



Q-Band Full Waveguide Band Down-converter

Description:

Model STC-20-22-S1 is a Q-Band down-converter that converts millimeterwave signals from a frequency range of 33 to 50 GHz to the baseband at 10 MHz to 1.6 GHz. The down-converter requires 8.25 to 12.5 GHz at 0 dBm input power as its LO, 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.



Features:

- Full Band Coverage
- Good Gain Flatness
- 12 dB Typical Noise Figure

Applications:

- Test Lab
- Instrumentations
- Auto Test Set

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Input Frequency	33.0 GHz		50 GHz
IF Frequency Output	10 MHz		1.6 GHz
LO Input Frequency	8.25 GHz		12.5 GHz
LO Power		+0 dBm	+10 dBm
Conversion Gain		20 dB	
Harmonic Suppression		20 dB	
LO or RF Input Power Damage Level			+18 dBm
Power Supply (AC Adapter Provided)	100 V _{AC}		240 V _{AC}
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

Mechanical Specifications:

Port	Connector
RF Port	WR-22 Waveguide with UG-383/U 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 Rocker Switch with Indicator Light
Enclosure Material	Extruded Aluminum Finish Black Anodized
Weight	3.5 lb
Size	6.15" (W) x 8.86" (L) x 3.20" to 5.82" (H)
Outline	TC-Q

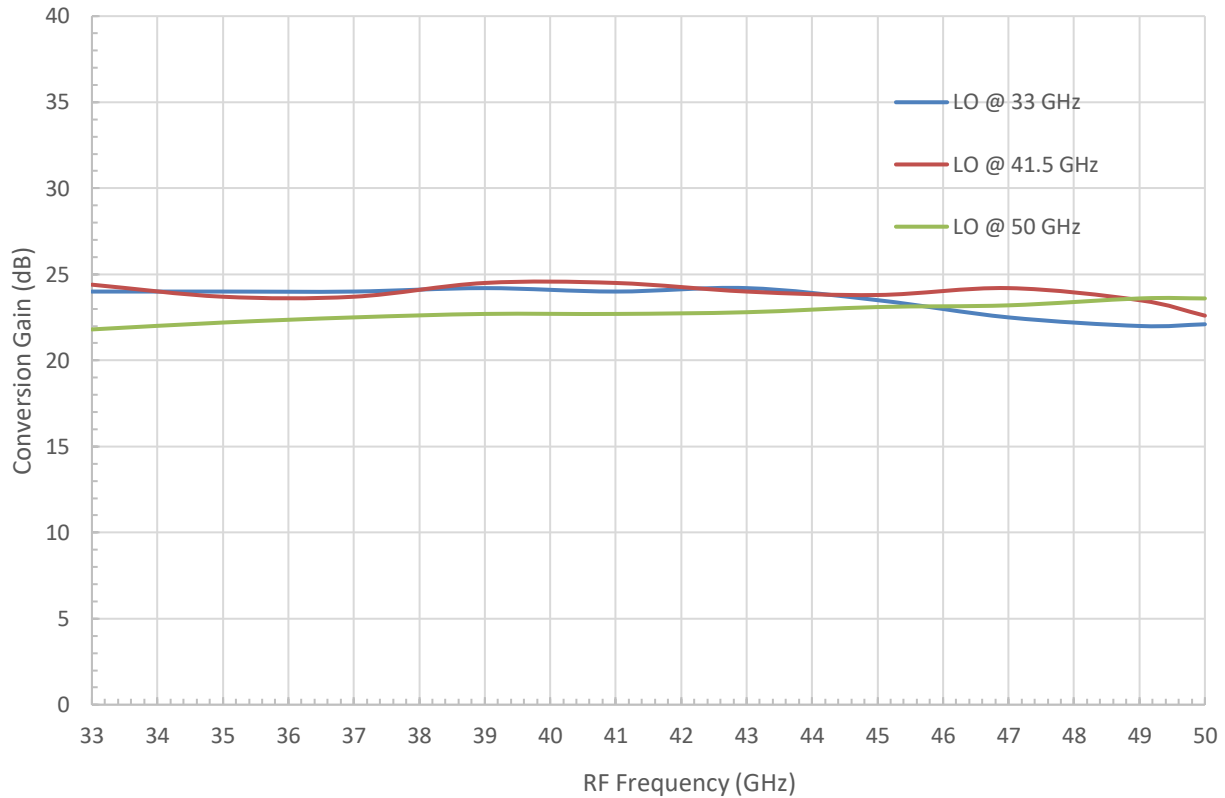




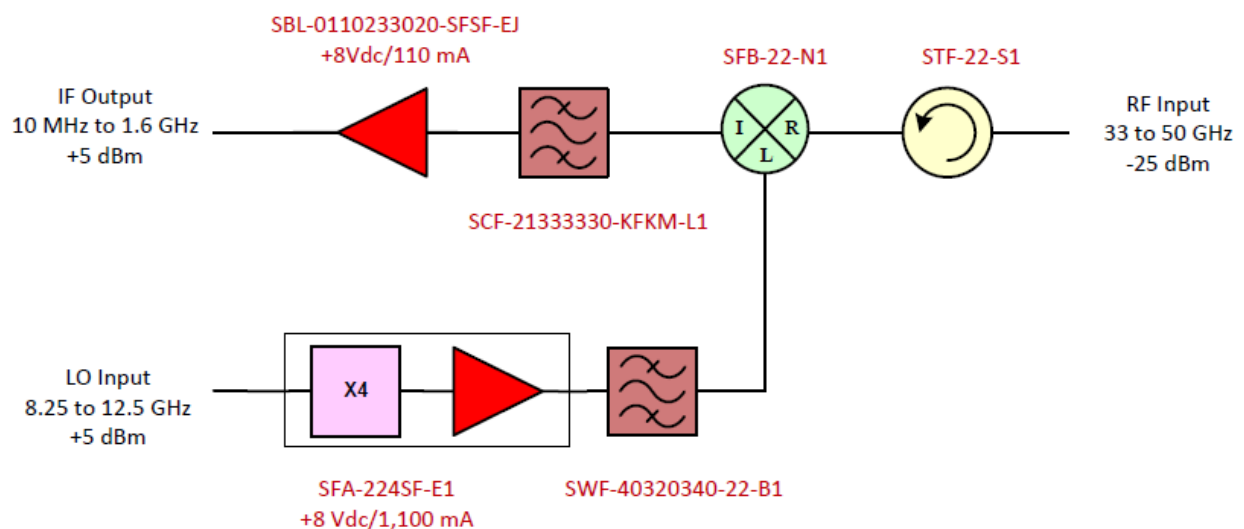
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Typical Conversion Gain vs. RF Frequency

RF: -20 dBm; LO: 0 dBm

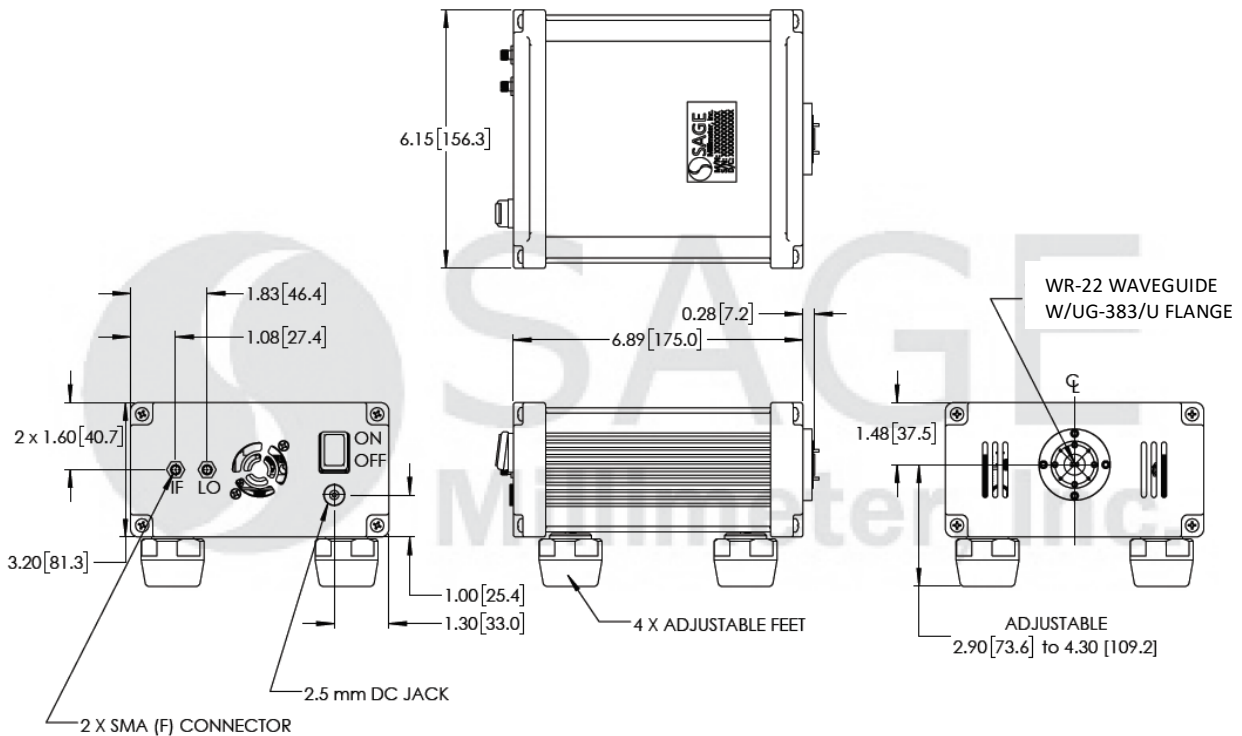


Block Diagram:



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



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.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

Caution:

- Exceeding absolute maximum ratings of the device will damage the device.
- Proper torque, 8.0 ± 0.4 inch-pounds (0.90 ± 0.02 Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**
- Any foreign objects in the waveguide will cause performance degradation or damage the device.

