

CentralTM 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
 $^\circ\text{C}$

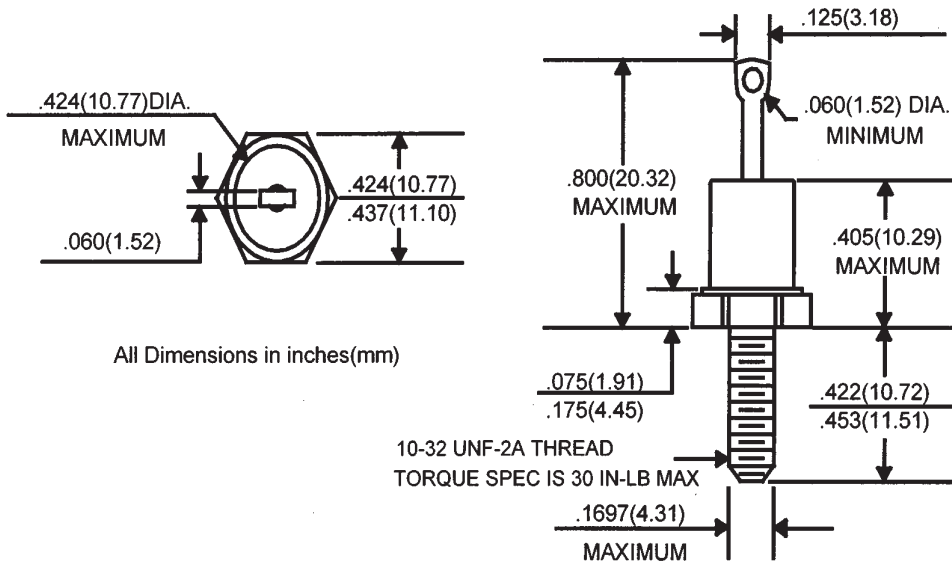
ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$), $V_F=1.5\text{V MAX @ } I_F=2\text{A FOR ALL TYPES}$

| 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 | μA | Volts | Ω | Ω | 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 | μA | Volts | Ω | Ω | 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 (2nd 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

Worldwide Field Representatives:
www.centrasemi.com/wwreps

Worldwide Distributors:
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