

1N4099 THRU 1N4135

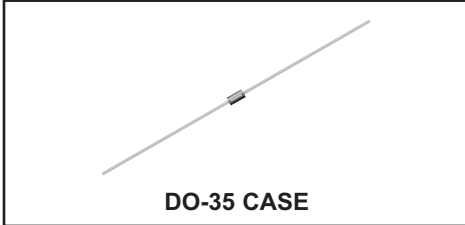
**SILICON ZENER DIODE
LOW NOISE
6.8 VOLT THRU 100 VOLT
250mW, 5% TOLERANCE**



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DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1N4099 series silicon Zener diode is designed for low leakage, low current, and low noise applications.



DO-35 CASE

MARKING: FULL PART NUMBER

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

Power Dissipation
Operating and Storage Junction Temperature

SYMBOL

P_D 250
 T_J, T_{stg} -65 to +200

UNITS

mW
 $^\circ\text{C}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$) $V_F=1.1\text{V MAX @ } I_F=200\text{mA}$ (for all types)

| TYPE | ZENER VOLTAGE $V_Z @ I_{ZT}$ | | | TEST CURRENT | MAXIMUM ZENER IMPEDANCE | MAXIMUM REVERSE CURRENT | | MAXIMUM ZENER CURRENT | MAXIMUM NOISE DENSITY |
|--------|---------------------------------|-----|-------|---------------|-------------------------|-------------------------|------|-----------------------|--------------------------------|
| | MIN | NOM | MAX | I_{ZT} | $Z_{ZT} @ I_{ZT}$ | $I_R @ V_R$ | | I_{ZM} | $N_D @ 250\mu\text{A}$ |
| | V | V | V | μA | Ω | μA | V | mA | $\mu\text{V}/\sqrt{\text{Hz}}$ |
| 1N4099 | 6.460 | 6.8 | 7.140 | 250 | 200 | 10 | 5.2 | 35.0 | 40 |
| 1N4100 | 7.125 | 7.5 | 7.875 | 250 | 200 | 10 | 5.7 | 31.8 | 40 |
| 1N4101 | 7.790 | 8.2 | 8.610 | 250 | 200 | 1.0 | 6.3 | 29.0 | 40 |
| 1N4102 | 8.265 | 8.7 | 9.135 | 250 | 200 | 1.0 | 6.7 | 27.4 | 40 |
| 1N4103 | 8.645 | 9.1 | 9.555 | 250 | 200 | 1.0 | 7.0 | 26.2 | 40 |
| 1N4104 | 9.50 | 10 | 10.50 | 250 | 200 | 1.0 | 7.6 | 24.8 | 40 |
| 1N4105 | 10.45 | 11 | 11.55 | 250 | 200 | 0.05 | 8.5 | 21.6 | 40 |
| 1N4106 | 11.40 | 12 | 12.60 | 250 | 200 | 0.05 | 9.2 | 20.4 | 40 |
| 1N4107 | 12.35 | 13 | 13.65 | 250 | 200 | 0.05 | 9.9 | 19.0 | 40 |
| 1N4108 | 13.30 | 14 | 14.70 | 250 | 200 | 0.05 | 10.7 | 17.5 | 40 |
| 1N4109 | 14.25 | 15 | 15.75 | 250 | 100 | 0.05 | 11.4 | 16.3 | 40 |
| 1N4110 | 15.20 | 16 | 16.80 | 250 | 100 | 0.05 | 12.2 | 15.4 | 40 |
| 1N4111 | 16.15 | 17 | 17.85 | 250 | 100 | 0.05 | 13.0 | 14.5 | 40 |
| 1N4112 | 17.10 | 18 | 18.90 | 250 | 100 | 0.05 | 13.7 | 13.2 | 40 |
| 1N4113 | 18.05 | 19 | 19.95 | 250 | 150 | 0.05 | 14.5 | 12.5 | 40 |
| 1N4114 | 19.00 | 20 | 21.00 | 250 | 150 | 0.01 | 15.2 | 11.9 | 40 |
| 1N4115 | 20.90 | 22 | 23.10 | 250 | 150 | 0.01 | 16.8 | 10.8 | 40 |
| 1N4116 | 22.80 | 24 | 25.20 | 250 | 150 | 0.01 | 18.3 | 9.9 | 40 |
| 1N4117 | 23.75 | 25 | 26.25 | 250 | 150 | 0.01 | 19.0 | 9.5 | 40 |
| 1N4118 | 25.65 | 27 | 28.35 | 250 | 150 | 0.01 | 20.5 | 8.8 | 40 |
| 1N4119 | 26.60 | 28 | 29.40 | 250 | 200 | 0.01 | 21.3 | 8.5 | 40 |
| 1N4120 | 28.50 | 30 | 31.50 | 250 | 200 | 0.01 | 22.8 | 7.9 | 40 |
| 1N4121 | 31.35 | 33 | 34.65 | 250 | 200 | 0.01 | 25.1 | 7.2 | 40 |

