

**1N4460 THRU 1N4496**  
**SILICON ZENER DIODES**  
**1.5 WATT, 6.2 THRU 200 VOLT**  
**5% TOLERANCE**



**DO-41 CASE**



[www.centralemi.com](http://www.centralemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 1N4460 series silicon Zener diode is a high quality voltage regulator designed for use in automotive, industrial, commercial, entertainment and computer applications.

**MARKING: FULL PART NUMBER**

**MAXIMUM RATINGS:** ( $T_A=25^{\circ}\text{C}$ )

Power Dissipation

Operating and Storage Junction Temperature

**SYMBOL**

$P_D$

$T_J, T_{stg}$

1.5

-65 to +200

**UNITS**

W

$^{\circ}\text{C}$

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^{\circ}\text{C}$ )

| TYPE   | ZENER VOLTAGE<br>$V_Z @ I_{ZT}$ |     |       | TEST<br>CURRENT<br>$I_{ZT}$ | MAXIMUM<br>ZENER IMPEDANCE |                   |      | MAXIMUM<br>REVERSE<br>CURRENT |       | MAXIMUM<br>DC<br>CURRENT<br>$I_{ZM}$ | MAXIMUM<br>SURGE<br>CURRENT<br>(Note 1)<br>$I_S$ |
|--------|---------------------------------|-----|-------|-----------------------------|----------------------------|-------------------|------|-------------------------------|-------|--------------------------------------|--------------------------------------------------|
|        | MIN                             | NOM | MAX   |                             | $Z_{ZT} @ I_{ZT}$          | $Z_{ZK} @ I_{ZK}$ |      | $I_R @ V_R$                   |       |                                      |                                                  |
|        | V                               | V   | V     |                             | $\Omega$                   | $\Omega$          | mA   | $\mu\text{A}$                 | V     | mA                                   | A                                                |
| 1N4460 | 5.890                           | 6.2 | 6.510 | 40                          | 4.0                        | 200               | 1.0  | 20                            | 3.72  | 230                                  | 5.5                                              |
| 1N4461 | 6.460                           | 6.8 | 7.140 | 37                          | 2.5                        | 200               | 1.0  | 5.0                           | 4.08  | 210                                  | 5.0                                              |
| 1N4462 | 7.125                           | 7.5 | 7.875 | 34                          | 2.5                        | 400               | 0.5  | 1.0                           | 4.50  | 191                                  | 4.5                                              |
| 1N4463 | 7.790                           | 8.2 | 8.610 | 31                          | 3.0                        | 400               | 0.5  | 0.5                           | 4.92  | 174                                  | 3.9                                              |
| 1N4464 | 8.645                           | 9.1 | 9.555 | 28                          | 4.0                        | 500               | 0.5  | 0.3                           | 5.46  | 157                                  | 3.4                                              |
| 1N4465 | 9.500                           | 10  | 10.50 | 25                          | 5.0                        | 500               | 0.25 | 0.5                           | 8.00  | 143                                  | 3.0                                              |
| 1N4466 | 10.45                           | 11  | 11.55 | 23                          | 6.0                        | 550               | 0.25 | 0.3                           | 8.80  | 130                                  | 2.6                                              |
| 1N4467 | 11.40                           | 12  | 12.60 | 21                          | 7.0                        | 550               | 0.25 | 0.2                           | 9.60  | 119                                  | 2.4                                              |
| 1N4468 | 12.35                           | 13  | 13.65 | 19                          | 8.0                        | 550               | 0.25 | 0.1                           | 10.40 | 110                                  | 2.2                                              |
| 1N4469 | 14.25                           | 15  | 15.75 | 17                          | 9.0                        | 600               | 0.25 | 0.05                          | 12.00 | 95                                   | 1.8                                              |
| 1N4470 | 15.20                           | 16  | 16.80 | 15.5                        | 10                         | 600               | 0.25 | 0.05                          | 12.80 | 90                                   | 1.6                                              |
| 1N4471 | 17.10                           | 18  | 18.90 | 14                          | 11                         | 650               | 0.25 | 0.05                          | 14.40 | 79                                   | 1.4                                              |
| 1N4472 | 19.00                           | 20  | 21.00 | 12.5                        | 12                         | 650               | 0.25 | 0.05                          | 16.00 | 71                                   | 1.2                                              |
| 1N4473 | 20.90                           | 22  | 23.10 | 11.5                        | 14                         | 650               | 0.25 | 0.05                          | 17.60 | 65                                   | 1.1                                              |
| 1N4474 | 22.80                           | 24  | 25.20 | 10.5                        | 16                         | 700               | 0.25 | 0.05                          | 19.20 | 60                                   | 0.90                                             |
| 1N4475 | 25.65                           | 27  | 28.35 | 9.5                         | 18                         | 700               | 0.25 | 0.05                          | 21.60 | 53                                   | 0.80                                             |
| 1N4476 | 28.50                           | 30  | 31.50 | 8.5                         | 20                         | 750               | 0.25 | 0.05                          | 24.00 | 48                                   | 0.75                                             |
| 1N4477 | 31.35                           | 33  | 34.65 | 7.5                         | 25                         | 800               | 0.25 | 0.05                          | 26.40 | 43                                   | 0.66                                             |
| 1N4478 | 34.20                           | 36  | 37.80 | 7.0                         | 27                         | 850               | 0.25 | 0.05                          | 28.80 | 40                                   | 0.60                                             |
| 1N4479 | 37.05                           | 39  | 40.95 | 6.5                         | 30                         | 900               | 0.25 | 0.05                          | 31.20 | 37                                   | 0.54                                             |
| 1N4480 | 40.85                           | 43  | 45.15 | 6.0                         | 40                         | 950               | 0.25 | 0.05                          | 34.40 | 33                                   | 0.48                                             |

Notes: (1) Ratings shown are for peak 1/2 sinusoidal surge current of 8.3ms duration, non-repetitive.

