



## F-Band Faraday Isolator

### Description:

**Model STF-08-S1** is a full band Faraday isolator that operates from 90 to 140 GHz. The Faraday isolator is constructed with a longitudinal, magnetized ferrite rod that causes a Faraday rotation of the incoming RF signal. The Faraday isolator offers 30 dB typical isolation and 2.0 dB nominal insertion loss with good flatness. The return loss of the isolator is 14 dB. The input and output ports are WR-08 waveguides with UG-387/U-M flanges.



### Features:

- Full Waveguide Band Operation
- Moderate Insertion Loss
- High Isolation
- Instrumentation Grade

### Applications:

- Test Labs
- Instrumentations
- Sub-assemblies

### Electrical Specifications:

| Parameter                 | Minimum | Typical    | Maximum    |
|---------------------------|---------|------------|------------|
| RF Frequency              | 90 GHz  |            | 140 GHz    |
| Insertion Loss            |         | 2.0 dB     | 2.6 dB     |
| Isolation                 |         | 30 dB      |            |
| Return Loss               |         | 14 dB      |            |
| Power Handling            |         | 0.8 W (CW) | 1.0 W (CW) |
| Specification Temperature |         | +25 °C     |            |
| Operation Temperature     | -40 °C  |            | +85 °C     |

### Mechanical Specifications:

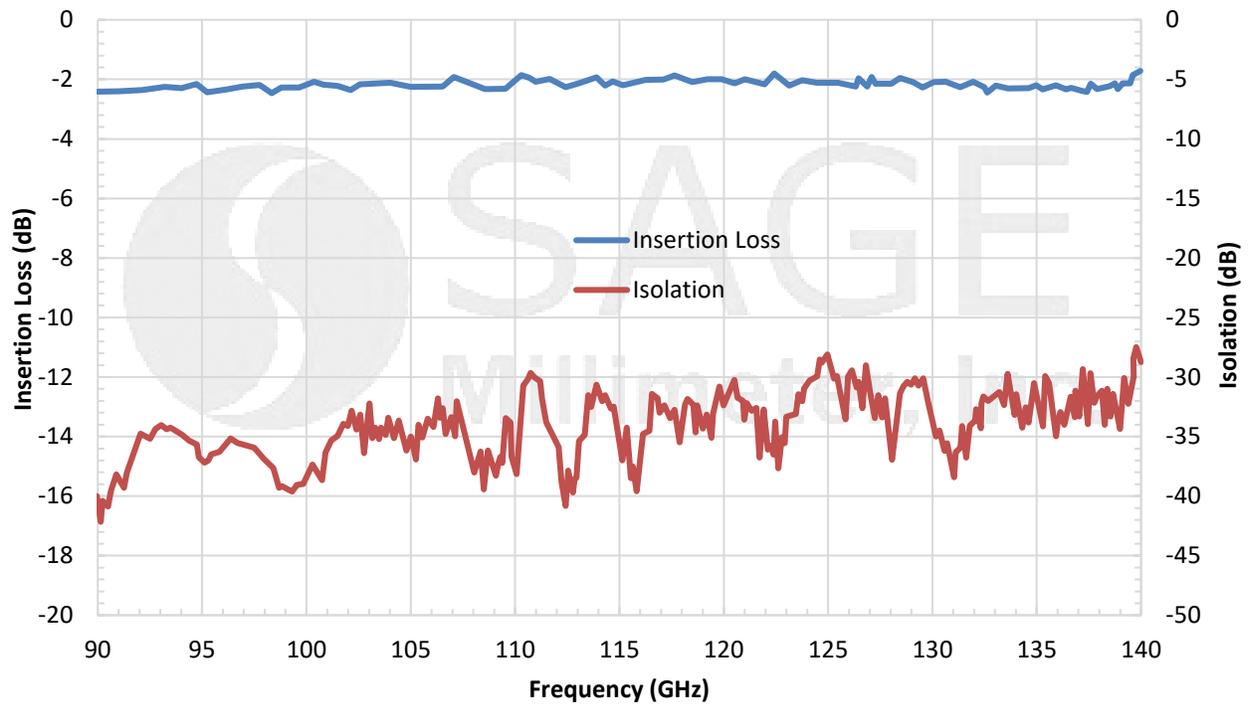
| Item                      | Specification                          |
|---------------------------|----------------------------------------|
| RF Input and Output       | WR-08 Waveguide with UG-387/U-M Flange |
| Waveguide Flange Material | Brass                                  |
| Waveguide Flange Finish   | Gold Plated                            |
| Cover Material            | Aluminum                               |
| Cover Finish              | Black Anodized                         |
| Weight                    | 2.2 Oz                                 |
| Insertion Length          | 2.5"                                   |
| Outline                   | TF-SF                                  |



