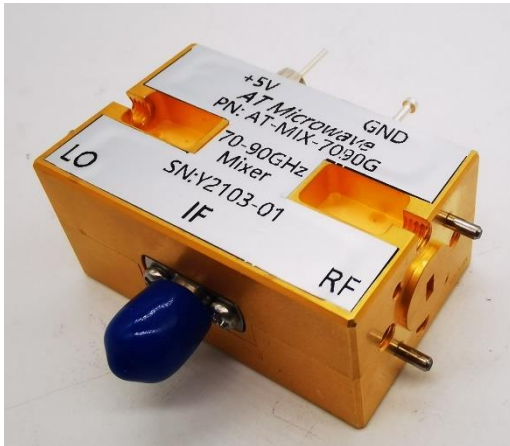


# 75-100GHz Balance Up/Down Mixer



### Description:

AT-MIX-75100G is an up and down balance mixer covering E and W band. IF input is balanced and can range from DC to 12GHz. LO/RF frequency range is 75-100GHz. LO RF isolation features 20dB.

One of the advantage of using this mixer is that LO driver power only +7dBm typical. This eliminates the need for an expensive local amplifier, making system integrations much easier and cheaper. AT-AM8-86106-10, X8 multiplier with +10dBm output power can be used as the LO driver.

More information, please visit [www.atmicrowave.com](http://www.atmicrowave.com)

### Feature

- ✓ RF/LO: 75-100GHz
- ✓ IF: DC-12GHz
- ✓ Low Conversion Loss
- ✓ Low LO power requirement
- ✓ High RF/LO Isolation

### Application

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

### Electronical Specifications:

Parameter	Min	Typical	Max
RF/LO Frequency		75-100GHz	
IF Range		DC-12GHz	
Conversion Loss		-10dB	-18
LO Driver		+7dBm	+12
RF/LO Isolation		20dB	
IIP3		+15dBm	
Power Supply		+5V/1mA	+6
Spec Temp		25C	



## Mechanical Information

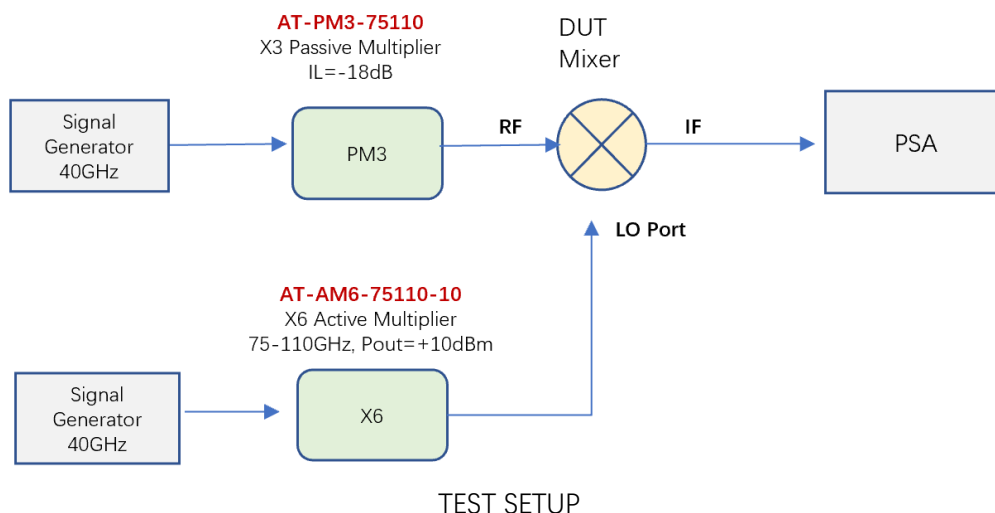
Item	Description
RF Port	WR-10
LO Port	WR-10
IF Port	SMA Female
Case Material	Copper
Finish	Gold Plated
Weight (Without Heatsink)	30g
Size:	40X25x20 mm

## Absolute Maximum Ratings Table

Parameter	Value
IF Power	+7dBm
RF Power	+3dBm
RF/LO Power	+15dBm
Vd	+6V
Operating Temperature	0 to +50C
Storage Temperature	-65 to +150C

