

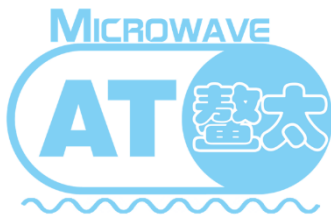
AT-4IQM-5065H

50-65GHz IQ Mixer

V Band: 50-65GHz IQ Mixer

2023-11-5

LO integrated with X4 Multiplier



No Imaging

暂无图片

Description:

AT-4IQM-5065H is a V Band up and down fundamental IQ mixer. IF input is IQ port and can range from DC to 18GHz. RF frequency range is 50-65GHz. LO RF isolation features -40dB. The imaging rejection is -23dB typical.

The mixer is a highly linear and can be used as both IQ modulator or demodulator. Active Frequency Multiplier is integrated in the LO Chain

More information, please visit www.atmicrowave.com

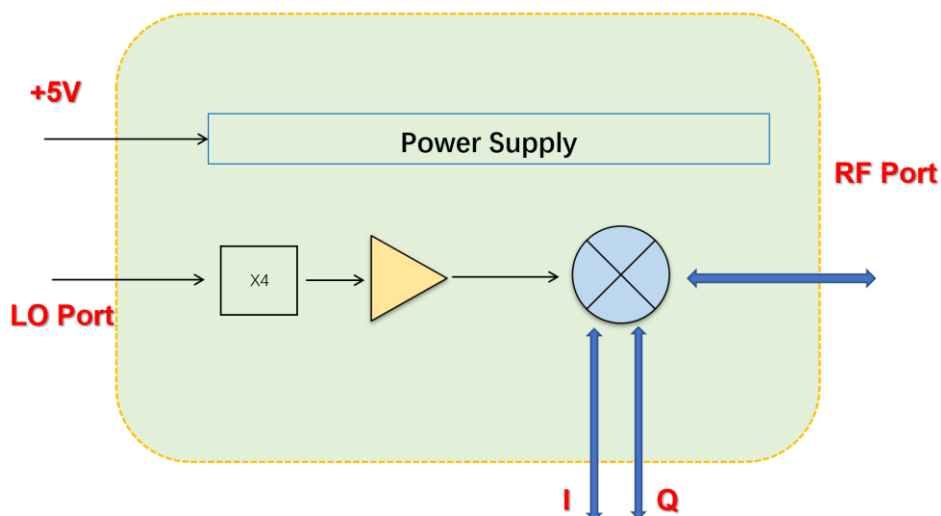
Feature

- ✓ RF: 50-65GHz
- ✓ LO: 12.5-16.25GHz, X4 inside
- ✓ IF: DC-20GHz
- ✓ Low Conversion Loss

Application

- ✓ V band Communication
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System

Diagram Block





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Electronical Specifications:

Parameter	Min	Typical	Max
RF Frequency		50-65GHz	
4XLO Frequency		50-65GHz	
LO Frequency		12.5-16.25GHz	
LO Multiplier Factor		X4	
LO Driver	+0	+3dBm	+10
IF Range		DC-20GHz	
Conversion Loss Single I/Q		-12dB	-15dB
Imaging Rejection Down-Conversion	-18	-23dBc	
LO/RF Isolation Up-Conversion	-30	-40dBc	
Single-side Rejection Up-conversion		-20dBc	
IF Input P1dB		+10dBm	
Spec Temp		25C	





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Mechanical Information

Item	Description
RF Port	WR-15
LO Port	SMA Female
IF Port	SMA Female
Case Material	Copper
Finish	Gold Plated
Weight	130g
Size:	See outline

Absolute Maximum Ratings Table

Parameter	Value
IF Power	+15dBm
RF Power	+15dBm
LO Power	+20dBm
Operating Temperature	0 to +50C
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, $IF=2GHz$, $LO=60GHz$, so there will be $58GHz$ and $62GHz$ at RF port with same power level.

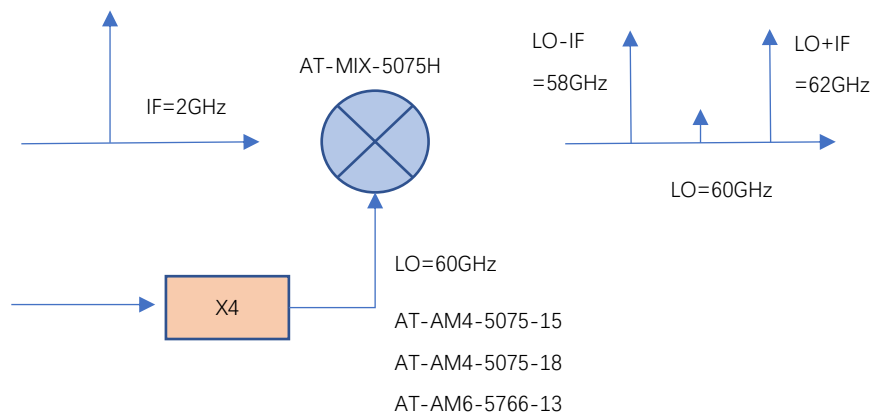


Figure A: General Balance Mixer with Both High and Low Side Output

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 $RF=LO+IF=62GHz$, while have side suppression (say $-25dBc$) at Low end frequency $58GHz$. When you need low end frequency $58GHz$, and make side suppression for high end frequency $62GHz$, just applies IF to Input 2 of the hybrid.

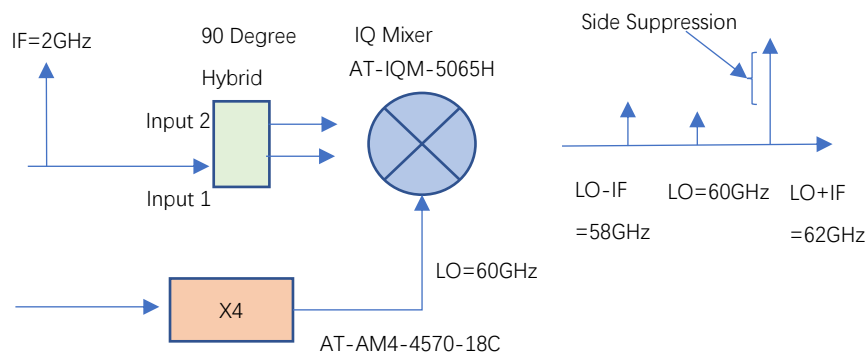


Figure B: IQ Mixer works as side suppression mixer

