

2.92mm Tunnel Diode Zero Bias Detector, 500 MHz to 18 GHz, +17 dBm Max Pin, Negative Video Out, 5 nsec Pulse Risettime, MIL-STD-202, Radial



## FMMT6027

### Features

- Tunnel diode detector with zero-bias operation
- Broadband frequency range: 0.5 GHz to 18.0 GHz
- Negative video output polarity
- High voltage sensitivity: 700 mV/mW typical
- Fast pulse video response: 5 ns typical
- Excellent frequency flatness:  $\pm 1.5$  dB typ,  $\pm 3.2$  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
- 2.92mm male RF input and 2.92mm 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 2.92mm-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                            |         | $\pm 1.5$ | $\pm 3.2$ | 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      | 1.3 in        | [33.02 mm] |
| Width       | 0.31 in       | [7.87 mm]  |
| Height      | 0.31 in       | [7.87 mm]  |
| Weight      | 0.03 lbs      | [13.61 g]  |
| Connector 1 | 2.92mm Male   |            |
| Connector 2 | 2.92mm 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:

2.92mm Tunnel Diode Zero Bias Detector, 500 MHz to 18 GHz, +17 dBm Max Pin, Negative Video Out, 5 nsec Pulse Risettime, MIL-STD-202, Radial 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: [2.92mm Tunnel Diode Zero Bias Detector, 500 MHz to 18 GHz, +17 dBm Max Pin, Negative Video Out, 5 nsec Pulse Risettime, MIL-STD-202, Radial FMMT6027](#)

URL: <https://www.fairviewmicrowave.com/tunnel-diode-zero-bias-detector-2.92mm-male-500-mhz-18-ghz-fmmt6027>

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FMMT6027 CAD Drawing

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