



0.5W Zener Diode – 1N9*B Series

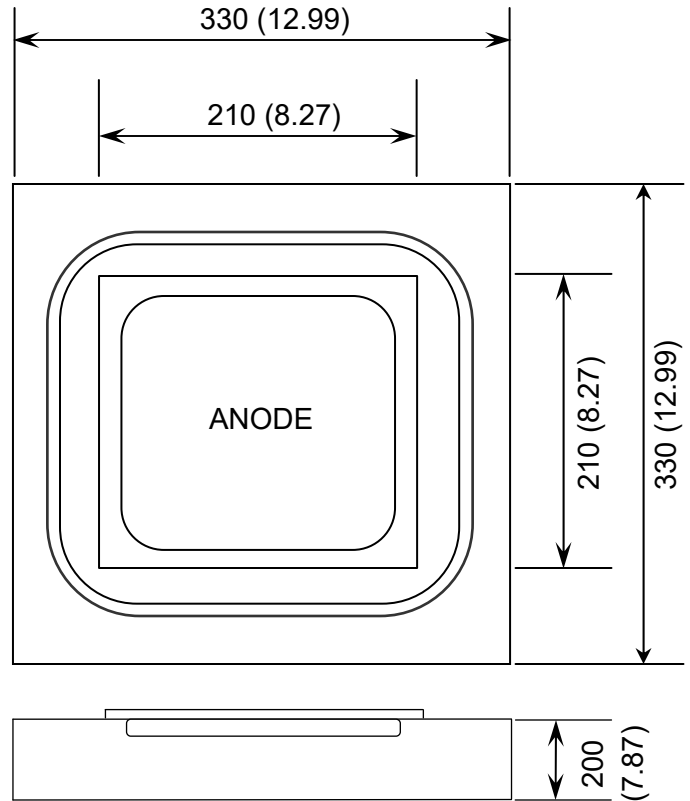
Rev 1.0
19/07/19

Silicon Planar Zener diode in bare die form – 5% tolerance

Features:

- High peak reverse power dissipation
- Sharp Reverse Characteristics
- Low Reverse Current Levels
- High Reliability Gold Back Metal
- High Reliability tested grades.

Die Dimensions in μm (mils)



Ordering Information

The following part suffixes apply:

- No suffix - MIL-STD-750 /2073 Visual Inspection
- “H” - MIL-STD-750 /2073 Visual Inspection
+ MIL-PRF-38534 Class H LAT
- “K” - MIL-STD-750 /2072 Visual Inspection
+ MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

www.siliconsupplies.com/quality/bare-die-lot-qualification

Supply Formats:

- Default – Die in Waffle Pack (400 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Unsawn Wafer – By specific request
- With additional electrical selection – By specific request

Mechanical Specification

| | | |
|------------------------|----------------------------|-----------------------|
| Die Size (Unsawn) | 330 x 330 12.99 x 12.99 | μm mils |
| Anode Pad Size | 210 x 210 8.27 x 8.27 | μm mils |
| Die Thickness | 200 7.87 | μm mils |
| Top Metal Composition | Al | |
| Back Metal Composition | AuAs | |





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Absolute Maximum Ratings¹ T_A = 25°C unless otherwise stated

| PARAMETER | SYMBOL | VALUE | UNIT |
|--|------------------|-------------|------|
| Power Dissipation ² | P _{TOT} | 0.5 | W |
| Junction Temperature | T _J | -65 to +175 | °C |
| Storage Temperature Range | T _S | -65 to +175 | °C |
| Forward Voltage @ I _F = 200mA | V _F | 1.5 | V |

