



# 0.5W, 20mA $I_{ZT}$ , Bare Die Zener Diode

Rev 1.0  
07/07/17

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

## Features:

- $I_R$  characterized at 125°C
- Sharp Reverse Characteristics
- Low Reverse Current Levels
- High Reliability Gold Back Metal
- High Reliability tested grades.

## Ordering Information

The following part suffixes apply:

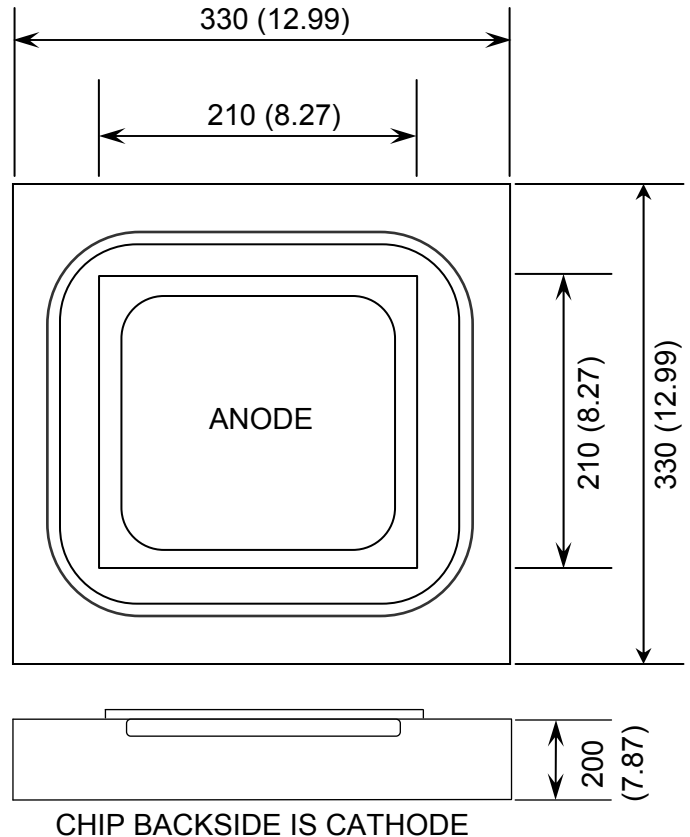
- No suffix - MIL-STD-750 /2073 Visual Inspection
- “H” - MIL-STD-750 /2073 Visual Inspection  
+ MIL-PRF-38534 Class H LAT
- “K” - MIL-STD-750 /2073 Visual Inspection  
+ MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

[www.siliconsupplies.com/quality/bare-die-lot-qualification](http://www.siliconsupplies.com/quality/bare-die-lot-qualification)

## Die Dimensions in $\mu\text{m}$ (mils)



## Supply Formats:

- Default – Die in Waffle Pack (400 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Unsawn Wafer – By specific request
- Tighter  $V_Z$  tolerances:  
2% or 1% – Specific request

## Mechanical Specification

|                        |                            |                       |
|------------------------|----------------------------|-----------------------|
| Die Size (Unsawn)      | 330 x 330<br>12.99 x 12.99 | $\mu\text{m}$<br>mils |
| Anode Pad Size         | 210 x 210<br>8.27 x 8.27   | $\mu\text{m}$<br>mils |
| Die Thickness          | 200<br>7.87                | $\mu\text{m}$<br>mils |
| Top Metal Composition  | Al                         |                       |
| Back Metal Composition | Au                         |                       |





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## Absolute Maximum Ratings<sup>1</sup> T<sub>A</sub> = 25°C unless otherwise stated

| PARAMETER                                | SYMBOL           | VALUE       | UNIT |
|--|------------------|-------------|------|
| Power Dissipation <sup>2</sup>           | P <sub>TOT</sub> | 500         | mW   |
| Junction Temperature                     | T <sub>J</sub>   | 200         | °C   |
| Storage Temperature Range                | T <sub>STG</sub> | -65 to +175 | °C   |
| Forward Voltage @ I <sub>F</sub> = 200mA | V <sub>F</sub>   | 1.5         | V    |

## Electrical Characteristics T<sub>A</sub> = 25°C unless otherwise stated

| DEVICE  | ZENER VOLTAGE RANGE              |      |      | REVERSE LEAKAGE CURRENT |                                 |                        |                                  | DYNAMIC RESISTANCE | MAXIMUM REGULATOR CURRENT |
|---------|----------------------------------|------|------|-------------------------|---------------------------------|------------------------|----------------------------------|--------------------|---------------------------|
|         | V <sub>Z</sub> @ I <sub>ZT</sub> |      |      | I <sub>ZT</sub>         | I <sub>R</sub> @ V <sub>R</sub> |                        | Z <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZM</sub>    |                           |
|         | V                                |      |      |                         | T <sub>A</sub> = 25°C           | T <sub>A</sub> = 125°C |                                  |                    | f = 1 kHz                 |
|         | Min.                             | Nom. | Max. | mA                      | µA Max.                         | V <sub>R</sub>         | Ω                                | mA                 |                           |
| 1N4370A | 2.28                             | 2.4  | 2.52 | 20                      | 100                             | 200                    | 1                                | 30                 | 150                       |
| 1N4371A | 2.57                             | 2.7  | 2.84 | 20                      | 75                              | 150                    | 1                                | 30                 | 135                       |
| 1N4372A | 2.85                             | 3.0  | 3.15 | 20                      | 50                              | 100                    | 1                                | 29                 | 120                       |
| 1N746A  | 3.14                             | 3.3  | 3.47 | 20                      | 10                              | 30                     | 1                                | 28                 | 110                       |
| 1N747A  | 3.42                             | 3.6  | 3.78 | 20                      | 10                              | 30                     | 1                                | 24                 | 100                       |
| 1N748A  | 3.71                             | 3.9  | 4.10 | 20                      | 10                              | 30                     | 1                                | 23                 | 95                        |
| 1N749A  | 4.09                             | 4.3  | 4.52 | 20                      | 2                               | 30                     | 1                                | 22                 | 85                        |
| 1N750A  | 4.47                             | 4.7  | 4.94 | 20                      | 2                               | 30                     | 1                                | 19                 | 75                        |
| 1N751A  | 4.85                             | 5.1  | 5.36 | 20                      | 1                               | 20                     | 1                                | 17                 | 70                        |
| 1N752A  | 5.32                             | 5.6  | 5.88 | 20                      | 1                               | 20                     | 1                                | 11                 | 65                        |
| 1N753A  | 5.89                             | 6.2  | 6.51 | 20                      | 0.1                             | 20                     | 1                                | 7                  | 60                        |
| 1N754A  | 6.46                             | 6.8  | 7.14 | 20                      | 0.1                             | 20                     | 1                                | 5                  | 55                        |
| 1N755A  | 7.13                             | 7.5  | 7.88 | 20                      | 0.1                             | 20                     | 1                                | 6                  | 50                        |
| 1N756A  | 7.79                             | 8.2  | 8.61 | 20                      | 0.1                             | 20                     | 1                                | 8                  | 45                        |
| 1N757A  | 8.65                             | 9.1  | 9.56 | 20                      | 0.1                             | 20                     | 1                                | 10                 | 40                        |
| 1N758A  | 9.50                             | 10   | 10.5 | 20                      | 0.1                             | 20                     | 1                                | 17                 | 35                        |
| 1N759A  | 11.4                             | 12   | 12.6 | 20                      | 0.1                             | 20                     | 1                                | 30                 | 30                        |

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-35 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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