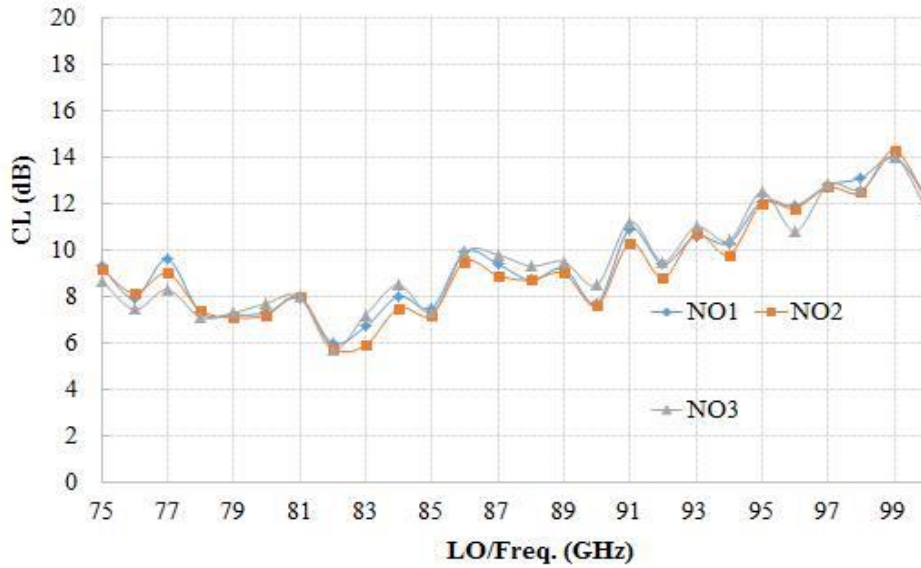
## Notes:

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.

