

SURFACE MOUNT SILICON ZENER DIODES

VOLTAGE 2.4 - 39 Volts

POWER 500 mWatts

PACKAGE SOT-23

FEATURES

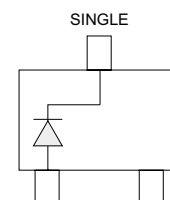
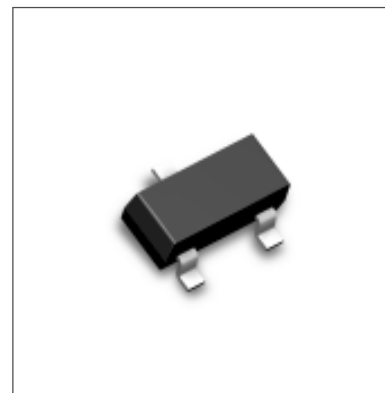
- Planar Die construction
- 500mW Power Dissipation
- Zener Voltages from 2.4V - 39V
- Ideally Suited for Automated Assembly Processes

MECHANICAL DATA

Case: SOT-23, Plastic

Terminals: Solderable per MIL-STD-202, Method 208

Approx. Weight: 0.008 gram



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Value	Units
Power Dissipation (Notes A) at 75°C	P _D	500	mW
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC method) (Notes B)	I _{FSM}	4.0	Amps
Operating Junction and Storage Temperature Range	T _J	-55 to +150	°C

NOTES:

A. Mounted on 5.0mm2(.013mm thick) land areas.

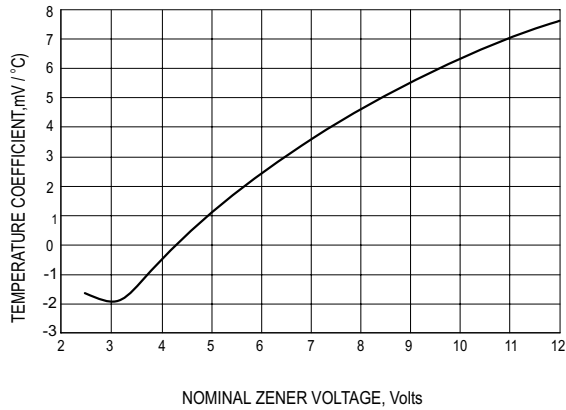
B. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted) V_F=1.2V max, I_F=100mA for all types.

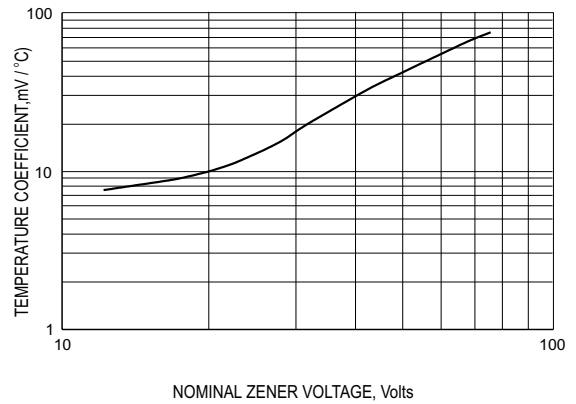
Part Number	Nominal Zener Voltage			Max. Zener Impedance				Max Reverse Leakage Current		Typical Temp. Coefficient	Max. Zener Current
	V _Z @ I _{ZT}			Z _{zT} @ I _{ZT}		Z _{zK} @ I _{zK}		I _R @ V _R		T _C	I _{ZM} @T _a
	Nom. V	Min. V	Max. V	Ω	mA	Ω	mA	nA	V		mA
500 mWatts Zener Diodes											
MMBZ5221B	2.4	2.28	2.52	30	20	1200	0.25	100	1	-0.070	188
MMBZ5222B	2.5	2.38	2.63	30	20	1250	0.25	100	1	-0.065	180
MMBZ5223B	2.7	2.57	2.84	30	20	1300	0.25	75	1	-0.060	167
MMBZ5225B	3	2.85	3.15	30	20	1600	0.25	50	1	-0.055	150
MMBZ5226B	3.3	3.14	3.47	28	20	1600	0.25	25	1	0.030	138
MMBZ5227B	3.6	3.42	3.78	24	20	1700	0.25	15	1	0.030	126
MMBZ5228B	3.9	3.71	4.1	23	20	1900	0.25	10	1	+0.038	115
MMBZ5229B	4.3	4.09	4.52	22	20	2000	0.25	5	1	+0.038	106
MMBZ5230B	4.7	4.47	4.94	19	20	1900	0.25	5	2	+0.045	97
MMBZ5231B	5.1	4.85	5.36	17	20	1600	0.25	5	2	+0.050	89
MMBZ5232B	5.6	5.32	5.88	11	20	1600	0.25	5	3	+0.058	81
MMBZ5234B	6.2	5.89	6.51	7	20	1000	0.25	5	4	+0.062	73
MMBZ5235B	6.8	6.46	7.14	5	20	750	0.25	3	5	+0.065	67
MMBZ5236B	7.5	7.13	7.88	6	20	500	0.25	3	6	+0.068	61
MMBZ5237B	8.2	7.79	8.61	8	20	500	0.25	3	6	+0.075	55
MMBZ5239B	9.1	8.65	9.56	10	20	600	0.25	3	6.5	+0.076	50
MMBZ5240B	10	9.5	10.5	17	20	600	0.25	3	8	+0.077	45
MMBZ5241B	11	10.45	11.55	22	20	600	0.25	3	8.4	+0.079	41
MMBZ5242B	12	11.4	12.6	30	20	600	0.25	2	9.1	+0.082	38
MMBZ5243B	13	12.35	13.65	13	9.5	600	0.25	1	9.9	+0.082	35
MMBZ5245B	15	14.25	15.75	16	8.5	600	0.25	0.5	11	+0.083	30
MMBZ5246B	16	15.2	16.8	17	7.8	600	0.25	0.1	12	+0.084	28
MMBZ5248B	18	17.1	18.9	21	7	600	0.25	0.1	14	+0.085	25
MMBZ5250B	20	19	21	25	6.2	600	0.25	0.1	15	+0.086	23
MMBZ5251B	22	20.9	23.1	29	5.6	600	0.25	0.1	17	+0.086	21
MMBZ5252B	24	22.8	25.2	33	5.2	600	0.25	0.1	18	+0.087	19.1
MMBZ5254B	27	25.65	28.35	41	5	600	0.25	0.1	21	+0.087	16.8
MMBZ5255B	28	26.6	29.4	44	4.5	600	0.25	0.1	21	+0.089	16.2
MMBZ5256B	30	28.5	31.5	49	4.2	600	0.25	0.1	23	+0.090	15.1
MMBZ5257B	33	31.35	34.65	58	3.8	700	0.25	0.1	25	+0.091	13.8
MMBZ5258B	36	34.2	37.8	70	3.4	700	0.25	0.1	27	+0.091	12.6
MMBZ5259B	39	37.05	40.95	80	3.2	800	0.25	0.1	30	+0.092	11.6

NOTE:

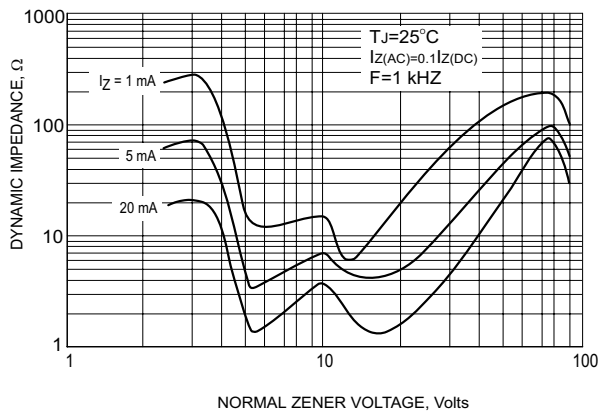
1. Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of ±5%.
2. Specials Available Include:
 - A. Nominal zener voltages between the voltages shown and tighter voltage tolerances.
 - B. Matched sets.
3. Zener Voltage (V_Z) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature (T_L) at 30°C, from the diode body.
4. Zener Impedance (Z_Z) Derivation. The zener impedance is derived from the 60 cycle ac voltage, which results when an AC current having an rms value equal to 10% of the dc zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK}.
5. Surge Current (I_R) Non-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current, I_{ZT}, per JEDEC registration; however, actual device capability is as described in Figure 5.



