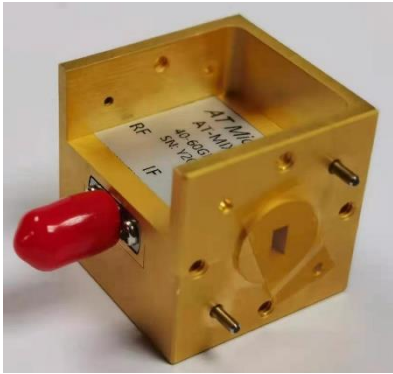


40-60GHz Balance Mixer WR-19



Description:

AT-MIX-4060L 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 Female connector.

LO/RF frequency range is 40-60GHz with WR-19 waveguide. LO RF isolation features 25DB. This product is with lower LO driver +13dBm. AT-AM4-4060-13 can be used as LO driver.

More information, Please visit www.atmicrowave.com

Feature

- ✓ RF/LO: 40-60GHz
- ✓ IF: DC-21GHz
- ✓ Low Conversion Loss
- ✓ Low LO power requirement
- ✓ High LO/RF 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	+10	+13dBm	+15
LO/RF Isolation		-25dB	
P1dB		+1dBm	
IIP3		+9dBm	
Bias		NO	
Spec Temp		25C	





AT-MIX-4060L

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.



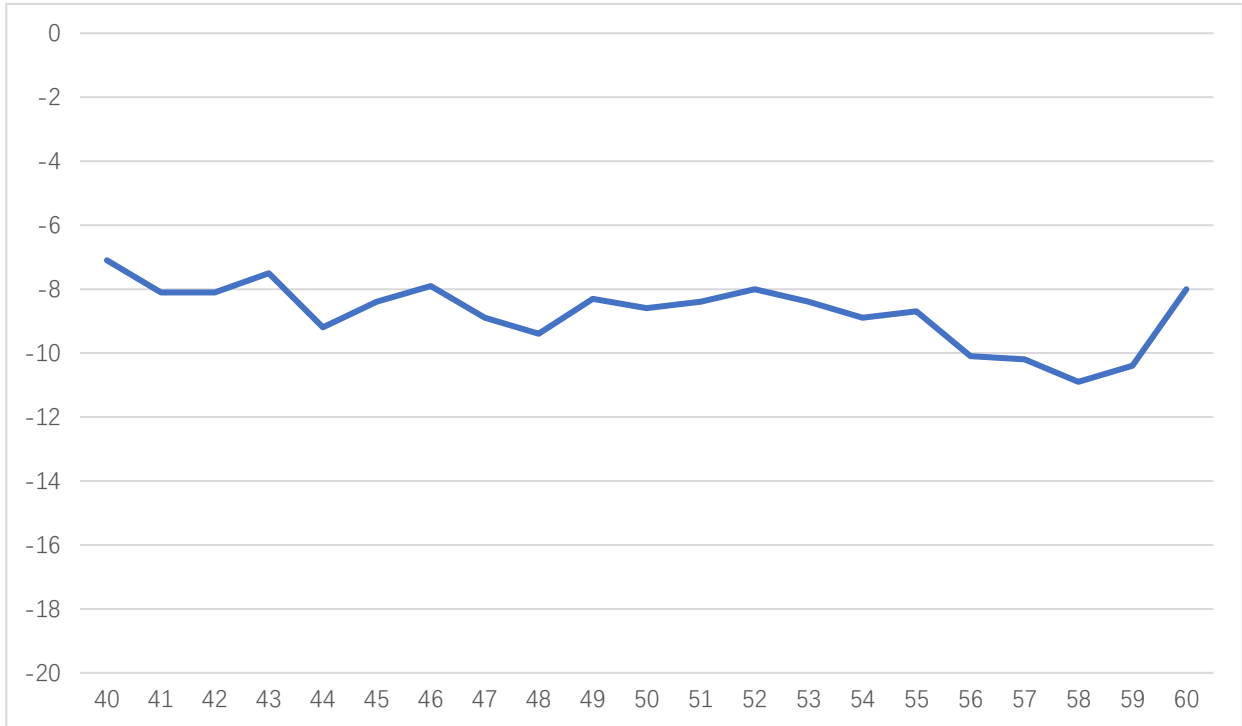


AT-MIX-4060L

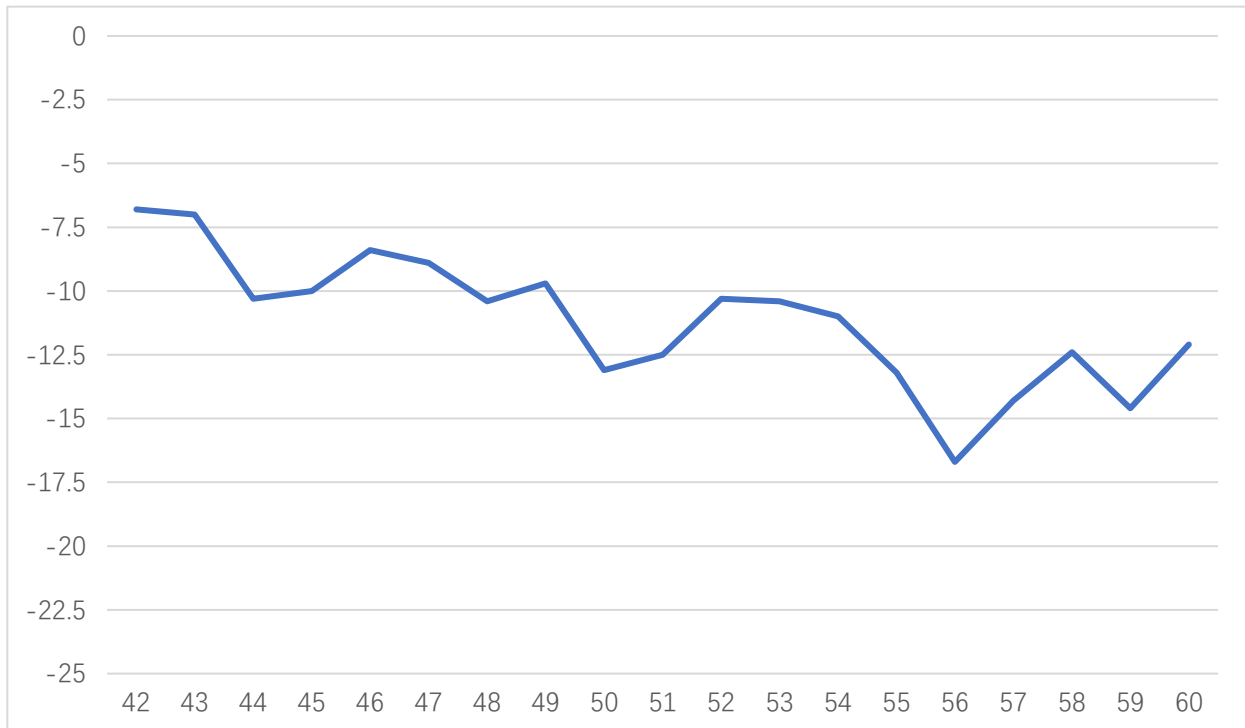
40-60GHz U Band Balance Mixer

Test Data:

Down-Converter test, RF=-25dBm, LO=+13dBm, RF-LO=1GHz



Conversion Loss vs Frequency



IF Response, LO=41GHz



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.

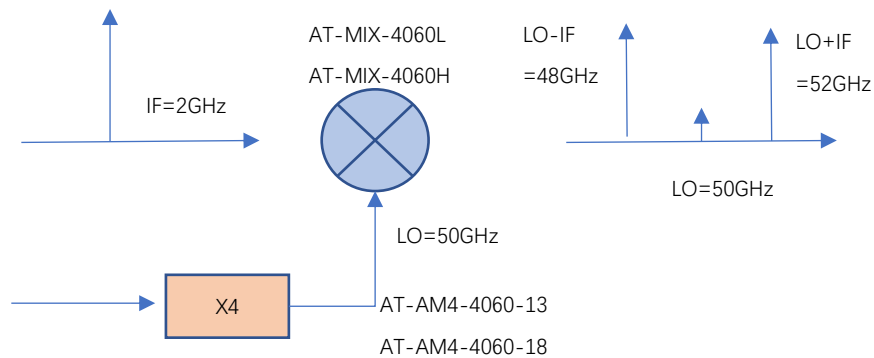


Figure A: General Balance Mixer with Both High and Low Side Output

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.

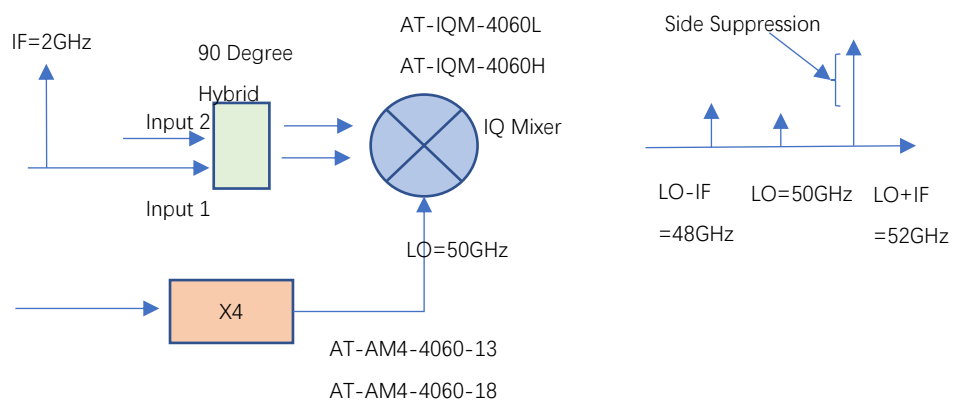
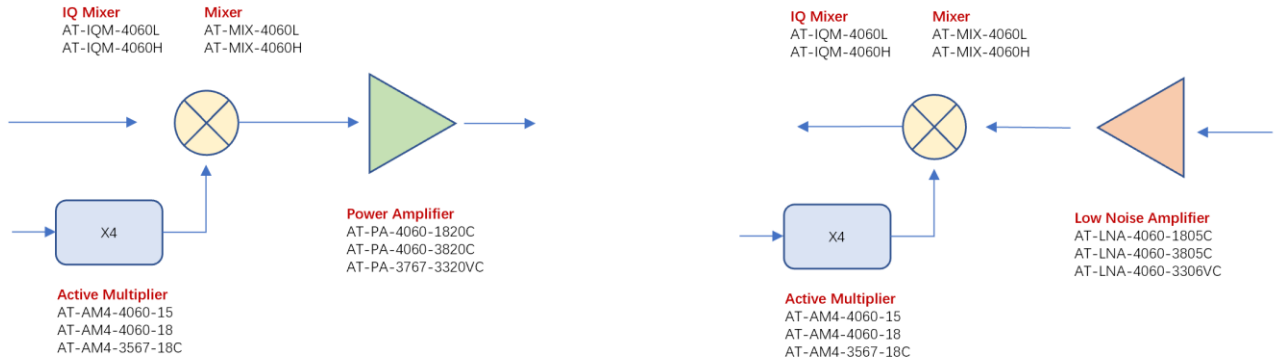


Figure B: IQ Mixer works as side suppression mixer



U Band 40-60GHz



Dimension:

