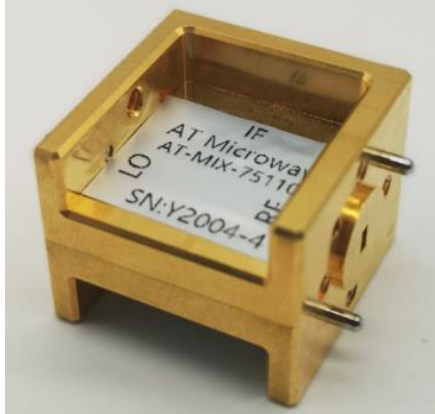


2021-5-18

75-110GHz Balance Mixer WR-10



Description:

AT-MIX-75110L 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 13GHz with SMA connector

LO/RF frequency range is 75-110GHz with WR-10 waveguide. LO-RF isolation features 25dB. AT-AM6-75110-13 is recommended as broadband LO for this mixer.

For more information, please visit www.atmicrowave.com

Feature

- ✓ RF/LO: 75-110GHz
- ✓ IF: DC-18GHz
- ✓ 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/LO Frequency		75-110GHz	
IF Range		DC-13GHz	
Conversion Loss		-10dB	
LO Driver	+10	+13dBm	+16
RF/LO Isolation		-25dB	
P1dB		+1dBm	
IIP3		+9dBm	
Spec Temp		25C	





AT-MIX-75110L

Full W Band Balance Mixer

Mechanical Information

Item	Description
RF Port	WR-10
LO Port	WR-10
IF Port	SMA Female
Case Material	Copper
Finish	Gold Plated
Weight (Without Heatsink)	30g
Size:	25x25X20mm

Absolute Maximum Ratings Table

Parameter	Value
IF Power	+7dBm
RF/LO Power	+20dBm
Operating Temperature	0 to +50C
Storage Temperature	-65 to +150C

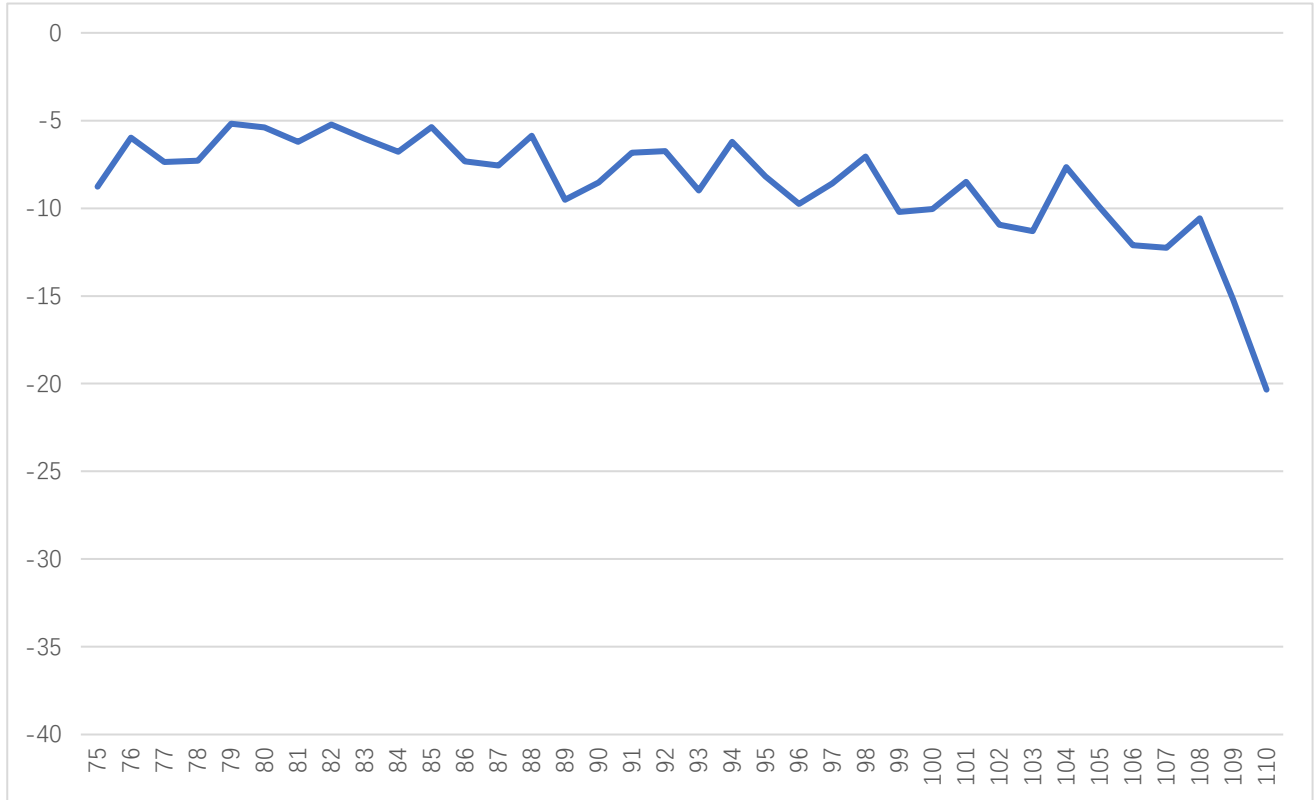
Notes:

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.

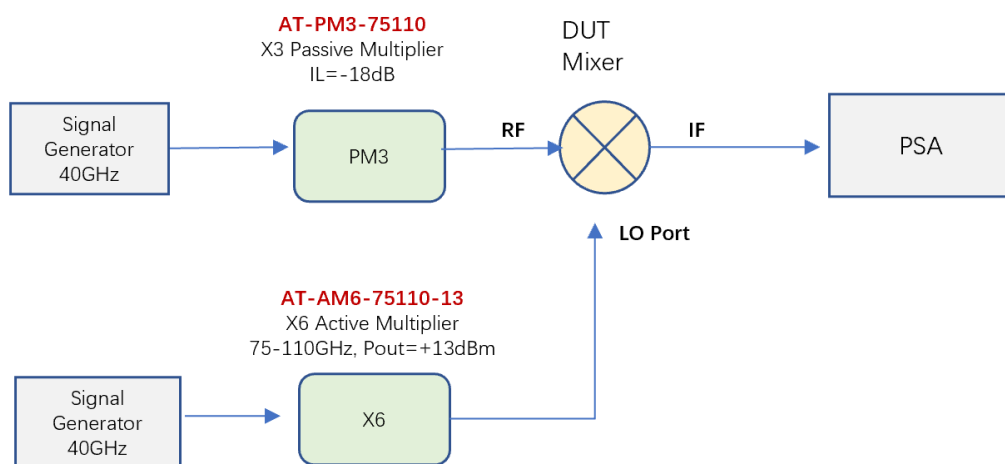


Test Data

IF=RF-LO=1GHz, LO=+13dBm, 25C. AT-AM6-75110-13 is used as LO.



Conversion Loss Vs Frequency



Down-converter TES SET UP



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.

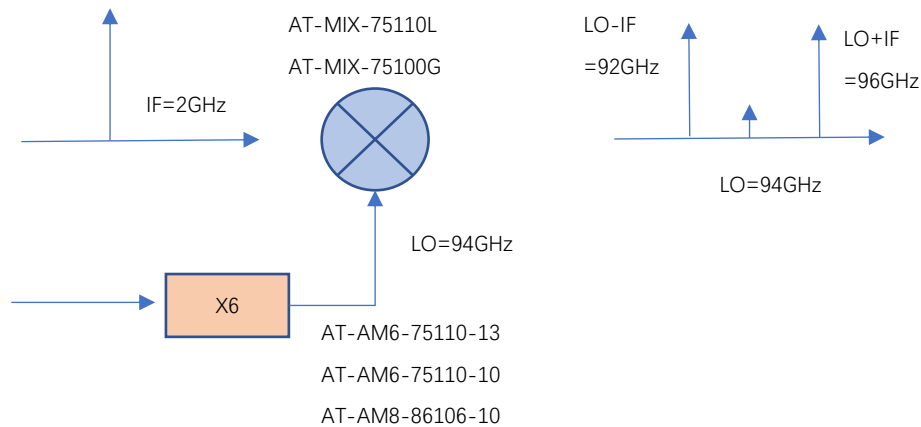


Figure A: General Balance Mixer with Both High and Low Side Output

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.

