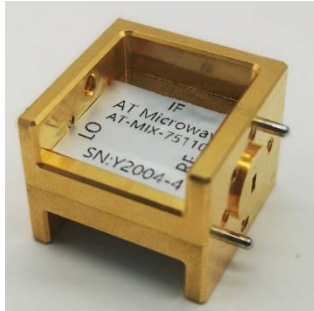


## 50-75GHz Balance Mixer WR-15



### Description:

AT-MIX-5075H is an up and down balance mixer covering E band based on GaAs MMIC technology. IF input is balanced and can range from DC to 26GHz with SMA Female connector

LO/RF frequency range is 50-75GHz with WR-15 waveguide. LO-RF isolation features -28dBc typical. AT-AM4-5075-15 or AT-AM6-5766-13 can be used as a LO Driver.

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

### Feature

- ✓ RF/LO: 50-75GHz
- ✓ IF: DC-26GHz
- ✓ Low Conversion Loss
- ✓ Low LO power requirement
- ✓ High RF/LO Isolation

### Application

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

## Electrical Specifications

Parameter	Min	Typical	Max
RF Frequency		50-75GHz	
LO Frequency		50-75GHz	
IF Range		DC-26.5GHz	
Conversion Loss (Note1)		-8dB	-13
LO Driver	+10	+13dBm	+16
RF/LO Isolation (Note2)		-28dB	
Bias		NO	
Spec Temp		25C	

Note1: down-converter, RF-LO=1GHz

Note2: Up-converter test, IF=1GHz, RF=LO+IF





# AT-MIX-5075H

## Full V Band Balance Mixer

### Mechanical Information

Item	Description
RF Port	WR-15
LO Port	WR-15
IF Port	SMA Female (Note)
Case Material	Copper
Finish	Gold Plated
Weight (Without Heatsink)	30g
Size:	25x25x20mm

Note: 2.92mm Female is available according to request.

### Absolute Maximum Ratings Table

Parameter	Value
IF Port Power	+0dBm
RF Port Power	+10dBm
LO Port 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.