Electrical Characteristics T_A = 25°C unless otherwise stated

| DEVICE | ZENER VOLTAGE RANGE | | | TEST CURRENT | | REVERSE LEAKAGE | | DC ZENER CURRENT | DYNAMIC RESISTANCE | |
|--------|-----------------------------------|-----|-------|------------------|------------------|---------------------------------|----------------|------------------|-----------------------------------|------------------------------------|
| | V _Z @ I _{ZT1} | | | I _{ZT1} | I _{ZT2} | I _R @ V _R | V _R | I _{ZM} | Z _Z @ I _{ZT1} | Z _{ZK} @ I _{ZT2} |
| | V | | | mA | | µA | V | mA | Ω | |
| | Min. | Nom | Max. | | | Max. | | | Max. | Max. |
| 1N957B | 6.46 | 6.8 | 7.14 | 18.5 | 1.0 | 5.0 | 5.2 | 55 | 4.5 | 700 |
| 1N958B | 7.13 | 7.5 | 7.88 | 16.5 | 0.5 | 5.0 | 5.7 | 50 | 5.5 | 700 |
| 1N959B | 7.79 | 8.2 | 8.61 | 15.0 | 0.5 | 5.0 | 6.2 | 45 | 6.5 | 700 |
| 1N960B | 8.65 | 9.1 | 9.56 | 14.0 | 0.5 | 5.0 | 6.9 | 41 | 7.5 | 700 |
| 1N961B | 9.50 | 10 | 10.50 | 12.5 | 0.25 | 2.0 | 7.6 | 38 | 8.5 | 700 |
| 1N962B | 10.45 | 11 | 11.55 | 11.5 | 0.25 | 1.0 | 8.4 | 32 | 9.5 | 700 |
| 1N963B | 11.40 | 12 | 12.60 | 10.5 | 0.25 | 1.0 | 9.1 | 31 | 11.5 | 700 |
| 1N964B | 12.35 | 13 | 13.65 | 9.5 | 0.25 | 0.5 | 9.9 | 28 | 13 | 700 |
| 1N965B | 14.25 | 15 | 15.75 | 8.5 | 0.25 | 0.5 | 11 | 25 | 16 | 700 |
| 1N966B | 15.20 | 16 | 16.80 | 7.8 | 0.25 | 0.5 | 12 | 24 | 17 | 700 |
| 1N967B | 17.10 | 18 | 18.90 | 7.0 | 0.25 | 0.5 | 14 | 20 | 21 | 750 |
| 1N968B | 19.00 | 20 | 21.00 | 6.2 | 0.25 | 0.5 | 15 | 18 | 25 | 750 |
| 1N969B | 20.90 | 22 | 23.10 | 5.6 | 0.25 | 0.5 | 17 | 16 | 29 | 750 |
| 1N970B | 22.80 | 24 | 25.20 | 5.2 | 0.25 | 0.5 | 18 | 15 | 33 | 750 |
| 1N971B | 25.65 | 27 | 28.35 | 4.6 | 0.25 | 0.5 | 21 | 13 | 41 | 750 |
| 1N972B | 28.50 | 30 | 31.50 | 4.2 | 0.25 | 0.5 | 23 | 12 | 49 | 1000 |
| 1N973B | 31.35 | 33 | 34.65 | 3.8 | 0.25 | 0.5 | 25 | 11 | 58 | 1000 |
| 1N974B | 34.20 | 36 | 37.80 | 3.4 | 0.25 | 0.5 | 27 | 10 | 70 | 1000 |
| 1N975B | 37.05 | 39 | 40.95 | 3.2 | 0.25 | 0.5 | 30 | 9.5 | 90 | 1000 |
| 1N976B | 40.85 | 43 | 45.15 | 3.0 | 0.25 | 0.5 | 33 | 8.8 | 93 | 1500 |
| 1N977B | 44.65 | 47 | 49.35 | 2.7 | 0.25 | 0.5 | 36 | 7.9 | 105 | 1500 |
| 1N978B | 48.45 | 51 | 53.55 | 2.5 | 0.25 | 0.5 | 39 | 7.4 | 125 | 1500 |
| 1N979B | 53.20 | 56 | 58.80 | 2.2 | 0.25 | 0.5 | 43 | 6.8 | 150 | 2000 |
| 1N980B | 58.90 | 62 | 65.10 | 2.0 | 0.25 | 0.5 | 47 | 6.0 | 185 | 2000 |
| 1N981B | 64.60 | 68 | 71.40 | 1.8 | 0.25 | 0.5 | 52 | 5.5 | 230 | 2000 |
| 1N982B | 71.25 | 75 | 78.75 | 1.7 | 0.25 | 0.5 | 56 | 5.0 | 270 | 2000 |

1. Operation above the absolute maximum rating may cause device failure. Operation at the absolute maximum ratings, for extended periods, may reduce device reliability. 2. Assembled in DO-41 package. Performance in die form subject to assembly heat sinking and die attach methods.

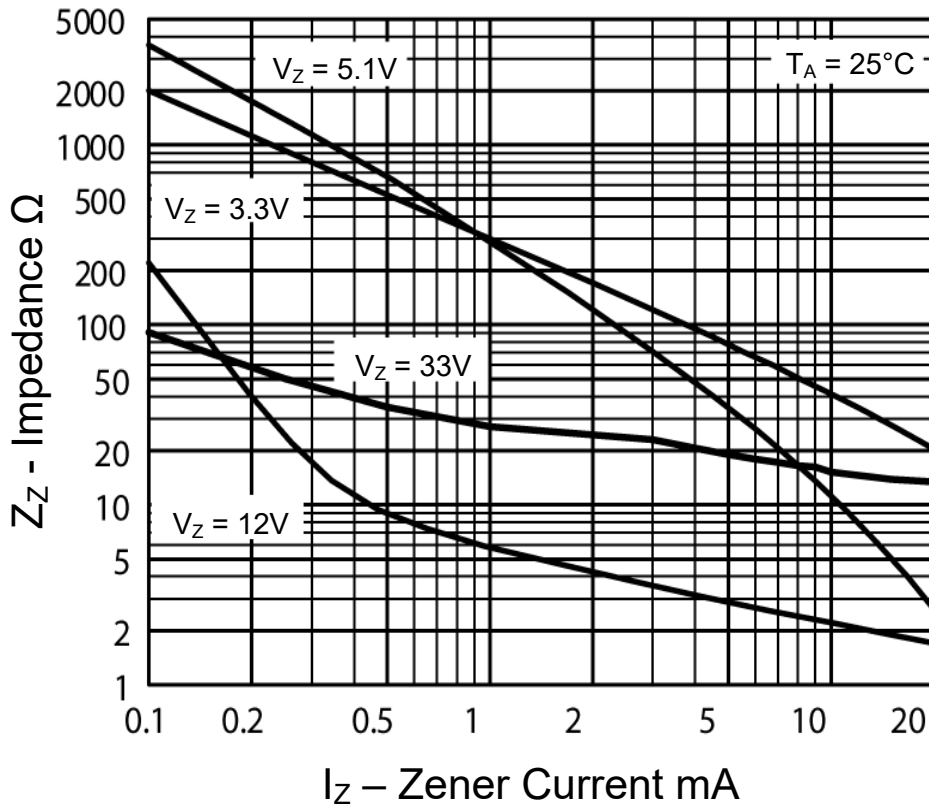




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Typical Electrical Characteristics



Zener Impedance Versus Operating Current - Z_Z Versus I_Z

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