



# 0.5W Zener Diode - BZX55A\* series

Rev 1.0

0.5W 5mA I<sub>ZT</sub> Silicon Planar Zener diode in bare die form – 1% tolerance, “A” grade 07/04/19

## Features:

- Tight tolerance reverse breakdown voltage
- I<sub>R</sub> characterized at 125°C
- Sharp reverse characteristics
- Low reverse current Levels
- High reliability gold back metal

## Ordering Information

The following part suffixes apply:

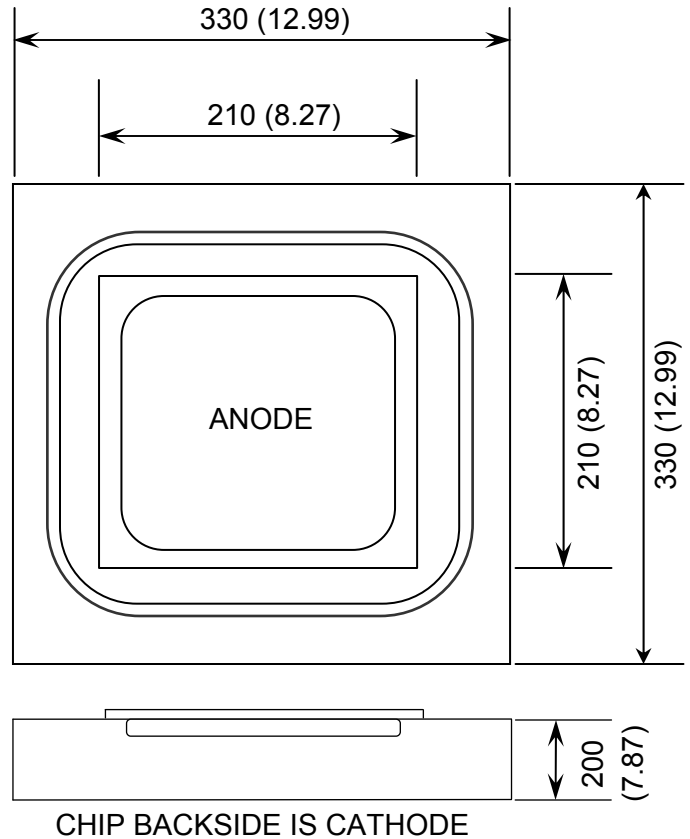
- No suffix - MIL-STD-750 /2073 Visual Inspection
- “H” - MIL-STD-750 /2073 Visual Inspection  
+ MIL-PRF-38534 Class H LAT
- “K” - MIL-STD-750 /2073 Visual Inspection  
+ MIL-PRF-38534 Class K LAT

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 μm (mils)



## Supply Formats:

- Default – Die in Waffle Pack (400 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Unsawn Wafer – By specific request
- Lower precision V<sub>Z</sub> tolerances:  
2% - B grade, 5% - C grade

## Mechanical Specification

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





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## Absolute Maximum Ratings<sup>1</sup> $T_A = 25^\circ\text{C}$ unless otherwise stated

| PARAMETER                              | SYMBOL    | VALUE       | UNIT             |
|--|-----------|-------------|------------------|
| Power Dissipation <sup>2</sup>         | $P_{TOT}$ | 500         | mW               |
| Junction Temperature                   | $T_J$     | 200         | $^\circ\text{C}$ |
| Storage Temperature Range              | $T_S$     | -65 to +200 | $^\circ\text{C}$ |
| Forward Voltage @ $I_F = 100\text{mA}$ | $V_F$     | 1.3         | V                |

## Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise stated

| DEVICE    | ZENER VOLTAGE RANGE |      |       | TEST CURRENT |           | REVERSE LEAKAGE CURRENT  |                           |     | DYNAMIC RESISTANCE |                    |
|-----------|---------------------|------|-------|--------------|-----------|--------------------------|---------------------------|-----|--------------------|--------------------|
|           | $V_Z @ I_{ZT1}$     |      |       | $I_{ZT1}$    | $I_{ZT2}$ | $I_R @ V_R$              |                           |     | $Z_Z @ I_{ZT1}$    | $Z_{ZK} @ I_{ZT2}$ |
|           | V                   |      |       | mA           |           | $T_A = 25^\circ\text{C}$ | $T_A = 125^\circ\text{C}$ |     | f = 1 kHz          |                    |
|           | Min.                | Nom. | Max.  |              |           | $\mu\text{A Max.}$       |                           | V   | Max.               | Max.               |
| BZX55A2V4 | 2.376               | 2.4  | 2.424 | 5            | 1         | 50.0                     | 100                       | 1.0 | 85                 | 600                |
| BZX55A2V7 | 2.673               | 2.7  | 2.727 | 5            | 1         | 10.0                     | 50                        | 1.0 | 85                 | 600                |
| BZX55A3V0 | 2.97                | 3.0  | 3.03  | 5            | 1         | 4.0                      | 40                        | 1.0 | 85                 | 600                |
| BZX55A3V3 | 3.267               | 3.3  | 3.333 | 5            | 1         | 2.0                      | 40                        | 1.0 | 85                 | 600                |
| BZX55A3V6 | 3.564               | 3.6  | 3.636 | 5            | 1         | 2.0                      | 40                        | 1.0 | 85                 | 600                |
| BZX55A3V9 | 3.861               | 3.9  | 3.939 | 5            | 1         | 2.0                      | 40                        | 1.0 | 85                 | 600                |
| BZX55A4V3 | 4.257               | 4.3  | 4.343 | 5            | 1         | 1.0                      | 20                        | 1.0 | 75                 | 600                |
| BZX55A4V7 | 4.653               | 4.7  | 4.747 | 5            | 1         | 0.5                      | 10                        | 1.0 | 60                 | 600                |
| BZX55A5V1 | 5.049               | 5.1  | 5.151 | 5            | 1         | 0.1                      | 2.0                       | 1.0 | 35                 | 550                |
| BZX55A5V6 | 5.544               | 5.6  | 5.656 | 5            | 1         | 0.1                      | 2.0                       | 1.0 | 25                 | 450                |
| BZX55A6V2 | 6.138               | 6.2  | 6.262 | 5            | 1         | 0.1                      | 2.0                       | 2.0 | 10                 | 200                |
| BZX55A6V8 | 6.732               | 6.8  | 6.868 | 5            | 1         | 0.1                      | 2.0                       | 3.0 | 8.0                | 150                |
| BZX55A7V5 | 7.425               | 7.5  | 7.575 | 5            | 1         | 0.1                      | 2.0                       | 5.0 | 7.0                | 50                 |
| BZX55A8V2 | 8.118               | 8.2  | 8.282 | 5            | 1         | 0.1                      | 2.0                       | 6.2 | 7.0                | 50                 |
| BZX55A9V1 | 9.009               | 9.1  | 9.191 | 5            | 1         | 0.1                      | 2.0                       | 6.8 | 10                 | 50                 |

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.

Zener Voltages 10V to 75V are constructed using a larger die geometry.

Please see [here](#) for further details





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## Typical Electrical Characteristics



Zener Impedance Versus Operating Current -  $Z_Z$  Versus  $I_Z$

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