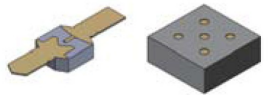
MZB600

Zero Bias Detector Diode

Rev. V2

Features

- Very Low Forward Voltage: 300 mV max. @ 1 mA
- Low Tangential Signal Sensitivity: -42 dBm
- Low Junction Capacitance: 0.2 pF
- High Breakdown Voltage: 3 V
- Available in Beam Lead, Multi-Junction Chip or Packaged
- RoHS* Compliant



CS12 / B11 CS10 / C15P

CS32 CS19-6

Description

The MZB600 zero bias detector (ZBD) diode is a sensitive, very low barrier height Schottky diode designed for use in high frequency, low input power detectors. Its very low barrier height results in excellent sensitivity to very small signals without the need for external bias current. This diode is available as a five-junction common-anode chip, as a single-junction beam lead or packaged in one of several suitable packages. It is manufactured using a proven diode fabrication process which optimizes diode characteristics for optimal electrical performance and excellent reliability.

The low junction capacitance (0.2 pF typical) enables the device to be used in sensitive detector circuits with input signals up to 20 GHz.

This rugged device is capable of reliable operation in all military, commercial and industrial applications.

Ordering Information[1]

Part Number	Package
MZB600-C15P-W	chip (400 pc. waffle pack)
MZB600-B11-GP	beam lead (100 pc. GelPak™)
MZB600-19-6-W	CS19-6 (100 pc. waffle pack)
MZB600-19-6-R	CS19-6 (3000 pc. Reel)
MZB600-32-W	CS32 (100 pc. waffle pack)
MZB600-32SP	CS32SP-OFHC Cu (100 pc. waffle pack)

1. Contact the factory for other packaging options.

Electrical Specifications: T_A = +25°C

Parameter	Test Conditions	Unit	Min.	Typ.	Max.
Breakdown Voltage (V_B)	I_R = 100 µA	V	3	—	—
Forward Voltage (V_F)	I_F = 1 mA	mV	—	—	300
Video Resistance (R_V)	I_F = 75 mA, 1 GHz	Ω	—	3500	—
Junction Capacitance (C_J)	V_R = 0 V, 1 MHz	pF	—	0.2	—

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Absolute Maximum Ratings

Parameter	Absolute Maximum
Forward DC Current	100 mA
Reverse DC Voltage	3 V
Total Dissipated Power[2]	100 mW
Junction Temperature	+150°C
Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +200°C

2. Infinite heat sink, T_C = 25°C. Derate power linearly from 750 mW @ 85°C to 0 W @ 175°C.

Environmental Capabilities

The MZB600 ZBD Diode is capable of meeting the environmental requirements of MIL-STD-750 and MIL-STD-883.

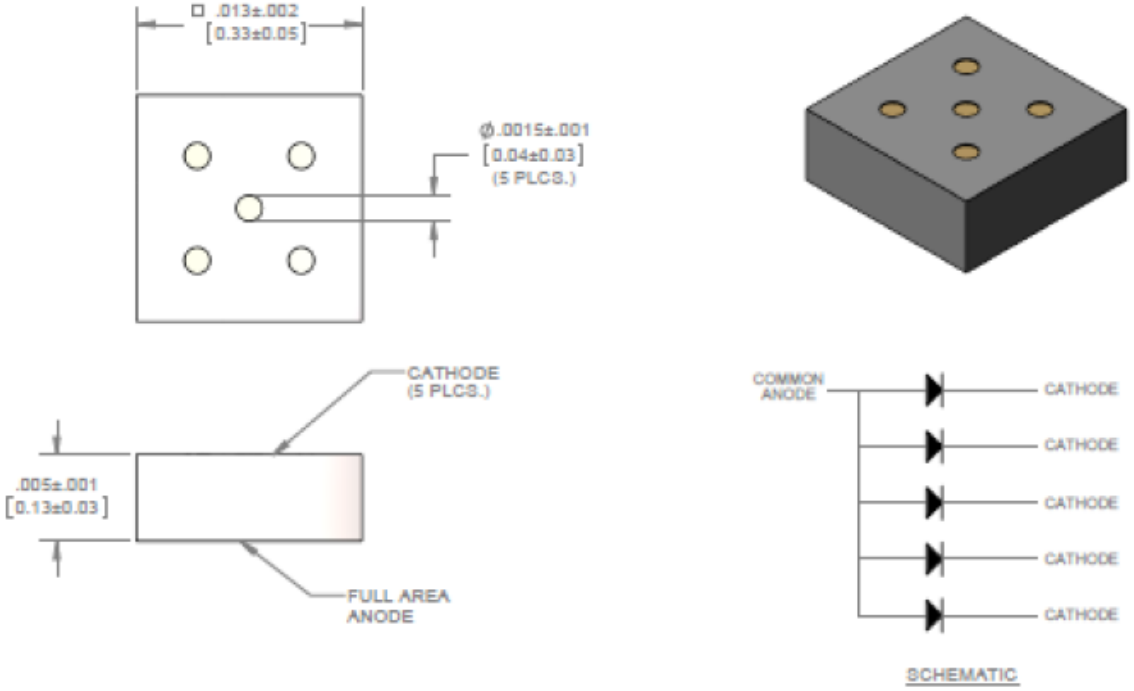
ESD & Moisture Sensitivity Level Rating

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD prevention procedures should be followed. The ESD rating for this device is Class 0 (HBM).

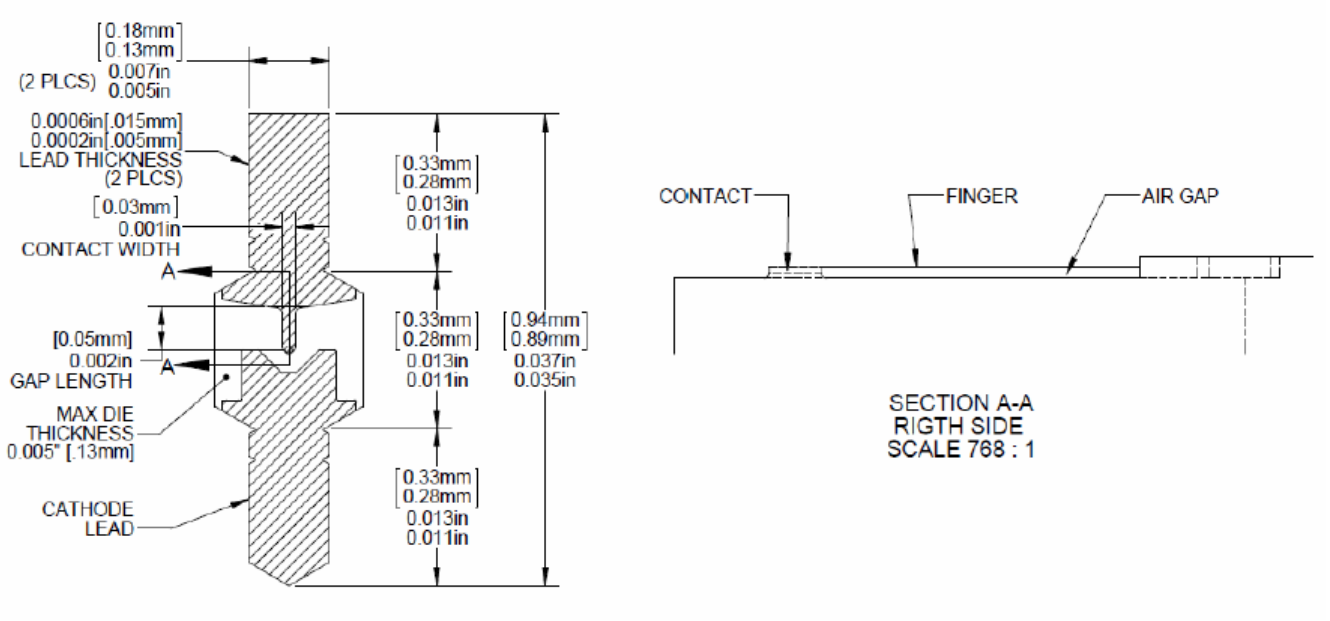
Assembly Instructions

Die attach of the common anode chip diodes may be accomplished with eutectic solders, such as 80 Au / 20 Sn, or conductive epoxy. The leads of the beam lead device may be attached to a hybrid circuit using thermo compression bonding or conductive epoxy.

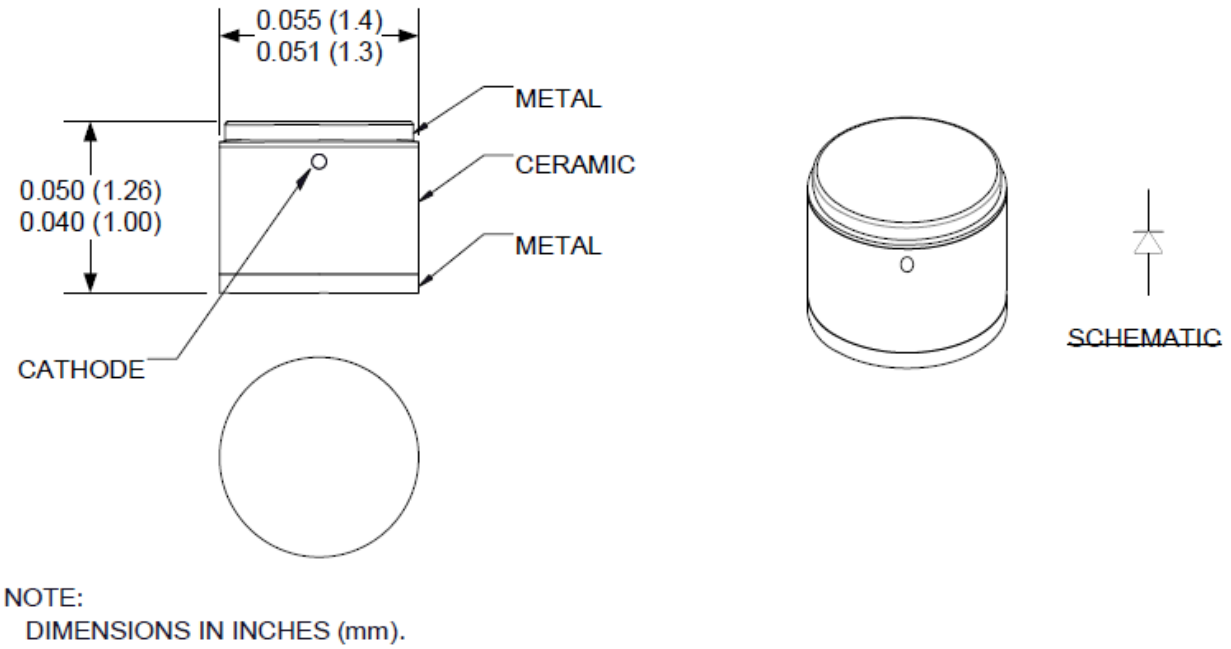
CS10 / C15P



CS12 / B11

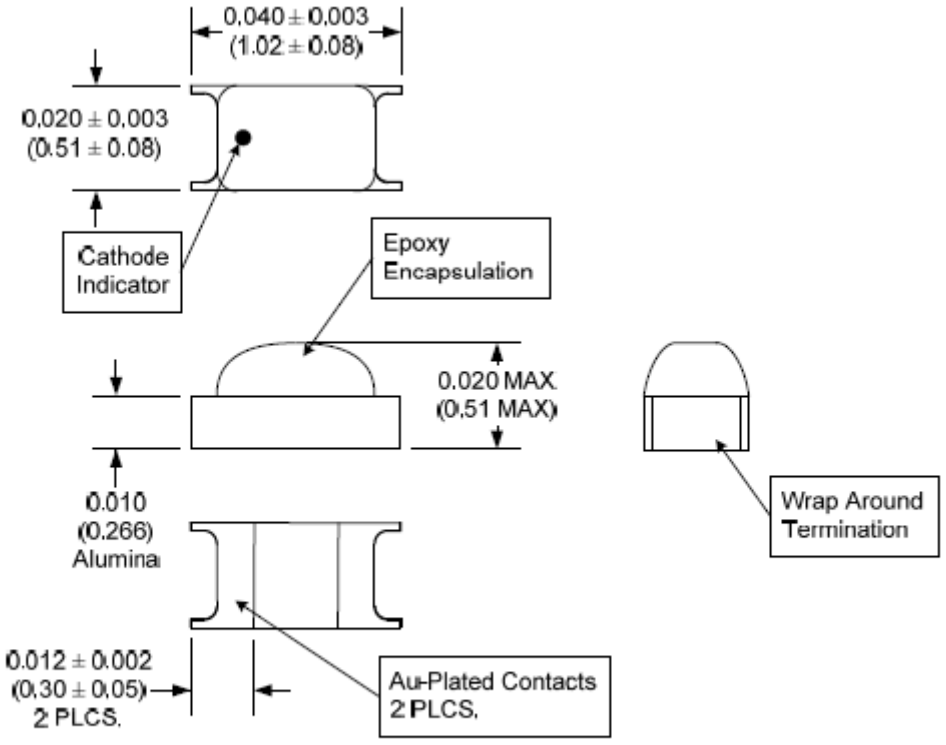


CS32



NOTE:
DIMENSIONS IN INCHES (mm).

CS19-6



Dimensions in inches (mm)