

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



FMMT6028

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 positive 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 Sensitivity (TSS)		-50		dBm
Operating Temperature Range	-54		+100	deg C
Output Polarity		Positive		

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:

SMA Tunnel Diode Zero Bias Detector, 500 MHz to 18 GHz, +17 dBm Max Pin, Positive Video Out, 5 nsec Pulse Risettime, MIL-STD-202, Square from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [SMA Tunnel Diode Zero Bias Detector, 500 MHz to 18 GHz, +17 dBm Max Pin, Positive Video Out, 5 nsec Pulse Risettime, MIL-STD-202, Square FMMT6028](#)

URL: <https://www.fairviewmicrowave.com/tunnel-diode-zero-bias-detector-sma-male-500-mhz-18-ghz-fmmt6028>

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FMMT6028 CAD Drawing

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