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

## FMMT6029

### 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 bandwith
- 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 Risetime | | 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:

SMA Tunnel Diode Zero Bias Detector, 500 MHz to 18 GHz, +17 dBm Max Pin, Negative Video Out, 5 nsec Pulse Risetime, 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, Negative Video Out, 5 nsec Pulse Risetime, MIL-STD-202, Square FMMT6029

URL: https://www.fairviewmicrowave.com/tunnel-diode-zero-bias-detector-sma-male-500-mhz-18-ghz-fmmt6029

# FMMT6029 CAD Drawing

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