AT-BTUC8T-125160

Bench-Top 110-170GHz Up-Converter

125-160GHz Up-Converter, X8 on LO line Bench-top Test Equipment, WR-06

2022-10-1

Product Overview

AT-BTUC8T-125-160 is 125-160GHz Up-converter with X8 frequency multiplier inside. The Up converter IF-RF conversion loss is -18dB.

The RF Port is with standard WR-06. LO input port and IF input port are SMA Female. Please note there will be both up and low band for the mixer. AT Microwave provides man kinds of filters if only one side is needed.
PDRO, Band Pass filter and Power amplifier can be integrated internally or externally according to request.

More information, please contact sales@atmicrowave.com

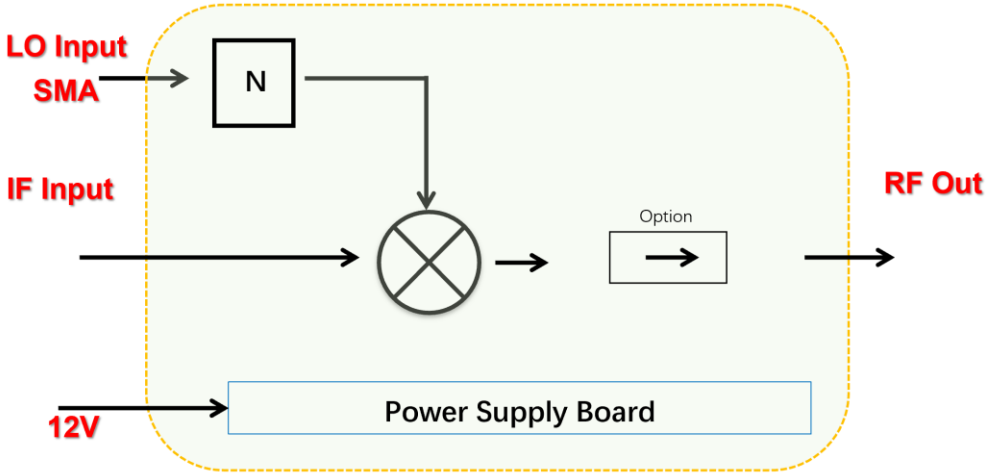
Advantages

- ✓ Frequency: 125-160GHz
- ✓ Low Loss: -18dB
- ✓ IF: DC-12GHz
- ✓ LO X8 inside
- ✓ Bench-Top Labs Test

Application

- ✓ 5G Communication
- ✓ ROF (RF Over Fiber)
- ✓ Radar System
- ✓ RCS Test

Diagram Block:



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Key Features

Parameter	Min	Typical	Max
RF Frequency	125GHz		160GHz
LO Frequency	12GHz		20GHz
LO Multiplier Factor		X8	
LO Driver	+3dBm	+5dBm	+8dBm
IF Frequency		DC-12GHz	
IF-RF Gain		-18dB	
IF Port Input P1dB		0dBm	
LO Port Return Loss		-10dB	
IF Port Return Loss		-10dB	
Power Supply (with AC/DC Adapter)	+90V	+220V	260V
Spec Temp		25C	

Part Number Selection Guide

Parameter	Value
Standard Part Number	Without Isolator at RF Port. Can be used as both Up-conver and Down-converter.
PN-ISO	Isolator integrated at RF Port to improve Return Loss and Isolation. Extra insertion loss added due to insertion loss of Isolator. Only be used for up-converter.

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Mechanical Information:

Parameter	Value
RF Port	WR-06
LO/IF Port	SMA Female
DC Bias	+12V Supply, AC to DC Power Converter included
DC Bias Switch	ON-OFF switch with light indicator
Dimension	See outline

Absolute Maximum Ratings Table

Parameter	Value
AC Supply	+260V
IF Input Power	+7dBm
LO Port Power	+20dBm
Operating Temperature	0 to 50 C
Storage Temperature	-65 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.

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Application Note

Mixer is a three ports 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, 8LO=140GHz, so there will be 138GHz and 142GHz at RF port with same power level.

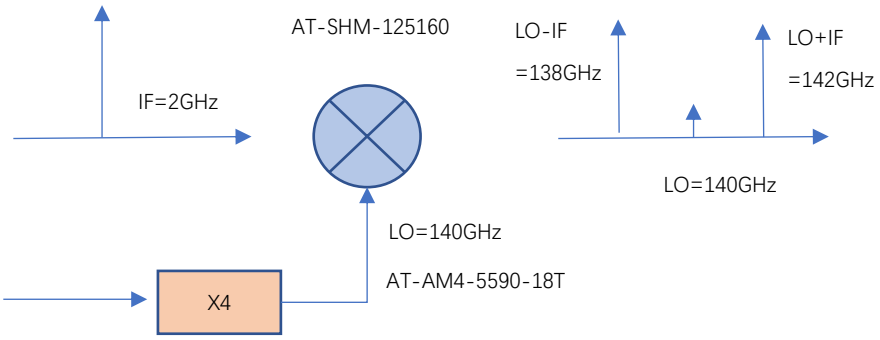

Figure A: General Balance Mixer with Both High and Low Side Output

IQ Mixer used as side suppression Mixer

When IF=2GHz, 90 degree hybrid is used at IF port, when IF applies to Input 1 Port of hybrid, you will have high end frequency RF=LO+IF=142GHz, while have side suppression (say -15dBc) at Low end frequency 138GHz.
When you need low end frequency 138GHz, and make side suppression for high end frequency1 42GHz, just applies IF to Input 2 of the hybrid.

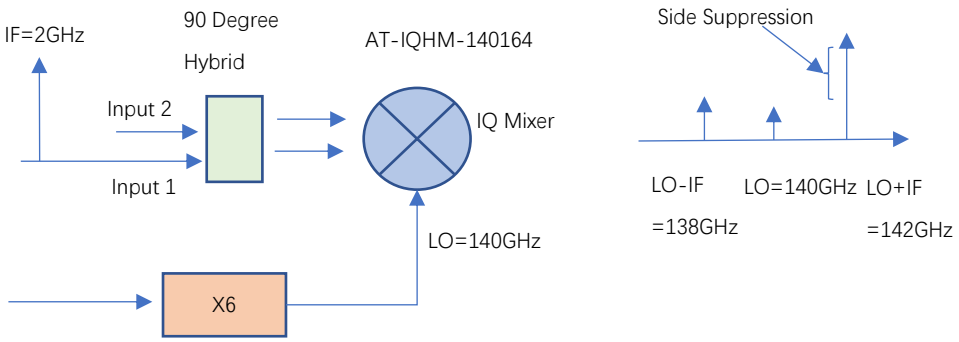

Figure B: IQ Mixer works as side suppression mixer

Dimension: (mm)