

# Central<sup>TM</sup> Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA  
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

1N2970B THRU 1N3015B

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

DO-4 CASE

## DESCRIPTION

The Central Semiconductor Corp. 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  
 $^\circ\text{C}$

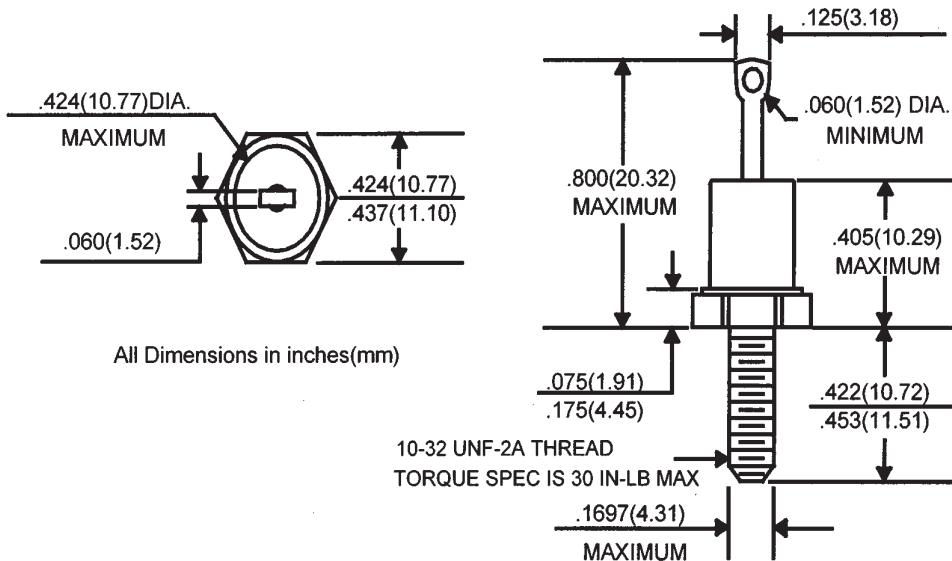
## ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ ), $V_F=1.5\text{V MAX @ } I_F=2\text{A FOR ALL TYPES}$

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	

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	$I_{ZT}$	$I_R @ V_R$	$V_R$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	$I_{ZM}$	
	Volts	Volts	Volts	mA	$\mu\text{A}$	Volts	$\Omega$	$\Omega$	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**



## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



---

### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

---

### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

---

### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

---

### CONTACT US

#### Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centrasemi.com](http://www.centrasemi.com)

**Worldwide Field Representatives:**  
[www.centrasemi.com/wwreps](http://www.centrasemi.com/wwreps)

**Worldwide Distributors:**  
[www.centrasemi.com/wwdistributors](http://www.centrasemi.com/wwdistributors)

---

For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: [www.centrasemi.com/terms](http://www.centrasemi.com/terms)