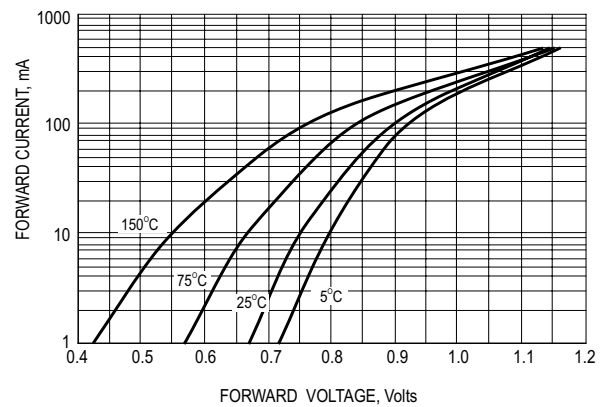
TYPICAL REVERSE CURRENT



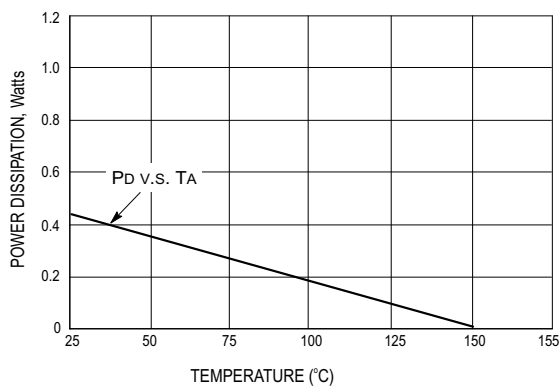
STEADY STATE POWER DERATING



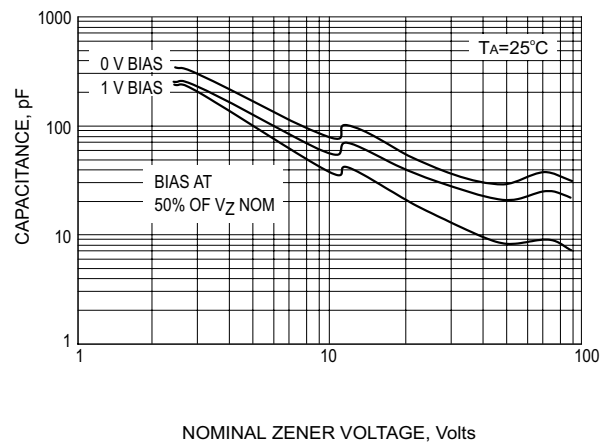
EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE



