

V Band: 57-66GHz IQ Mixer Differential I+/-, Q+/- IF Port

2022-3-20



Description:

AT-IQM-5766G is an up and down balance mixer covering E and W band. IF input is IQ port and can range from DC to 12GHz. LO/RF frequency range is 57-66GHz. LO RF isolation features 30DB. The imaging rejection is 24dB typical.

The mixer is a high linear and balanced direct IQ modulator or demodulator mixer. Frequency Multiplier AT-AM6-5766-13 can be used as LO driver for this mixer.

More information, please visit www.atmicrowave.com

Feature

- ✓ RF/LO: 57-66GHz
- ✓ IF: DC-12GHz
- ✓ Low Conversion Loss
- ✓ Low LO power requirement
- ✓ High RF/LO Isolation

Application

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

Electrical Specifications:

Parameter	Min	Typical	Max
RF/LO Frequency		57-66GHz	
IF Range		DC-10GHz	
Conversion Loss		-10dB	-13
LO Driver	+7	+10dBm	+13dBm
Imaging Rejection		-20dB	
LO/RF Isolation		-35dB	
IIP3		+15dBm	
Vdd		+5V	+6V
Spec Temp		25C	





AT-IQM-5766G

57-66GHz IQ Mixer

Mechanical Information

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

Absolute Maximum Ratings Table

Parameter	Value
IF Power/ch	+13dBm
RF Port Power	+3dBm
LO Port Power	+23dBm
Vdd	+6V
Operating Temperature	0 to +50C
Storage Temperature	-65 to +150C

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, $RF = LO \pm IF$. 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.

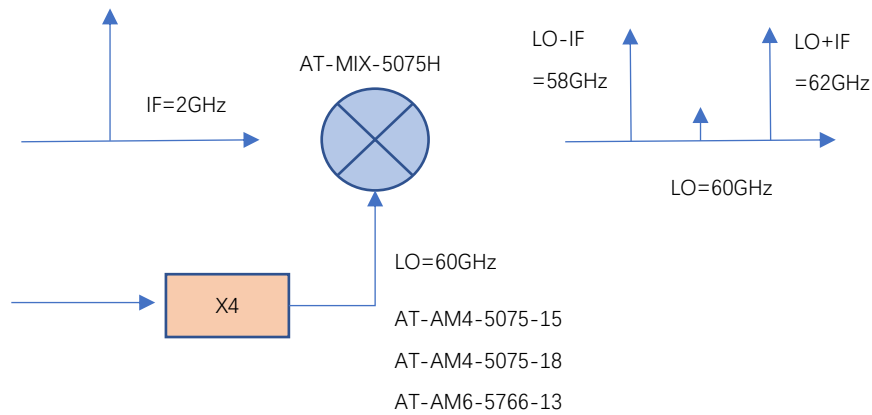


Figure A: General Balance Mixer with Both High and Low Side Output

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.

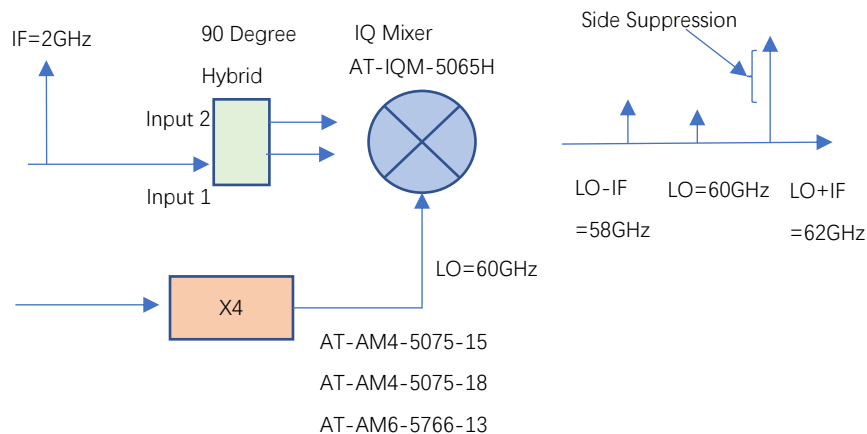
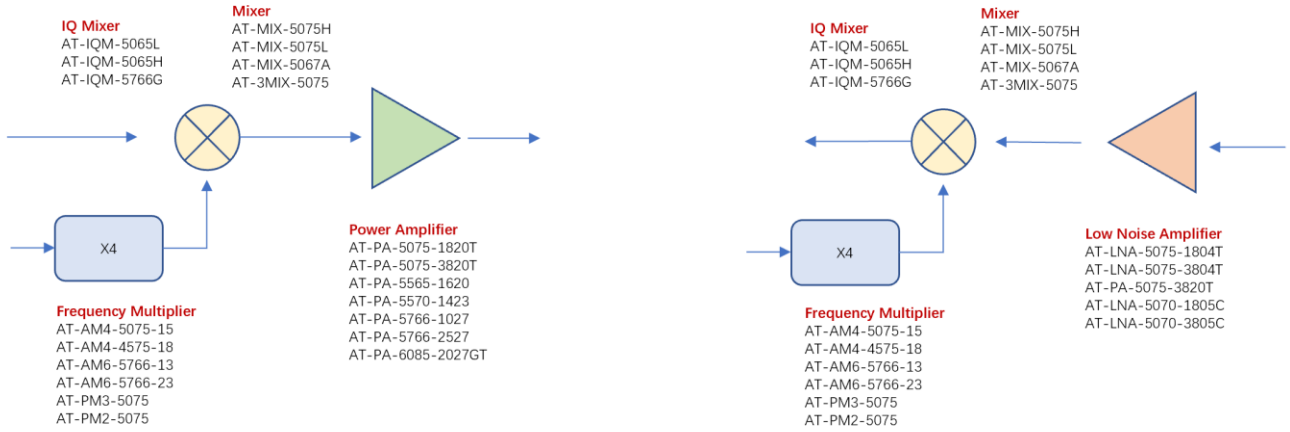


Figure B: IQ Mixer works as side suppression mixer



V Band 50-75GHz



Dimension

