

W band Module x8 Right Angle Receiver

W-x8RX-RA-9296 Previously named TU-WRX-290 94GHz Receive Module



Overview

The W-x8RX-RA-9296 receiver is a fully integrated standalone millimeter-wave module with the RF input at a 90° angle compared to the standard in-line version W-x8RX-9296. Designed for radar and communication systems.

The output is a variable wideband IF signal between 2 and 6GHz with a fixed LO or a fixed IF with a variable LO between 10.80GHz and 11.40GHz. The standard noise figure is 2.8dB and has typically 20dB of Image Rejection. The receiver has typically 25dB of Gain at RF input of -125dBm This module has substantial advantages over ~70/80GHz systems, taking advantage of the low atmospheric attenuation 'window'.

The module contains Arralis monolithic millimeter-wave P-HEMT integrated circuits and patented technology allowing very large scale integration.

Applications

- High resolution radar suitable for use in poor atmospheric conditions.
- Highly accurate muzzle velocity testing and missile guidance systems.
- Commonly used in radar on UAVs, aircraft, marine ships and rotorcraft.
- Foreign object debris detection on runways.
- Use in security check systems, high penetration of materials such as clothing.
- Satellite communications systems that offer high data rate throughput.

Features

Each module has a separate power board, providing additional ESD protection. Advantages include low frequency inputs, WR10 connections, single rail power supplies and integration simplicity.

- Integrated self contained module.
- 92-96GHz frequency range.
- High output power.
- Wideband operation.
- Lightweight construction.
- More detailed information of the target with a higher spatial resolution.
- High penetration to certain materials such as paper, clothes, fog, smoke, clouds, etc
- 90° RF input

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Specification Overview

Circuit ID	Min.	Typ.	Max.	Units
RF Output Frequency	92		96	GHz
RF Input Power	-125		+10	dBm
IF Frequency*	2		6	GHz
LO Frequency*	10.80		11.4	GHz
LO Power	5	10		dBm
Image Rejection		20		dB
Conversion Gain		25		dB
Noise Figure		2.8		dB
Voltage		5		V
Current		600		mA
Maximum Operating Voltage		6		V
Specification Temperature		+25°		°C
Operating Temperature	0°		+50°	°C

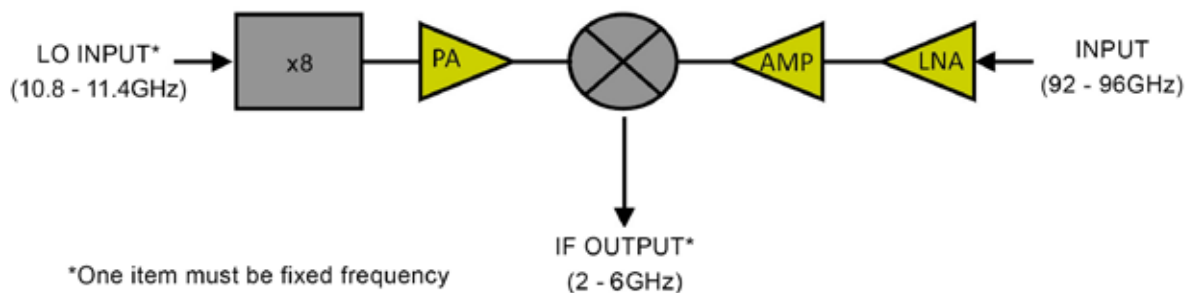
Notes

*One item must be a fixed frequency



ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features proprietary protection circuitry, damage may occur on devices subjected to ESD. Proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

