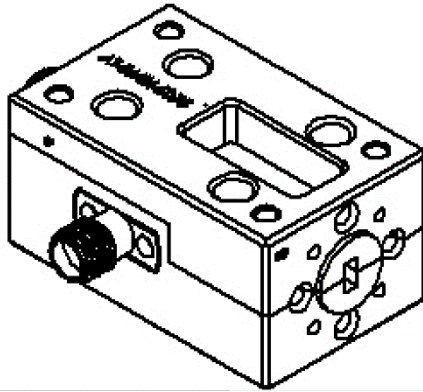


50-75GHz Balance Mixer WR-15



Description:

AT-3MIX-5075 is an up and down fundamental mixer covering E band based on GaAs MMIC technology.

RF Port frequency range is from 50-75GHz with WR-15 waveguide. LO range is 16.5-25GHz as three times multiplier inside. IF port frequency from DC to 12GHz with SMA Female connector.

More information, please visit www.atmicrowave.com

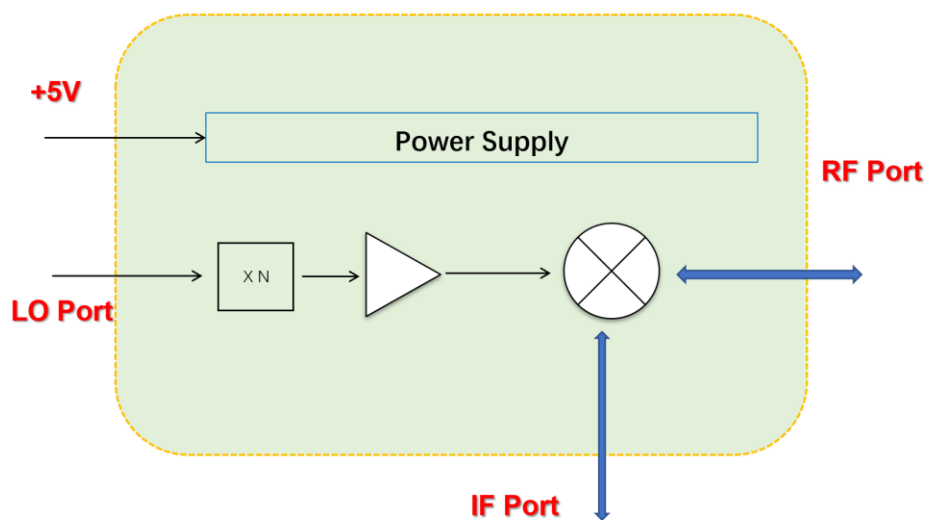
Feature

- ✓ RF: 50-75GHz
- ✓ LO Range: 16.5-25GHz
- ✓ Low Conversion Loss
- ✓ High RF/LO Isolation

Application

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

Diagram Block





AT-3MIX-5075

50-75GHz V Band Balance Mixer

Electronical Specifications:

Parameter	Min	Typical	Max
RF Frequency		50-75GHz	
3XLO Frequency		50-75GHz	
LO Frequency		16.5-25GHz	
LO Multiplier Factor		X3	
Mixer Type		Fundamental Mixer	
IF Range		DC-12GHz	
Conversion Loss		-15dB	-18
LO Driver	+16	+18dBm	+20
3xLO-RF Isolation		-25dBc	
LO to IF Isolation		To be added.	
Vdd		+5V	+8V
Idd		100mA	
Spec Temp		25C	





AT-3MIX-5075

50-75GHz V Band Balance Mixer

Mechanical Information

Item	Description
RF Port	WR-15
LO Port	2.92mm Female
IF Port	SMA Female
Case Material	Copper
Finish	Gold Plated
Weight	130g
Size:	See outline

