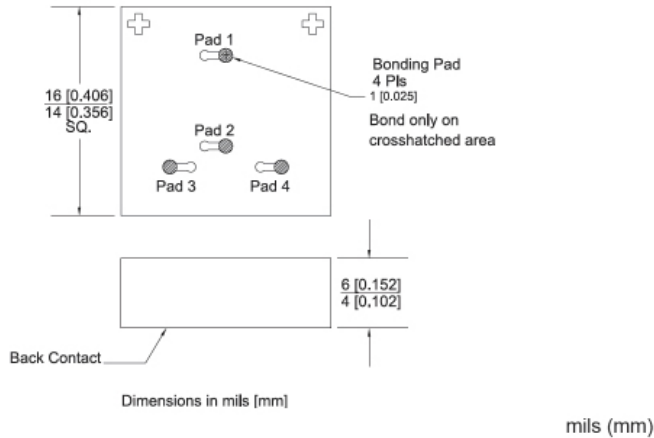


MBD1047-C18 Planar Tunnel Diode



C18 Chip Outline



Technical Characteristics

Product Features

- Rugged Germanium Planar Construction
- Excellent Temperature Stability
- No DC Bias Required
- Wide Video Bandwidth
- MIL-STD-190500 & 883 Qualified

Product Description

EclipseMDI MBD1047-C18, is a zero-bias, rugged Planar Tunnel Diode constructed with Germanium Planar. This tunnel diode exhibits excellent temperature stability, wide video bandwidth and is MIL STD-190500 & MIL-STD-883C qualified. The MBD1047-C18 is available in chip form.

Maximum Ratings

Storage Temperature.....	-65° to +125°C
Operating Temperature.....	-65° to +110°C
Input Power Handling.....	+17dBm CW or 3 ERG spike
Soldering Temperature.....	+160° C

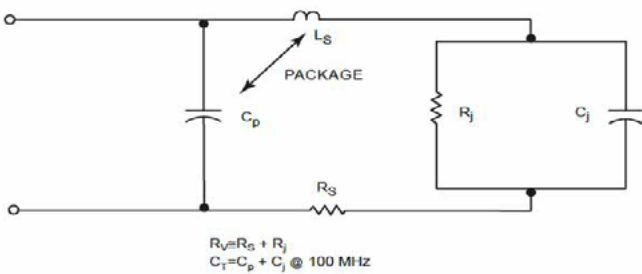
Chip assembly

The alloyed junction of the germanium planar diode (or back diode), is sensitive to mechanical pressure and high temperatures. Thus it must be handled as follows (as an example).

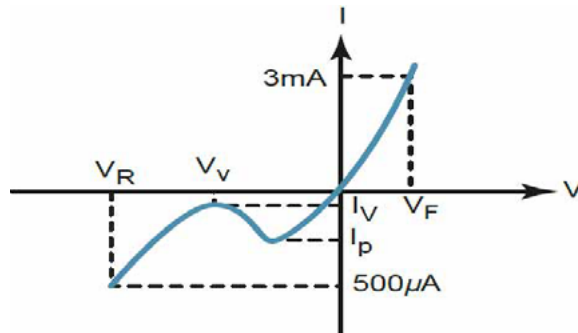
Die attach: Epoxy only: less than +125° C cure temperature recommended.
Wire bond: +160° C base +160° C capillary temperature, pressure < 20 grams. A wedge bond is done on an offset bonding pad. Bonding should not be done directly over the junction. Bond wire angle should leave small end of pad visually clear to assure junction is not bonded over.

Parameters	Specifications				
	Conditions	MIN	Typical	MAX	UNITS
I_p		100		150	μA
C_j	$V_r = V_v$, $f = 100 \text{ MHz}$.30	pF
$K[Y]$	$P_{in} = -20 \text{ dBm}$ $R_{Load} = 10 \text{ K}$, $f = 10 \text{ GHz}$		1000		mV/mW
R_v			180		Ω Ohms
I_p/I_v		2.5			
V_r	$I_f = 500 \mu A$		420		mV
V_f	$I_f = 3 \text{ mA}$			135	mV

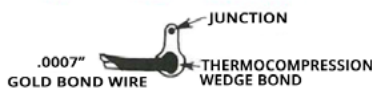
Diode equivalent circuit



Back diode parameters



CAUTION: STATIC SENSITIVE DEVICES



About EclipseMDI

ECLIPSE Microdevices is located in San Jose, California. ECLIPSE has been developing high performance analog semiconductors for use in wireless radio frequency (RF), microwave, and millimeter wave for commercial and industrial applications. ECLIPSE has formed a strategic alliances - with foundries that features leading state-of-the-art process technologies and with manufacturing facilities for high-volume production of innovative RFIC's.

Product Export Classification

ECCN: EAR 99 (unless otherwise specified)
 HTS: 8542330000