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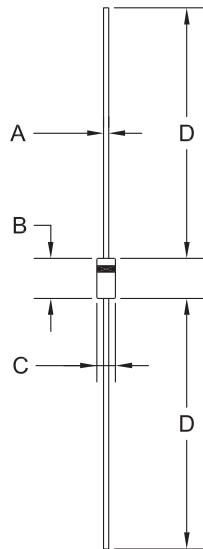
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 250mW, 5% TOLERANCE



ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^\circ\text{C}$) $V_F=1.1\text{V MAX @ } I_F=200\text{mA}$ (for all types)

| TYPE | ZENER VOLTAGE $V_Z @ I_{ZT}$ | | | TEST CURRENT | MAXIMUM ZENER IMPEDANCE | MAXIMUM REVERSE CURRENT | | MAXIMUM ZENER CURRENT | MAXIMUM NOISE DENSITY |
|--------|---------------------------------|-----|-------|---------------|-------------------------|-------------------------|------|-----------------------|--------------------------------|
| | MIN | NOM | MAX | I_{ZT} | $Z_{ZT} @ I_{ZT}$ | $I_R @ V_R$ | | I_{ZM} | $N_D @ 250\mu\text{A}$ |
| | V | V | V | μA | Ω | μA | V | mA | $\mu\text{V}/\sqrt{\text{Hz}}$ |
| 1N4122 | 34.20 | 36 | 37.80 | 250 | 200 | 0.01 | 27.4 | 6.6 | 40 |
| 1N4123 | 37.05 | 39 | 40.95 | 250 | 200 | 0.01 | 29.7 | 6.1 | 40 |
| 1N4124 | 40.85 | 43 | 45.15 | 250 | 250 | 0.01 | 32.7 | 5.5 | 40 |
| 1N4125 | 44.65 | 47 | 49.35 | 250 | 250 | 0.01 | 35.8 | 5.1 | 40 |
| 1N4126 | 48.45 | 51 | 53.55 | 250 | 300 | 0.01 | 38.8 | 4.6 | 40 |
| 1N4127 | 53.20 | 56 | 58.80 | 250 | 300 | 0.01 | 42.6 | 4.2 | 40 |
| 1N4128 | 57.00 | 60 | 63.00 | 250 | 400 | 0.01 | 45.6 | 4.0 | 40 |
| 1N4129 | 58.90 | 62 | 65.10 | 250 | 500 | 0.01 | 47.1 | 3.8 | 40 |
| 1N4130 | 64.60 | 68 | 71.40 | 250 | 700 | 0.01 | 51.7 | 3.5 | 40 |
| 1N4131 | 71.25 | 75 | 78.75 | 250 | 700 | 0.01 | 57.0 | 3.1 | 40 |
| 1N4132 | 77.90 | 82 | 86.10 | 250 | 800 | 0.01 | 62.4 | 2.9 | 40 |
| 1N4133 | 82.65 | 87 | 91.35 | 250 | 1.0K | 0.01 | 66.2 | 2.7 | 40 |
| 1N4134 | 86.45 | 91 | 95.55 | 250 | 1.2K | 0.01 | 69.2 | 2.6 | 40 |
| 1N4135 | 95.00 | 100 | 105.0 | 250 | 1.5K | 0.01 | 76.0 | 2.3 | 40 |

DO-35 CASE - MECHANICAL OUTLINE



R1

| SYMBOL | DIMENSIONS | | | |
|--------|------------|-------|-------------|------|
| | 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)

MARKING: FULL PART NUMBER

R1 (4-February 2014)

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

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