

1N2970 thru 1N3015 (ZENER DIODES)



CASE 56
(DO-4)

Diffused-junction zener diodes for both military and high-reliability industrial applications. Available with anode-to-case and cathode-to-case connections (standard and reverse polarity), i.e., 1N2970 and 1N2970R. Supplied with mounting hardware.

The type numbers shown have a standard tolerance of $\pm 20\%$ on the nominal zener voltage. Add suffix "A" for $\pm 10\%$ units or "B" for $\pm 5\%$ units. (2% and 1% tolerance also available.)

MAXIMUM RATINGS

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

D C Power Dissipation: 10 Watts. (Derate 83.3 mW/ $^{\circ}\text{C}$ above 55°C).

ELECTRICAL CHARACTERISTICS

($T_C = 25^{\circ}\text{C}$ unless otherwise noted)

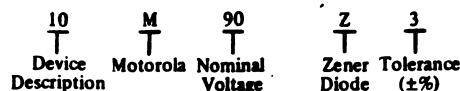
$V_F = 1.5 \text{ V max}$ @ $I_F = 2 \text{ amp}$ on all types.

Type No.	Nominal Zener Voltage V_Z @ I_{ZT} Volts	Test Current I_{ZT} mA	Max Zener Impedance			Max DC Zener Current I_{ZM} mA	Max. Reverse Current *		
			Z_{ZT} @ I_{ZT} Ohms	Z_{ZK} @ I_{ZK} Ohms	I_{ZK} mA		I_R Max (μA)	V_{R1}	V_{R2}
1N2970	6.8	370	1.2	500	1.0	1,320	150	5.2	4.9
1N2971	7.5	335	1.3	250	1.0	1,180	75	5.7	5.4
1N2972	8.2	305	1.5	250	1.0	1,040	50	6.2	5.9
1N2973	9.1	275	2.0	250	1.0	960	25	6.9	6.6
1N2974	10	250	3	250	1.0	860	10	7.6	7.2
1N2975	11	230	3	250	1.0	780	5	8.4	8.0
1N2976	12	210	3	250	1.0	720	5	9.1	8.6
1N2977	13	190	3	250	1.0	660	5	9.9	9.4
1N2978	14	180	3	250	1.0	600	5	10.6	10.1
1N2979	15	170	3	250	1.0	560	5	11.4	10.8
1N2980	16	155	4	250	1.0	530	5	12.2	11.5
1N2982	18	140	4	250	1.0	460	5	13.7	13.0
1N2983	19	130	4	250	1.0	440	5	14.4	13.7
1N2984	20	125	4	250	1.0	420	5	15.2	14.4
1N2985	22	115	5	250	1.0	380	5	16.7	15.8
1N2986	24	105	5	250	1.0	350	5	18.2	17.3
1N2988	27	95	7	250	1.0	300	5	20.6	19.4
1N2989	30	85	8	300	1.0	280	5	22.8	21.6
1N2990	33	75	9	300	1.0	260	5	25.1	23.8
1N2991	36	70	10	300	1.0	230	5	27.4	25.9

* V_{R1} - Test Voltage for 5% Tolerance Device. V_{R2} - Test Voltage for 10% Tolerance Device. No Leakage Specified as 20% Tolerance Device.

(A) NOMINAL ZENER VOLTAGES BETWEEN THE VOLTAGES SHOWN AND TIGHTER VOLTAGE TOLERANCES:

To designate units with zener voltages other than those assigned JEDEC numbers and/or tight voltage tolerances ($\pm 3\%$, $\pm 2\%$, $\pm 1\%$), the Motorola type number should be used.

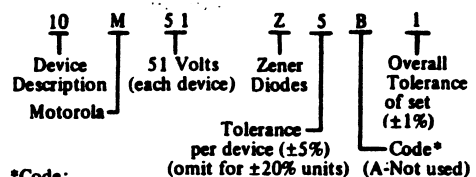


Example: 10M90Z3

(B) MATCHED SETS: (Standard Tolerances are $\pm 5.0\%$, $\pm 2.0\%$, $\pm 1.0\%$).

Zener diodes can be obtained in sets consisting of two or more matched devices. The method for specifying such matched sets is similar to the one described in (A) for specifying units with a special voltage and/or tolerance except that two extra suffixes are added to the code number described.

These units are marked with code letters to identify the matched sets and, in addition, each unit in a set is marked with the same serial number, which is different for each set being ordered.

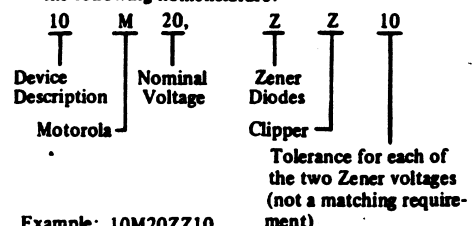


*Code:
B - Two devices in series
C - Three devices in series
D - Four devices in series

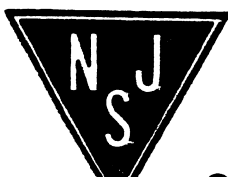
Example: 10M51ZSB1

(C) ZENER CLIPPERS: (Standard Tolerance $\pm 10\%$ and $\pm 5\%$).

Special clipper diodes with opposing Zener junctions built into the device are available by using the following nomenclature:



Example: 10M20ZZ10



New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

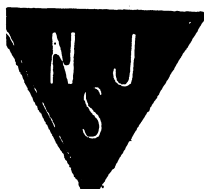
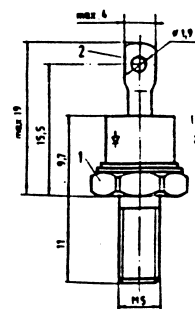
TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8860

Zener Type No.	Zener Voltage at I_{ZT}		Max. Zener Impedance @ I_{ZT} Ohms	Zener Voltage Tolerance	Power Rating	Device Package
	Volts	@ mA				
1N2979	15.0	170.0	3.0	No Suffix = 20% Suffix A = 10%, Suffix B = 5% Suffix R = Rev. Polarity	10 watt	DO-4
1N2980	16.0	155.0	4.0		"	"
1N2981	17.0	145.0	"		"	"
1N2982	18.0	140.0	"	" "	"	"
1N2983	19.0	130.0	"	" "	"	"
1N2984	20.0	125.0	"	" "	"	"
1N2985	22.0	115.0	5.0	" "	"	"
1N2986	24.0	105.0	"	" "	"	"
1N2987	25.0	100.0	6.0	" "	"	"
1N2988	27.0	95.0	7.0	" "	"	"
1N2989	30.0	85.0	8.0	" "	"	"
1N2990	33.0	75.0	9.0	" "	"	"
1N2991	36.0	70.0	10.0	" "	"	"
1N2992	39.0	65.0	11.0	" "	"	"
1N2993	43.0	60.0	12.0	" "	"	"
1N2994	45.0	55.0	13.0	No Suffix = 20% Suffix A = 10%, Suffix B = 5% Suffix R = Rev. Polarity	10 watt	DO-4
1N2995	47.0	"	14.0		"	"
1N2996	50.0	50.0	15.0		"	"
1N2997	51.0	"	"	" "	"	"
1N2998	52.0	"	"	" "	"	"
1N2999	56.0	45.0	16.0	" "	"	"
1N3000	62.0	40.0	17.0	" "	"	"
1N3001	68.0	37.0	18.0	" "	"	"
1N3002	75.0	33.0	22.0	" "	"	"
1N3003	82.0	30.0	25.0	" "	"	"
1N3004	91.0	28.0	35.0	" "	"	"
1N3005	100.0	25.0	40.0	" "	"	"
1N3006	105.0	"	45.0	" "	"	"
1N3007	110.0	23.0	55.0	" "	"	"
1N3008	120.0	20.0	75.0	" "	"	"
1N3009	130.0	19.0	100.0	" "	"	"
1N3010	140.0	18.0	125.0	" "	"	"
1N3011	150.0	17.0	175.0	" "	"	"
1N3012	160.0	16.0	200.0	" "	"	"
1N3013	175.0	14.0	250.0	" "	"	"
1N3014	180.0	"	260.0	" "	"	"
1N3015	200.0	12.0	300.0	" "	"	"

1 = Anode
2 = Cathode

For reverse polarity diodes :

1 = Cathode
2 = Anode



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.