STC-20-19-S1

Rev 1.0

U-Band Full Waveguide Band Down-Converter

Description:

Model STC-20-19-S1 is a U-Band down-converter that converts millimeterwave signals from a frequency range of 40 to 60 GHz to the baseband at 10 MHz to 1.6 GHz. The down-converter requires 10 to 15 GHz at +5 dBm input power, which can be obtained from a standard 20 GHz synthesizer. 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

Applications:

- Test Lab
- Instrumentations
- Auto Test Set

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Input Frequency	40 GHz		60 GHz
IF Frequency Output	10 MHz		1.6 GHz
LO Input Frequency	10 GHz		15 GHz
LO Power	+3 dBm	+5 dBm	+20 dBm
Conversion Gain		20 dB	
Noise Figure		11 dB	
Harmonic Suppression		20 dB	
LO Damage Level			+20 dBm
RF Damage Level			+15 dBm
DC Bias	+8 V_{DC}	+12 V_{DC}	+16 V_{DC}
DC Current		450 mA	750 mA
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Mechanical Specifications:

Port	Connector
RF Port	WR-19 Waveguide with UG-383/U-M Flange
LO Port	SMA (F)
IF Port	SMA (F)
Bias Port	Banana Jack
Finish	Black Anodized
Weight	3.5 lb
Size	6.15” (W) x 8.86” (L) x 3.20” to 5.82” (H)
Outline	TC-U

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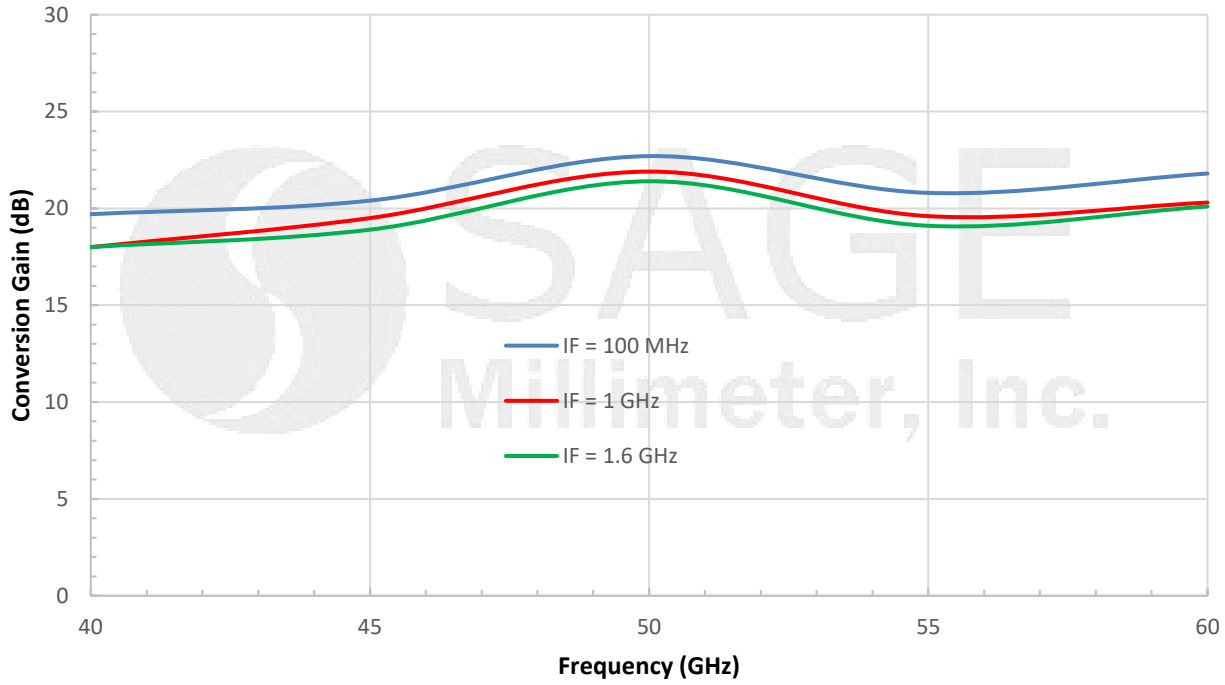
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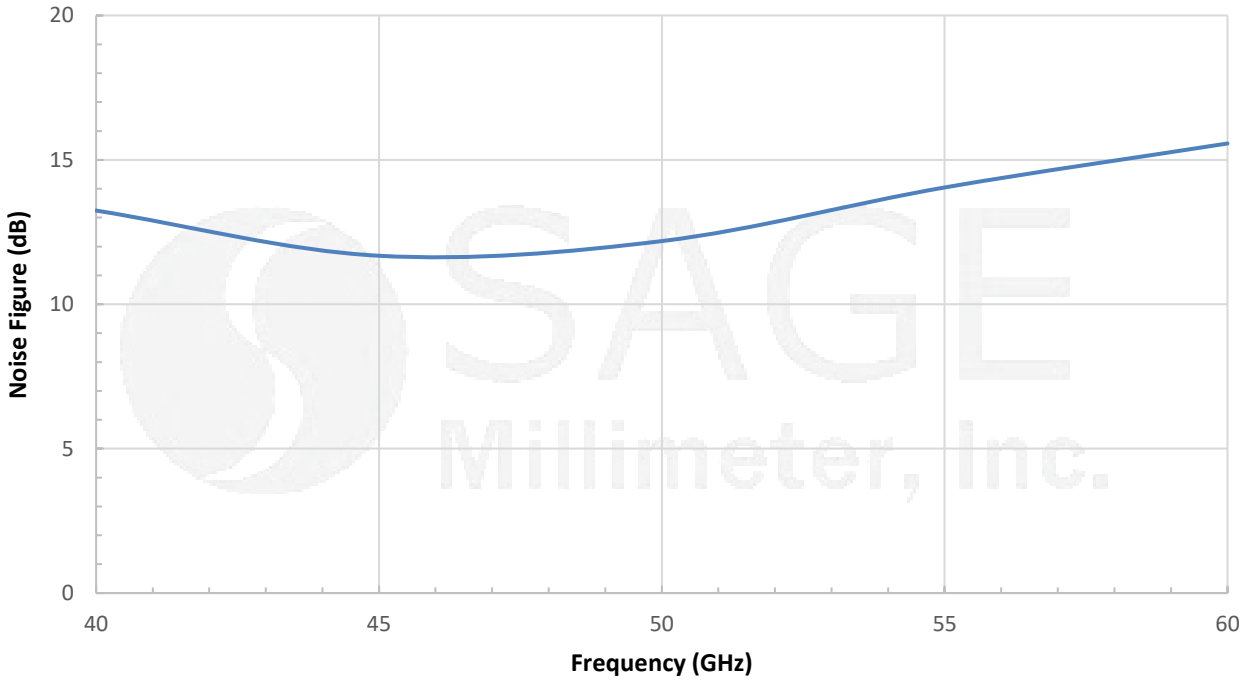
Typical Conversion Gain vs. Frequency

RF = -20 dBm, LO = +1 dBm



Typical Noise Figure vs. Frequency

LO = +4 dBm, IF = 1 GHz



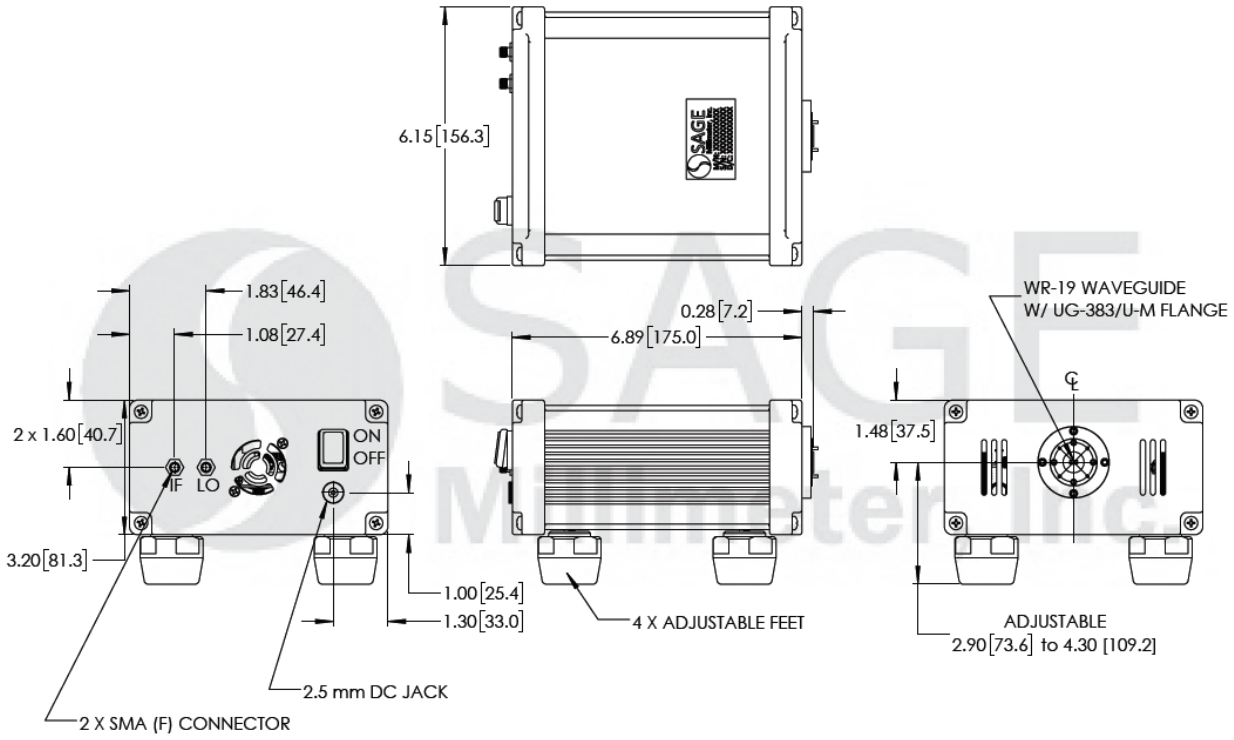
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Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



Note:

- All data presented is collected from a sample lot. Actual data may vary unit to unit, slightly.
- 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 ± 0.15 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.

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