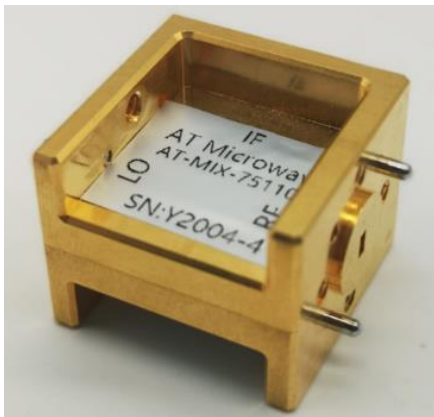


75-110GHz Balance Mixer WR-10 Broadband IF Range DC-35GHz

2022-6-1



Description:

AT-MIX-75110WT is an up and down balance mixer covering W band based on GaAs MMIC technology. IF input is balanced and can range from DC to 35GHz with 2.92mm connector

RF frequency range is 75-110GHz with WR-10 waveguide, and LO Port is 70-110GHz with WR-10. LO-RF isolation features 25dB. Active X6 Frequency Multiplier AT-AM6-75110-13L is recommended as LO driver.

For more information, please visit www.atmicrowave.com

Feature

- ✓ RF/LO: 70-110GHz
- ✓ IF: DC-35GHz
- ✓ Low Conversion Loss
- ✓ Low LO power requirement
- ✓ High RF/LO Isolation

Application

- ✓ W band Imaging
- ✓ Automotive Test
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System

Electronical Specifications:

Parameter	Min	Typical	Max
RF Frequency		75-110GHz	
LO Frequency Range		70-110GHz	
IF Range		DC-35GHz	
Conversion Loss(IF=100MHz)		-12dB	-17dB
LO Driver	+12	+13dBm	+15
RF/LO Isolation		-25dB	
Input P1dB		+6dBm	
Spec Temp		25C	





AT-MIX-75110WT

Full W Band Balance Mixer

Mechanical Information

Item	Description
RF Port	WR-10
LO Port	WR-10
IF Port	2.92mm Female
Case Material	Copper
Finish	Gold Plated
Weight	30g
Size:	See outline

Absolute Maximum Ratings Table

Parameter	Value
IF Port	+7dBm
RF Port	+13dBm
LO Port	+18dBm
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.