Simplified Schematic Diagram



Preliminary Performance Data

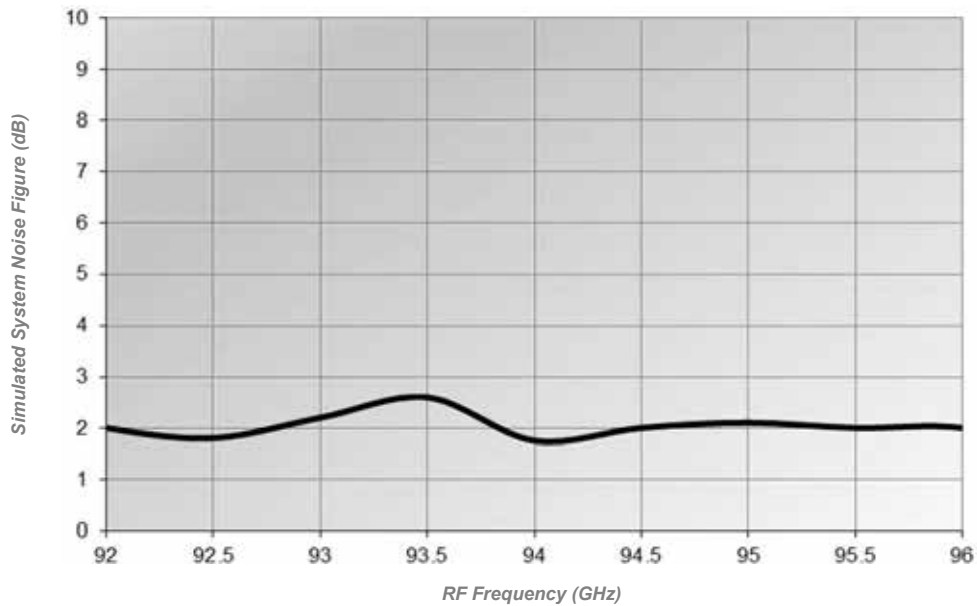
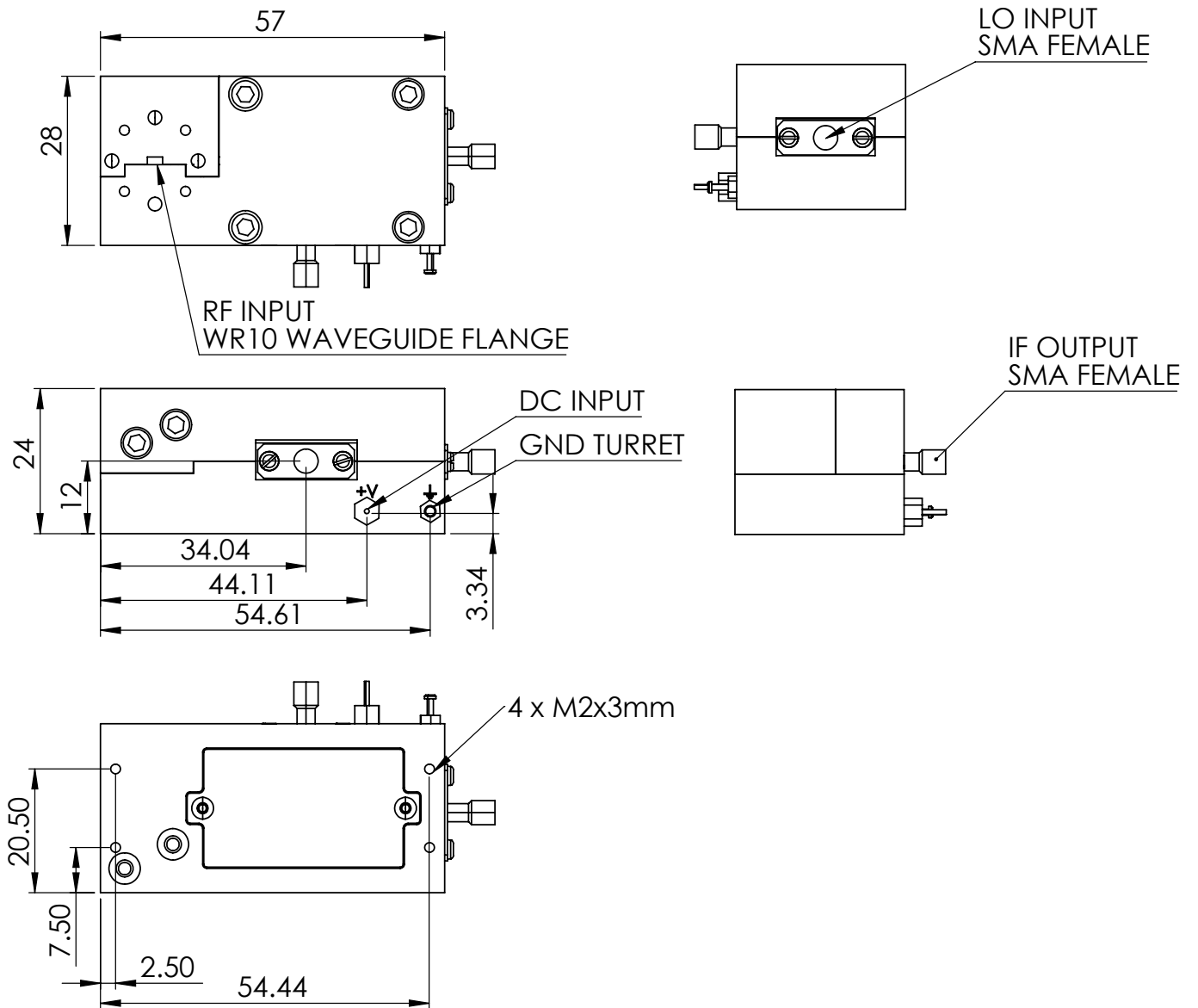


Figure 1
System Noise Figure

Mechanical Specification

Item	Specification
RF Port	WR-10 Waveguide
IF Port	SMA(F)
LO Port	SMA(F)
Bias	Solder Pin
Housing	Aluminium - Gold Plated
Size	28mm x 57mm x 24mm
Weight	90gram

Module Dimension Data (Preliminary Design)



Size of Module 28mm x 57mm x 24mm

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