# STC-20-10-S1

## W-Band Full Waveguide Band Down-Converter

**STC-20-10-S1** is a W-Band down-converter that converts millimeterwave signals from a frequency range of 75 to 110 GHz to the baseband at 10 MHz to 1.6 GHz. The down-converter requires 12.5 to 18.33 GHz at +3 dBm input power, which can be obtained from a standard 20 GHz synthesizer, such as Eravant model SOT-02220313200-SF-B6. The down-converter has low harmonic levels and excellent gain flatness, making it a good candidate to extend low frequency test equipment for millimeterwave testing purposes.

### Electrical Specifications:

| Parameter | Minimum | Typical | Maximum |
|---|---|---|---|
| RF Input Frequency | 75 GHz | | 110 GHz |
| IF Output Frequency | 10 MHz | 1 GHz | 1.6 GHz |
| LO Input Frequency | 12.5 GHz | | 18.33 GHz |
| LO Power | | +3 dBm | +20 dBm |
| Conversion Gain | | 20 dB | |
| Harmonic Suppression | | 20 dBc | |
| Input P1dB | | -5 dBm | |
| RF Input Power Damage Level | | | +10 dBm |
| Power Supply (AC Adapter Provided) | 100 $V_{AC}$ | | 240 $V_{AC}$ |
| Specification Temperature | | +25 ˚C | |
| Operating Temperature | 0 ˚C | | +50 ˚C |

### Mechanical Specifications:

| Item | Specification |
|---|---|
| RF Port | WR-10 Waveguide with UG-387/U-M Precision Anti-Cocking Flange |
| LO Port | SMA (F) |
| IF Port | SMA (F) |
| DC Bias Port | 2.5 mm DC Jack (AC-to-DC power converter included) |
| DC Bias Switch | On-Off Latching Switch with Indicator Light |
| Enclosure Material | Black Anodized Aluminum |
| Weight | 2.3 lbs |
| Size | 4.89” (W) x 5.00” (L) x 1.90” (H) |
| Outline | TC-W-A |