Absolute Maximum Ratings Table

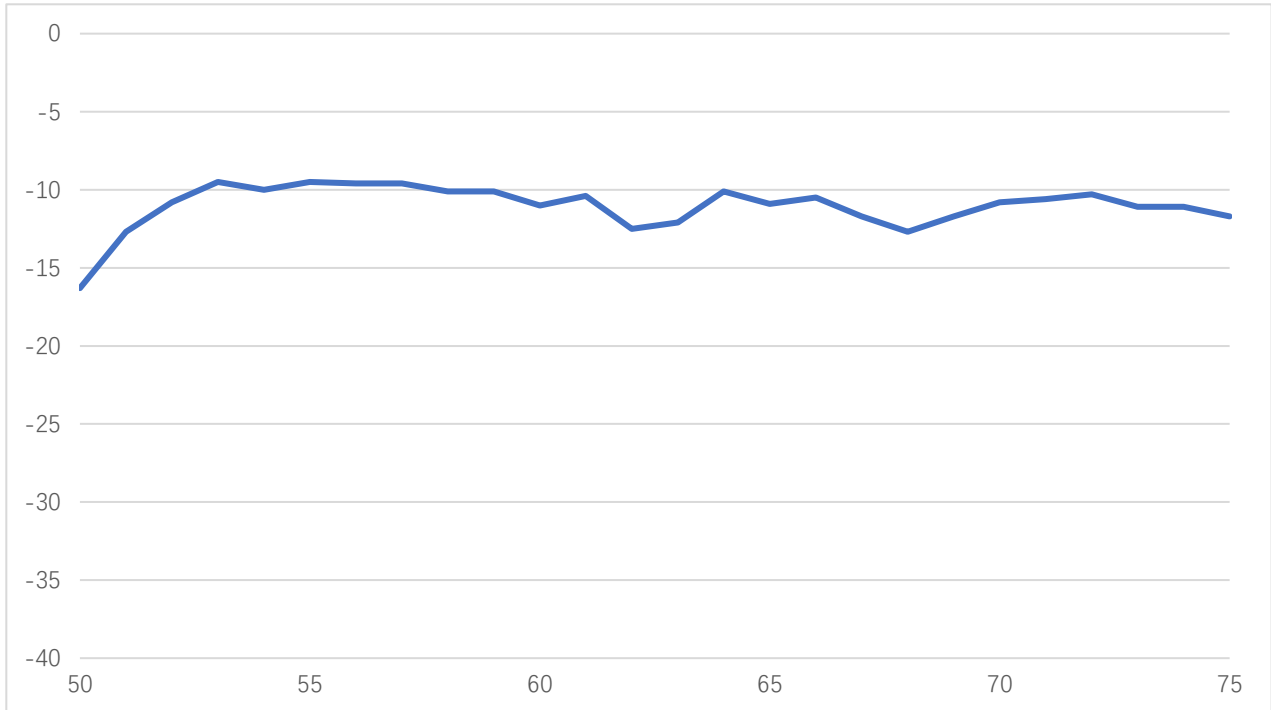
Parameter	Value
IF Power	+7dBm
RF Power	+3dBm
LO Power	+21dBm
Vdd	+9V
Operating Temperature	0 to +50C
Storage Temperature	-45 to +85C

Notes:

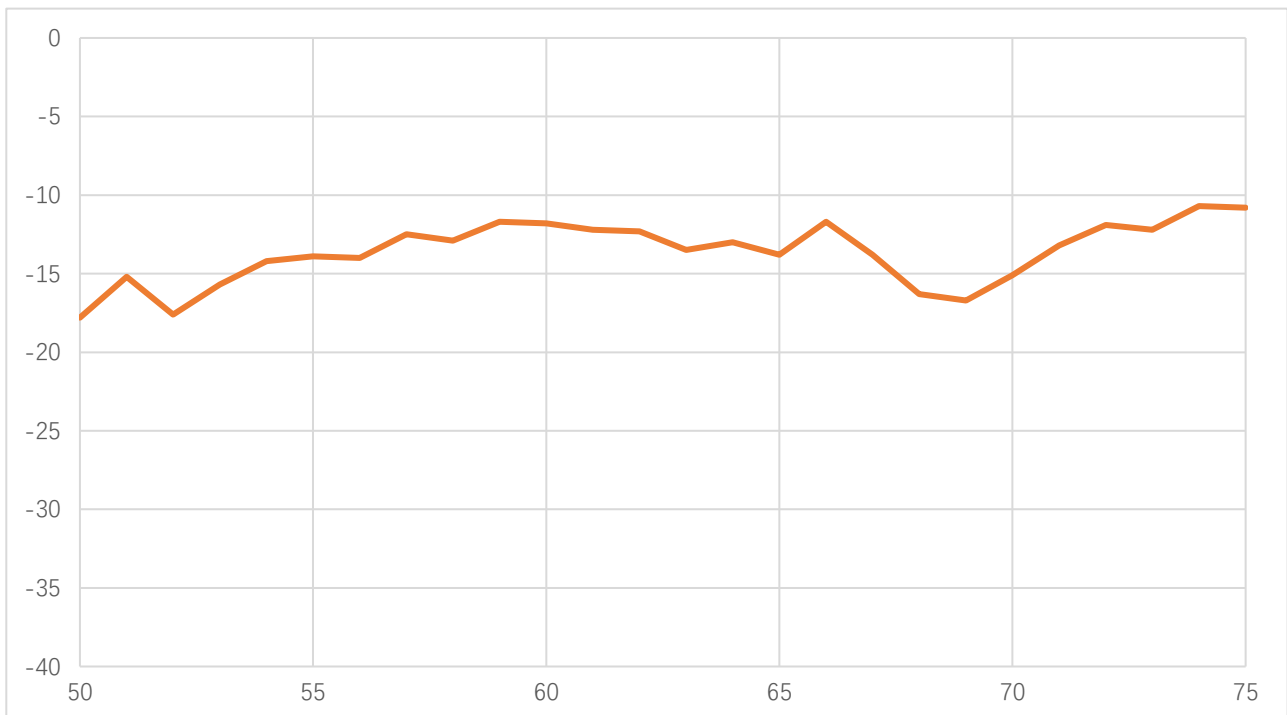
1. Datasheet may be changed according to update of MMIC, Raw materials , process, and so on.
2. This data is only for reference, not for guaranteed specifications.
3. Please contact AT Microwave team to make sure you have the most current data.



Test Data(25c)



