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捷多邦, 专业PCB打样工厂, 24小时加急出货

Microsemi Corp.

The diode experts

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(602) 941-6300

**1N2970 thru
1N3015B
and
1N3993 thru
1N4000A**

FEATURES

- ZENER VOLTAGE 3.9 to 200V
- VOLTAGE TOLERANCES; $\pm 5\%$, $\pm 10\%$ and $\pm 20\%$ (See Note 1)
- MAXIMUM RELIABILITY FOR MILITARY ENVIRONMENTS (See † Below)

MAXIMUM RATINGS

Junction and Storage Temperatures: -65°C to $+175^{\circ}\text{C}$

DC Power Dissipation: 10 Watts

Power Derating: 80 mW/ $^{\circ}\text{C}$ above 50°C

Forward Voltage @ 2.0 A: 1.5 Volts

*ELECTRICAL CHARACTERISTICS @ 30°C Case Temperature

JEDEC TYPE NO. (Note 1)	NOMINAL ZENER VOLTAGE V_Z @ I_{ZT} Volts (Note 2)	ZENER CURRENT I_{ZT} mA	MAX. DYNAMIC IMPEDANCE (Note 3)		MAX. DC ZENER CURRENT I_{ZM} @ 75°C Stud Temp. mA (Note 4)	TYPICAL TEMP. COEFF. α_{VZ} %/°C	MAX. LEAKAGE CURRENT		POLARITY
			Z_{11} @ I_{ZT} OHMS	Z_{1k} @ 1mA (I_{ZK}) OHMS			I_R @ V_R μA	V_R Volts	
†1N3993A	3.9	640	2.0	400	2380	-0.46	100	0.5	STD. POLARITY CATHODE TO STUD
†1N3994A	4.3	580	1.5	400	2130	-0.33	100	0.5	
†1N3995A	4.7	530	1.2	500	1940	-0.15	50	1.0	
†1N3996A	5.1	490	1.1	550	1780	± 0.10	10	1.0	
†1N3997A	5.6	445	1.0	600	1620	± 0.30	10	1.0	
†1N3998A	6.2	405	1.1	750	1460	± 0.49	10	2.0	
†1N3999A	6.8	370	1.2	500	1330	± 0.40	10	2.0	STD. POLARITY ANODE TO STUD
†1N4000A	7.5	335	1.3	250	1210	± 0.45	10	3.0	
†1N2970B	6.8	370	1.2	500	1320	0.40	150	5.2	
†1N2971B	7.5	335	1.3	250	1180	0.45	100	5.7	
†1N2972B	8.2	305	1.5	250	1040	0.48	50	6.2	
†1N2973B	9.1	275	2.0	250	960	0.51	25	6.9	
†1N2974B	10	250	3	250	860	0.55	25	7.6	STD. POLARITY ANODE TO STUD
†1N2975B	11	230	3	250	780	0.60	10	8.4	
†1N2976B	12	210	3	250	720	0.65	10	9.1	
†1N2977B	13	190	3	250	660	0.65	10	9.9	
†1N2978B	14	180	3	250	600	0.70	10	10.5	
†1N2979B	15	170	3	250	560	0.70	10	11.4	
†1N2980B	16	155	4	250	530	0.70	10	12.2	STD. POLARITY ANODE TO STUD
†1N2981B	17	145	4	250	500	0.75	10	13.0	
†1N2982B	18	140	4	250	460	0.75	10	13.7	
†1N2983B	19	130	4	250	440	0.75	10	14.0	
†1N2984B	20	125	4	250	420	0.75	10	15.2	
†1N2985B	22	115	5	250	380	0.80	10	16.7	
†1N2986B	24	105	5	250	350	0.80	10	18.2	STD. POLARITY ANODE TO STUD
†1N2987B	25	100	6	250	310	0.80	10	18.2	
†1N2988B	27	95	7	250	300	0.85	10	20.6	
†1N2989B	30	85	8	300	280	0.85	10	22.8	
†1N2990B	33	75	9	300	260	0.85	10	25.1	
†1N2991B	36	70	10	300	230	0.85	10	27.4	
†1N2992B	39	65	11	300	210	0.90	10	29.7	STD. POLARITY ANODE TO STUD
†1N2993B	43	60	12	400	195	0.90	10	32.7	
†1N2994B	45	55	13	400	185	0.90	10	33.0	
†1N2995B	47	55	14	400	175	0.90	10	35.8	
†1N2996B	50	50	15	500	165	0.90	10	36.0	
†1N2997B	51	50	15	500	160	0.90	10	38.8	
†1N2998B	52	50	15	500	160	0.90	10	39.0	STD. POLARITY ANODE TO STUD
†1N2999B	56	45	16	500	150	0.90	10	42.6	
†1N3000B	62	40	17	600	130	0.90	10	47.1	
†1N3001B	68	37	18	600	120	0.90	10	51.7	
†1N3002B	75	33	22	600	110	0.90	10	56.0	
†1N3003B	82	30	25	700	100	0.90	10	62.2	
†1N3004B	91	28	35	800	85	0.90	10	69.2	STD. POLARITY ANODE TO STUD
†1N3005B	100	25	40	900	80	0.90	10	76.0	
†1N3006B	105	25	45	1000	75	0.95	10	76.0	
†1N3007B	110	23	55	1100	72	0.95	10	83.6	
†1N3008B	120	20	75	1200	67	0.95	10	91.2	
†1N3009B	130	19	100	1300	62	0.95	10	98.8	
†1N3010B	140	18	125	1400	58	0.95	10	100.0	STD. POLARITY ANODE TO STUD
†1N3011B	150	17	175	1500	54	0.95	10	114.0	
†1N3012B	160	16	200	1600	50	0.95	10	121.6	
†1N3013B	175	15	250	1750	46	0.95	10	135.0	
†1N3014B	180	14	260	1850	45	0.95	10	136.8	
†1N3015B	200	12	300	2000	40	1.00	10	152.0	

*JEDEC Registered Data. **Not JEDEC Data.

**SILICON
10 WATT
ZENER DIODES**

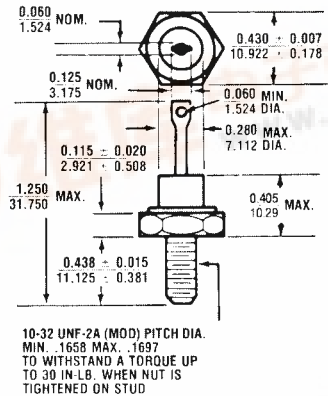


FIGURE 1

All dimensions in
INCH
m.m.

MECHANICAL CHARACTERISTICS

CASE: Industry Standard DO-4, (DO-203AA), 7/16" Hex. stud with 10-32 threads, welded, hermetically sealed metal and glass.

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

WEIGHT: 7.5 grams.
MOUNTING POSITION: Any
THERMAL RESISTANCE:
10°C/W (Typical) junction to stud.

POLARITY:
1N3993 - 1N4000: Std. Polarity is cathode to stud. Reverse polarity (anode to stud) indicated by suffix "R."
1N2970 - 1N3015: Std. Polarity is anode to stud. Reverse polarity indicated by suffix "R."

MOUNTING HARDWARE:

1N2970 thru 1N3015B, 1N3993 thru 1N4000A

NOTE 1 1N3993-1N4000 series: suffix A indicates $\pm 5\%$ tolerance, no suffix indicates $\pm 10\%$ tolerance. 1N2970-1N3015 series: suffix B indicates $\pm 5\%$ tolerance, suffix A indicates $\pm 10\%$, no suffix indicates $\pm 20\%$ tolerance. If tighter tolerance is required, consult factory.

NOTE 2 The electrical characteristics are measured after allowing the device to stabilize for 90 seconds with 30°C Base temperature.

NOTE 3 The zener impedance (Z_{ZT}) is derived from the 60 Hz 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} . When making zener impedance measurements at the I_{ZK} test point, it may be necessary to insert a 60 Hz band pass filter between the diode and voltmeter to avoid errors resulting from low level noise signals. A curve showing the variation of zener impedance vs. zener current for three representative types is shown in Figures 3 and 4.

NOTE 4 These values of I_{zm} may be exceeded in the case of individual diodes. The values shown are calculated for the worst case which is a unit of $\pm 5\%$ tolerance at the high voltage end of its tolerance range. Allowance has also 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 10 watts.

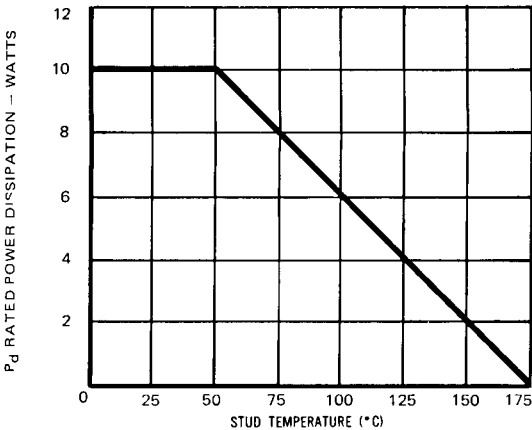


FIGURE 2
POWER DERATING CURVE

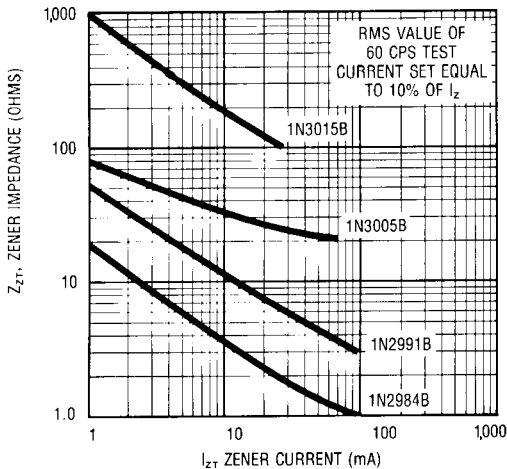


FIGURE 3

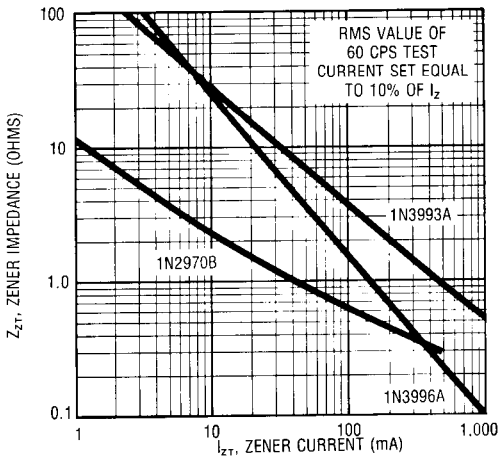


FIGURE 4