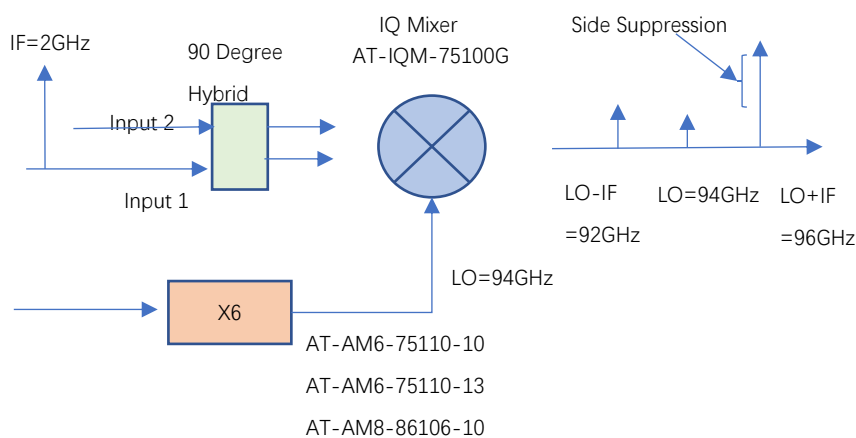
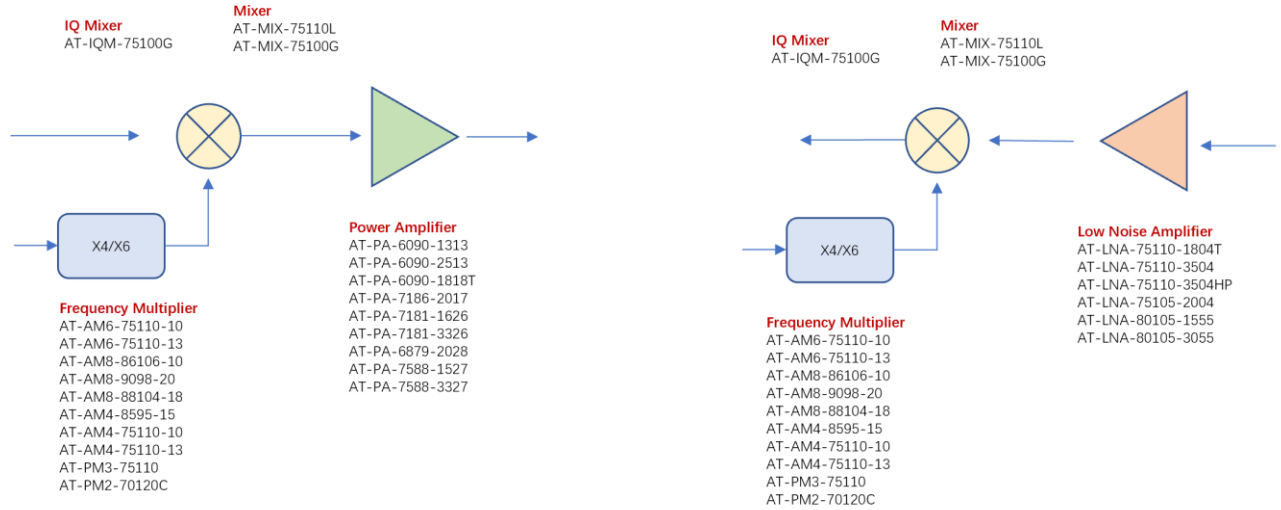


Figure B: IQ Mixer works as side suppression mixer



W BAND 75-110GHZ



Dimension:

