

E-Band Extended Waveguide Band Down-Converter

STC-58390305-12-C1 is an extended E-Band down-converter that converts millimeterwave signals from the frequency range of 58 to 90 GHz to the baseband at 4 to 36 GHz. The down-converter has a built-in phase locked oscillator (PLO), which is externally referenced at 10 MHz. The down converter also integrates a PIN diode based SPDT switch at the RF input for receiving signal level monitoring. The switch is controlled by TTL signal and the bypassing “on” is at TTL “low.” The bypassing loss is 4 dB typical and 6 dB maximum. The RF ports for the downconverter are WR-12 waveguides with UG-387/U anti-cocking flange. The IF output is a 2.92 mm (F) connector and PLO reference signal input connector is an SMA (F) connector. A wall mount AC adapter is included for AC powering.



Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Input Frequency	58 GHz		90 GHz
IF Frequency Output	4 GHz		36 GHz
Conversion Gain	-1 dB	5 dB	13 dB
Combined Harmonic Power			-70 dBm
Spurious			-40 dBc
Noise Figure		10 dB	15 dB
Bypass Insertion Loss		4 dB	6 dB
Bypass “ON”		TTL “Low”	
Converter Mode	TTL “High” or No Input		
TTL Low	0 V _{DC}		+0.8 V _{DC}
TTL High	+2.7 V _{DC}		+5.0 V _{DC}
Switch Isolation	15 dB	25 dB	
Input P _{1dB}	-20 dBm		
Internal LO Multiplication		x4	
PLO Lock LED Indicator		“On”	
Reference Frequency		10 MHz	
Reference Input Power	-5 dBm	+3 dBm	+10 dBm
RF Damage Level (Bypassing)			+10 dBm
RF Damage Level (Converting)			-10 dBm
Return Loss		10 dB	
Power Supply (AC Adapter Provided)	100 V _{AC}		240 V _{AC}
Specification Temperature		+25°C	
Operating Temperature	0°C		+50°C