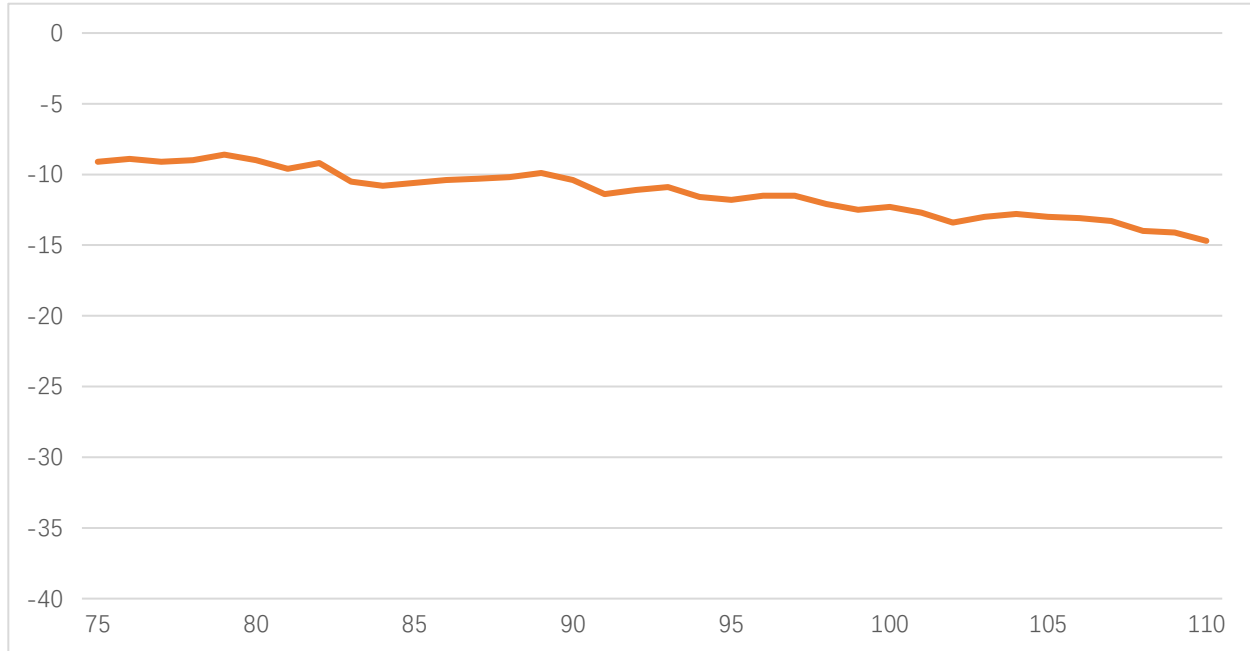




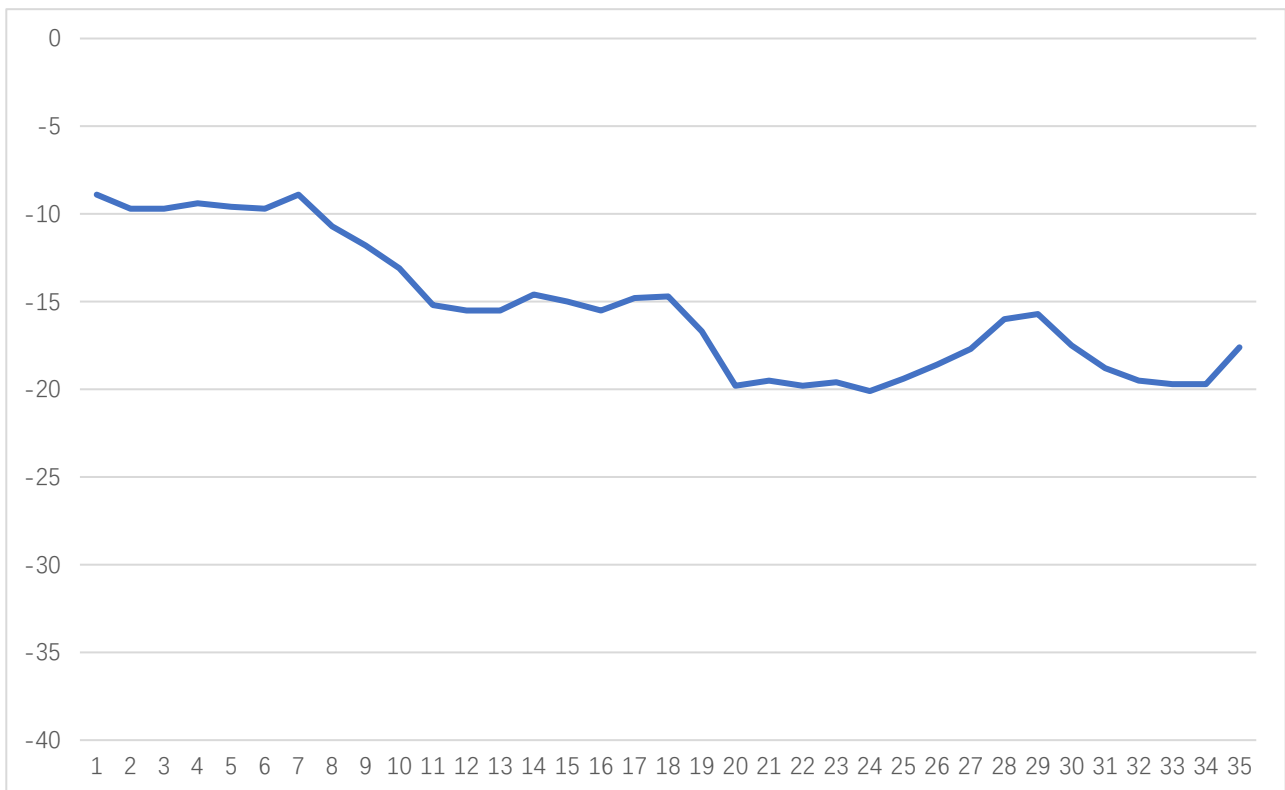
AT-MIX-75110WT

Full W Band Balance Mixer

Test Data:



Conversion loss vs Frequency



IF Response, LO=75GHz



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, $IF=2GHz$, $LO=94GHz$, so there will be $92GHz$ and $96GHz$ at RF port with same power level.

