

1N957B THRU 1N992B

SILICON ZENER DIODE  
6.8 VOLTS THRU 200 VOLTS  
500mW, 5% TOLERANCE



DO-35 CASE



www.centrasemi.com

#### DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1N957B Series Silicon Zener Diode is a high quality voltage regulator designed for use in industrial, commercial, entertainment and computer applications.

**MARKING:** Devices shall either be marked with the prefix 'C' followed by the full part number or by the marking code in the Electrical Characteristics Table.

#### MAXIMUM RATINGS: ( $T_L=75^\circ\text{C}$ )

Power Dissipation

Operating and Storage Junction Temperature

$V_Z$  Tolerance: Part number with "B" suffix

$V_Z$  Tolerance: Part number with "C" suffix

$V_Z$  Tolerance: Part number with "D" suffix

#### SYMBOL

$P_D$

$T_J, T_{stg}$

500

-65 to +200

$\pm 5$

$\pm 2$

$\pm 1$

#### UNITS

mW

$^\circ\text{C}$

%

%

%

#### ELECTRICAL CHARACTERISTICS: ( $T_A=25^\circ\text{C}$ ) $V_F=1.5\text{V MAX @ } I_F=200\text{mA}$ (for all types)

| TYPE   | ZENER<br>VOLTAGE<br>V <sub>Z</sub> @ I <sub>ZT</sub> |     |       | TEST<br>CURRENT | MAXIMUM ZENER<br>IMPEDANCE        |                                   |                                 | MAXIMUM<br>REVERSE<br>CURRENT |      | MAXIMUM<br>ZENER<br>CURRENT | MARKING<br>CODE |
|--------|------------------------------------------------------|-----|-------|-----------------|-----------------------------------|-----------------------------------|---------------------------------|-------------------------------|------|-----------------------------|-----------------|
|        | MIN                                                  | NOM | MAX   | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> | I <sub>ZM</sub>               |      |                             |                 |
|        | V                                                    | V   | V     | mA              | Ω                                 | Ω                                 | μA                              | V                             | mA   |                             |                 |
| 1N957B | 6.460                                                | 6.8 | 7.140 | 18.5            | 4.5                               | 700                               | 1.00                            | 150                           | 5.2  | 47                          | C957B           |
| 1N958B | 7.125                                                | 7.5 | 7.875 | 16.5            | 5.5                               | 700                               | 0.50                            | 75                            | 5.7  | 42                          | C958B           |
| 1N959B | 7.790                                                | 8.2 | 8.610 | 15.0            | 6.5                               | 700                               | 0.50                            | 50                            | 6.2  | 38                          | C959B           |
| 1N960B | 8.645                                                | 9.1 | 9.555 | 14.0            | 7.5                               | 700                               | 0.50                            | 25                            | 6.9  | 35                          | C960B           |
| 1N961B | 9.500                                                | 10  | 10.50 | 12.5            | 8.5                               | 700                               | 0.25                            | 10                            | 7.6  | 32                          | C961B           |
| 1N962B | 10.45                                                | 11  | 11.55 | 11.5            | 9.5                               | 700                               | 0.25                            | 5.0                           | 8.4  | 28                          | C962B           |
| 1N963B | 11.40                                                | 12  | 12.60 | 10.5            | 11.5                              | 700                               | 0.25                            | 5.0                           | 9.1  | 26                          | C963B           |
| 1N964B | 12.35                                                | 13  | 13.65 | 9.5             | 13.0                              | 700                               | 0.25                            | 5.0                           | 9.9  | 24                          | C964B           |
| 1N965B | 14.25                                                | 15  | 15.75 | 8.5             | 16.0                              | 700                               | 0.25                            | 5.0                           | 11.4 | 21                          | C965B           |
