

### H Band: 200-220GHz Compact Converter

2022-9-1

### LO with X16 Amplified Frequency Multiplier Chain



#### Description:

AT-HTR-200220 is compact H Band converter with RF frequency from 200-220GHz. It can be used as transmitter or receiver. LO link is with x16 amplified multiplier chain with input of 12.5-13.75GHz. IF Port Frequency range is DC-20GHz.

It's suitable for H band point to point communication, instrumentation, sensing, security and high resolution imaging applications. It's also can be used for down-converter application.

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

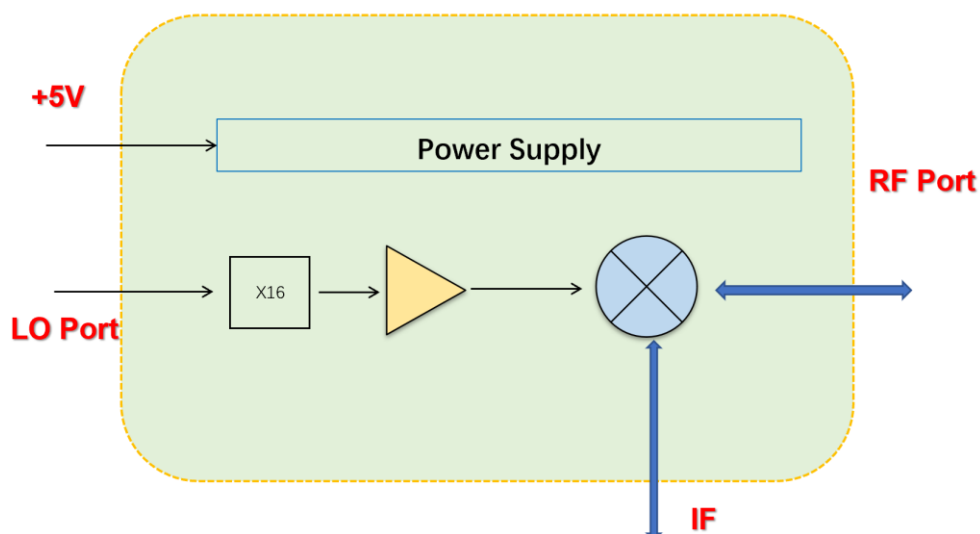
#### Feature

- ✓ RF: 200-220GHz
- ✓ LO: 12.5-13.75GHz with X16 Multiplier
- ✓ IF: DC-20GHz
- ✓ Low LO power requirement

#### Application

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

#### Diagram Block





# AT-HTR-200220

200-220GHz H Band Converter

## Electronical Specifications:

Parameter	Min	Typical	Max
RF Frequency Range		200-220GHz	
LO Frequency Multiplier		X16	
LO Frequency Range		12.5-13.75GHz	
LO Driver	+3dBm	+5dBm	+8dBm
IF Range		DC-20GHz	
Conversion Loss		-18dB	-22dB
RF Input P1dB		-3dBm	
Power Supply		+5V	+8V
Current		100mA	
Spec Temp		25C	

## Mechanical Information

Item	Description
RF Port	WR-04
LO Port	SMA Female
IF Port	SMA Female
Case Material	Copper
Finish	Gold Plated
Weight	100g
Size:	See outline





# AT-HTR-200220

200-220GHz H Band Converter

## Absolute Maximum Ratings Table

Parameter	Value
IF Port Power	+7dBm
RF Port Power	+5dBm
LO Port Power	+15dBm
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 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.

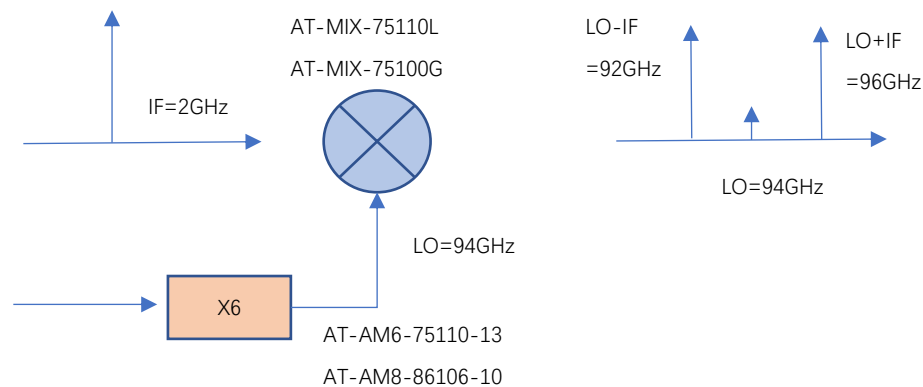


Figure A: General Balance Mixer with Both High and Low Side Output

#### 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.

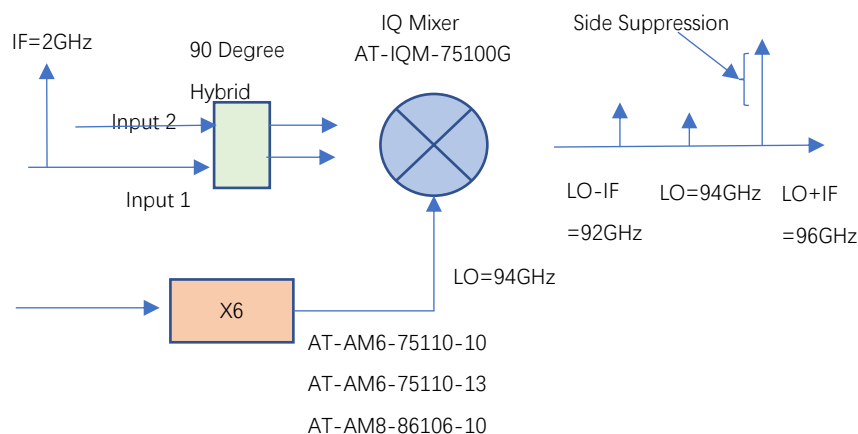


Figure B: IQ Mixer works as side suppression mixer



### Dimension (mm)