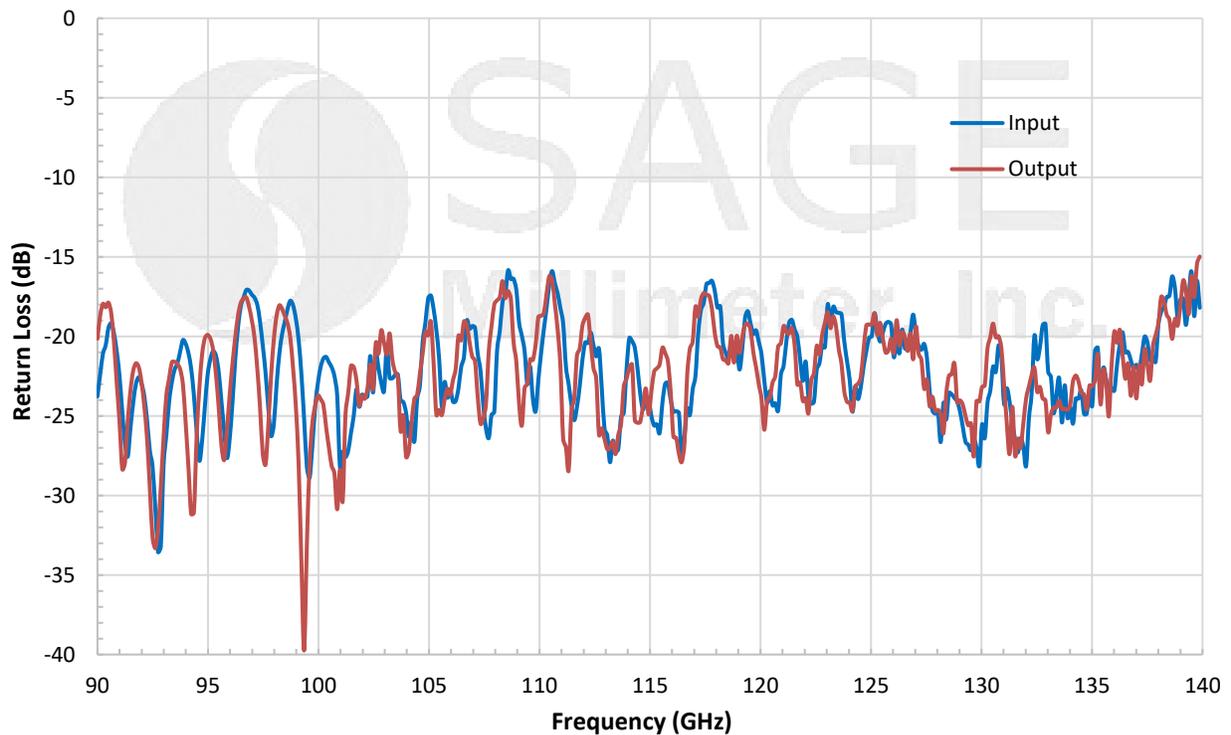


## F-Band Faraday Isolator

Typical Performance vs. Frequency



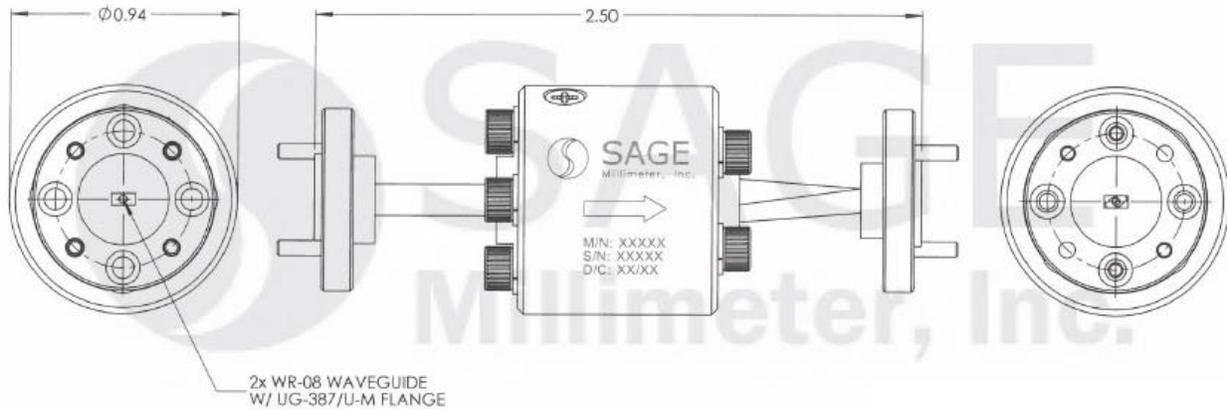
Typical Return Loss vs. Frequency





## F-Band Faraday Isolator

**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.
- All testing was performed under +25°C case temperature.
- The model with orthogonal input and output ports is offered under model number **STF-08-91**.
- The compact version is offered under model number **STF-08-S1-C**.
- Other custom mechanical configurations are available under different model numbers.
- 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 sensitive to magnetic fields. Always keep magnet fields 6 inches away.
- Any foreign objects in the waveguide will cause performance degradation and possible device damage.