R4 (4-June 2013)

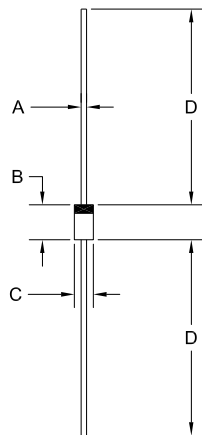
**1N4460 THRU 1N4496**  
**SILICON ZENER DIODES**  
**1.5 WATT, 6.2 THRU 200 VOLT**  
**5% TOLERANCE**



**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^{\circ}\text{C}$ )

| TYPE   | ZENER VOLTAGE<br>$V_Z @ I_{ZT}$ |     |       | TEST<br>CURRENT<br>$I_{ZT}$ | MAXIMUM<br>ZENER IMPEDANCE |                   |               | MAXIMUM<br>REVERSE<br>CURRENT |               | MAXIMUM<br>DC<br>CURRENT<br>$I_{ZM}$ | MAXIMUM<br>SURGE<br>CURRENT<br>(Note 1)<br>$I_S$ |
|--------|---------------------------------|-----|-------|-----------------------------|----------------------------|-------------------|---------------|-------------------------------|---------------|--------------------------------------|--------------------------------------------------|
|        | MIN                             | NOM | MAX   |                             | $Z_{ZT} @ I_{ZT}$          | $Z_{ZK} @ I_{ZK}$ | $I_R @ V_R$   |                               |               |                                      |                                                  |
|        | V                               | V   | V     |                             | $\Omega$                   | $\Omega$          | $\mu\text{A}$ | V                             | $\mu\text{A}$ | mA                                   | A                                                |
| 1N4481 | 44.65                           | 47  | 49.35 | 5.5                         | 50                         | 1000              | 0.25          | 0.05                          | 37.6          | 30                                   | 0.45                                             |
| 1N4482 | 48.45                           | 51  | 53.55 | 5.0                         | 60                         | 1100              | 0.25          | 0.05                          | 40.8          | 28                                   | 0.42                                             |
| 1N4483 | 53.20                           | 56  | 58.80 | 4.5                         | 70                         | 1300              | 0.25          | 0.05                          | 44.8          | 26                                   | 0.39                                             |
| 1N4484 | 58.90                           | 62  | 65.10 | 4.0                         | 80                         | 1500              | 0.25          | 0.05                          | 49.6          | 23                                   | 0.35                                             |
| 1N4485 | 64.60                           | 68  | 71.40 | 3.7                         | 100                        | 1700              | 0.25          | 0.05                          | 54.4          | 21                                   | 0.32                                             |
| 1N4486 | 71.25                           | 75  | 78.75 | 3.3                         | 130                        | 2000              | 0.25          | 0.05                          | 60.0          | 19                                   | 0.29                                             |
| 1N4487 | 77.90                           | 82  | 86.10 | 3.0                         | 160                        | 2500              | 0.25          | 0.05                          | 65.6          | 17                                   | 0.26                                             |
| 1N4488 | 86.45                           | 91  | 95.55 | 2.8                         | 200                        | 3000              | 0.25          | 0.05                          | 72.8          | 16                                   | 0.23                                             |
| 1N4489 | 95.00                           | 100 | 105.0 | 2.5                         | 250                        | 3100              | 0.25          | 0.05                          | 80.0          | 14                                   | 0.20                                             |
| 1N4490 | 104.5                           | 110 | 115.5 | 2.3                         | 300                        | 4000              | 0.25          | 0.05                          | 88.0          | 13                                   | 0.19                                             |
| 1N4491 | 114.0                           | 120 | 126.0 | 2.0                         | 400                        | 4500              | 0.25          | 0.05                          | 96.0          | 12                                   | 0.18                                             |
| 1N4492 | 123.5                           | 130 | 136.5 | 1.9                         | 500                        | 5000              | 0.25          | 0.05                          | 104           | 11                                   | 0.16                                             |
| 1N4493 | 142.5                           | 150 | 157.5 | 1.7                         | 700                        | 6000              | 0.25          | 0.05                          | 120           | 9.5                                  | 0.14                                             |
| 1N4494 | 152.0                           | 160 | 168.0 | 1.6                         | 1000                       | 6500              | 0.25          | 0.05                          | 128           | 8.9                                  | 0.12                                             |
| 1N4495 | 171.0                           | 180 | 189.0 | 1.4                         | 1300                       | 7000              | 0.25          | 0.05                          | 144           | 7.9                                  | 0.10                                             |
| 1N4496 | 190.0                           | 200 | 210.0 | 1.2                         | 1500                       | 8000              | 0.25          | 0.05                          | 160           | 7.2                                  | 0.08                                             |

**DO-41 CASE - MECHANICAL OUTLINE**



R1

| SYMBOL | DIMENSIONS |       |             |      |
|--------|------------|-------|-------------|------|
|        | INCHES     |       | MILLIMETERS |      |
|        | MIN        | MAX   | MIN         | MAX  |
| A      | 0.028      | 0.034 | 0.71        | 0.86 |
| B      | 0.160      | 0.205 | 4.06        | 5.21 |
| C      | 0.080      | 0.107 | 2.03        | 2.72 |
| D      | 1.000      | -     | 25.40       | -    |

DO-41 (REV: R1)

R4 (4-June 2013)

## 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

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