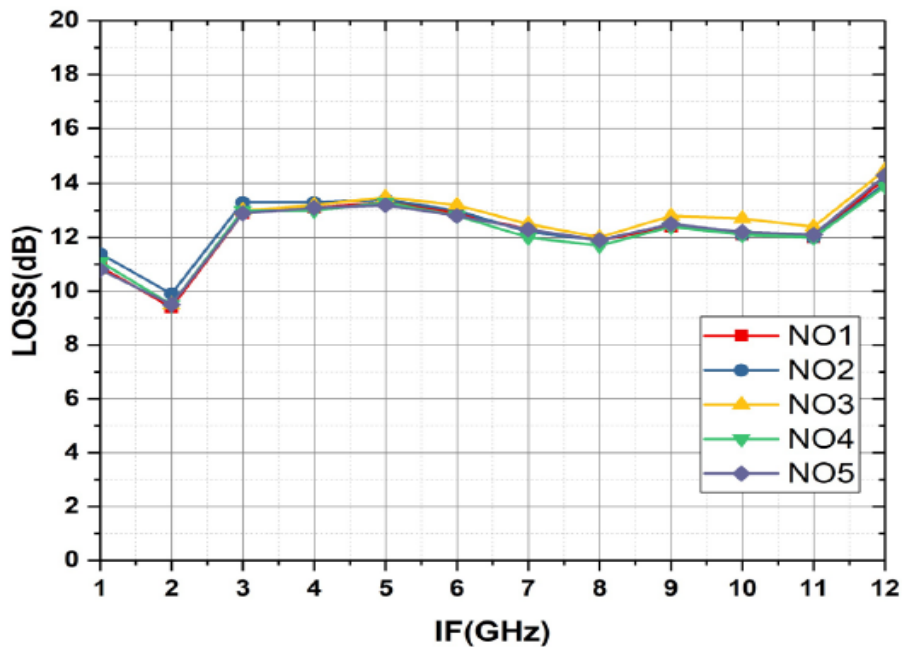


### Test Data:

**AT-MIX-75100G: Conv. CL vs LO=7dBm**



Conversion Loss Vs Frequency, IF=1GHz



IF Response , LO=78GHz, LO=+7dBm



### 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.

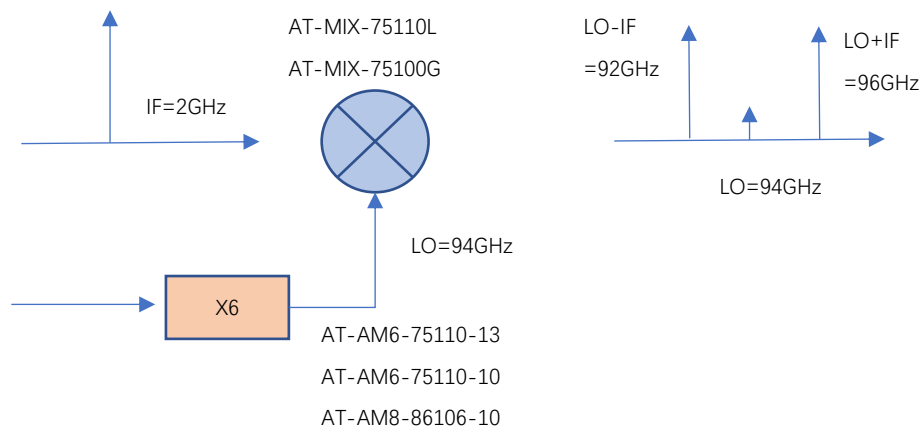


Figure A: General Balance Mixer with Both High and Low Side Output

#### 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.

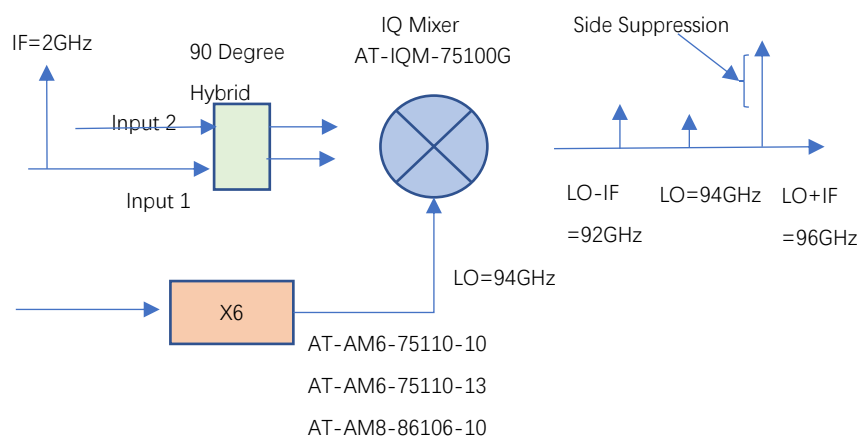
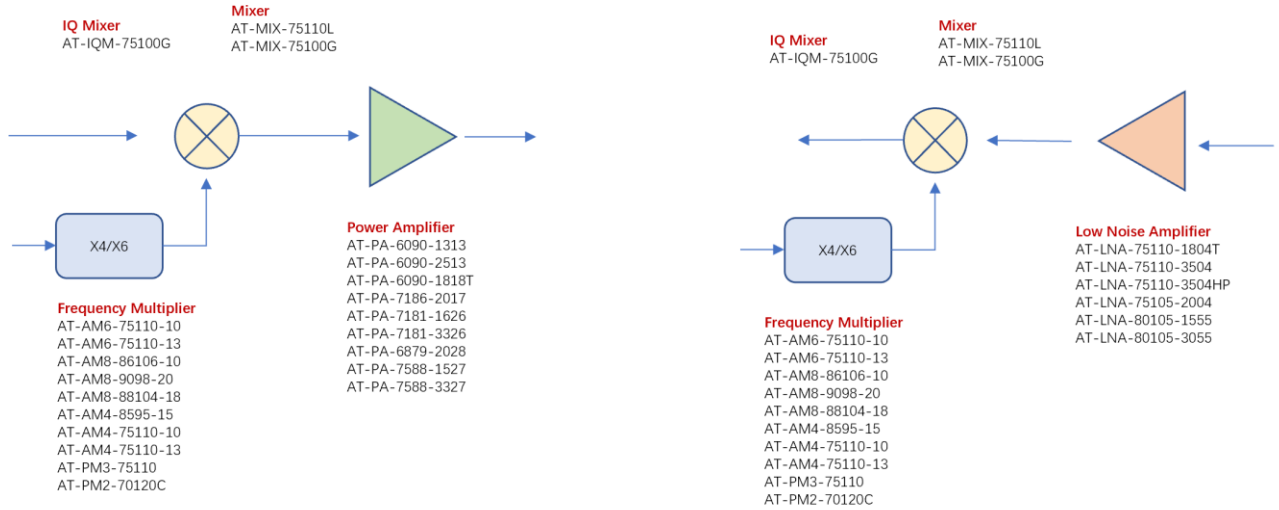


Figure B: IQ Mixer works as side suppression mixer



### W BAND 75-110GHZ



### Dimension: (unit mm)

