



# 0.5W, 5mA I<sub>ZT</sub> , Bare Die Zener Diode

Rev 1.0  
07/07/17

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

## Features:

- I<sub>R</sub> Characterized @ 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:

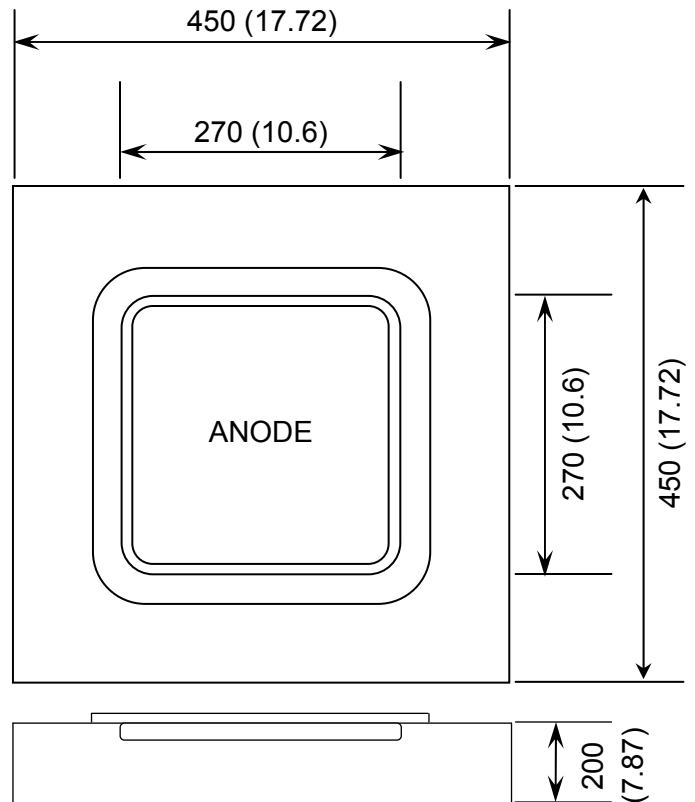
- No suffix - MIL-STD-750 /2073 Visual Inspection
- “H” - MIL-STD-750 /2073 Visual Inspection  
+ MIL-PRF-38534 Class H LAT
- “K” - MIL-STD-750 /2072 Visual Inspection  
+ MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

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

## Die Dimensions in μm (mils)



CHIP BACKSIDE IS CATHODE

## 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)      | 450 x 450<br>17.72 x 17.72 | μm<br>mils |
| Anode Pad Size         | 235 x 235<br>9.25 x 9.25   | 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 T<sub>A</sub> = 25°C unless otherwise stated

| PARAMETER                                | SYMBOL           | VALUE       | UNIT |
|--|------------------|-------------|------|
| Power Dissipation                        | P <sub>TOT</sub> | 500         | mW   |
| Junction Temperature                     | T <sub>J</sub>   | 200         | °C   |
| Storage Temperature Range                | T <sub>S</sub>   | -65 to +200 | °C   |
| Forward Voltage @ I <sub>F</sub> = 100mA | V <sub>F</sub>   | 1.3         | V    |

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

| DEVICE   | ZENER VOLTAGE RANGE               |      |      | TEST CURRENT     |                  | REVERSE LEAKAGE CURRENT         |                        |     | DYNAMIC RESISTANCE                |                                    |
|----------|-----------------------------------|------|------|------------------|------------------|---------------------------------|------------------------|-----|-----------------------------------|------------------------------------|
|          | V <sub>Z</sub> @ I <sub>ZT1</sub> |      |      | I <sub>ZT1</sub> | I <sub>ZT2</sub> | I <sub>R</sub> @ V <sub>R</sub> |                        |     | Z <sub>Z</sub> @ I <sub>ZT1</sub> | Z <sub>ZK</sub> @ I <sub>ZT2</sub> |
|          | V                                 |      |      | mA               |                  | T <sub>A</sub> = 25°C           | T <sub>A</sub> = 125°C |     | f = 1 kHz                         |                                    |
|          | Min.                              | Nom. | Max. |                  |                  | µA Max.                         |                        | V   | Max.                              | Max.                               |
| BZX55C10 | 9.4                               | 10   | 10.6 | 5                | 1                | 0.1                             | 2.0                    | 7.5 | 15                                | 70                                 |
| BZX55C11 | 10.4                              | 11   | 11.6 | 5                | 1                | 0.1                             | 2.0                    | 8.2 | 20                                | 70                                 |
| BZX55C12 | 11.4                              | 12   | 12.7 | 5                | 1                | 0.1                             | 2.0                    | 9.1 | 20                                | 90                                 |
| BZX55C13 | 12.4                              | 13   | 14.1 | 5                | 1                | 0.1                             | 2.0                    | 10  | 26                                | 110                                |
| BZX55C15 | 13.8                              | 15   | 15.6 | 5                | 1                | 0.1                             | 2.0                    | 11  | 30                                | 110                                |
| BZX55C16 | 15.3                              | 16   | 17.1 | 5                | 1                | 0.1                             | 2.0                    | 12  | 40                                | 170                                |
| BZX55C18 | 16.8                              | 18   | 19.1 | 5                | 1                | 0.1                             | 2.0                    | 13  | 50                                | 170                                |
| BZX55C20 | 18.8                              | 20   | 21.2 | 5                | 1                | 0.1                             | 2.0                    | 15  | 55                                | 220                                |
| BZX55C22 | 20.8                              | 22   | 23.3 | 5                | 1                | 0.1                             | 2.0                    | 16  | 55                                | 220                                |
| BZX55C24 | 22.8                              | 24   | 25.6 | 5                | 1                | 0.1                             | 2.0                    | 18  | 80                                | 220                                |
| BZX55C27 | 25.1                              | 27   | 28.9 | 5                | 1                | 0.1                             | 2.0                    | 20  | 80                                | 220                                |
| BZX55C30 | 28                                | 30   | 32   | 5                | 1                | 0.1                             | 2.0                    | 22  | 80                                | 220                                |
| BZX55C33 | 31                                | 33   | 35   | 5                | 1                | 0.1                             | 2.0                    | 24  | 80                                | 220                                |
| BZX55C36 | 34                                | 36   | 38   | 5                | 1                | 0.1                             | 2.0                    | 27  | 80                                | 220                                |

Zener Voltages 2.4V to 9.1V are constructed using a smaller 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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