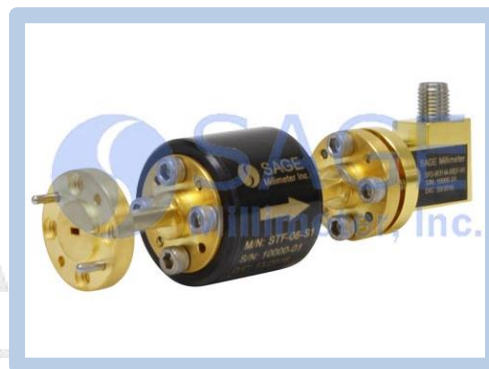


## F-Band Waveguide Detector

### Description:

**Model STD-08SF-PI** is an F Band waveguide detector that covers the frequency range of 90 to 140 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 M $\Omega$  video output impedance. The minimum detectable signal level is approximately -50 dBm. The Faraday isolator is integrated to improve the input port VSWR.



### 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         | 90 GHz  |              | 140 GHz |
| Sensitivity             |         | 300 mV/mW    |         |
| Sensitivity Flatness    |         | $\pm 2.0$ dB |         |
| RF Input Power          |         | -20 dBm      | +17 dBm |
| VSWR                    |         | 1.4:1        |         |
| Video Bandwidth         |         | 10 MHz       |         |
| Output Voltage Polarity |         | Positive*    |         |

\*Note: Negative output voltage polarity is available under model number **STD-08SF-NI**.

### Mechanical Specifications:

| Item            | Specification                          |
|-----------------|----------------------------------------|
| RF Port         | WR-08 Waveguide with UG-387/U-M Flange |
| DC Port         | SMA (F)                                |
| Size            | 3.50" (L) x 0.94" ( $\varnothing$ )    |
| Flange Material | Brass                                  |
| Finish          | Gold Plated and Black Anodized         |
| Weight          | 2.8 Oz                                 |
| Outline         | TD-F1                                  |

