



E-Band Full Waveguide Band Down-Converter

Description:

Model STC-20-12-S1 is an E-Band down-converter that converts millimeterwave signals from a frequency range of 60 to 90 GHz to the baseband at 10 MHz to 1.6 GHz. The down-converter requires a +5 dBm input power at 10 to 15 GHz, which can be obtained from a standard 20 GHz synthesizer. The down-converter has low harmonic emissions and good gain flatness, making it an ideal 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	60 GHz		90 GHz
IF Frequency Output	10 MHz		1.6 GHz
LO Input Frequency	10 GHz		15 GHz
LO Input Power	+3 dBm	+5 dBm	+20 dBm
Conversion Gain		20 dB	
Noise Figure		13 dB	
Harmonic Suppression		20 dB	
LO Damage Level			+15 dBm
RF Damage Level			+5 dBm
Bias Voltage	+8 V _{DC}	+12 V _{DC}	+16 V _{DC}
Bias Current		450 mA	
Specification Temperature		+25 °C	
Operating Temperature	+0 °C		+50 °C

Mechanical Specifications:

Item	Specification
RF Port	WR-12 Waveguide with UG-387/U Flange
LO Port	SMA (F)
IF Port	SMA (F)
Bias Port	Banana Jack
Finish	Black Anodized
Weight	3.2 lbs
Size	6.15" (W) x 6.89" (L) x 3.20" to 5.82" (H)
Outline	TC-E

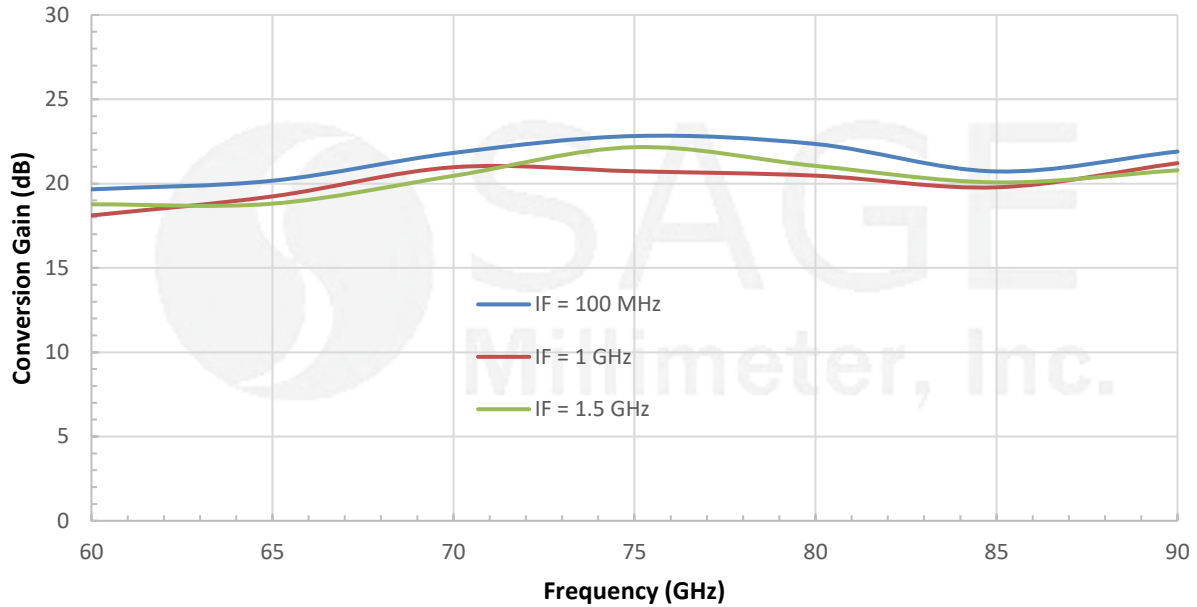




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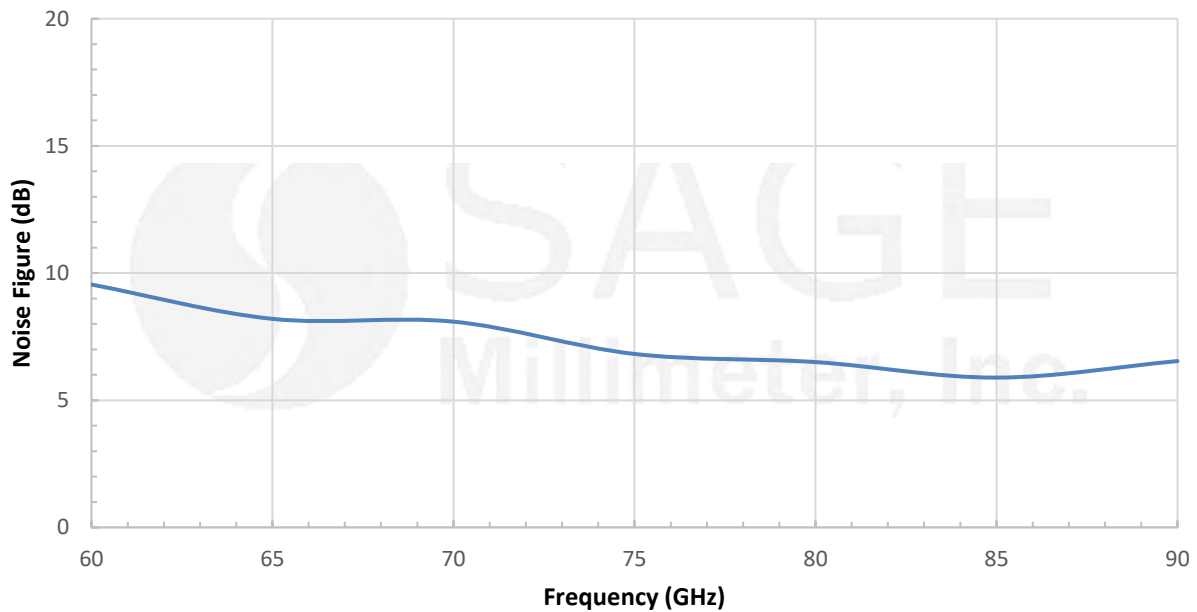
Typical Conversion Gain vs. Frequency

RF = -15 dBm, LO = +5 dBm



Typical Noise Figure vs. Frequency

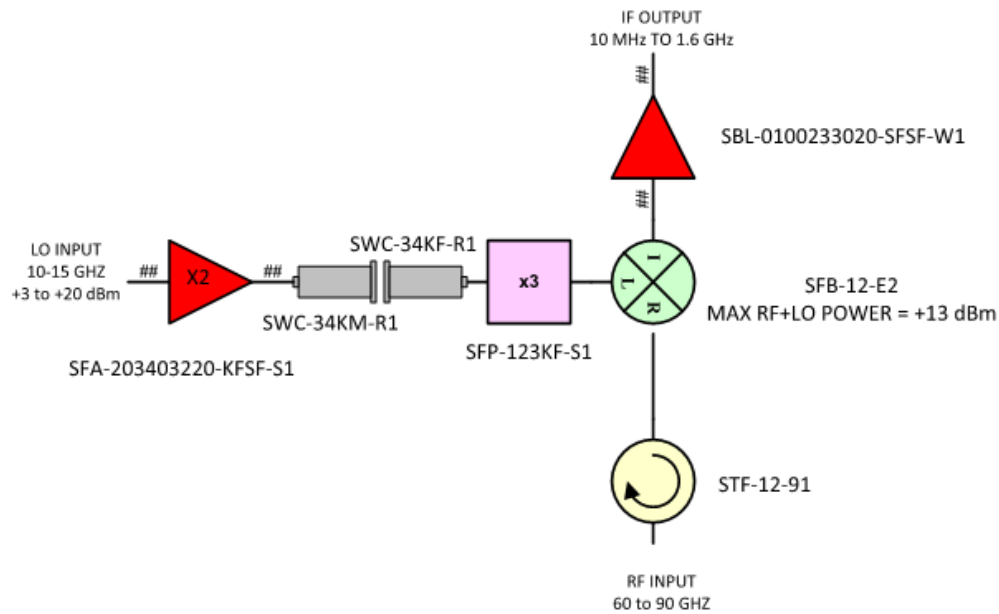
LO = +5 dBm, IF = 1 GHz



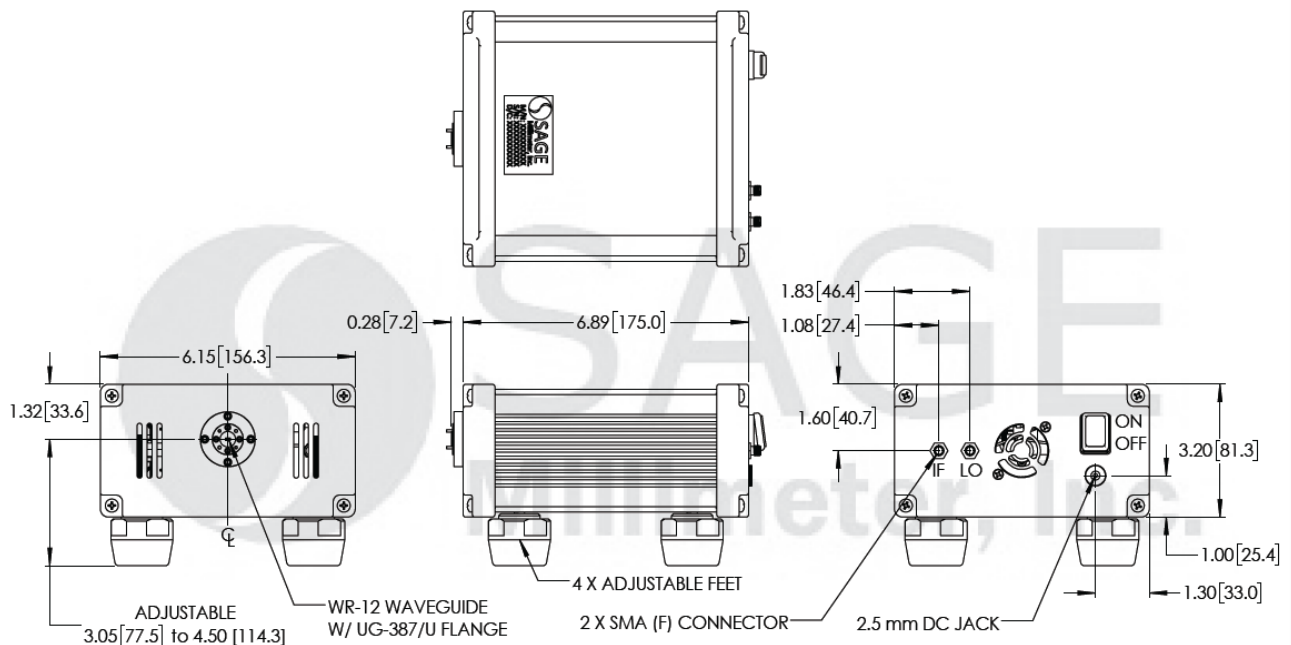


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Block Diagram:



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





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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 ± 0.15 inch-pounds (0.92 ± 0.05 Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**
- Any foreign objects in the waveguide will degrade performance and may damage the device.