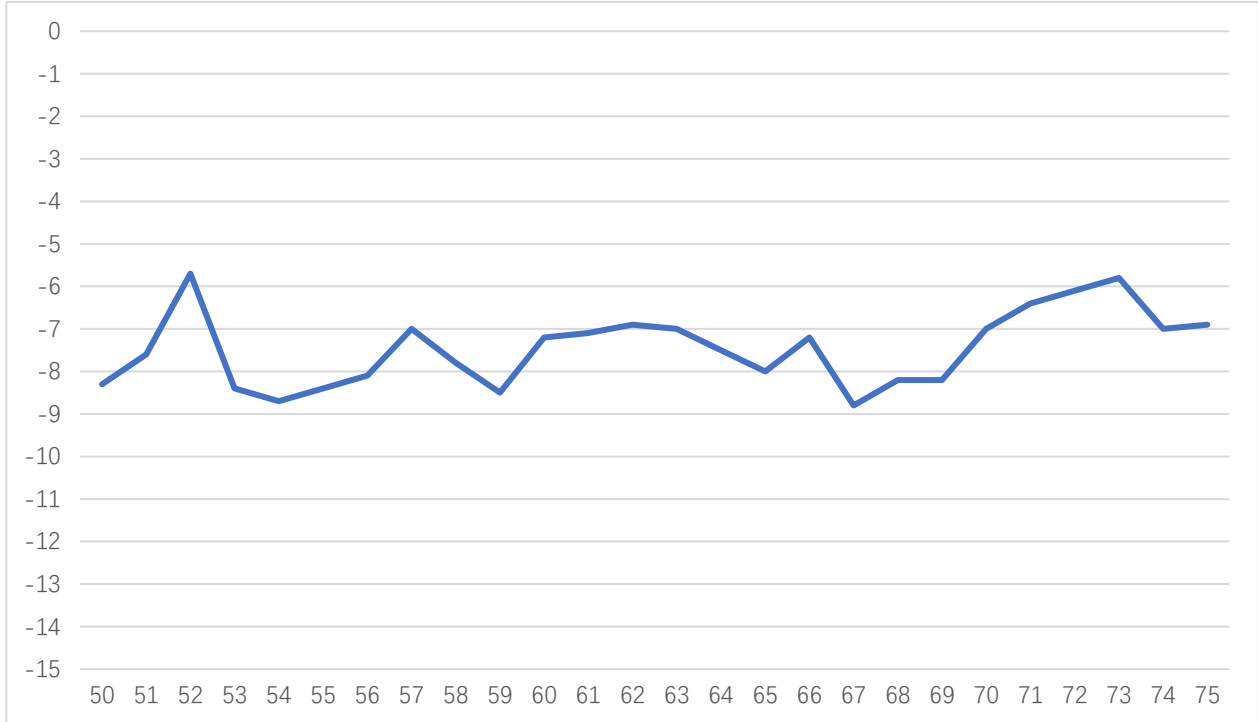
### Order Information

Part Number	Description
AT-MIX-5075H	Standard products, IF=SMA Female
AT-MIX-5075H-29F	IF=2.92mm Female.

