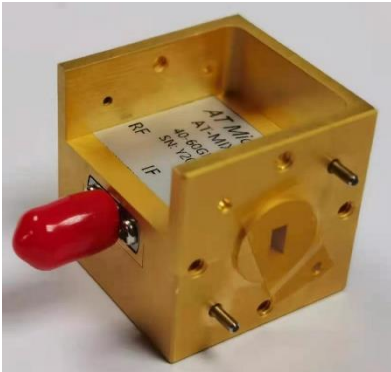


40-60GHz Balance Mixer WR-19



Description:

AT-MIX-4060H is an up and down balance mixer covering U band based on GaAs MMIC Technology chips. IF input is balanced and can range from DC to 21GHz with SMA connector.

LO/RF frequency range is 40-60GHz with WR-19 waveguide.. LO RF isolation features 25dB. AT Microwave high power frequency multiplier module AT-AM4-4060-18 can be used as LO driver for this mixer.

More information, Please visit www.atmicrowave.com

Feature

- ✓ RF/LO: 40-60GHz
- ✓ IF: DC-21GHz
- ✓ Low Conversion Loss
- ✓ Low LO power requirement
- ✓ High RF/LO Isolation

Application

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

Electronical Specifications:

Parameter	Min	Typical	Max
RF/LO Frequency		40-60GHz	
IF Range		DC-21GHz	
Conversion Loss		-10dB	
LO Driver	+15	+18dBm	+20
RF/LO Isolation		-25dB	
P1dB		+9dBm	
IIP3		+17dBm	
Bias		NO	
Spec Temp		25C	





AT-MIX-4060H

40-60GHz U Band Balance Mixer

Mechanical Information

Item	Description
RF Port	WR-19
LO Port	WR-19
IF Port	SMA Female
Case Material	Copper
Finish	Gold Plated
Weight	30g
Size:	See outline

Absolute Maximum Ratings Table

Parameter	Value
IF Port Power	+15dBm
RF Port Power	+25dBm
LO Port Power	+25dBm
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, $IF=2GHz$, $LO=50GHz$, so there will be $48GHz$ and $52GHz$ at RF port with same power level.

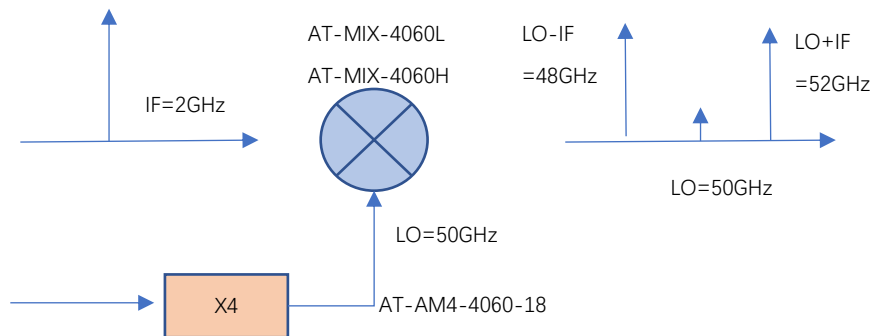


Figure A: General Balance Mixer with Both High and Low Side Output

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 $RF=LO+IF=52GHz$, while have side suppression (say $-25dBc$) at Low end frequency $48GHz$.

When you need low end frequency $48GHz$, and make side suppression for high end frequency $52GHz$, just applies IF to Input 2 of the hybrid.

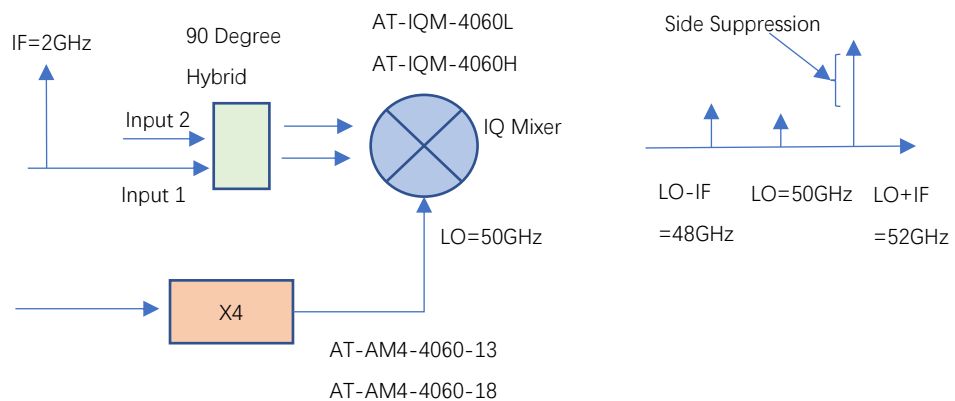
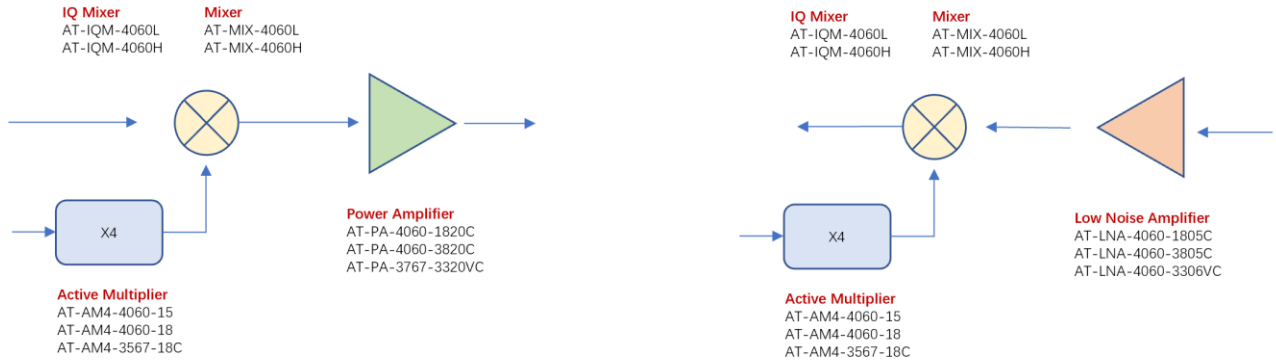


Figure B: IQ Mixer works as side suppression mixer



U Band 40-60GHz



Dimension:

