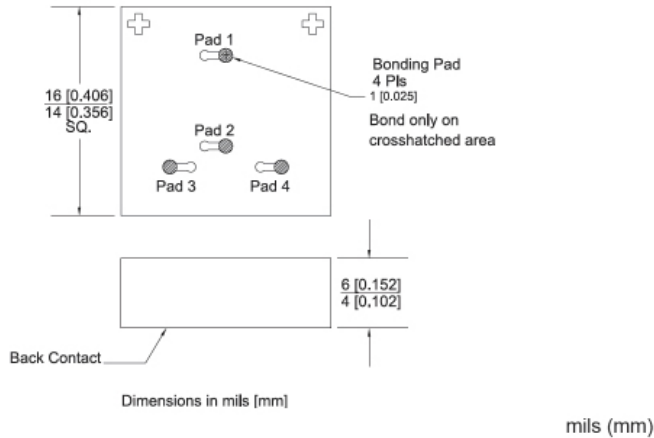


# MBD2047-C18 Planar Tunnel Diode



## 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 MBD2047-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 MBD2047-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

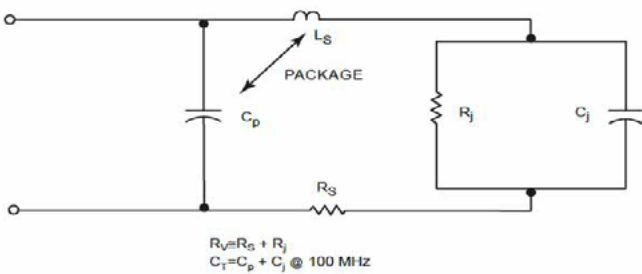
## Chip assembly

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).

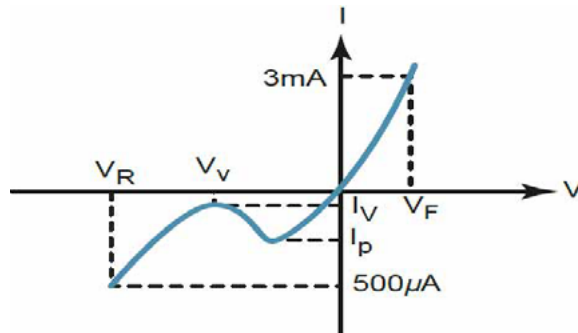
**Die attach:** Epoxy only: less than +125° C cure temperature recommended.  
**Wire bond:** +160° C base +160° C capillary temperature, pressure < 20 grams. A wedge bond is done on an offset bonding pad. Bonding should not be done directly over the junction. Bond wire angle should leave small end of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

Parameters	Specifications				
	Conditions	MIN	Typical	MAX	UNITS
$I_p$		200		250	$\mu A$
$C_j$	$V_r = V_v$ , $f = 100 \text{ MHz}$			.30	pF
$K[Y]$	$P_{in} = -20 \text{ dBm}$ $R_{Load} = 10K$ , $f = 10 \text{ GHz}$		900		mV/mW
$R_v$			160		$\Omega$ Ohms
$I_p/I_v$		2.5			
$V_r$	$I_f = 500 \mu A$		410		mV
$V_f$	$I_f = 3 \text{ mA}$			130	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