Conversion Loss vs Frequency, IF=10MHz



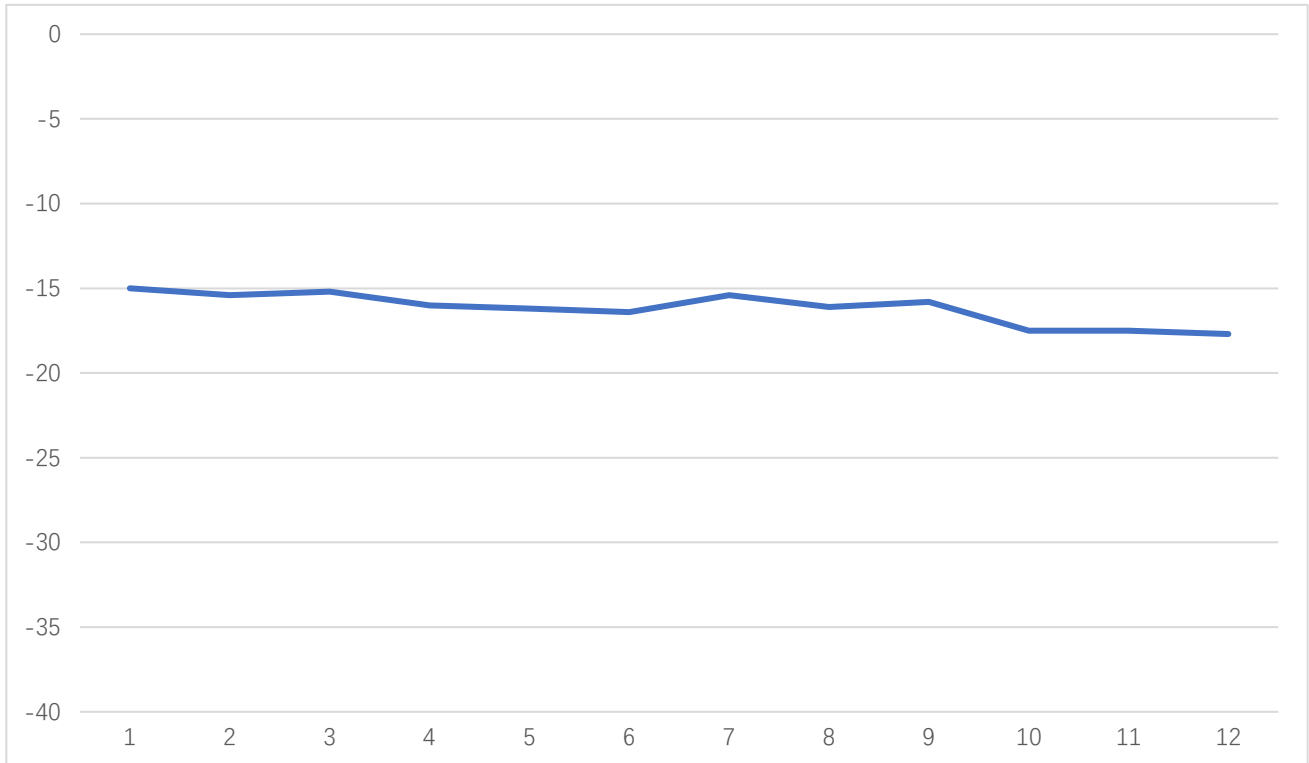
Conversion Loss vs Frequency, IF=1GHz





AT-3MIX-5075

50-75GHz V Band Balance Mixer



IF Response, LO=50GHz



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.

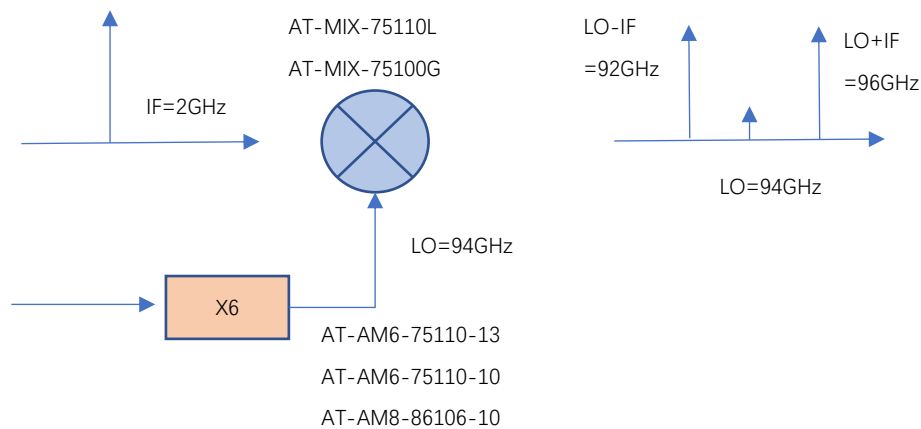


Figure A: General Balance Mixer with Both High and Low Side Output

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.

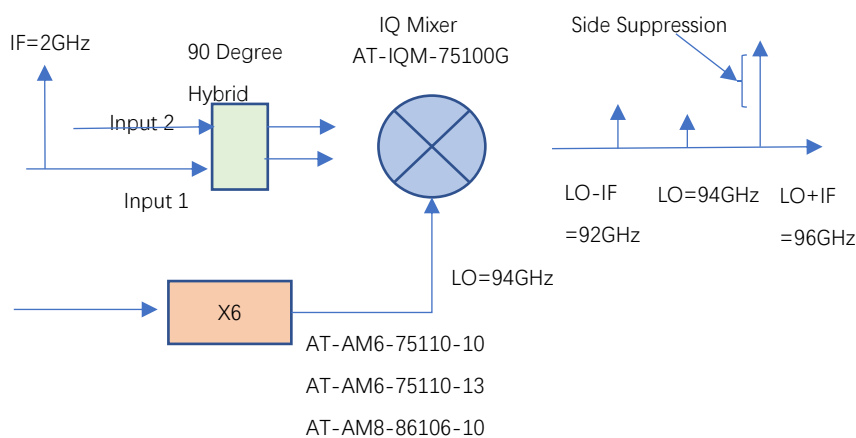


Figure B: IQ Mixer works as side suppression mixer



Dimension(mm)