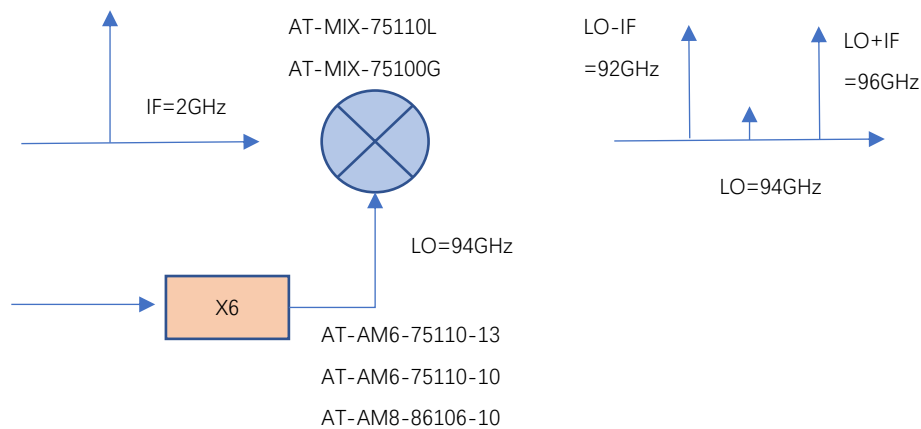


Figure A: General Balance Mixer with Both High and Low Side Output

IQ Mixer used as side suppression Mixer

When $IF=2GHz$, 90 degree hybrid is used at IF port, and IF applies to Input 1 Port of hybrid, you will have high end frequency $RF=LO+IF=96GHz$, while have side suppression (say $-25dBc$) at Low end frequency $92GHz$.

When you need low end frequency $92GHz$, and make side suppression for high end frequency $96GHz$, just applies IF to Input 2 of the hybrid.

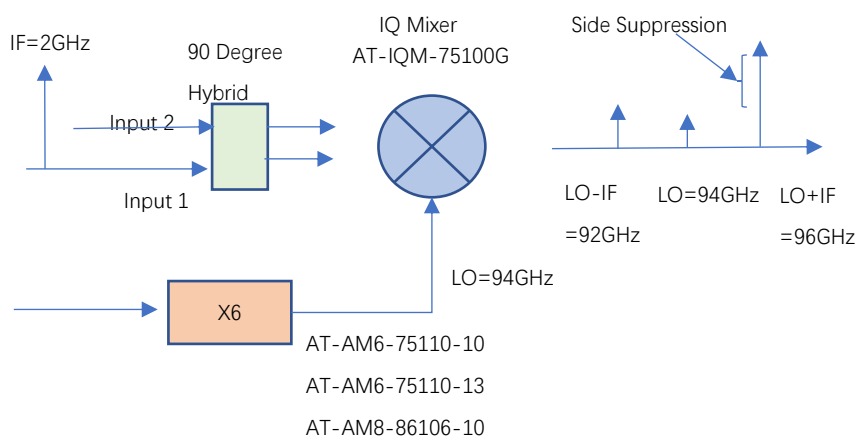
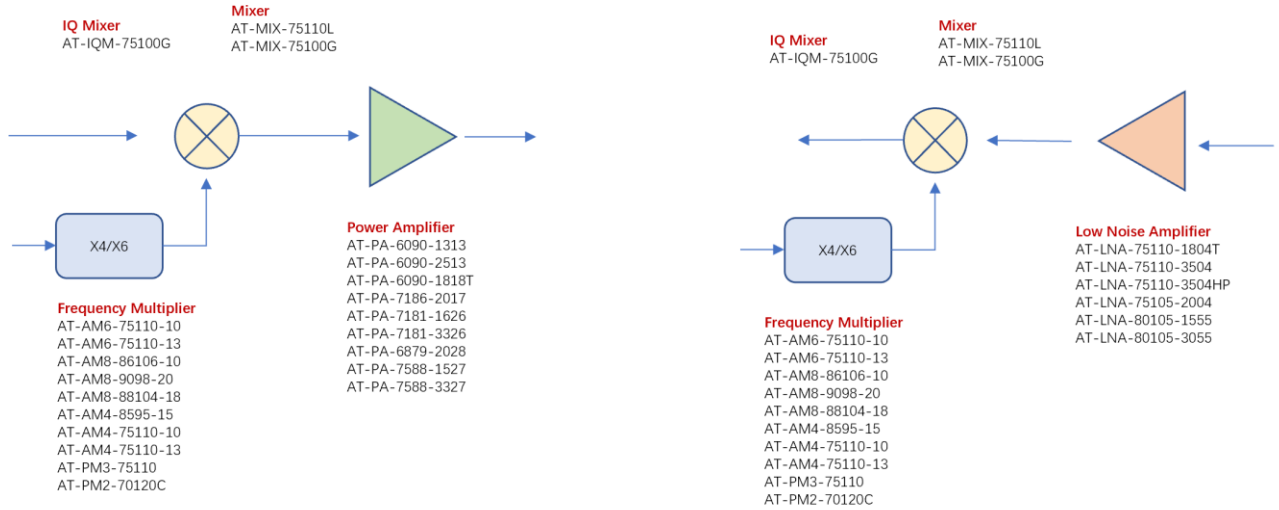


Figure B: IQ Mixer works as side suppression mixer



W BAND 75-110GHZ



Dimension:

