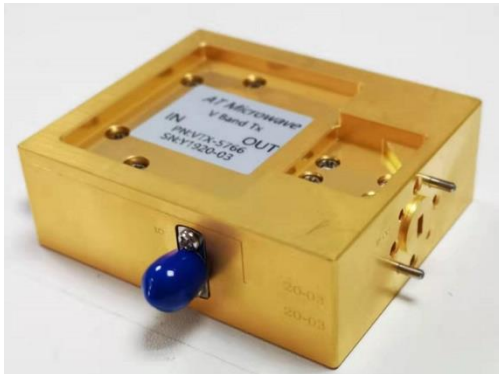


## W Band Differential IQ Transmitter, 92-100GHz, High Power, High Gain

2022-3-2



### Product Overview

AT-WTX-92100IQD is a W-Band differential IQ Transmitter. The Tx is integrated with High Performance GaAs MMIC chips. RF frequency range is 92-100GHz, LO range is 10.75-13.25GHz with x8 times multiplier inside. IF range is DC-10GHz.

The Tx Module is with compact size. LO/IF port is with SMA, and RF port is with standard WR-10.

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

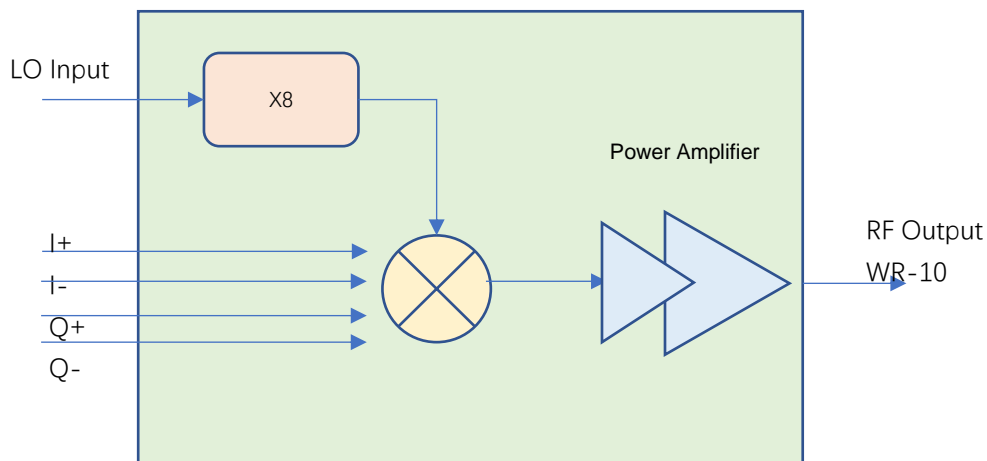
### Feature

- ✓ Frequency: 92-100GHz
- ✓ High Power: +18dBm
- ✓ High Gain: 15dB
- ✓ IF Range: DC-10GHz
- ✓ Single power supply

### Application

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

### Diagram Block





# AT-WTX-92100IQD

W Band Differential IQ Transmitter

## Key Features

Parameter	Min	Typical	Max
RF Frequency		92-100GHz	
IF to RF Conversion Gain	12dB	15dB	
IF Frequency		DC-10GHz	
LO Frequency	10.75GHz		13.25GHz
LO Multiplier Factor		X8	
LO Power	0	+3dBm	+5dBm
P1dB		+15dBm	
Psat		+17dBm	
Power Supply		+5V	+8V
Current		0.5A	
Spec Temp		25C	





# AT-WTX-92100IQD

W Band Differential IQ Transmitter

## Mechanical Information

Parameter	Description
RF Port	WR-10
LO Port	SMA Female
IF Port	SMA Female
Case Material (Note)	Copper
Finish	Gold Plated
Weight	450g
Dimension	See outline

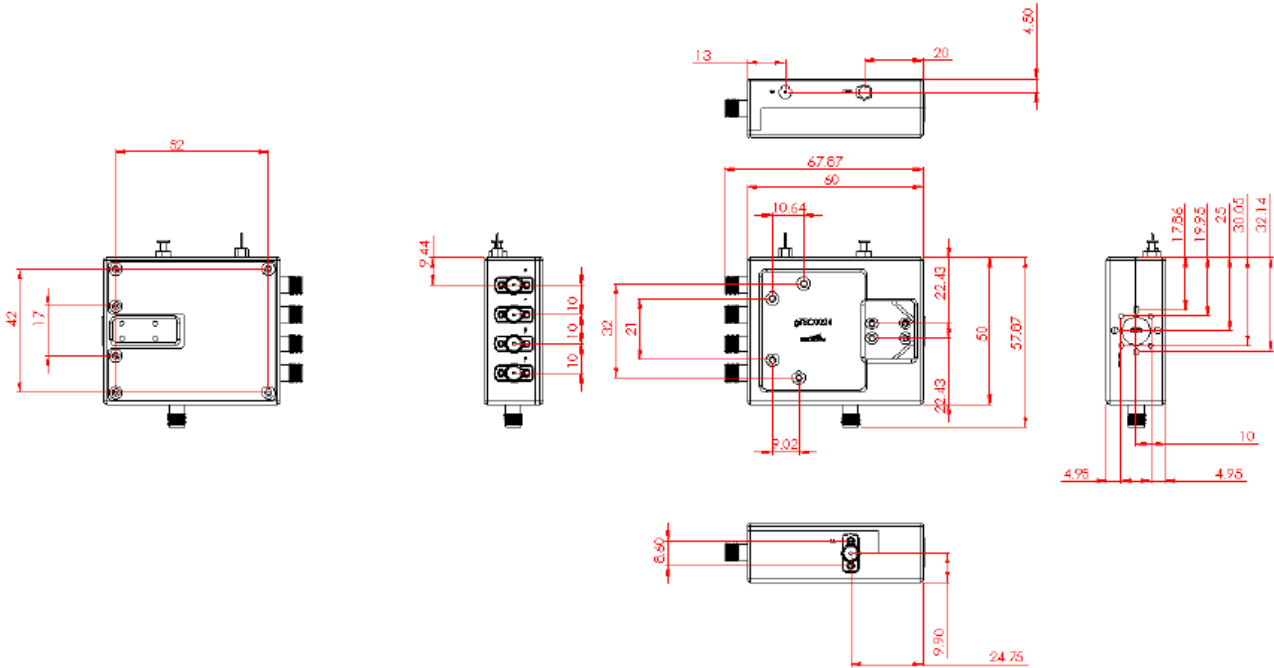
Note: Aluminium for lighter weight is available according to request

## Absolute Maximum Ratings Table

Parameter	Value
IF Power	+7dBm
LO Port	+15dBm
Power Supply	+7V
Operating Temperature	0 to +50C
Storage Temperature	-55 to +125C



## Dimension (unit mm)



## 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.

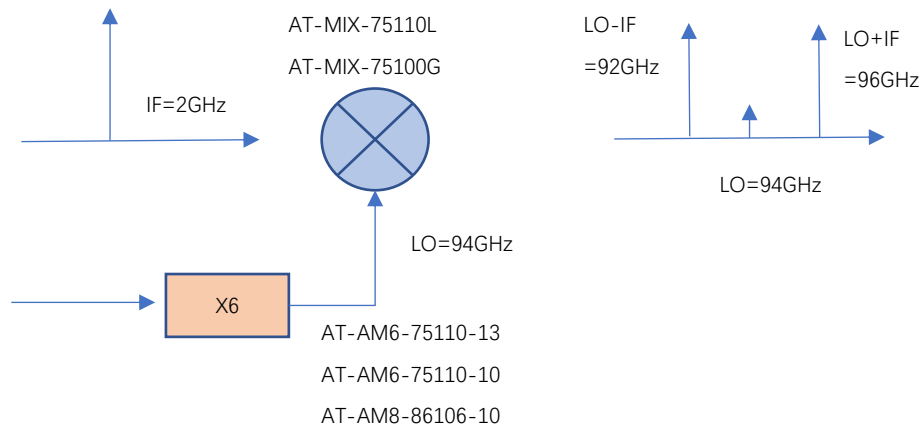


Figure A: General Balance Mixer with Both High and Low Side Output

### 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.

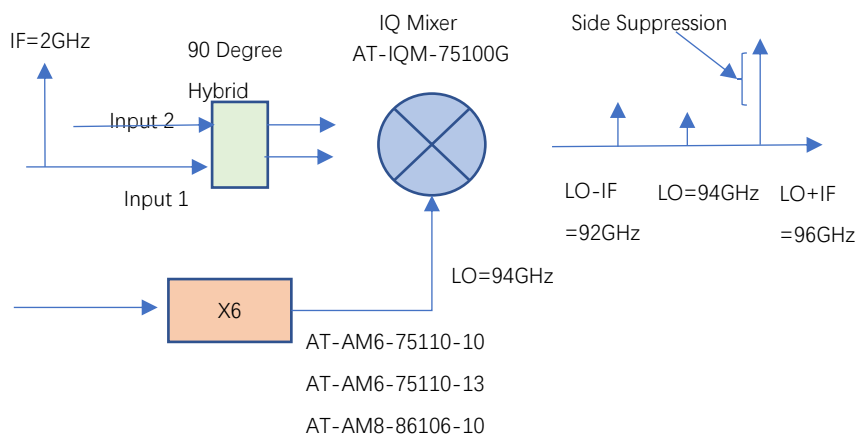


Figure B: IQ Mixer works as side suppression mixer

