

# New Jersey Semiconductor Products, Inc.

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## 1N2970B THRU 1N3015B

10W ZENER DIODE  
 6.8 VOLTS TO 200 VOLTS  
 5% TOLERANCE

### DO-4 CASE

#### DESCRIPTION

The New Jersey Semiconductor 1N2970B Series types are Silicon Zener diodes, manufactured in a hermetically sealed metal case, designed for high reliability industrial application. Also available in reverse polarity connection (must add an "R" suffix in part number - ex. 1N2970RB).

#### ITEM

Power Dissipation (@  $T_C=55^\circ\text{C}$ )  
 Operating and Storage Temperature

#### SYMBOL

$P_D$   
 $T_J, T_{STG}$

#### ABSOLUTE MAXIMUM RATINGS

10  
 -65 TO +175

#### UNIT

W  
 $^\circ\text{C}$

#### ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ ), $V_F=1.5\text{V MAX @ } I_F=2\text{A FOR ALL TYPES}$

TYPE	Zener Voltage $V_Z @ I_{ZT}$			Test Current	Maximum Reverse Leakage Current		Maximum Zener Impedance			Maximum DC Zener Current
	MIN	NOM	MAX	$I_{ZT}$	$I_R$	@ $V_R$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	$I_{ZM}$	
	Volts	Volts	Volts	mA	$\mu\text{A}$	Volts	$\Omega$	$\Omega$	mA	mA
1N2970B	6.460	6.8	7.140	370	150	5.2	1.2	500	1.0	1,320
1N2971B	7.125	7.5	7.875	335	75	5.7	1.3	250	1.0	1,180
1N2972B	7.790	8.2	8.610	305	50	6.2	1.5	250	1.0	1,040
1N2973B	8.645	9.1	9.555	275	25	6.9	2.0	250	1.0	960
1N2974B	9.500	10	10.50	250	10	7.6	3.0	250	1.0	860
1N2975B	10.45	11	11.55	230	5.0	8.4	3.0	250	1.0	780
1N2976B	11.40	12	12.60	210	5.0	9.1	3.0	250	1.0	720
1N2977B	12.35	13	13.65	190	5.0	9.9	3.0	250	1.0	660
1N2978B	13.30	14	14.70	180	5.0	10.6	3.0	250	1.0	600
1N2979B	14.25	15	15.75	170	5.0	11.4	3.0	250	1.0	560
1N2980B	15.20	16	16.80	155	5.0	12.2	4.0	250	1.0	530
1N2981B	16.15	17	17.85	145	5.0	13.0	4.0	250	1.0	500
1N2982B	17.10	18	18.90	140	5.0	13.7	4.0	250	1.0	460
1N2983B	18.05	19	19.95	130	5.0	14.4	4.0	250	1.0	440
1N2984B	19.00	20	21.00	125	5.0	15.2	4.0	250	1.0	420
1N2985B	20.90	22	23.10	115	5.0	16.7	5.0	250	1.0	380
1N2986B	22.80	24	25.20	105	5.0	18.2	5.0	250	1.0	350
1N2987B	23.75	25	26.25	100	5.0	18.2	6.0	250	1.0	310
1N2988B	25.65	27	28.35	95	5.0	20.6	7.0	250	1.0	300
1N2989B	28.50	30	31.50	85	5.0	22.8	8.0	300	1.0	280
1N2990B	31.35	33	34.65	75	5.0	25.1	9.0	300	1.0	260
1N2991B	34.20	36	37.80	70	5.0	27.4	10	300	1.0	230
1N2992B	37.05	39	40.95	65	5.0	29.7	11	300	1.0	210

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.

**ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ ),  $V_F=1.5\text{V MAX @ } I_F=2\text{A FOR ALL TYPES}$**

TYPE	Zener Voltage $V_Z @ I_{ZT}$			Test Current $I_{ZT}$	Maximum Reverse Leakage Current $I_R @ V_R$		Maximum Zener Impedance $Z_{ZT} @ I_{ZT}$ $Z_{ZK} @ I_{ZK}$			Maximum DC Zener Current $I_{ZM}$
	MIN	NOM	MAX		$\mu\text{A}$	Volts	$\Omega$	$\Omega$	mA	
	Volts	Volts	Volts	mA					mA	
1N2993B	40.85	43	45.15	60	5.0	32.7	12	400	1.0	195
1N2994B	42.75	45	47.25	55	5.0	33.0	13	400	1.0	185
1N2995B	44.65	47	49.35	55	5.0	35.8	14	400	1.0	175
1N2996B	47.50	50	52.50	50	5.0	38.0	15	500	1.0	165
1N2997B	48.45	51	53.55	50	5.0	38.8	15	500	1.0	163
1N2998B	49.40	52	54.60	50	5.0	39.5	15	500	1.0	160
1N2999B	53.20	56	58.80	45	5.0	42.6	16	500	1.0	150
1N3000B	58.90	62	65.10	40	5.0	47.1	17	600	1.0	130
1N3001B	64.60	68	71.40	37	5.0	51.7	18	600	1.0	120
1N3002B	71.25	75	78.75	33	5.0	56.0	22	600	1.0	110
1N3003B	77.90	82	86.10	30	5.0	62.2	25	700	1.0	100
1N3004B	86.00	91	95.55	28	5.0	69.2	35	800	1.0	85
1N3005B	95.00	100	105.00	25	5.0	76.0	40	900	1.0	80
1N3006B	99.75	105	110.25	25	5.0	79.8	45	1,000	1.0	75
1N3007B	104.50	110	115.50	23	5.0	83.6	55	1,100	1.0	72
1N3008B	114.00	120	126.00	20	5.0	91.2	75	1,200	1.0	67
1N3009B	123.50	130	136.50	19	5.0	98.8	100	1,300	1.0	62
1N3010B	133.00	140	147.00	18	5.0	106.4	125	1,400	1.0	58
1N3011B	142.50	150	157.50	17	5.0	114.0	175	1,500	1.0	54
1N3012B	152.00	160	168.00	16	5.0	121.6	200	1,600	1.0	50
1N3013B	166.25	175	183.75	14	5.0	135.0	250	1,750	1.0	46
1N3014B	171.00	180	189.00	14	5.0	136.8	260	1,850	1.0	45
1N3015B	190.00	200	210.00	12	5.0	152.0	300	2,000	1.0	40

**DO-4 CASE- MECHANICAL DRAWING**

