

## SURFACE MOUNT SILICON ZENER DIODES

**VOLTAGE** 2.4 - 39 Volts

**POWER** 200 mWatts

**PACKAGE** SOD-323

### FEATURES

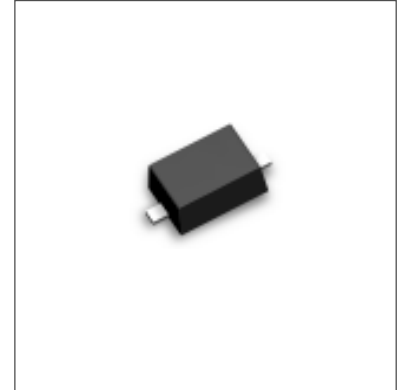
- Planar Die construction
- 200mW Power Dissipation
- Zener Voltages from 2.4V - 39V
- Ideally Suited for Automated Assembly Processes

### MECHANICAL DATA

Case: SOD-323, 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 25°C	P <sub>D</sub>	200	mW
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC method) (Notes B)	I <sub>FSM</sub>	2.0	Amps
Operating Junction and Storage Temperature Range	T <sub>J</sub>	-55 to +150	°C

**NOTES:**

A. Mounted on 5.0mm<sup>2</sup>(.013mm thick) land areas.

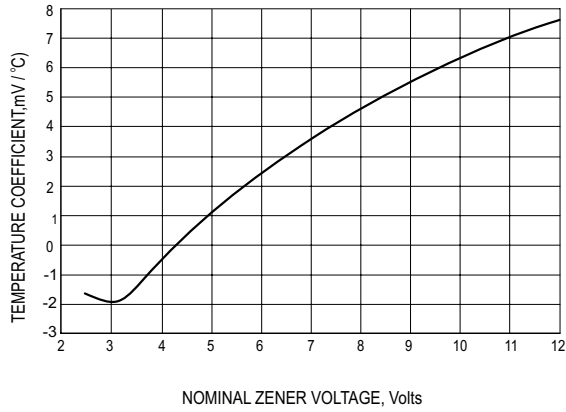
B. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted) V<sub>F</sub>=1.2V max, I<sub>F</sub>=100mA for all types.

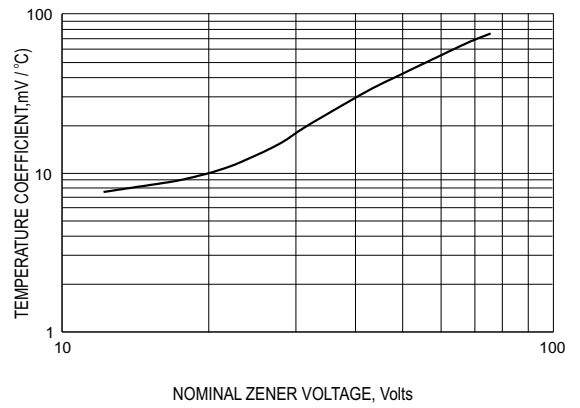
Part Number	Nominal Zener Voltage			Max. Zener Impedance				Max Reverse Leakage Current		Typical Temp. Coefficient	Package
	V <sub>Z</sub> @ I <sub>ZT</sub>			Z <sub>TT</sub> @ I <sub>ZT</sub>		Z <sub>ZK</sub> @ I <sub>ZK</sub>		I <sub>R</sub> @ V <sub>R</sub>			
	Nom. V	Min. V	Max. V	Ω	mA	Ω	mA	μA	V	T <sub>C</sub>	
<b>200 mWatts Zener Diodes</b>											
BZT52-C2V4S	2.4	2.28	2.52	85	5	600	1	100	1	-0.075	SOD-323
BZT52-C2V7S	2.7	2.5	2.9	83	5	500	1	75	1	-0.065	SOD-323
BZT52-C3S	3	2.8	3.2	95	5	500	1	50	1	-0.060	SOD-323
BZT52-C3V3S	3.3	3.1	3.5	95	5	500	1	25	1	-0.055	SOD-323
BZT52-C3V6S	3.6	3.4	3.8	95	5	500	1	15	1	-0.055	SOD-323
BZT52-C3V9S	3.9	3.7	4.1	95	5	500	1	10	1	-0.050	SOD-323
BZT52-C4V3S	4.3	4	4.6	95	5	500	1	5.0	1	-0.035	SOD-323
BZT52-C4V7S	4.7	4.4	5	78	5	500	1	5.0	2	-0.015	SOD-323
BZT52-C5V1S	5.1	4.8	5.4	60	5	480	1	0.1	0.8	0.005	SOD-323
BZT52-C5V6S	5.6	5.2	6	40	5	400	1	0.1	1	0.020	SOD-323
BZT52-C6V2S	6.2	5.8	6.6	10	5	200	1	0.1	2	0.030	SOD-323
BZT52-C6V8S	6.8	6.4	7.2	8	5	150	1	0.1	3	0.045	SOD-323
BZT52-C7V5S	7.5	7	7.9	7	5	50	1	0.1	5	0.050	SOD-323
BZT52-C8V2S	8.2	7.7	8.7	7	5	50	1	0.1	6	0.055	SOD-323
BZT52-C9V1S	9.1	8.5	9.6	10	5	50	1	0.1	7	0.065	SOD-323
BZT52-C10S	10	9.4	10.6	15	5	70	1	0.1	7.5	0.070	SOD-323
BZT52-C11S	11	10.4	11.6	20	5	70	1	0.1	8.5	0.075	SOD-323
BZT52-C12S	12	11.4	12.7	20	5	90	1	0.1	9	0.080	SOD-323
BZT52-C13S	13	12.4	14.1	25	5	110	1	0.1	10	0.080	SOD-323
BZT52-C15S	15	13.8	15.6	30	5	110	1	0.1	11	0.090	SOD-323
BZT52-C16S	16	15.3	17.1	40	5	170	1	0.1	12	0.090	SOD-323
BZT52-C18S	18	16.8	19.1	50	5	170	1	0.1	14	0.090	SOD-323
BZT52-C20S	20	18.8	21.2	50	5	220	1	0.1	15	0.090	SOD-323
BZT52-C22S	22	20.8	23.3	55	5	220	1	0.1	17	0.090	SOD-323
BZT52-C24S	24	22.8	25.6	80	5	220	1	0.1	18	0.090	SOD-323
BZT52-C27S	27	25.1	28.9	80	5	250	1	0.1	20	0.090	SOD-323
BZT52-C30S	30	28	32	80	5	250	1	0.1	22.5	0.090	SOD-323
BZT52-C33S	33	31	35	80	5	250	1	0.1	25	0.090	SOD-323
BZT52-C36S	36	34	38	90	5	250	1	0.1	27	0.090	SOD-323
BZT52-C39S	39	37	41	90	5	300	1	0.1	29	0.110	SOD-323

**NOTE:**

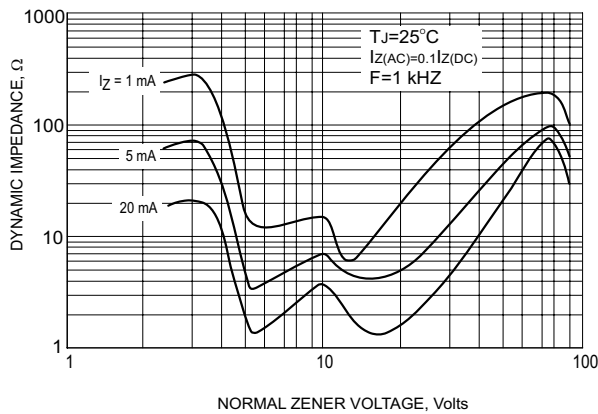
1. Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of ±5%.
2. Specials Available Include:
  - A. Nominal zener voltages between the voltages shown and tighter voltage tolerances.
  - B. Matched sets.
3. Zener Voltage (V<sub>Z</sub>) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature (T<sub>L</sub>) at 30°C, from the diode body.
4. Zener Impedance (Z<sub>Z</sub>) 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<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed on I<sub>ZT</sub> or I<sub>ZK</sub>.
5. Surge Current (I<sub>R</sub>) 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<sub>ZT</sub>, per JEDEC registration; however, actual device capability is as described in Figure 5.



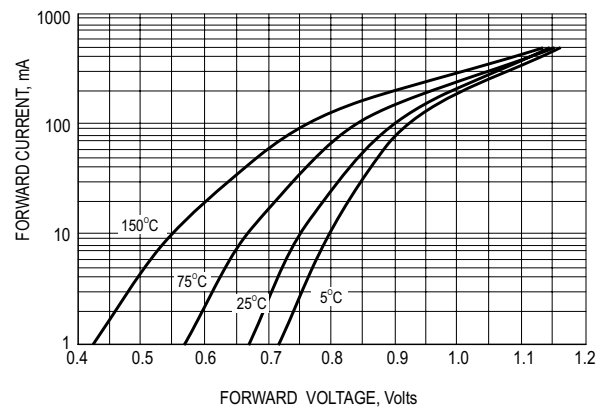
**TYPICAL REVERSE CURRENT**



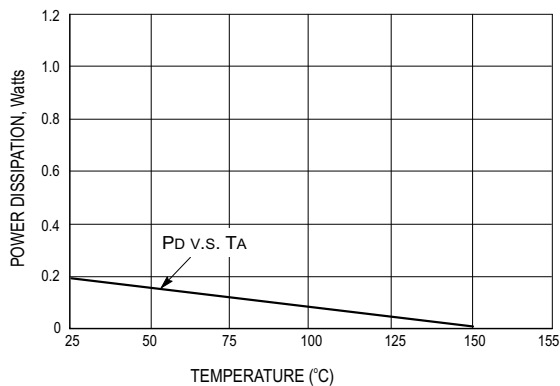
**STEADY STATE POWER DERATING**



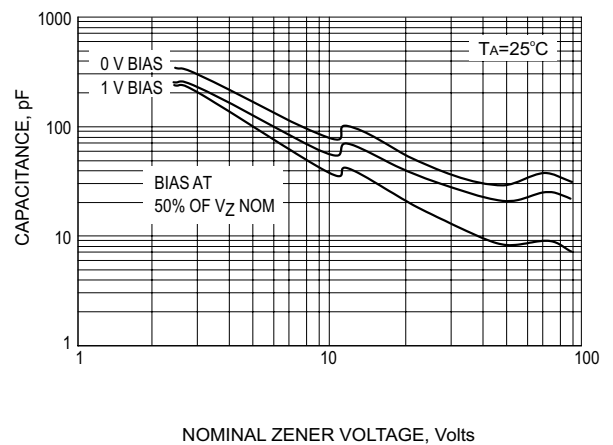
**EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE**



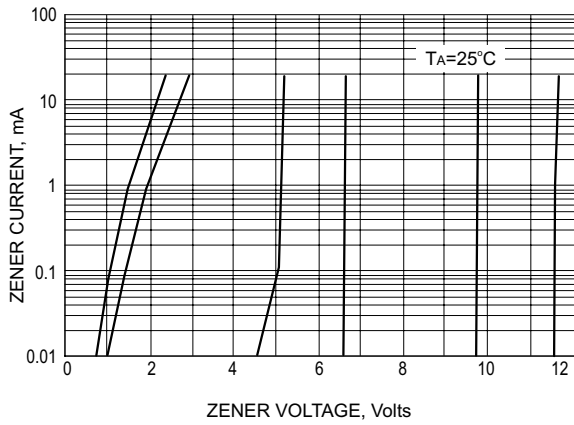
**TYPICAL FORWARD VOLTAGE**



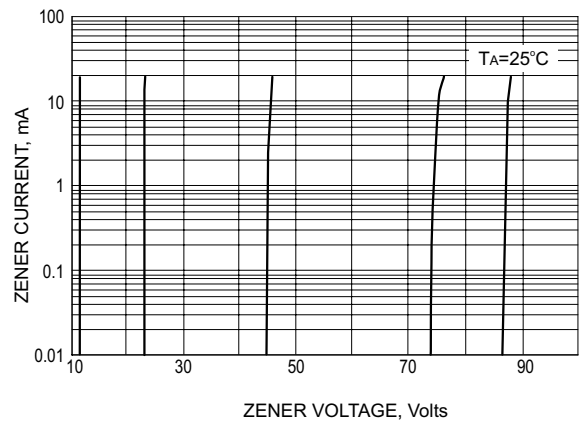
**STEADY STATE POWER DERATING**



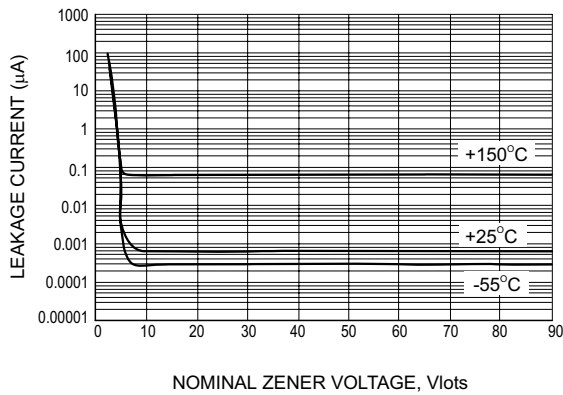
**TYPICAL CAPACITANCE**



ZENER VOLTAGE V.S. ZENER CURRENT

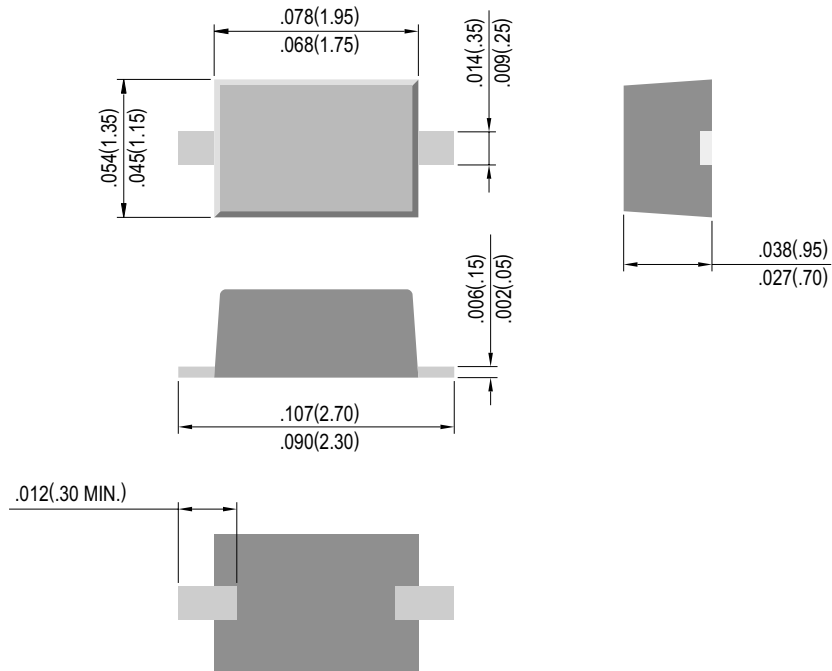


ZENER VOLTAGE V.S. ZENER CURRENT



TYPICAL LEAKGE CURRENT

**SOD-323**



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