

Small Signal Zener Diodes


DESIGN SUPPORT TOOLS
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3D
Models
Available

FEATURES

- Silicon planar Zener diodes
- Low Zener impedance and low leakage current
- Popular in Asian designs
- Compact surface mount device
- Ideal for automated mounting
- AEC-Q101 qualified available
- ESD capability according to AEC-Q101:
human body model > 8 kV
machine model > 800 V
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

 AUTOMOTIVE
GRADE
Available

RoHS
COMPLIANT

PRIMARY CHARACTERISTICS

| PARAMETER | VALUE | UNIT |
|------------------------------|---------------|------|
| V _Z range nom. | 2.0 to 36 | V |
| Test current I _{ZT} | 5 | mA |
| V _Z specification | Pulse current | |
| Circuit configuration | Single | |

ORDERING INFORMATION

| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY |
|-------------|---------------------------------|--------------------------------|------------------------|
| GDZ-series | GDZ2V0B-E3-08 to GDZ36B-E3-08 | 3000 (8 mm tape on 7" reel) | 15 000/box |
| | GDZ2V0B-HE3-08 to GDZ36B-HE3-08 | | |
| | GDZ2V0B-E3-18 to GDZ36B-E3-18 | 10 000 (8 mm tape on 13" reel) | 10 000/box |
| | GDZ2V0B-HE3-18 to GDZ36B-HE3-18 | | |

PACKAGE

| PACKAGE NAME | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
|--------------|--------|---|--------------------------------------|--------------------------|
| SOD-323 | 4.3 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | 260 °C/10 s at terminals |

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|-----------------------------|----------------|------------------|-------------|------|
| Power dissipation | | P _{tot} | 200 | mW |
| Junction temperature | | T _j | 150 | °C |
| Storage temperature range | | T _{stg} | -55 to +150 | °C |
| Operating temperature range | | T _{op} | -55 to +150 | °C |



| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | | | |
|---|--------------|---------------------|-------|--------------|-----------|-----------------|-----|--------------------|-----------------------|
| PART NUMBER | MARKING CODE | ZENER VOLTAGE RANGE | | TEST CURRENT | | REVERSE CURRENT | | DYNAMIC RESISTANCE | |
| | | V_Z at I_{ZT1} | | I_{ZT1} | I_{ZT2} | I_R at V_R | | Z_Z at I_{ZT1} | Z_{ZK} at I_{ZT2} |
| | | V | | mA | | μA | V | Ω | |
| | | MIN. | MAX. | | | MAX. | | MAX. | MAX. |
| GDZ2V0B | 02 | 2.02 | 2.2 | 5 | 0.5 | 120 | 0.5 | 100 | 1000 |
| GDZ2V2B | 12 | 2.22 | 2.41 | 5 | 0.5 | 120 | 0.7 | 100 | 1000 |
| GDZ2V4B | 22 | 2.43 | 2.63 | 5 | 0.5 | 120 | 1 | 100 | 1000 |
| GDZ2V7B | 32 | 2.69 | 2.91 | 5 | 0.5 | 100 | 1 | 110 | 1000 |
| GDZ3V0B | 42 | 3.01 | 3.22 | 5 | 0.5 | 50 | 1 | 120 | 1000 |
| GDZ3V3B | 52 | 3.32 | 3.53 | 5 | 0.5 | 20 | 1 | 120 | 1000 |
| GDZ3V6B | 62 | 3.6 | 3.845 | 5 | 1 | 10 | 1 | 100 | 1000 |
| GDZ3V9B | 72 | 3.89 | 4.16 | 5 | 1 | 5 | 1 | 100 | 1000 |
| GDZ4V3B | 82 | 4.17 | 4.43 | 5 | 1 | 5 | 1 | 100 | 1000 |
| GDZ4V7B | 92 | 4.55 | 4.75 | 5 | 0.5 | 2 | 1 | 100 | 800 |
| GDZ5V1B | T1 | 4.98 | 5.2 | 5 | 0.5 | 2 | 1 | 80 | 500 |
| GDZ5V6B | T2 | 5.49 | 5.73 | 5 | 0.5 | 1 | 2.5 | 60 | 200 |
| GDZ6V2B | T3 | 6.06 | 6.33 | 5 | 0.5 | 1 | 3 | 60 | 100 |
| GDZ6V8B | T4 | 6.65 | 6.93 | 5 | 0.5 | 0.5 | 3.5 | 40 | 60 |
| GDZ7V5B | T5 | 7.28 | 7.6 | 5 | 0.5 | 0.5 | 4 | 30 | 60 |
| GDZ8V2B | T6 | 8.02 | 8.36 | 5 | 0.5 | 0.5 | 5 | 30 | 60 |
| GDZ9V1B | T7 | 8.85 | 9.23 | 5 | 0.5 | 0.5 | 6 | 30 | 60 |
| GDZ10B | T8 | 9.77 | 10.21 | 5 | 0.5 | 0.1 | 7 | 30 | 60 |
| GDZ11B | T9 | 10.76 | 11.22 | 5 | 0.5 | 0.1 | 8 | 30 | 60 |
| GDZ12B | TA | 11.74 | 12.24 | 5 | 0.5 | 0.1 | 9 | 30 | 80 |
| GDZ13B | TB | 12.91 | 13.49 | 5 | 0.5 | 0.1 | 10 | 37 | 80 |
| GDZ15B | TC | 14.34 | 14.98 | 5 | 0.5 | 0.1 | 11 | 42 | 80 |
| GDZ16B | TD | 15.85 | 16.51 | 5 | 0.5 | 0.1 | 12 | 50 | 80 |
| GDZ18B | TE | 17.56 | 18.35 | 5 | 0.5 | 0.1 | 13 | 65 | 80 |
| GDZ20B | TH | 19.52 | 20.39 | 5 | 0.5 | 0.1 | 15 | 85 | 100 |
| GDZ22B | TK | 21.54 | 22.47 | 5 | 0.5 | 0.1 | 17 | 100 | 100 |
| GDZ24B | TL | 23.72 | 24.78 | 5 | 0.5 | 0.1 | 19 | 120 | 120 |
| GDZ27B | TM | 26.19 | 27.53 | 5 | 0.5 | 0.1 | 21 | 150 | 150 |
| GDZ30B | TN | 29.19 | 30.69 | 5 | 0.5 | 0.1 | 23 | 200 | 200 |
| GDZ33B | TP | 32.15 | 33.79 | 5 | 0.5 | 0.1 | 25 | 250 | 250 |
| GDZ36B | TT | 35.07 | 36.87 | 5 | 0.5 | 0.1 | 27 | 300 | 300 |

Notes

- The Zener voltage V_Z is measured 40 ms after power is supplied
- The operating resistance (Z_Z , Z_{ZK}) are measured by superimposing a 1 kHz alternating current on the regulated current (I_Z).

TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)



Fig. 1 - Zener Voltage Temperature Coefficient vs. Zener Voltage

PACKAGE DIMENSIONS in millimeters (inches): **SOD-323**



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