

Tunnel Diode Zero Bias Detector, 500 MHz to 18 GHz, SMA, Negative Video Out, +17 dBm Max Pin, 5 nsec Pulse Risettime, MIL-STD-202, Square



PE80T6029

Features

- Tunnel diode detector with zero-bias operation
- Broadband frequency range: 0.5 GHz to 18.0 GHz
- Positive video output polarity
- High voltage sensitivity: 700 mV/mW typical
- Fast pulse video response: 5 ns typical
- Excellent frequency flatness: ± 1.5 dB typ, ± 3.2 dB max
- Low VSWR: 3.5:1 max (measured @ -23 dBm)
- Tangential sensitivity: -50 dBm @ 2 MHz video bandwidth
- Maximum CW input power: +17 dBm
- SMA male RF input and SMA female video output connectors
- Wide operating temperature range: -54 °C to +100 °C
- Qualified to MIL-STD-202 for shock, vibration, humidity, altitude, and temperature cycling

Applications

- RF power and level monitoring
- Broadband test and measurement equipment
- Transmitter monitoring and leveling
- Radar and surveillance systems
- Electronic warfare (EW) and ECM receivers
- detector front-ends for receiver chains
- General-purpose RF measurement applications
- Military and aerospace systems

Description

This coaxial packaged Tunnel Diode Zero Bias Schottky Diode Detector operates over a broadband frequency range of 0.5 GHz to 18.0 GHz and is designed for accurate RF signal detection in CW and broadband measurement applications. The tunnel diode zero-bias Schottky design provides reliable detection without the need for external biasing, making it ideal for compact and simplified system designs. The detector delivers a stable negative polarity video output with a typical sensitivity of 700 mV/mW, dependent on input power and frequency. With good frequency flatness and low VSWR, this detector supports consistent performance across a wide frequency band. The rugged SMA-connectorized package is environmentally qualified to MIL-STD-202, ensuring dependable operation in harsh military, aerospace, and laboratory environments. Maximum input power handling is +17 dBm.

Electrical Specifications (@ +25°C)

Description	Minimum	Typical	Maximum	Units
Frequency Range	0.5		18	GHz
VSWR			3.5:1	
... measured @ -23 dBm				
Pulse Video Response Risettime		5		ns
Voltage Sensitivity		700		mV/mW
Flatness		± 1.5	± 3.2	dB
Input Power			+17	dBm CW
Tangential Signal Sensitiviey (TSS)		-50		dBm
Operating Temperature Range	-54		+100	deg C
Output Polarity		Negative		

Electrical Specification Notes:

TSS is measured @ 2 MHz Video Bandwidth

Voltage Sensitivity measured @ 0 dBm with 10 MOhm Load

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Mechanical Specifications

Size

Length	1.38 in	[35.05 mm]
Width	0.5 in	[12.7 mm]
Height	0.23 in	[5.84 mm]
Weight	0.03 lbs	[13.61 g]
Connector 1	SMA Male	
Connector 2	SMA Female	

Configuration

Mechanical Specification Notes:

Environmental Specifications

Temperature

Operating Temperature	-54 to +100 deg C
Storage Temperature	-65 to +125 deg C
Temperature Cycling	MIL-STD-202, Method 107D Cond. A
Humidity	MIL-STD-202, Method 103B Cond. B
Shock	MIL-STD-202, Method 213B Cond. B
Vibration	MIL-STD-202, Method 204D Cond. B
Altitude	MIL-STD-202, Method 105C Cond. B

Environmental Specification Notes:

Compliance Certifications

Plotted and Other Data

Notes:

Tunnel Diode Zero Bias Detector, 500 MHz to 18 GHz, SMA, Negative Video Out, +17 dBm Max Pin, 5 nsec Pulse Risetime, MIL-STD-202, Square from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Tunnel Diode Zero Bias Detector, 500 MHz to 18 GHz, SMA, Negative Video Out, +17 dBm Max Pin, 5 nsec Pulse Risetime, MIL-STD-202, Square PE80T6029](https://www.pasternack.com/tunnel-diode-zero-bias-detector-sma-negative-500-mhz-18-ghz-pe80t6029-p.aspx)

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The information contained within this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part in order to implement improvements. Pasternack Enterprises reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack Enterprises does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack Enterprises does not assume liability arising out of the use of any part or document.

PE80T6029 CAD Drawing

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