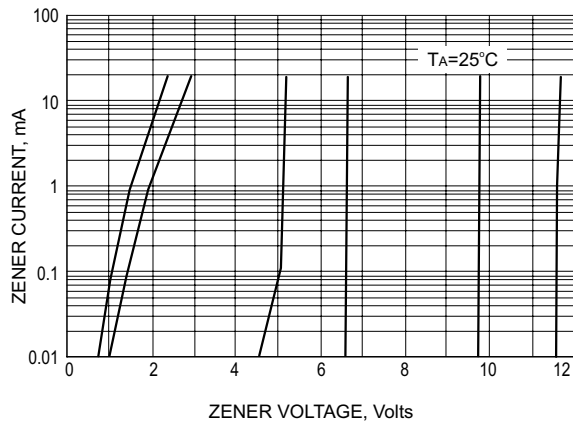
TYPICAL FORWARD VOLTAGE



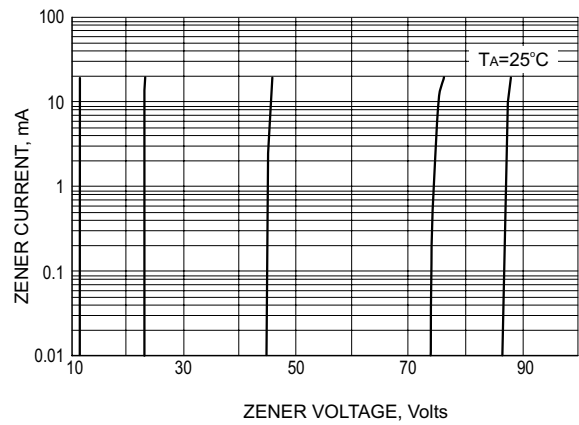
STEADY STATE POWER DERATING



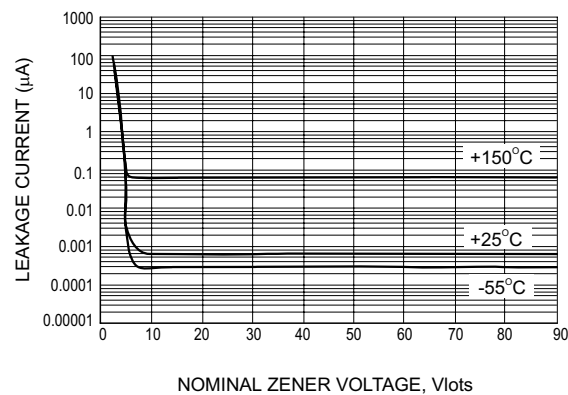
TYPICAL CAPACITANCE



ZENER VOLTAGE V.S. ZENER CURRENT

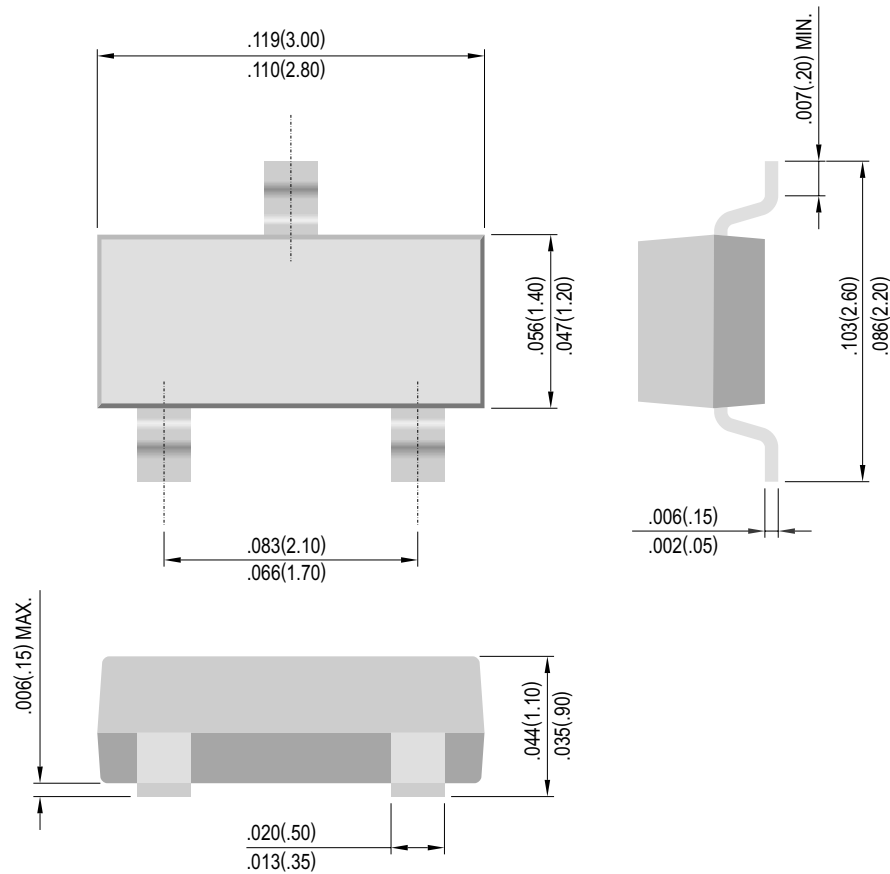


ZENER VOLTAGE V.S. ZENER CURRENT



TYPICAL LEAKGE CURRENT

SOT-23



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