

# ZB-28

## Zero Bias Diode



- low junction capacitance
- functional through W-band
- input signal dynamic range -60 to +14 dBm

The ZB-28 is a zero bias beam-lead diode. It is ideally suited as a switching and limiting element for hybrid-integrated microwave modules with general sealing. The ZB-28 can be used in schemes of power detectors and frequency converters. This diode has wide dynamic and frequency range of signal converter.

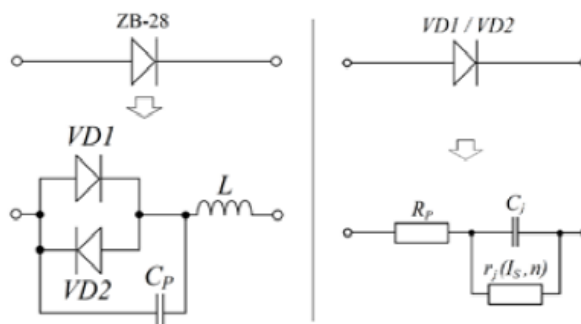
### Electrical specifications (T = 25 °C)

Symbol	Parameter	Min.	Typ.	Max.	Unit
$C_t$	Total capacitance	—	35	41	fF
$C_j$	Junction capacitance	—	24	30	fF
$R_v$	Video resistance ( $U_F=0$ V)	1.6	1.8	2.0	kOhm
G	Voltage sensitivity	500	550	—	mV/mW
TSS	Tangential sensitivity	—	-60-	—	dBm

### Absolute maximum ratings

Parameter	Value	Unit
RF Input power (CW)	+17	dBm
Burnout power	+20	dBm
Reverse voltage	4	V
Forward current	15	mA
Operating temperature	-40...+85	°C
Storage temperature	-55...+125	°C

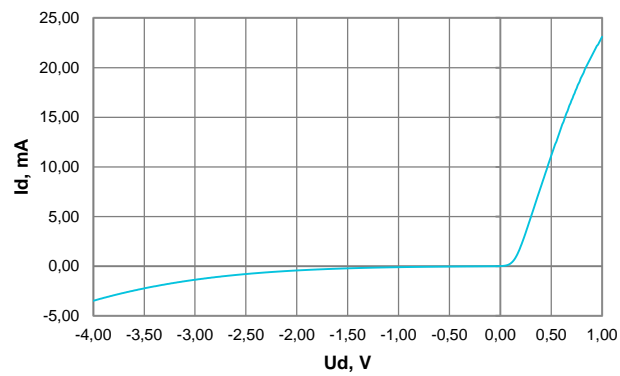
### Diode model parameters



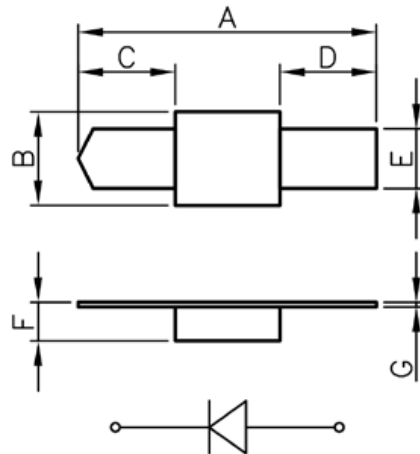
Parameter	VD1	VD2	Unit
$C_j$	12	12	fF
$R_p$	27	100	Ohm
n	1,13	32	—
$I_s$	1,1E-5	4,0E-5	A
L	0,3	0,3	nH
$C_p$	11	11	fF

Specifications are subject to change without notice.

### Typical characteristics



### Mechanical data



Symbol	Value	Unit
A	880	μm
B	230	
C	270	
D	270	
E	160	
F	55	
G	3	

**NOTE** Metallization: gold.

## Application notes

### Mounting

The chip is back-metallized with gold and can be die mounted with AuSn eutectic alloy or with electrically conductive adhesive. The mounting surface should be clean and flat. Do not expose die to a temperature above 300 degrees for more than 10 seconds.

### Wire Bonding

Microstrip substrates should be brought as close to the die as possible in order to minimize ribbon bond length. Recommendation for RF pads is two wires 25  $\mu\text{m}$  in diameter or a foil stripe with minimal length. Wedge thermocompression bonding or ball bonding may be used to attach ribbons or wires to the anode bonding pad. All die attach and bonding methods should be compatible with gold metal.

### DC coupling

All ports are DC coupled. RF\_Input ports should be DC blocked externally with a series capacitor, whose value has been chosen to pass the necessary frequency range.

## Recommended ESD Management

This device is susceptible to electrostatic and mechanical damage. Dies are supplied in antistatic containers, which should be opened in cleanroom conditions at an appropriately grounded antistatic workstation. Devices need careful handling using correctly designed collets, vacuum pickups or, with care, sharp tweezers.

