

NZ3FxxxT1G Series, SZNZ3FxxxT1G Series

Zener Voltage Regulators

800 mW SOD-323FL Surface Mount

This series of Zener diodes is packaged in a SOD-323FL surface mount package that has a power dissipation of 800 mW. They are designed to provide voltage regulation protection and are especially attractive in situations where space is at a premium. They are well suited for applications such as cellular phones, hand held portables, high density PC boards, and automotive.

Specification Features:

- Standard Zener Breakdown Voltage Range – 2.4 V to 75 V
- Steady State Power Rating of 800 mW
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- SZ Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

Mechanical Characteristics:

CASE: Void-free, Transfer-Molded Plastic

FINISH: All External Surfaces are Corrosion Resistant

MAXIMUM CASE TEMPERATURE FOR SOLDERING PURPOSES:

260°C for 10 Seconds

LEADS: Plated with Pb-Sn or Sn Only (Pb-Free)

POLARITY: Cathode Indicated by Polarity Band

FLAMMABILITY RATING: UL 94 V-0

MOUNTING POSITION: Any

MAXIMUM RATINGS

| Rating | Symbol | Max | Unit |
|--|-----------------|-------------|-------------|
| Total Device Dissipation FR-4 Board, (Note 1) @ $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 800 6.4 | mW mW/°C |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 156 | °C/W |
| Junction and Storage Temperature Range | T_J, T_{stg} | -65 to +150 | °C |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. FR-4 printed circuit board, single-sided copper, mounting pad 1 cm².

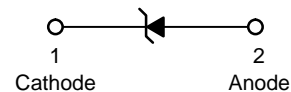


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SOD-323FL
CASE 477AC



MARKING DIAGRAM



XX = Specific Device Code
M = Date Code

ORDERING INFORMATION

| Device | Package | Shipping† |
|--------------|------------------------|------------------------|
| NZ3FxxxT1G | SOD-323FL (Pb-Free) | 3,000 / Tape & Reel |
| SZNZ3FxxxT1G | SOD-323FL (Pb-Free) | 3,000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

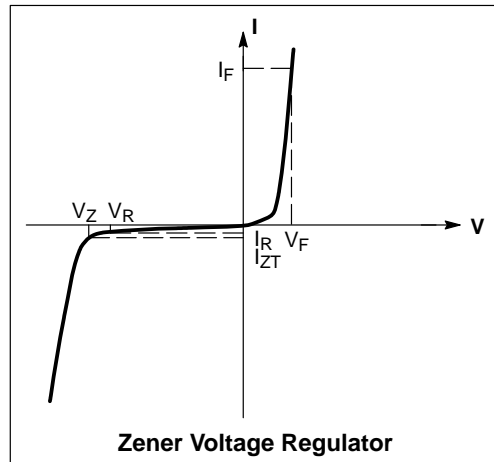
DEVICE MARKING INFORMATION

See specific marking information in the device marking column of the Electrical Characteristics table on page 2 of this data sheet.

NZ3FxxxT1G Series, SZNZ3FxxxT1G Series

ELECTRICAL CHARACTERISTICS

| Symbol | Parameter |
|--------------|--|
| V_Z | Reverse Zener Voltage @ I_{ZT} |
| I_{ZT} | Reverse Current |
| Z_{ZT} | Maximum Zener Impedance @ I_{ZT} |
| I_{ZK} | Reverse Current |
| Z_{ZK} | Maximum Zener Impedance @ I_{ZK} |
| I_R | Reverse Leakage Current @ V_R |
| V_R | Reverse Voltage |
| I_F | Forward Current |
| V_F | Forward Voltage @ I_F |
| ΘV_Z | Maximum Temperature Coefficient of V_Z |
| C | Max. Capacitance @ $V_R = 0$ and $f = 1$ MHz |



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 1.3$ V Max. @ $I_F = 10$ mA for all types)