| 1N966B | 15.20                                                | 16  | 16.80 | 7.8             | 17.0                              | 700                               | 0.25                            | 5.0                           | 12.2 | 19                          | C966B           |
| 1N967B | 17.10                                                | 18  | 18.90 | 7.0             | 21.0                              | 750                               | 0.25                            | 5.0                           | 13.7 | 17                          | C967B           |
| 1N968B | 19.00                                                | 20  | 21.00 | 6.2             | 25.0                              | 750                               | 0.25                            | 5.0                           | 15.2 | 15                          | C968B           |
| 1N969B | 20.90                                                | 22  | 23.10 | 5.6             | 29.0                              | 750                               | 0.25                            | 5.0                           | 16.7 | 14                          | C969B           |
| 1N970B | 22.80                                                | 24  | 25.20 | 5.2             | 33.0                              | 750                               | 0.25                            | 5.0                           | 18.2 | 13                          | C970B           |
| 1N971B | 25.65                                                | 27  | 28.35 | 4.6             | 41.0                              | 750                               | 0.25                            | 5.0                           | 20.6 | 11                          | C971B           |
| 1N972B | 28.50                                                | 30  | 31.50 | 4.2             | 49.0                              | 1000                              | 0.25                            | 5.0                           | 22.8 | 10                          | C972B           |
| 1N973B | 31.35                                                | 33  | 34.65 | 3.8             | 58.0                              | 1000                              | 0.25                            | 5.0                           | 25.1 | 9.2                         | C973B           |
| 1N974B | 34.20                                                | 36  | 37.80 | 3.4             | 70.0                              | 1000                              | 0.25                            | 5.0                           | 27.4 | 8.5                         | C974B           |
| 1N975B | 37.05                                                | 39  | 40.95 | 3.2             | 80.0                              | 1000                              | 0.25                            | 5.0                           | 29.7 | 7.8                         | C975B           |
| 1N976B | 40.85                                                | 43  | 45.15 | 3.0             | 93.0                              | 1500                              | 0.25                            | 5.0                           | 32.7 | 7.0                         | C976B           |
| 1N977B | 44.65                                                | 47  | 49.35 | 2.7             | 105                               | 1500                              | 0.25                            | 5.0                           | 35.8 | 6.4                         | C977B           |
| 1N978B | 48.45                                                | 51  | 53.55 | 2.5             | 125                               | 2000                              | 0.25                            | 5.0                           | 38.8 | 5.9                         | C978B           |
| 1N979B | 53.20                                                | 56  | 58.80 | 2.2             | 150                               | 2000                              | 0.25                            | 5.0                           | 42.6 | 5.4                         | C979B           |
| 1N980B | 58.90                                                | 62  | 65.10 | 2.0             | 185                               | 2000                              | 0.25                            | 5.0                           | 47.1 | 4.9                         | C980B           |
| 1N981B | 64.60                                                | 68  | 71.40 | 1.8             | 230                               | 2000                              | 0.25                            | 5.0                           | 51.7 | 4.5                         | C981B           |
| 1N982B | 71.25                                                | 75  | 78.75 | 1.7             | 270                               | 2000                              | 0.25                            | 5.0                           | 56.0 | 4.0                         | C982B           |