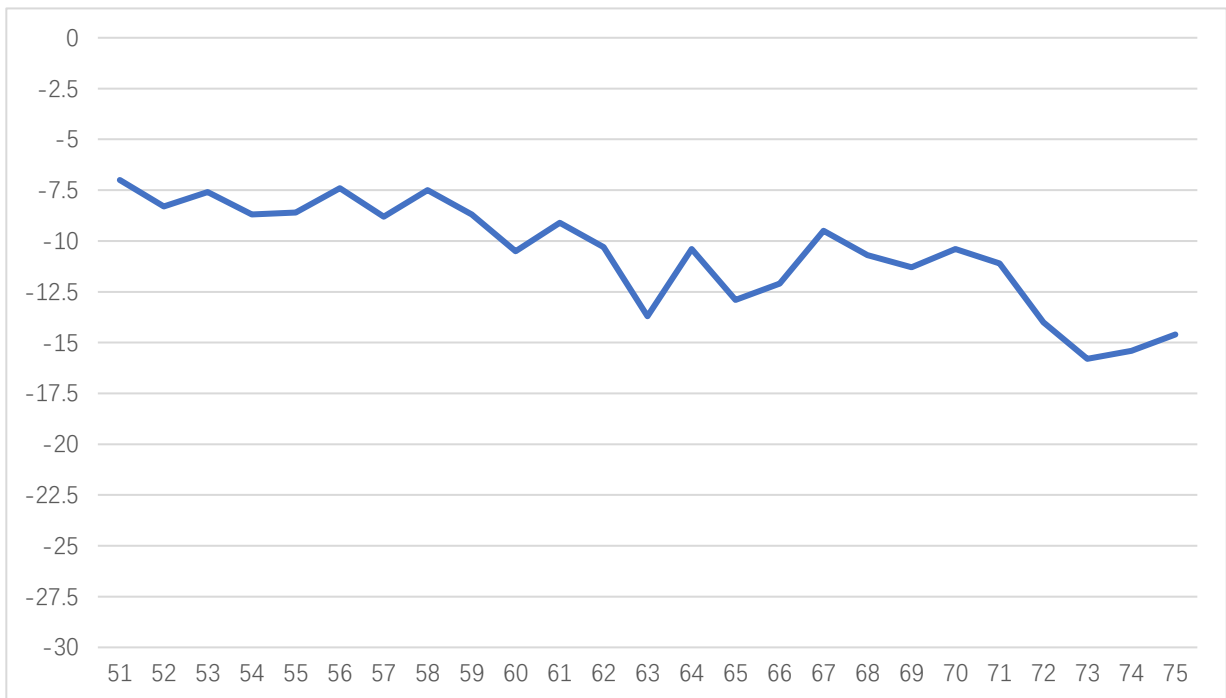


## Down-Convertor Test

LO=+13dBm, RF-LO=1GHz, Down-convertor test, 25C

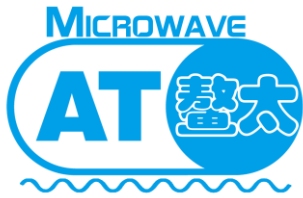


Conversion Loss vs Frequency, IF=1GHz



IF Response vs Frequency, LO=50GHz

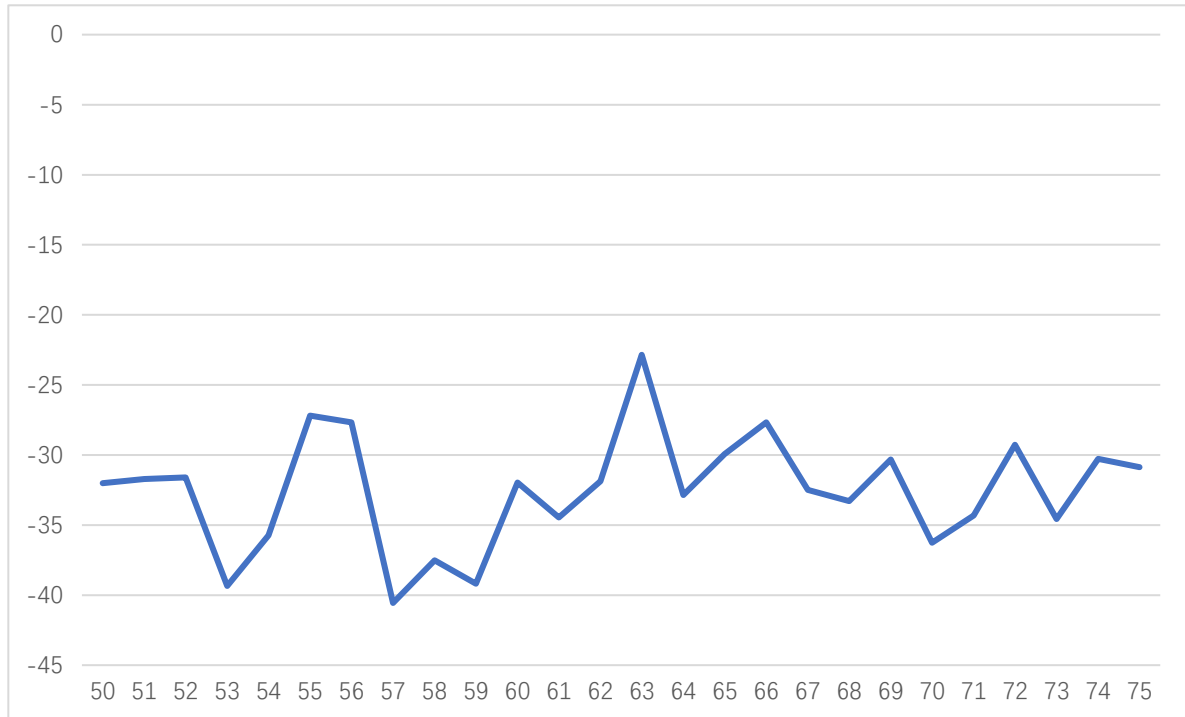




# AT-MIX-5075H

Full V Band Balance Mixer

## Up-Convertor Test



LO/RF isolation, IF=1GHz, LO=+13dBm



### 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,  $IF=2GHz$ ,  $LO=60GHz$ , so there will be  $58GHz$  and  $62GHz$  at RF port with same power level.

