

18-50GHz Up-Converter, IF IQ Input Bench-top Test Equipment, 2.4mm Female



Product Overview

AT-BTIQUC4-1850R is 18-50GHz Up-converter with X4 frequency multiplier inside, The Up converter IF-RF gain is 5dB.

The RF Port is with standard 2.4mm. LO input port and IF input port are SMA Female. There are I and Q ports for the IF input. External hybrid can be used to achieve single side suppression.

More information, please visit www.atmicrowave.com

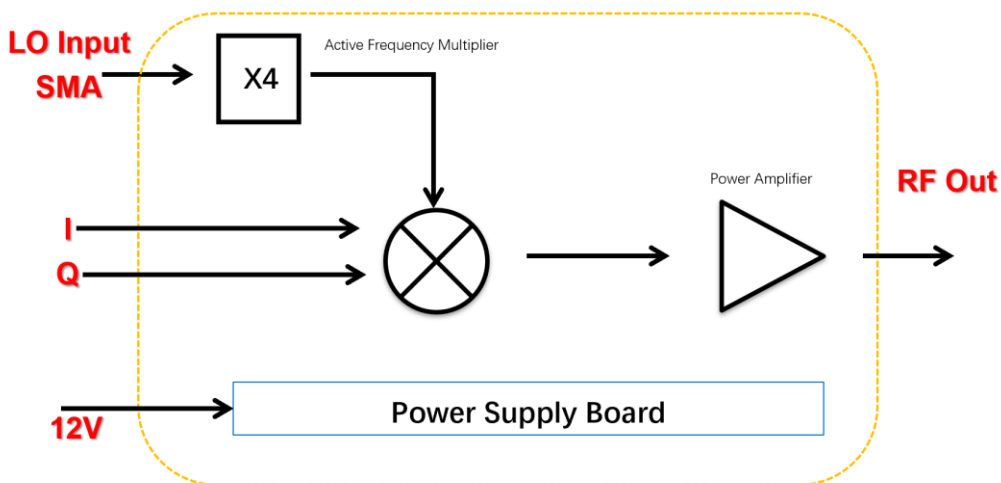
Advantages

- ✓ Frequency: 18-50GHz
- ✓ Gain: 15dB
- ✓ IF: 50kHz-20GHz
- ✓ LO X4 inside
- ✓ Bench-Top Labs Test

Application

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

Diagram Block:





AT-BTIQUC4-1850R

Bench-Top 18-50GHz Up-Converter

Key Features

Parameter	Min	Typical	Max
RF Frequency		18-50GHz	
LO Frequency		4.5-12.5GHz	
LO Driver	+10dBm	+13dBm	+15dBm
4XLO Frequency Range		18-50GHz	
LO Multiplier Factor		X4	
Mixer Type		Fundamental Mixer	
IF IQ Frequency		DC-20GHz	
IF-RF Gain		5dB	
IF Port Input P1dB		+8dBm	
RF Port Output P1dB		+13dBm	
Side Suppression (Note1)		-25dB	
RF Port Return Loss		-10dB	
IF Port Return Loss		-10dB	
Power Supply (with AC/DC Adapter)	+90V	+220V	+240V
Power Consumption		10W	
Spec Temp		25C	

Note1: Depends on the external 90degree hybrid. Contact us for more information.





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Mechanical Information:

Parameter	Value
RF Port	2.4mm Female
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	+13dBm
LO Port Power	+18dBm
Operating Temperature	0 to 50 C
Storage Temperature	-45 to +85C

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 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, $RF = LO \pm IF$. There will be both high end $LO+IF$ and Low End $LO-IF$. Take for example, $IF=2GHz$, $LO=40GHz$, so there will be $38GHz$ and $42GHz$ at RF port with same power level.

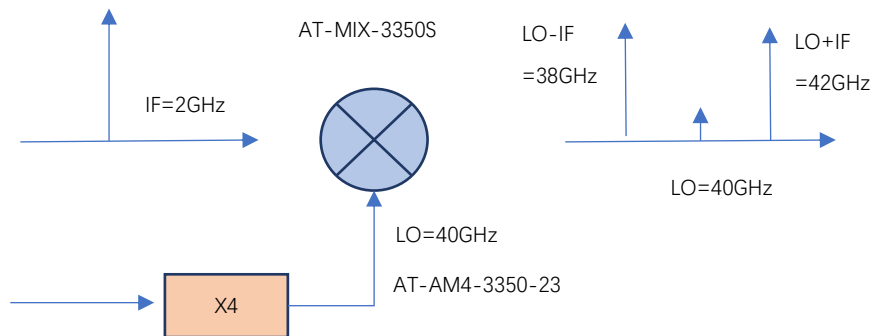


Figure A: General Balance Mixer with Both High and Low Side Output

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 $RF = LO + IF = 42GHz$, while have side suppression (say $-25dBc$) at Low end frequency $38GHz$. When you need low end frequency $38GHz$, and make side suppression for high end frequency $42GHz$, just applies IF to Input 2 of the hybrid.

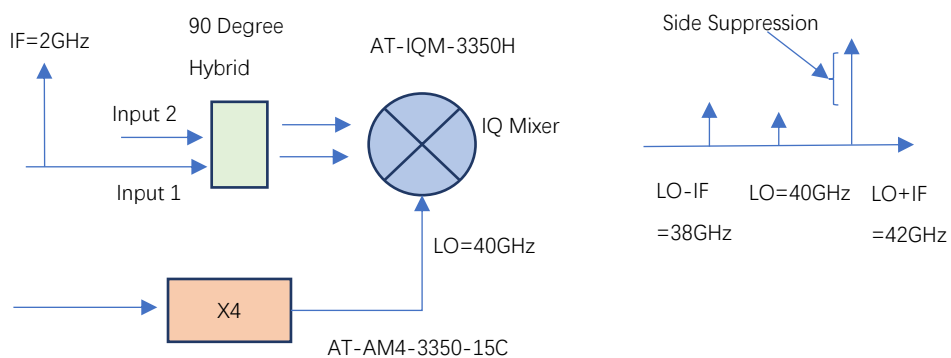
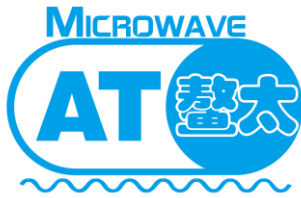


Figure B: IQ Mixer works as side suppression mixer





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Bench-Top 18-50GHz Up-Converter

Dimension: (TBD)

