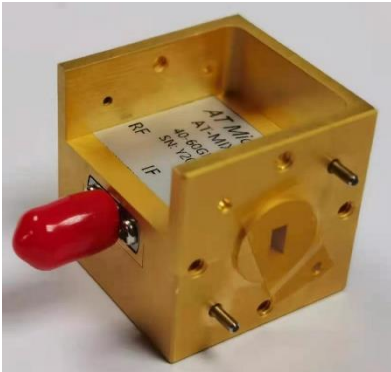


### 33-50GHz Balance Mixer WR-22



#### Description:

AT-MIX-3350H is an up and down balance mixer covering Q band based on GaAs MMIC Technology chips. IF input is balanced and can range from DC to 21GHz with SMA connector.

LO/RF frequency range is 33-50GHz with WR-22 waveguide. LO RF isolation features 25DB. AT Microwave high power frequency multiplier module AT-AM4-3350-15C with WR-22 or AT-AM4-1850-15C with 2.4mm can be used as LO driver for this mixer.

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

#### Feature

- ✓ RF/LO: 33-50GHz
- ✓ IF: DC-21GHz
- ✓ Low Conversion Loss
- ✓ Low LO power requirement
- ✓ High RF/LO Isolation

#### Application

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

### Electronical Specifications:

Parameter	Min	Typical	Max
RF/LO Frequency		33-50GHz	
IF Range		DC-21GHz	
Conversion Loss		-10dB	
LO Driver	+13	+15dBm	+20
RF/LO Isolation		-25dB	
P1dB		+7dBm	
IIP3		+17dBm	
Bias		NO	
Spec Temp		25C	





# AT-MIX-3350H

33-50GHz Q Band Balance Mixer

## Mechanical Information

Item	Description
RF Port	WR-22
LO Port	WR-22
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.



### Application Note

Mixer is a three ports 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,  $IF=2GHz$ ,  $LO=40GHz$ , so there will be  $38GHz$  and  $42GHz$  at RF port with same power level.

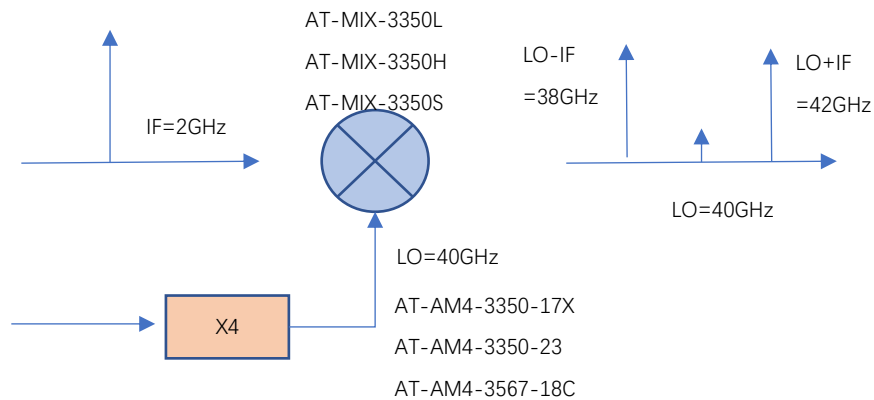


Figure A: General Balance Mixer with Both High and Low Side Output

#### 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  $RF=LO+IF=42GHz$ , while have side suppression (say  $-25dBc$ ) at Low end frequency  $38GHz$ . When you need low end frequency  $38GHz$ , and make side suppression for high end frequency  $42GHz$ , just applies IF to Input 2 of the hybrid.

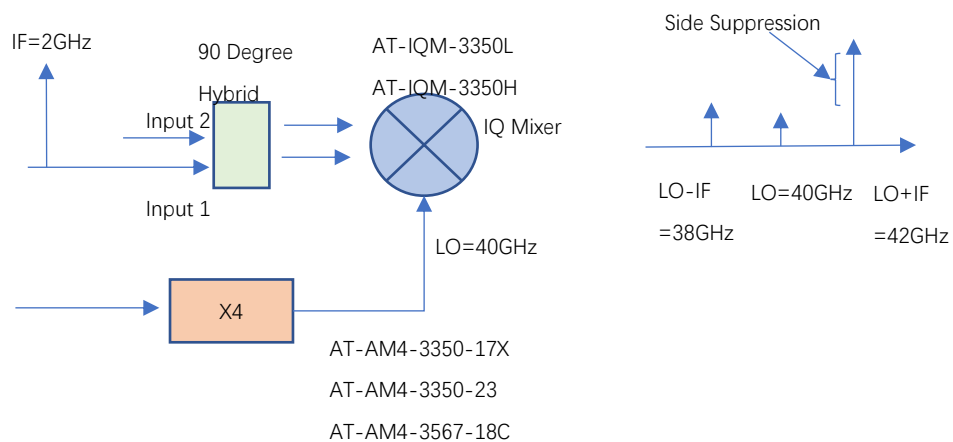


Figure B: IQ Mixer works as side suppression mixer



### Q BAND 33-50GHz