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1N957B THRU 1N992B

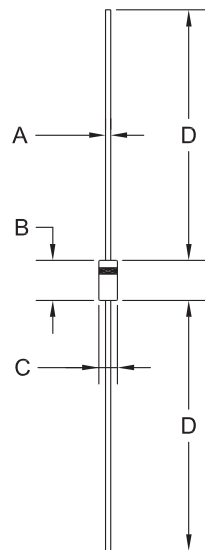
SILICON ZENER DIODE  
6.8 VOLTS THRU 200 VOLTS  
500mW, 5% TOLERANCE



ELECTRICAL CHARACTERISTICS - Continued: ( $T_A=25^\circ\text{C}$ )  $V_F=1.5\text{V MAX @ } I_F=200\text{mA}$  (for all types)

| TYPE   | ZENER VOLTAGE<br>$V_Z @ I_{ZT}$ |     |       | TEST CURRENT<br>$I_{ZT}$ | MAXIMUM ZENER IMPEDANCE |                   |      | MAXIMUM REVERSE CURRENT |       | MAXIMUM ZENER CURRENT<br>$I_{ZM}$ | MARKING CODE |
|--------|---------------------------------|-----|-------|--------------------------|-------------------------|-------------------|------|-------------------------|-------|-----------------------------------|--------------|
|        | MIN                             | NOM | MAX   |                          | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ |      | $I_R @ V_R$             |       |                                   |              |
|        | V                               | V   | V     | mA                       | $\Omega$                | $\Omega$          | mA   | $\mu\text{A}$           | V     | mA                                |              |
| 1N983B | 77.90                           | 82  | 86.10 | 1.5                      | 330                     | 3000              | 0.25 | 5.0                     | 62.2  | 3.7                               | C983B        |
| 1N984B | 86.45                           | 91  | 95.55 | 1.4                      | 400                     | 3000              | 0.25 | 5.0                     | 69.2  | 3.3                               | C984B        |
| 1N985B | 95.00                           | 100 | 105.0 | 1.3                      | 500                     | 3000              | 0.25 | 5.0                     | 76.0  | 3.0                               | C985B        |
| 1N986B | 104.5                           | 110 | 115.5 | 1.1                      | 750                     | 4000              | 0.25 | 5.0                     | 83.6  | 2.7                               | C986B        |
| 1N987B | 114.0                           | 120 | 126.0 | 1.0                      | 900                     | 4500              | 0.25 | 5.0                     | 91.2  | 2.5                               | C987B        |
| 1N988B | 123.5                           | 130 | 136.5 | 0.95                     | 1100                    | 5000              | 0.25 | 5.0                     | 98.8  | 2.3                               | C988B        |
| 1N989B | 142.5                           | 150 | 157.5 | 0.85                     | 1500                    | 6000              | 0.25 | 5.0                     | 114.0 | 2.0                               | C989B        |
| 1N990B | 152.0                           | 160 | 168.0 | 0.80                     | 1700                    | 6500              | 0.25 | 5.0                     | 121.6 | 1.9                               | C990B        |
| 1N991B | 171.0                           | 180 | 189.0 | 0.68                     | 2200                    | 7100              | 0.25 | 5.0                     | 136.8 | 1.7                               | C991B        |
| 1N992B | 190.0                           | 200 | 210.0 | 0.65                     | 2500                    | 8000              | 0.25 | 5.0                     | 152.0 | 1.5                               | C992B        |

#### DO-35 CASE - MECHANICAL OUTLINE



R1

| DIMENSIONS |        |       |             |      |
|------------|--------|-------|-------------|------|
| SYMBOL     | INCHES |       | MILLIMETERS |      |
|            | MIN    | MAX   | MIN         | MAX  |
| A          | 0.018  | 0.022 | 0.46        | 0.56 |
| B          | 0.120  | 0.200 | 3.05        | 5.08 |
| C          | 0.060  | 0.090 | 1.52        | 2.29 |
| D          | 1.000  | -     | 25.40       | -    |

DO-35 (REV: R1)

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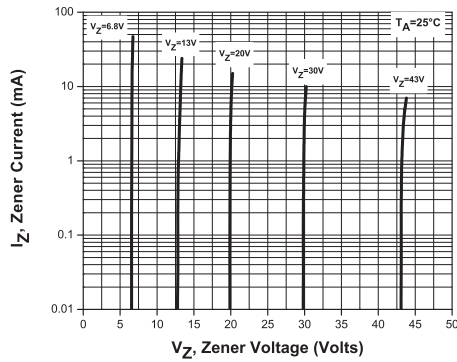
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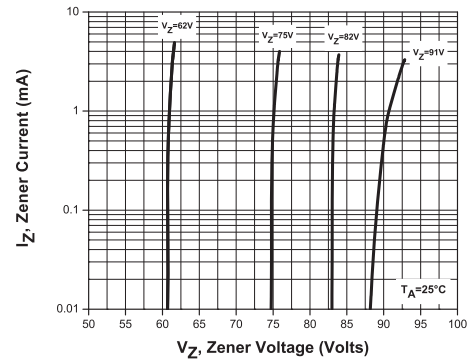