**ECCN**

3A001.b.7

**FEATURES**

- Full Band Coverage

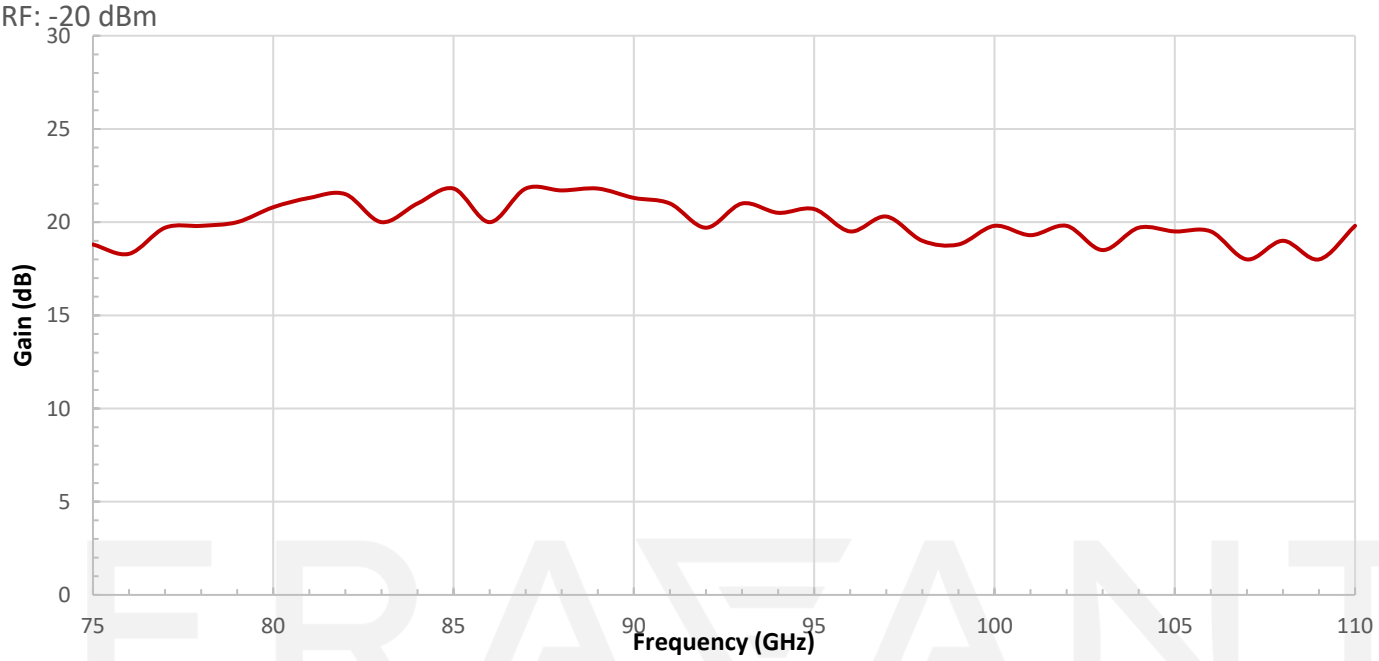
**APPLICATIONS**

- Test Lab
- Instrumentations
- Auto Test Set

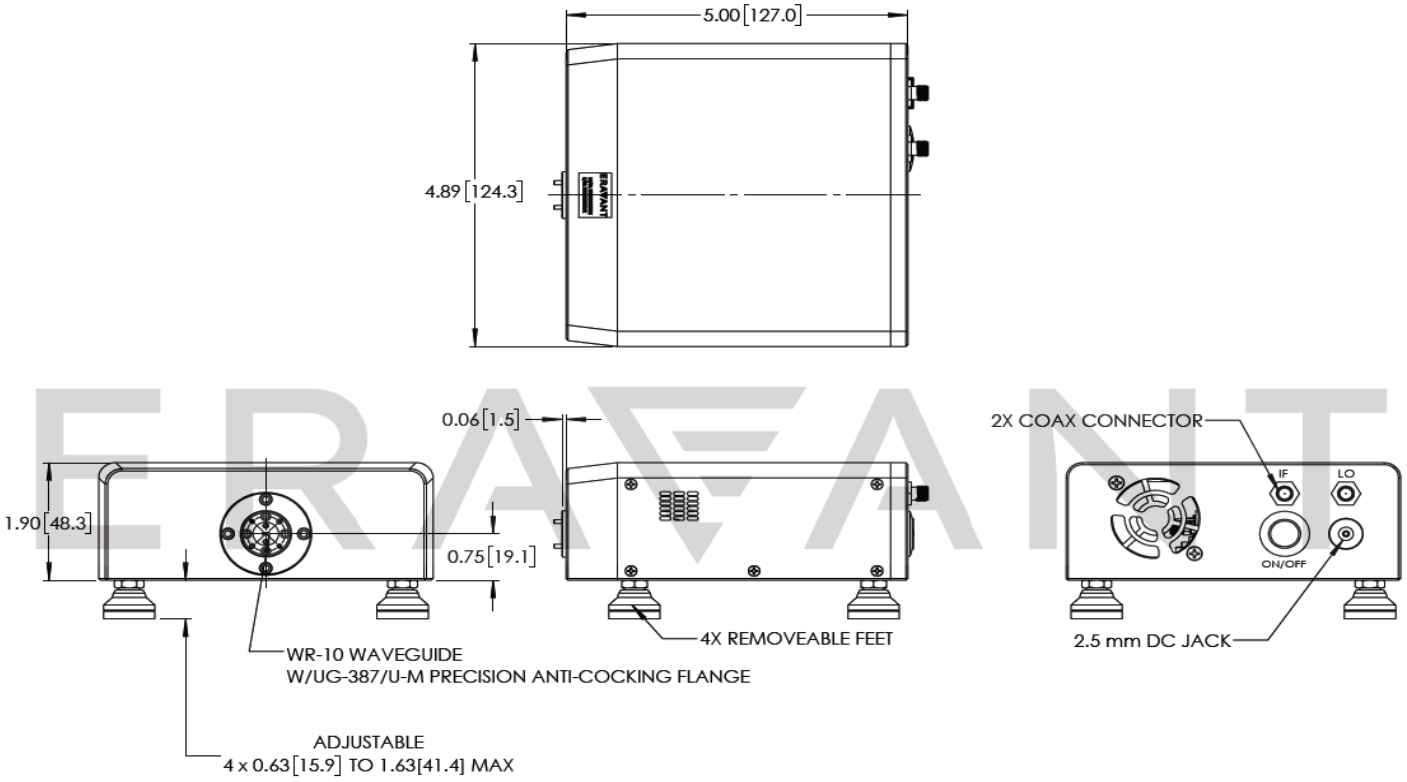
**SUPPLEMENTAL DETAILS**

## Typical Conversion Gain vs. Frequency

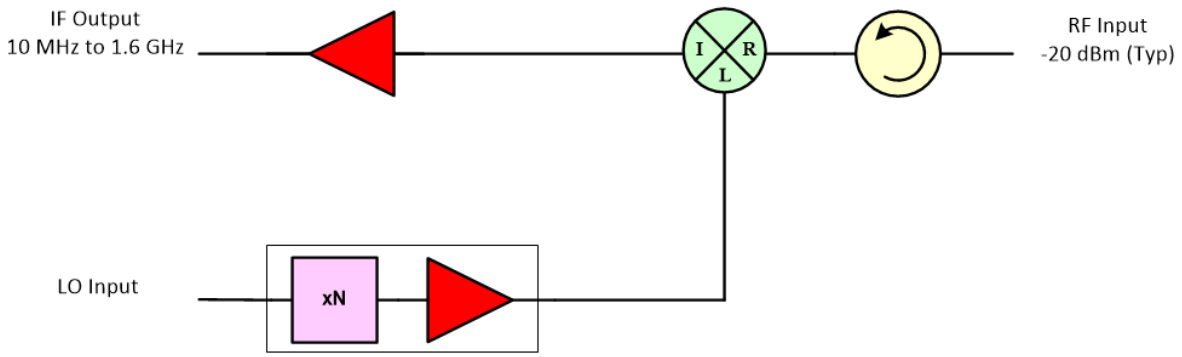
RF: -20 dBm




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



## Block Diagram:




**NOTE:**

- On condition that test data is provided it is collected from a sample lot. Actual data may vary slightly from unit to unit.
- All testing is performed under +25 °C room temperature.
- Eravant reserves the right to change the information presented without notice.

**CAUTION:**

- Exceeding absolute maximum ratings of the device will damage the device.
- If a waveguide is present, any foreign objects in the waveguide will cause performance degradation and may damage or destroy the unit.
- For 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, and SMA connectors proper torque should be applied: 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm). Torque wrench model SCH-08008-S1 is highly recommended