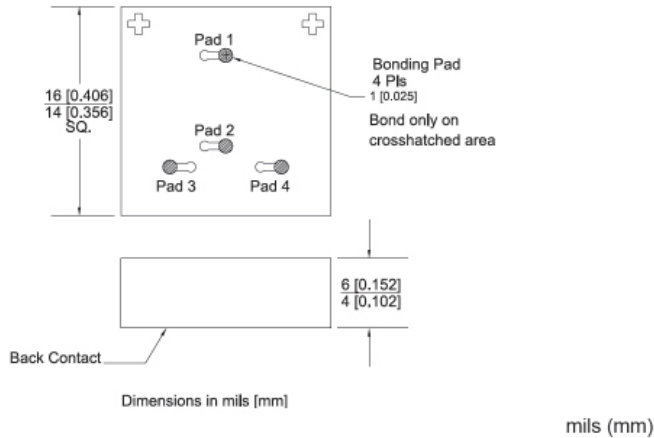


# MBD1047-C18 Planar Tunnel Diode

## C18 Chip Outline



### 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.

## Technical Characteristics

### Product Features

- Rugged Germanium Planar Construction
- Excellent Temperature Stability
- No DC Bias Required
- Wide Video Bandwidth

### Product Description

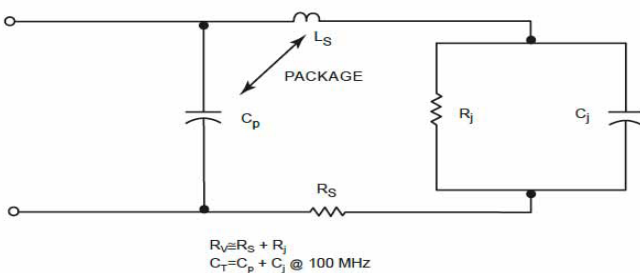
EclipseMDI MBD1047-C18, is a zero-bias, rugged Planar Tunnel Diode constructed with Germanium Planar. This tunnel diode exhibits excellent temperature stability, wide video bandwidth. The MBD1047-C18 is available in chip form.

### Maximum Ratings

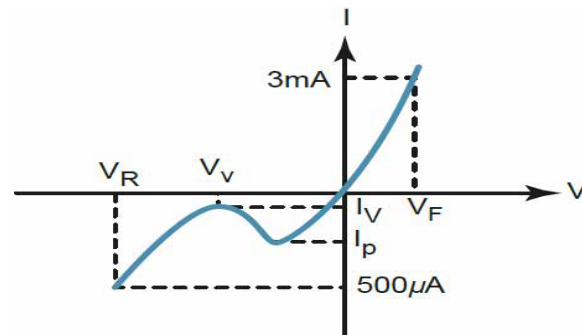
- Storage Temperature.....-65° to +125°C
- Operating Temperature.....-65° to +110°C
- Input Power Handling.....+17dBm CW or 3 ERG spike
- Soldering Temperature.....+160° C

Parameters	Specifications				
	Conditions	MIN	Typical	MAX	UNITS
$I_p$		100		150	$\mu A$
$C_j$	$V_r = V_v$ , $f = 100 \text{ MHz}$			.30	pF
$K[Y]$	$P_{in} = -20 \text{ dBm}$ $R(\text{Load}) = 10 \text{ K}$ , $f = 10 \text{ GHz}$		1000		mV/mW
$R_v$			180		$\Omega$ 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

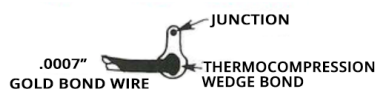
### Diode equivalent circuit



### 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