STD-10SF-103-PI

Rev 1.0

W-Band Waveguide Detector, Positive Polarity

Description:

Model STD-10SF-103-PI is a W Band waveguide detector that covers the frequency range of 75 to 110 GHz. The detector is zero biased and intended for small signal detection and network analyzer applications. Due to the proprietary circuitry design and careful diode selection, the detector exhibits high sensitivity and extremely flat output characteristics. The detector is designed to have a 10 MHz video bandwidth and a 1 MΩ video output impedance. The minimum detectable signal level is approximately -50 dBm. The Faraday isolator is integrated to improve the input port return loss.

Features:

- Full Waveguide Band Operation
- High Sensitivity Without Tuning
- Integrated Faraday Isolator

Applications:

- Test Lab
- Network Analyzer Systems
- Test instrumentations

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency Range	75 GHz		110 GHz
Sensitivity		800 mV/mW	
Sensitivity Flatness		±2.0 dB	
RF Input Power		-20 dBm	+17 dBm
Return Loss		15 dB	
Video Bandwidth*		10 MHz	
Output Voltage Polarity	Positive		
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

*Note: The video bandwidth can extend up to 10 GHz.

Mechanical Specifications:

Item	Specification
RF Port	WR-10 Waveguide with UG-387/U-M Anti-Cocking Flange
DC Port	SMA (F)
Size	3.50” (L) x 0.94” (Ø)
Flange Material	Brass
Finish	Gold Plated and Black Anodized
Weight	2.8 Oz
Outline	TD-W1-103-A

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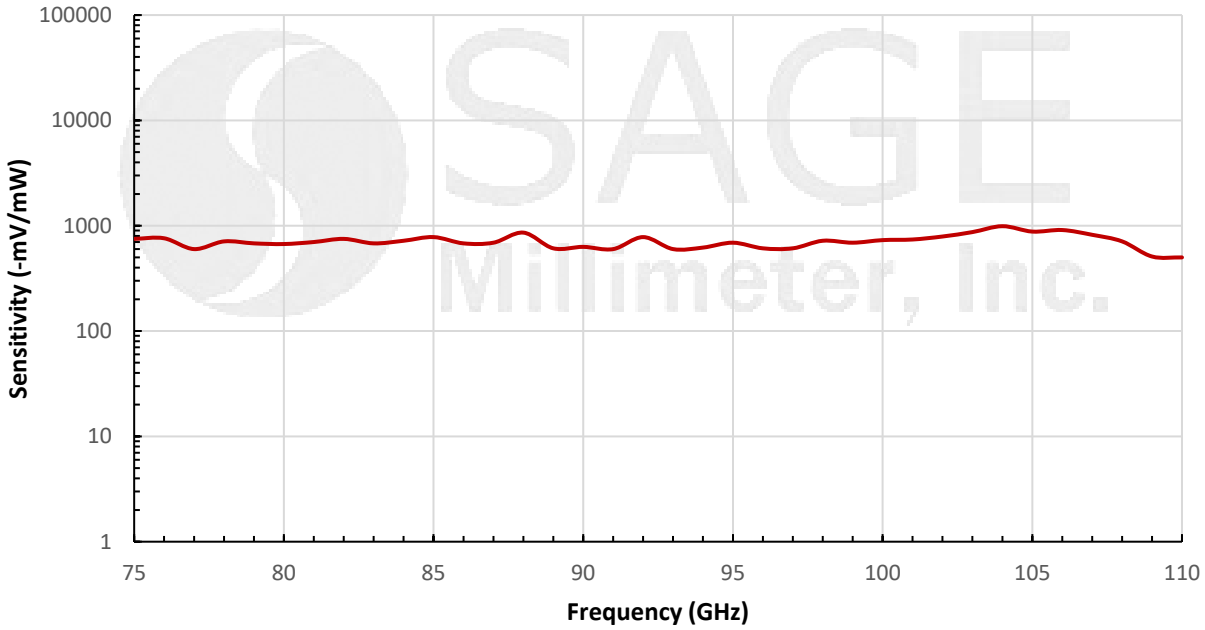
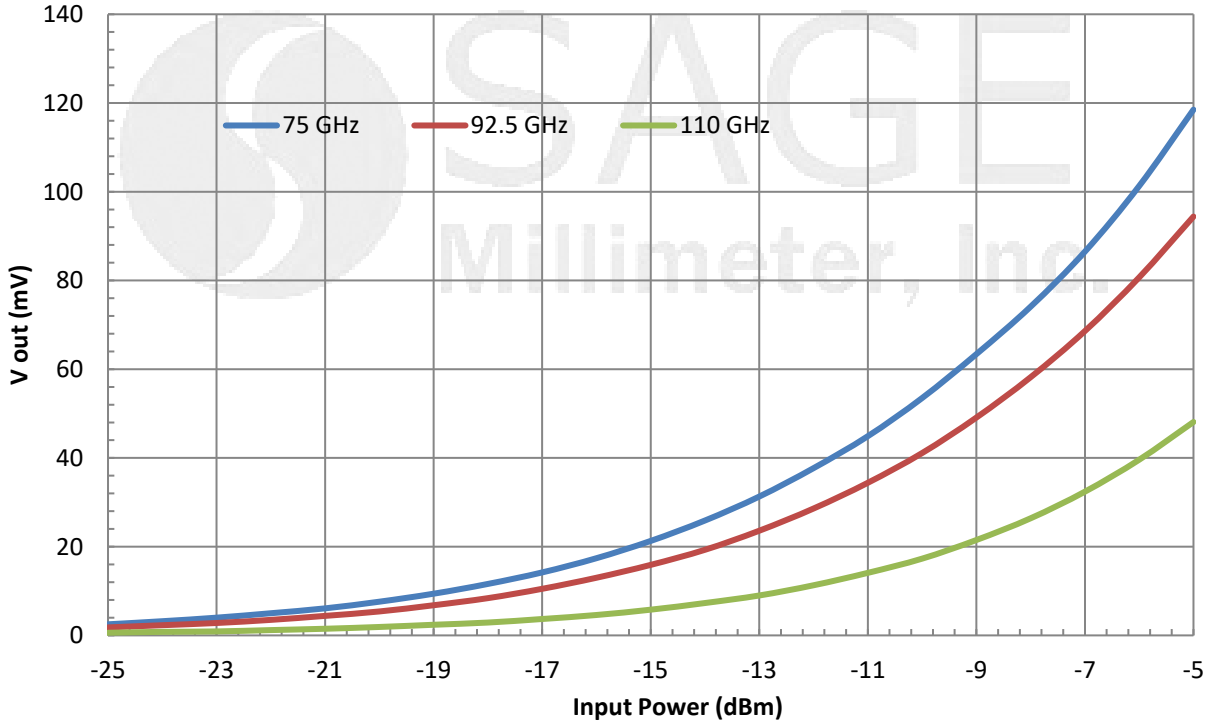
Typical Performance vs. Frequency

P_{in} = -20 dBm



Typical Detected Voltage vs. Input Power



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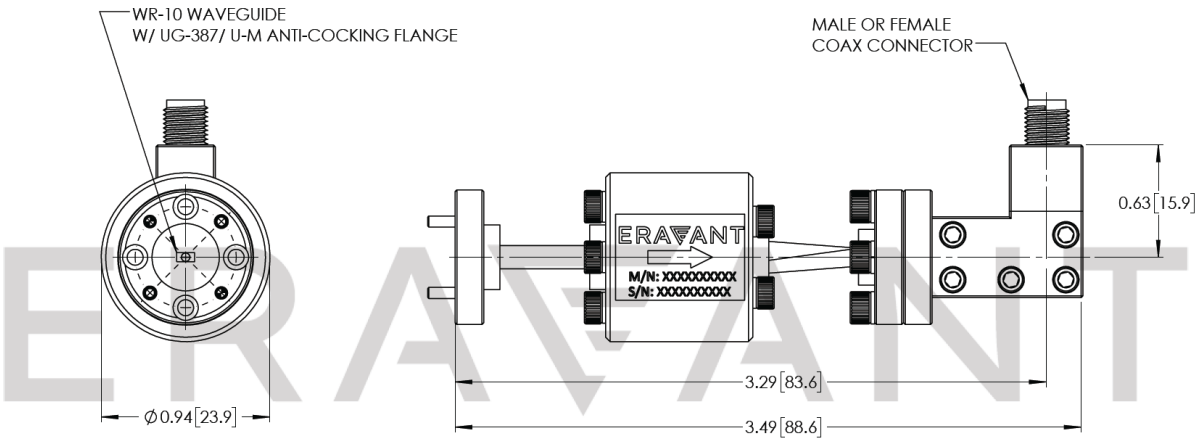
Mechanical Outline: (Unless otherwise specified, all dimensions are in inches)



Note:

- All data presented is collected from a sample lot. Actual data may vary unit to unit, slightly.
- All testing was performed under +25 °C case temperature.
- Negative output voltage polarity is available under the model number **STD-10SF-103-NI**.
- Eravant reserves the right to change the information presented without notice.

Caution:

- Exceeding absolute maximum ratings will damage the device.
- The device is static sensitive. Always follow ESD rules when working with the device.
- Any foreign objects in the waveguide will cause performance degradation and can possibly damage the device.
- Proper torque, 8.0 ± 0.4 inch-pounds (0.90 ± 0.02 Nm), should be applied. **Eravant torque wrench, model SCH-08008-S1, is highly recommended.**