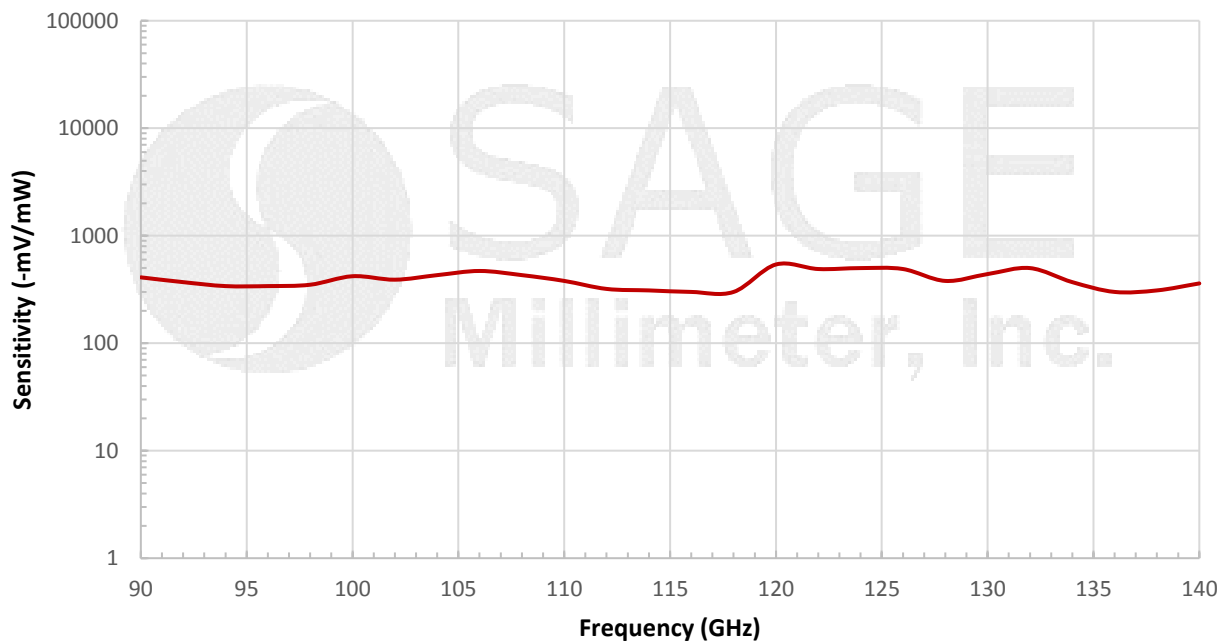




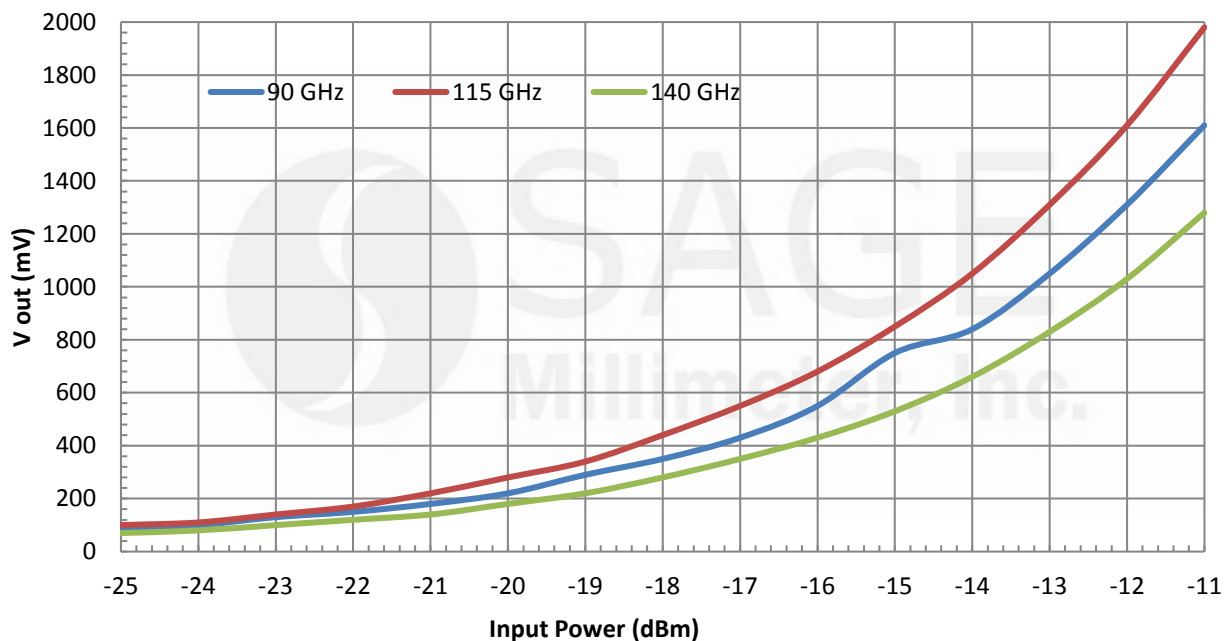
## F-Band Waveguide Detector

### Typical Performance vs. Frequency

$P_{in} = -20$  dBm



### Typical Detected Voltage vs. Input Power



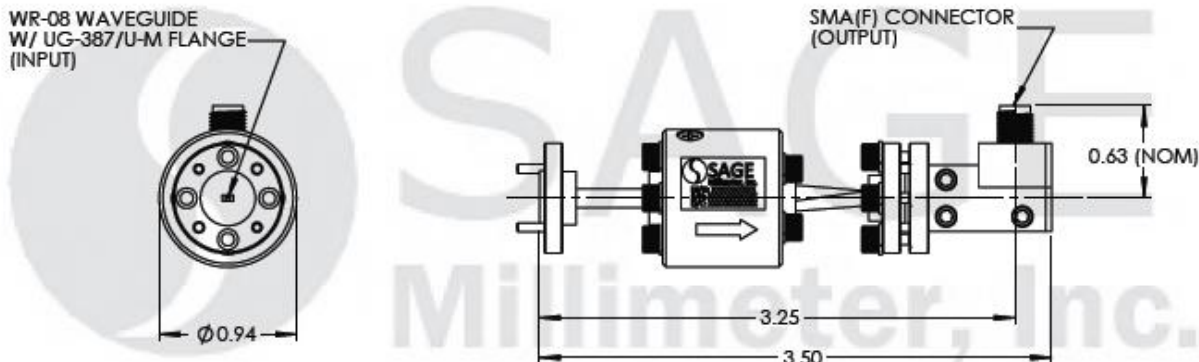
**Mechanical Outline:** (Unless otherwise specified, all dimensions are in inches)



www.sagemillimeter.com | 3043 Kashiwa Street, Torrance, CA 90505  
Phone: 424-757-0168 | Fax: 424-757-0188 | Email: sales@sagemillimeter.com



## F-Band Waveguide Detector



### Note:

- All data are presented using a limited sample lot. Actual data may vary unit to unit.
- All testing was performed under 25°C case temperature.
- SAGE Millimeter, Inc. 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,  $8.0 \pm 0.15$  inch-pounds ( $0.92 \pm 0.05$  Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**