| Device* | Device Marking | Zener Voltage (Note 2) | | | Zener Impedance | | | Leakage Current | | ΘV_Z (mV/k) @ I_{ZT} | | C @ $V_R = 0$ f = 1 MHz | |
|------------|----------------|------------------------|-----|------|-----------------|---------------------|---------------------|-----------------|-------|--------------------------------|------|-------------------------|-----|
| | | V_Z (Volts) | | | @ I_{ZT} | Z_{ZT} @ I_{ZT} | Z_{ZK} @ I_{ZK} | I_R @ V_R | | Min | Max | pF | |
| | | Min | Nom | Max | mA | Ω | Ω | μA | Volts | | | | |
| NZ3F2V4T1G | | 2.2 | 2.4 | 2.6 | 5 | 120 | 1000 | 0.5 | 50 | 1.0 | -3.5 | 0 | 450 |
| NZ3F4V7T1G | | 4.4 | 4.7 | 5.0 | 5 | 100 | 800 | 0.5 | 3 | 2.0 | -3.5 | 0.2 | 260 |
| NZ3F5V1T1G | | 4.8 | 5.1 | 5.4 | 5 | 80 | 500 | 0.5 | 2 | 2.0 | -2.7 | 1.2 | 225 |
| NZ3F5V6T1G | | 5.2 | 5.6 | 6.0 | 5 | 60 | 200 | 0.5 | 1 | 2.0 | -2.0 | 2.5 | 200 |
| NZ3F9V1T1G | | 8.5 | 9.1 | 9.6 | 5 | 45 | 240 | 0.5 | 0.2 | 7.0 | 3.8 | 7.0 | 130 |
| NZ3F10VT1G | | 9.4 | 10 | 10.6 | 5 | 40 | 175 | 0.5 | 0.1 | 8.0 | 4.5 | 8.0 | 130 |
| NZ3F12VT1G | | 11.4 | 12 | 12.7 | 5 | 60 | 220 | 0.5 | 0.1 | 8.0 | 6.0 | 10 | 130 |
| NZ3F15VT1G | | 14.3 | 15 | 15.8 | 5 | 100 | 220 | 0.5 | 0.05 | 10.5 | 9.2 | 13 | 110 |
| NZ3F18VT1G | | 16.8 | 18 | 19.1 | 5 | 60 | 290 | 0.5 | 0.05 | 12.6 | 12.4 | 16 | 100 |
| NZ3F33VT1G | | 31 | 33 | 35 | 2 | 140 | 310 | 0.5 | 0.05 | 23.2 | 27.4 | 33.4 | 70 |
| NZ3F47VT1G | | 44 | 47 | 50 | 2 | 150 | 500 | 0.5 | 0.05 | 32.9 | 42.0 | 51.8 | 40 |
| NZ3F75VT1G | | 70 | 75 | 79 | 2 | 155 | 780 | 0.5 | 0.05 | 52.5 | 73.4 | 88.6 | 35 |

*Includes SZ-prefix devices where applicable.

2. Zener voltage is measured with a pulse test current I_Z at an ambient temperature of 25°C .

TYPICAL CHARACTERISTICS

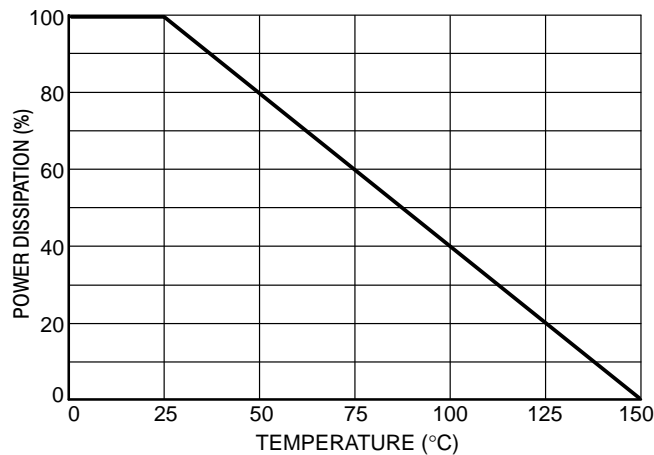
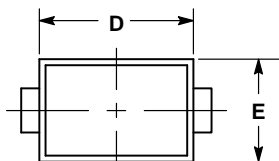


Figure 1. Steady State Power Derating

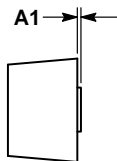
NZ3FxxxT1G Series, SZNZ3FxxxT1G Series

PACKAGE DIMENSIONS

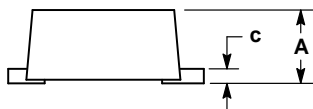
SOD-323FL
CASE 477AC
ISSUE B



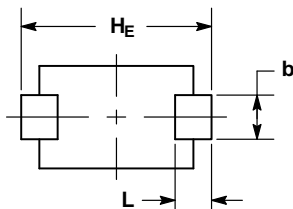
TOP VIEW



END VIEW



SIDE VIEW



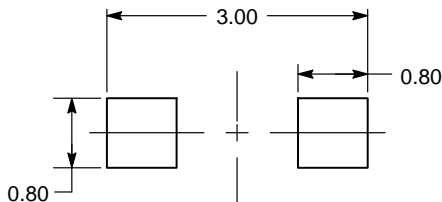
BOTTOM VIEW

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS INCLUDES LEAD FINISH.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| DIM | MILLIMETERS | |
|-----|-------------|------|
| | MIN | MAX |
| A | 0.90 | 1.08 |
| A1 | — | 0.10 |
| b | 0.50 | 0.70 |
| c | 0.10 | 0.25 |
| D | 2.00 | 2.20 |
| E | 1.30 | 1.60 |
| HE | 2.40 | 2.80 |
| L | 0.35 | 0.65 |

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSION: MILLIMETERS

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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