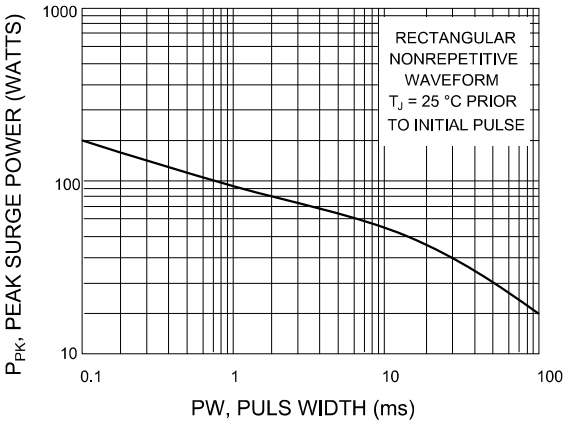


FIG. 5 - TEMPERATURE COEFFICIENT RANGES UNITS TO 12 VOLTS

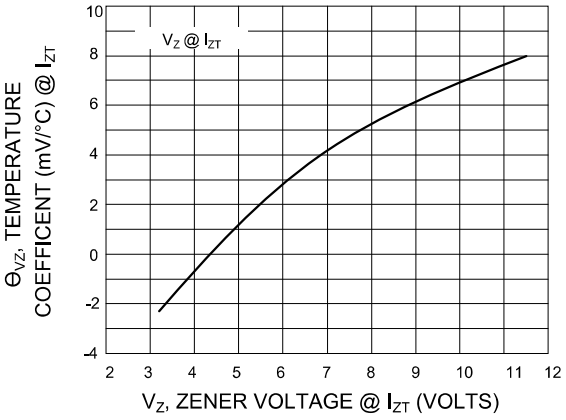


FIG. 6 - TEMPERATURE COEFFICIENT RANGES UNITS 10 TO 400 VOLTS

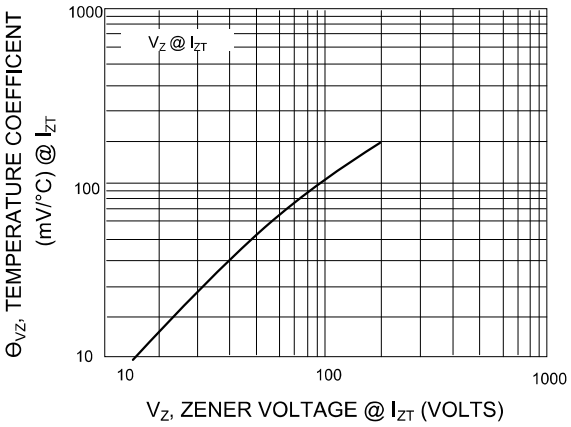


FIG. 7 - ZENER VOLTAGE VS. ZENER CURRENT V_Z = 3.3 thru 10 VOLTS

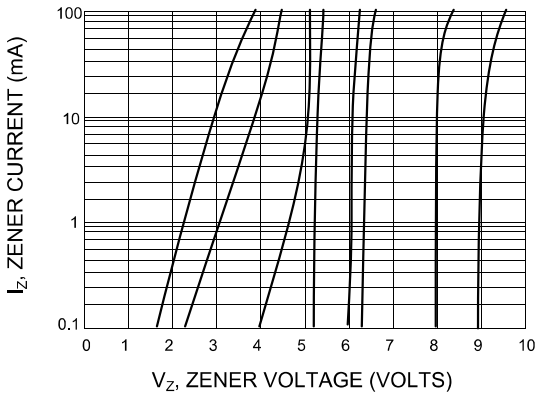
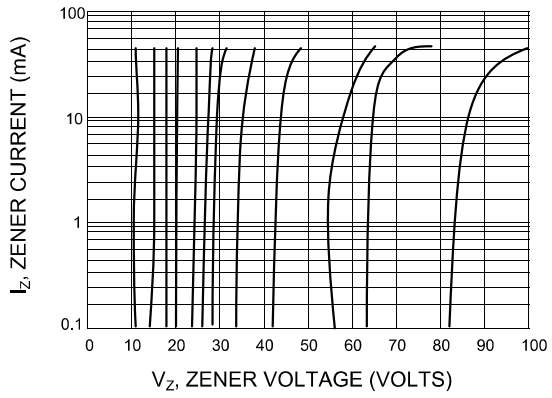
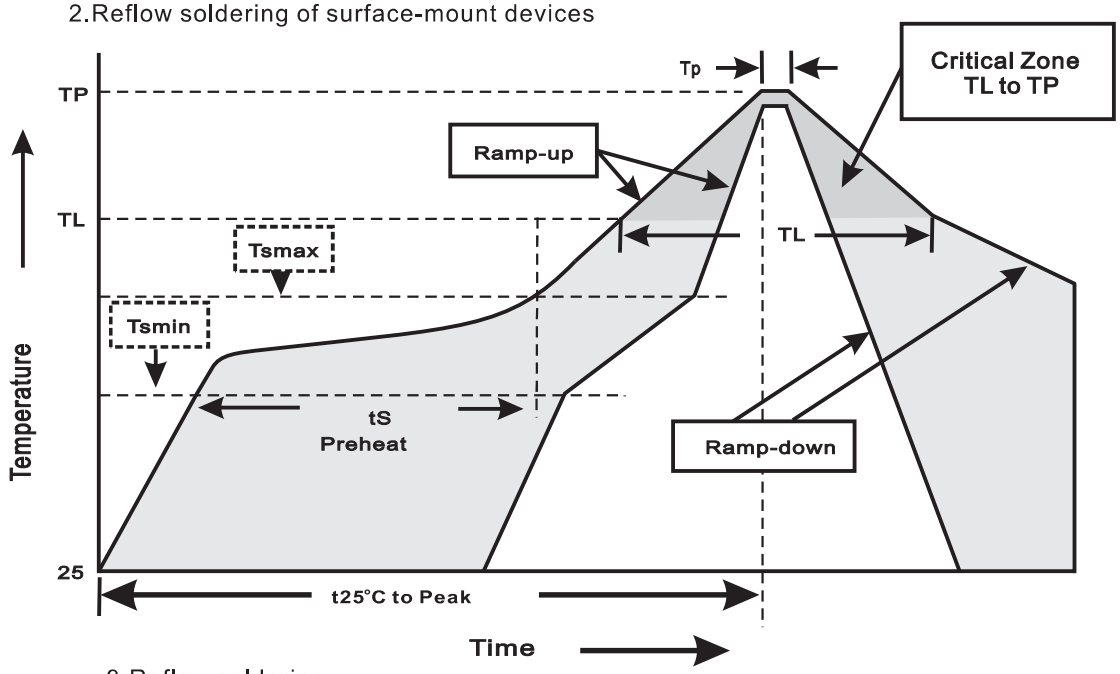


FIG. 8 - ZENER VOLTAGE VS. ZENER CURRENT V_Z = 12 thru 82 VOLTS



Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes