ALSO AVAILABLE IN SURFACE MOUNT

Microsemi Corp.
The diode experts

SCOTTSDALE, AZ
For more information call:
(602) 941-6300

1N957B thru 1N992B DO-7

SILICON 400 mW ZENER DIODES

FEATURES

- 6.8 TO 200V ZENER VOLTAGE RANGE
- 1N962B THRU 1N992B HAVE JAN, JANTX AND JANTXV QUALIFICATIONS TO MIL-S-19500/117
- 1N962B THRU 1N973B HAVE S1N QUALIFICATION

MAXIMUM RATINGS

Steady State Power Dissipation: 400 mW
Operating and Storage Temperatures: -65°C to +175°C
Derating Factor Above 50°C: 3.2 mW/°C
Forward Voltage @ 200 mA: 1.5 Volts

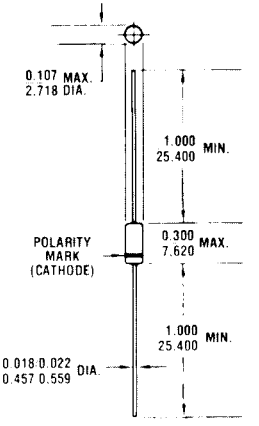

FIGURE 1
All dimensions in INCH / m.m.

*ELECTRICAL CHARACTERISTICS @ 25°C

JEDEC TYPE NUMBER (Note 1)	NOMINAL ZENER VOLTAGE (Note 2) V_Z	ZENER TEST CURRENT I_{ZT}	MAX. ZENER IMPEDANCE (Note 3) Z_{ZT} @ I_{ZT}		Z_{ZK} @ I_{ZK}	MAX. DC ZENER CURRENT (Note 4) I_{ZM}	MAX. SURGE CURRENT (RECURRENT) (Note 5) I_Z (SURGE)	MAX. REVERSE LEAKAGE CURRENT I_R	V_R	MAX. TEMP. COEFFICIENT α_{VZ}
	VOLTS	mA	OHMS	OHMS	mA	mA	mA	μA	VOLTS	%/°C
1N957B	6.8	18.5	4.5	700	1.0	55	300	150	5.2	+0.05
1N958B	7.5	16.5	5.5	700	.5	50	275	75	5.7	+0.058
1N959B	8.2	15.0	6.5	700	.5	45	250	50	6.2	+0.065
1N960B	9.1	14.0	7.5	700	.5	41	225	25	6.9	+0.068
1N961B	10	12.5	8.5	700	.25	38	200	10	7.6	+0.075
1N962B	11	11.5	9.5	700	.25	32	175	5	8.4	+0.076
1N963B	12	10.5	11.5	700	.25	31	160	5	9.1	+0.077
1N964B	13	9.5	13.0	700	.25	28	150	5	9.9	+0.079
1N965B	15	8.5	16	700	.25	25	130	5	11.4	+0.082
1N966B	16	7.8	17	700	.25	24	120	5	12.2	+0.083
1N967B	18	7.0	21	750	.25	20	110	5	13.7	+0.085
1N968B	20	6.2	25	750	.25	18	100	5	15.2	+0.086
1N969B	22	5.6	29	750	.25	16	90	5	16.7	+0.087
1N970B	24	5.2	33	750	.25	15	80	5	18.2	+0.088
1N971B	27	4.6	41	750	.25	13	70	5	20.6	+0.090
1N972B	30	4.2	49	1000	.25	12	65	5	22.8	+0.091
1N973B	33	3.8	58	1000	.25	11	60	5	25.1	+0.092
1N974B	36	3.4	70	1000	.25	10	55	5	27.4	+0.093
1N975B	39	3.2	80	1000	.25	9.5	46	5	29.7	+0.094
1N976B	43	3.0	93	1500	.25	8.8	44	5	32.7	+0.095
1N977B	47	2.7	105	1500	.25	7.9	40	5	35.8	+0.095
1N978B	51	2.5	125	1500	.25	7.4	37	5	38.8	+0.096
1N979B	56	2.2	150	2000	.25	6.8	35	5	42.6	+0.096
1N980B	62	2.0	185	2000	.25	6.0	30	5	47.1	+0.097
1N981B	68	1.8	230	2000	.25	5.5	28	5	51.7	+0.097
1N982B	75	1.7	270	2000	.25	5.0	26	5	56.0	+0.098
1N983B	82	1.5	330	3000	.25	4.6	23	5	62.2	+0.098
1N984B	91	1.4	400	3000	.25	4.1	21	5	69.2	+0.099
1N985B	100	1.3	500	3000	.25	3.7	18	5	76.0	+0.11
1N986B	110	1.1	750	4000	.25	3.3	16	5	83.6	+0.11
1N987B	120	1.0	900	4500	.25	3.1	15	5	91.2	+0.11
1N988B	130	0.95	1100	5000	.25	2.7	13	5	98.8	+0.11
1N989B	150	0.85	1500	6000	.25	2.4	12	5	114.0	+0.11
1N990B	160	0.80	1700	6500	.25	2.2	11	5	121.6	+0.11
1N991B	180	0.68	2200	7100	.25	2.0	10	5	136.8	+0.11
1N992B	200	0.65	2500	8000	.25	1.8	9	5	152.0	+0.11