## ELECTRICAL CHARACTERISTICS

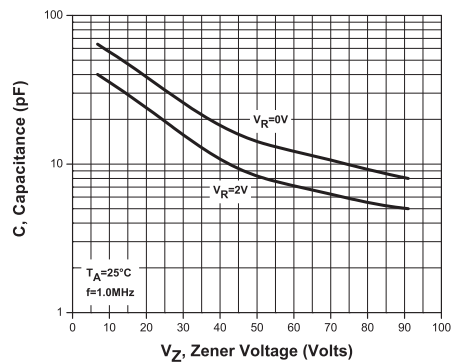
Typical Zener Voltage



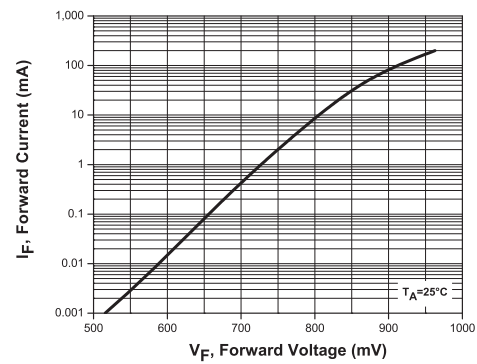
Typical Zener Voltage



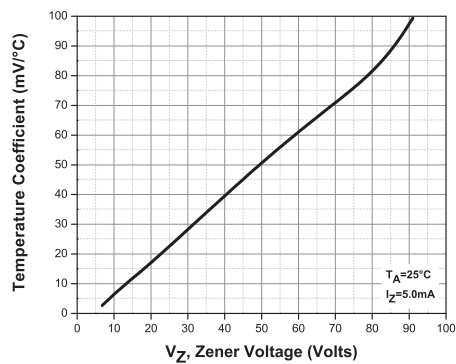
Typical Capacitance



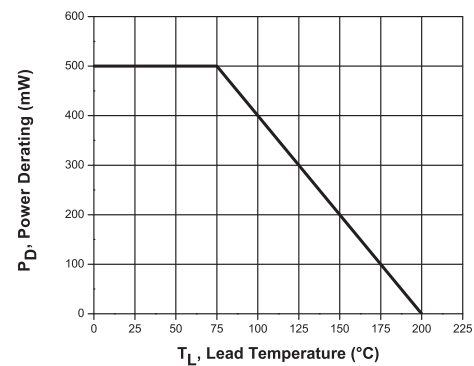
Typical Forward Voltage



Typical Temperature Coefficient



Power Derating



R2 (6-December 2019)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### 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

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### 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

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### 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).

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

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145 Adams Avenue  
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Main Fax: (631) 435-1824  
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**Worldwide Field Representatives:**  
[www.centrasemi.com/wwreps](http://www.centrasemi.com/wwreps)

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<http://www.centrasemi.com>

## Product End of Life Notification

|                           |          |
|---------------------------|----------|
| <b>PDN ID:</b>            | PDN01046 |
| <b>Notification Date:</b> | 8/19/16  |
| <b>Last Buy Date:</b>     | 2/19/17  |
| <b>Last Shipment Date</b> | 8/19/17  |

Summary: The 1N979B through 1N992B, 0.5 watt Zener diodes in the DO-35 case, are discontinued and now classified as End of Life (EOL).

Although Central Semiconductor Corp. makes every effort to continue to produce devices that have been proclaimed EOL (End of Life) by various manufacturers, it is an accepted industry practice to discontinue certain devices when customer demand falls below a minimum level of sustainability. Accordingly, the following product(s) have been transitioned to End of Life status as part of Central's Product Management Process. Any replacement product will be noted below. The effective date for placing the last purchase order will be six(6) months from the date of this notice and twelve(12) months from the notice date for final shipments; this may be extended if inventory is available.

| <b>Central Part Number</b> | <b>Replacement</b> |
|----------------------------|--------------------|
| 1N979B BK                  | N/A                |
| 1N982B BK                  | N/A                |
| 1N984B BK                  | N/A                |
| 1N986B BK                  | N/A                |
| 1N987B BK                  | N/A                |
| 1N988B BK                  | N/A                |
| 1N988B TR                  | N/A                |
| 1N990B BK                  | N/A                |
| 1N991B BK                  | N/A                |
| 1N991B TR                  | N/A                |
| 1N992B BK                  | N/A                |

Central would be happy to assist you by providing additional information or technical data to help locate an alternate source if we have no replacement available. Please email your requests to [engineering@centrasemi.com](mailto:engineering@centrasemi.com).

DISCLAIMER: This End of Life (EOL) notification is in accordance with JEDEC standard JESD48 - Product Discontinuance. Central Semiconductor Corp. will make every effort to offer life-time buy (LTB) opportunities and/or offer replacement devices to existing customers for discontinued devices, however, one or both may not be possible for all devices. Please contact your local Central Semiconductor sales representative for LTB opportunities/additional information.