ECCN

3A001.b.4

FEATURES

- Full Waveguide Band Coverage
- High IF Frequency Range

APPLICATIONS

- Test Lab
- Instrumentations
- Auto Test Set

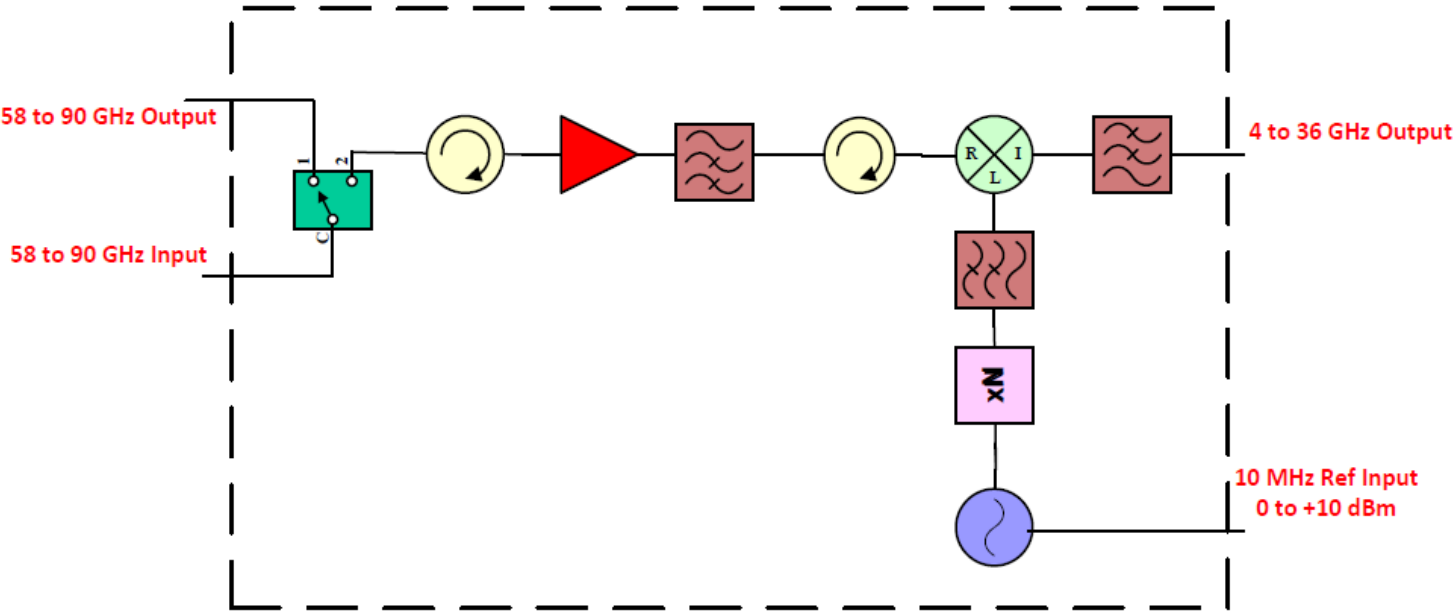
SUPPLEMENTAL DETAILS



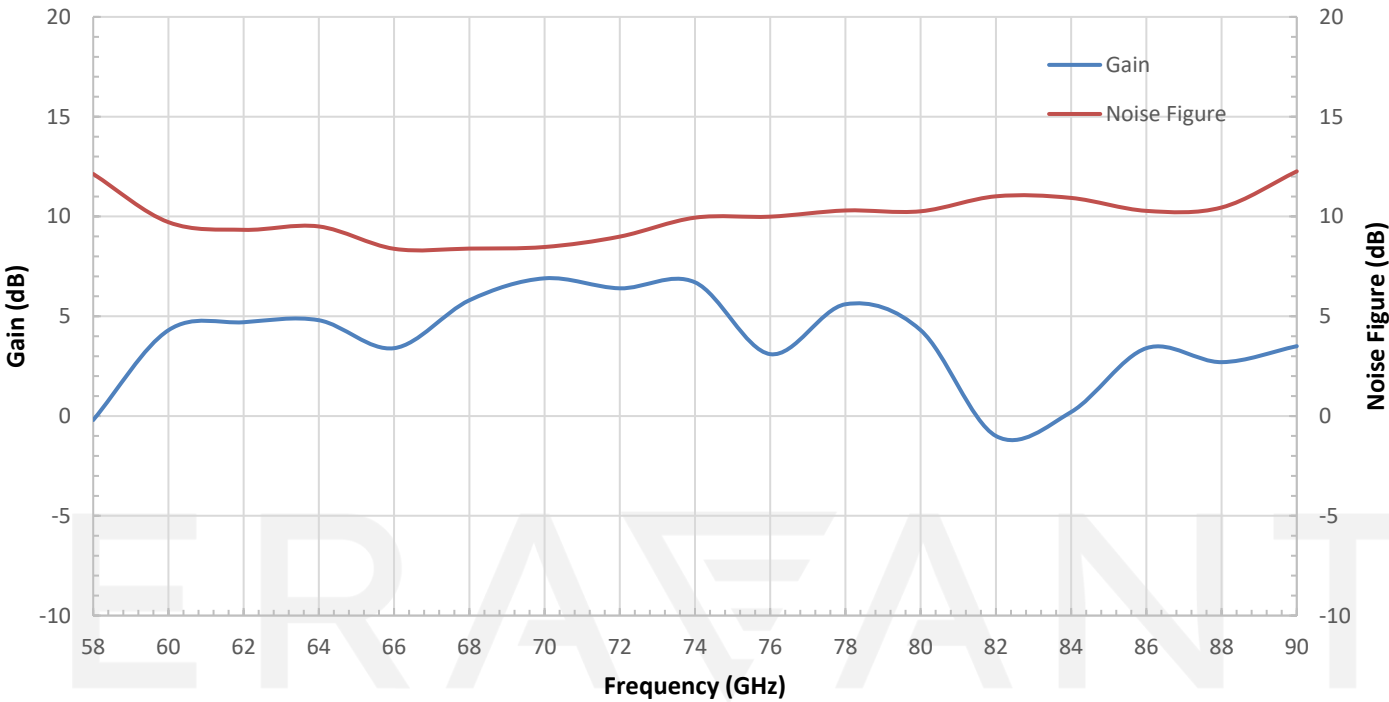
Mechanical Specifications:

Item	Specification
RF Input/Output Ports	WR-12 Waveguide with UG-387/U Anti-Cocking Flange
10 MHz Reference Port	SMA (F)
TTL Port	SMA (F)
IF Port	2.92 mm (F)
Bias Port	2.5 mm DC Jack (AC-to-DC power converter included)
Finish	Black Anodized
Weight	4.4 lbs
Size	10.0" (L) x 6.0" (W) x 1.90" (H)
Outline	TC-E-A-2

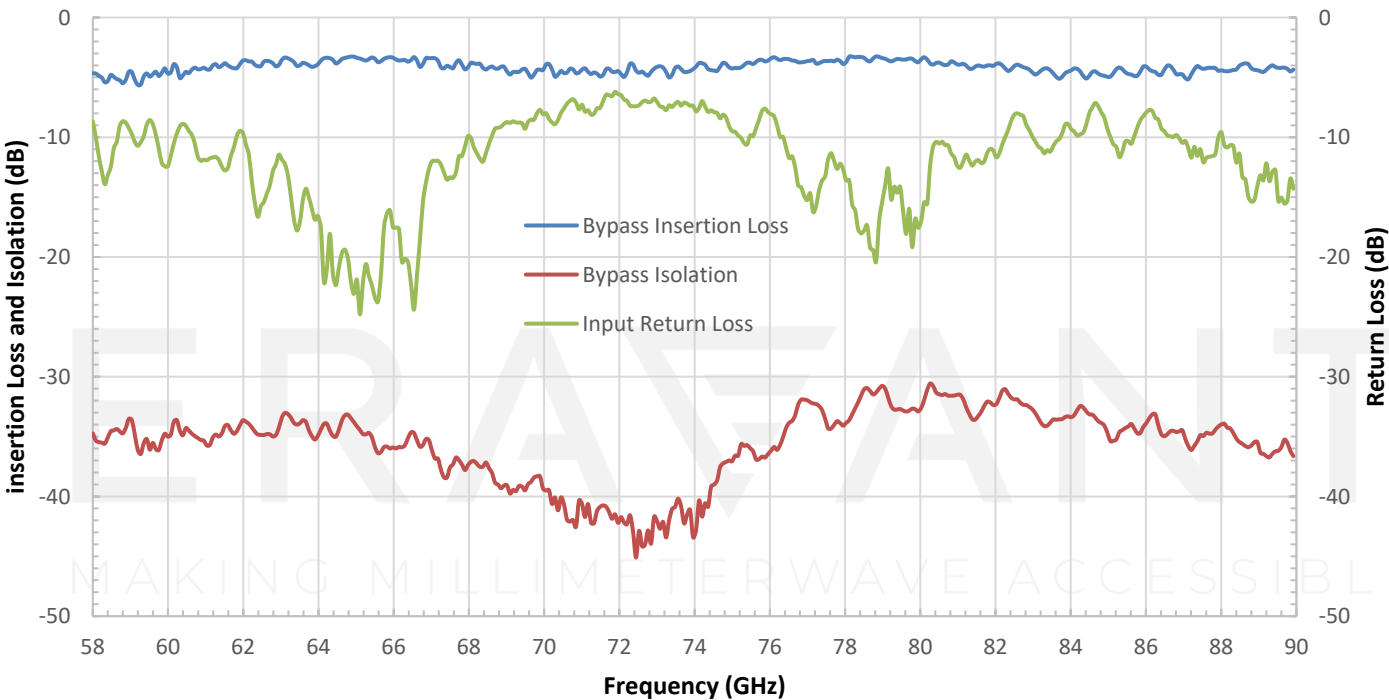
Block Diagram:



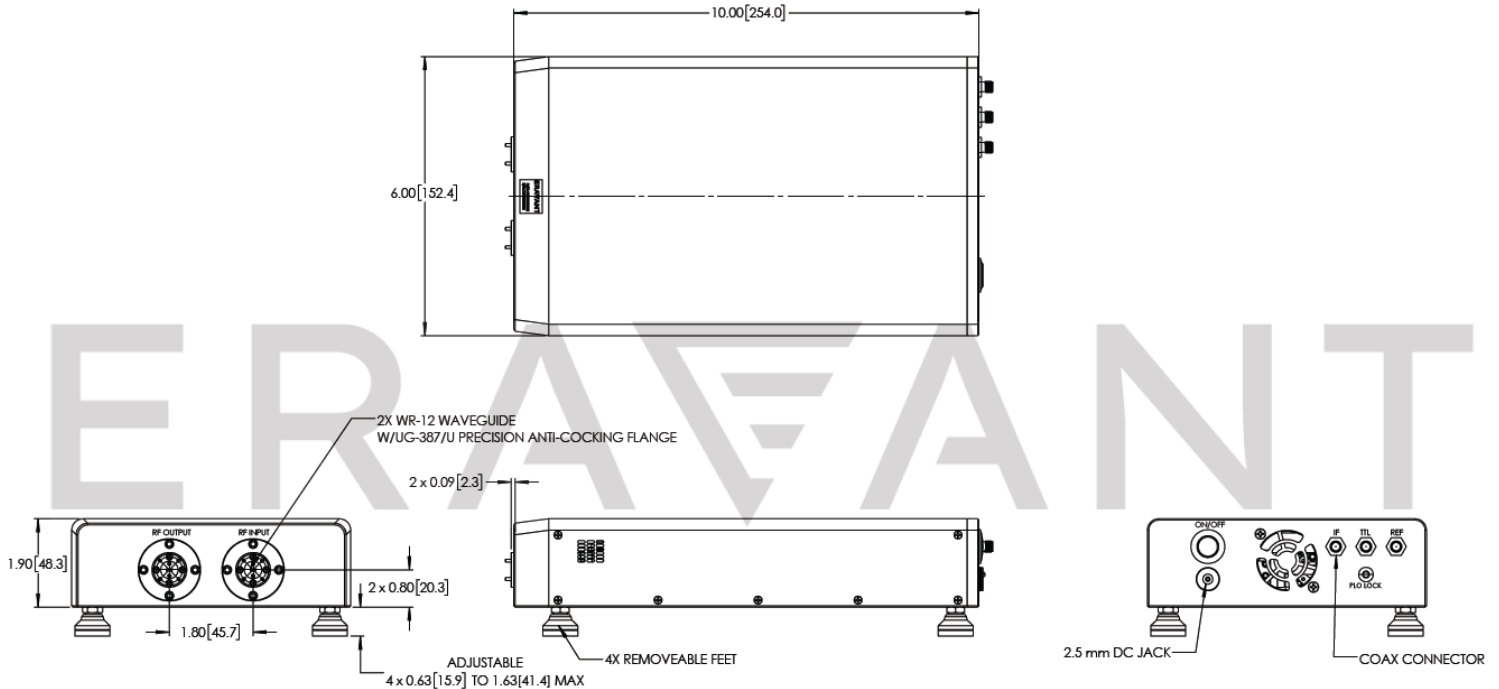
Gain and Noise Figure vs. Frequency



Bypass and Input Return Loss vs. Frequency



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



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