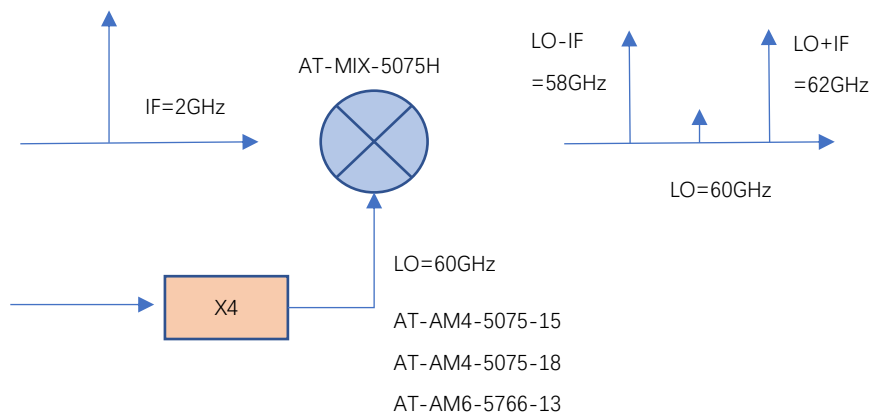


Figure A: General Balance Mixer with Both High and Low Side Output

#### 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  $RF=LO+IF=62GHz$ , while have side suppression (say  $-25dBc$ ) at Low end frequency  $58GHz$ . When you need low end frequency  $58GHz$ , and make side suppression for high end frequency  $62GHz$ , just applies IF to Input 2 of the hybrid.

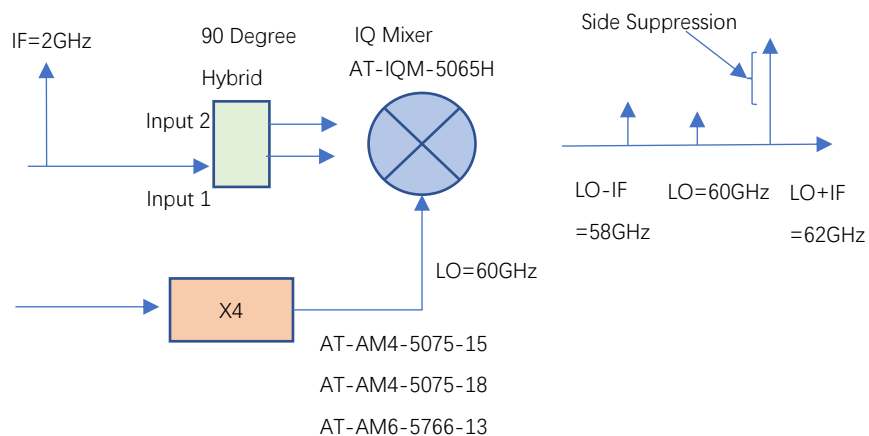
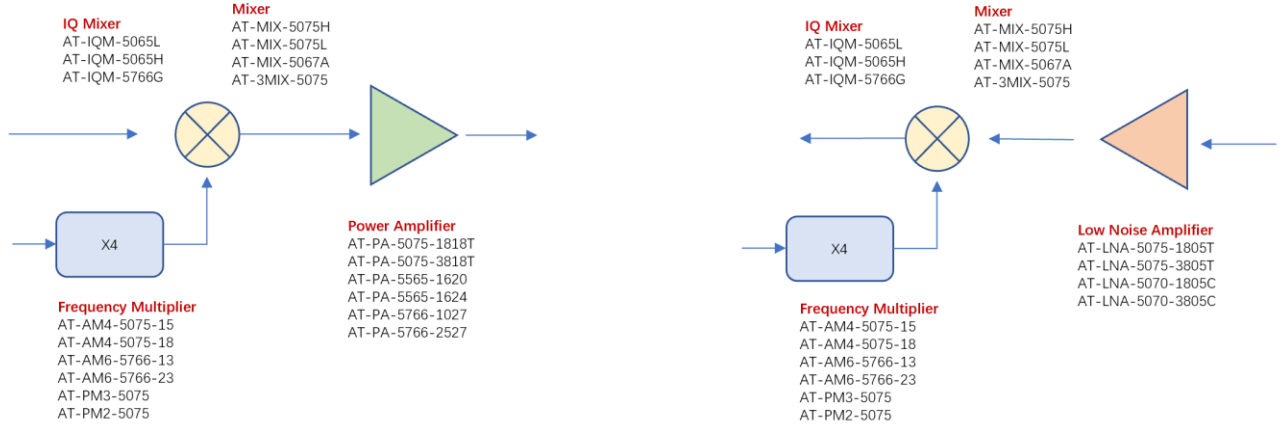


Figure B: IQ Mixer works as side suppression mixer



### V Band 50-75GHz



### Dimension (Unit: mm)

