AT-DRX-125140SIF

125-140GHz D Band Receiver

D Band: 125-140GHz Compact Receiver

2022-5-25

LO with X12 Amplified Frequency Multiplier Chain

(Picture for refence only)

Description:

AT-DRX-125140SIF is compact D Band Rx with RF frequency from 125-140GHz. LO link is with x12 amplified multiplier chain with input of 10.41-11.66GHz. IF inputs frequency range is dc-12GHz

It's suitable for D band point to point communication, instrumentation, sensing, security and high resolution imaging applications. AT Microwave also provides D band power amplifiers and band pass filter for communication application.

For more information, please visit www.atmicrowave.com

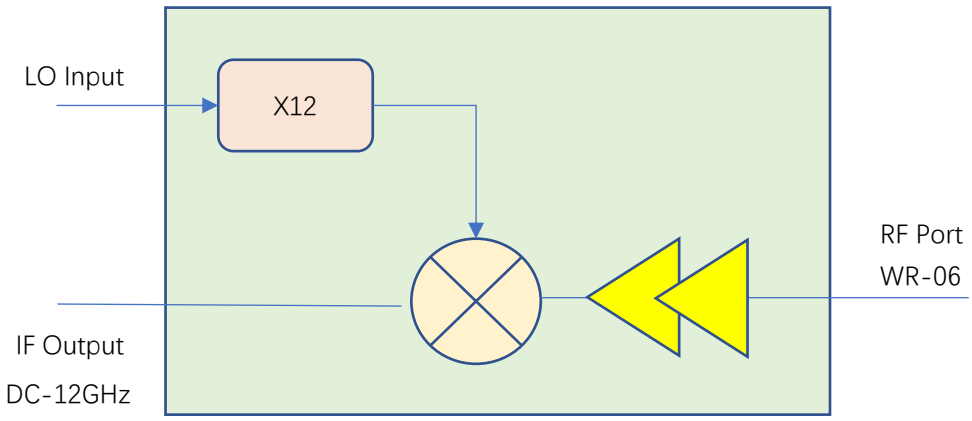
Feature

- ✓ RF: 125-140GHz
- ✓ LO: 10.41-11.66GHz with X12 Multiplier
- ✓ IF: DC-12GHz
- ✓ Low NF=6dB
- ✓ High Gain 15dB

Application

- ✓ D band Imaging
- ✓ FOD (Foreigner Objects Debris)
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System

Diagram Block



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Electrical Specifications:

Parameter	Min	Typical	Max
RF		125-140 GHz	
LO		10.41-11.66 GHz	
LO Driver	+3dBm	+5 dBm	+10
LO AMC (Amplified Multiplier Chain)		X12	
Conversion Gain		15dB	
NF		6dB	9dB
RF Input P1dBm		-35dBm	
Power Supply		+5V/ 150mA	
Temp Spec		25C	

Mechanical Information

Parameter	Description
RF Port	WR-06
LO Port	SMA Female
IF Port	SMA Female
Case Material (Note)	Copper
Finish	Gold Plated
Weight	180g
Dimension	See outline

Note: Aluminium for lighter weight is available according to request

Absolute Maximum Ratings Table

Parameter	Value
IF Power	+7dBm
LO Port	+15dBm
Power Supply	+7V
Operating Temperature	0 to +50C
Storage Temperature	-55 to +125C

Notes:

1. Datasheet may be changed according to update of MMIC, Raw materials , process, and so on.
2. This data is only for reference, not for guaranteed specifications.
3. Please contact AT Microwave team to make sure you have the most current data.

Application Note

Mixer is a three port component with RF, LO and IF ports. Normally, a mixer can be used both up and down converter application. Take up converter for example:

General Balance Mixer

For general balance mixer, RF=LO +/- IF. There will be both high end LO+IF and Low End LO-IF.
Take for example, IF=2GHz, LO=94GHz, so there will be 92GHz and 96GHz at RF port with same power level.

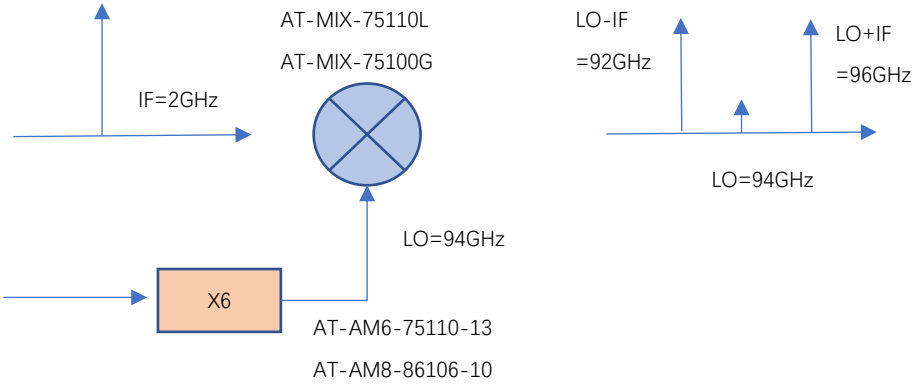

Figure A: General Balance Mixer with Both High and Low Side Output

IQ Mixer used as side suppression Mixer

When IF=2GHz, 90 degree hybrid is used at IF port, and IF applies to Input 1 Port of hybrid, you will have high end frequency RF=LO+IF=96GHz, while have side suppression (say -25dBc) at Low end frequency 92GHz.

When you need low end frequency 92GHz, and make side suppression for high end frequency 96GHz, just applies IF to Input 2 of the hybrid.

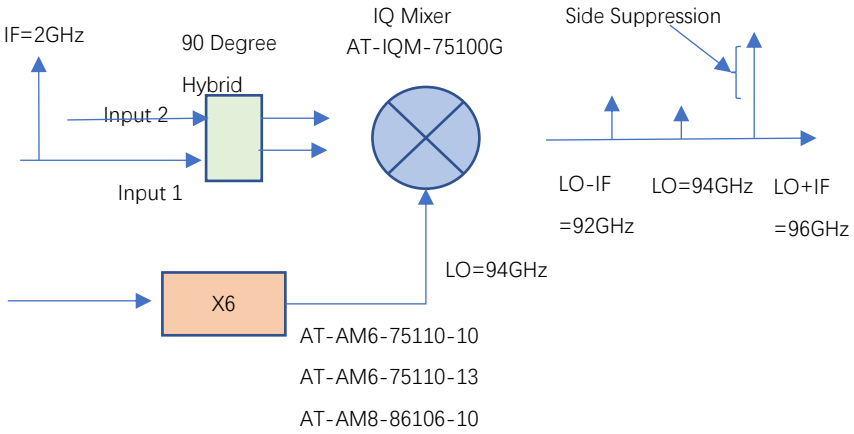

Figure B: IQ Mixer works as side suppression mixer

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Dimension （mm）