*JEDEC Registered Data

MECHANICAL CHARACTERISTICS

CASE: Hermetically sealed glass case. DO-7.

FINISH: All external surfaces are corrosion resistant and leads solderable.

THERMAL RESISTANCE: 300°C/W (Typical) junction to lead at 0.375-inches from body.

POLARITY: Diode to be operated with the banded end positive with respect to the opposite end.

WEIGHT: 0.2 grams.

MOUNTING POSITION: Any.

NOTE 1 The JEDEC type numbers shown (B suffix) have a ±5% tolerance on nominal zener voltage. The suffix A is used to identify ± 10% tolerance; suffix C is used to identify ±2%; and suffix D is used to identify ±1% tolerance; no suffix indicates ±20% tolerance.

NOTE 2 Zener voltage (V_Z) is measured after the test current has been applied for 20 ± 5 seconds. The device shall be suspended by its leads with the inside edge of the mounting clips between .375" and .500" from the body. Mounting clips shall be maintained at a temperature of 25 +8/-2°C.

NOTE 3 The zener impedance is derived from the 60 cycle A.C. voltage, which results when an A.C. current having an R.M.S. value equal to 10% of the D.C. zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK}. Zener impedance is measured at 2 points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

NOTE 4 The values of I_{ZM} are calculated for a ±5% tolerance on nominal zener voltage. Allowance has been made for the rise in zener voltage above V_{ZT} which results from zener impedance and the increase in junction temperature as power dissipation approaches 400 mW. In the case of individual diodes I_{ZM} is that value of current which results in a dissipation of 400 mW at 50°C lead temperature at 3/8" from body.

NOTE 5 Surge is 1/2 square wave or equivalent sine wave pulse of 1/120 sec. duration.

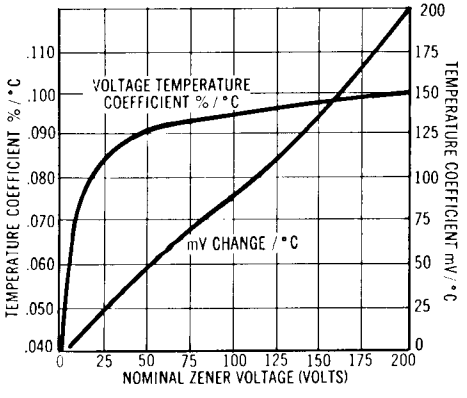

FIGURE 2
ZENER VOLTAGE TEMPERATURE COEFF. vs. ZENER VOLTAGE

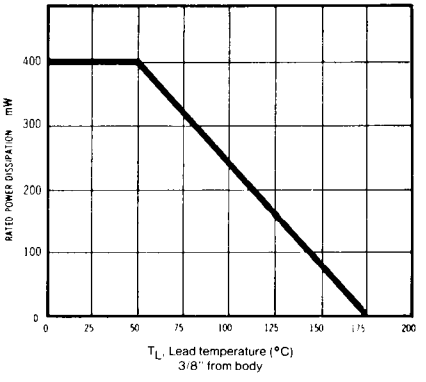

FIGURE 3
POWER DERATING CURVE

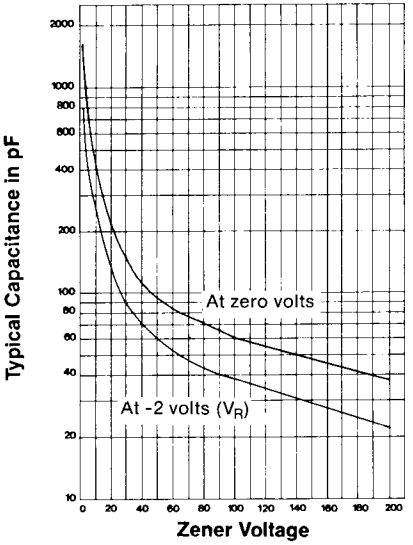

FIGURE 4
CAPACITANCE VS. ZENER VOLTAGE (TYPICAL)