

E2 Band Single-side band Transmitter, 78-86GHz



Product Overview

2021-4-16

AT-ETX-7886SIR-IX is a E-Band single-side band Transmitter. The Tx is integrated with High Performance GaAs MMIC chips. RF frequency range is 78-86GHz, LO range is 11.8-14.4GHz with x6 times multiplier inside to achieve 71-86GHz LO frequency inside. IF range is 2.5-8.5GHz with single end port. IQ Port is available according to request.

The Tx Module is with compact size. LO/IF port is with SMA, and RF port is with standard WR-12.

More information, please visit www.atmicrowave.com

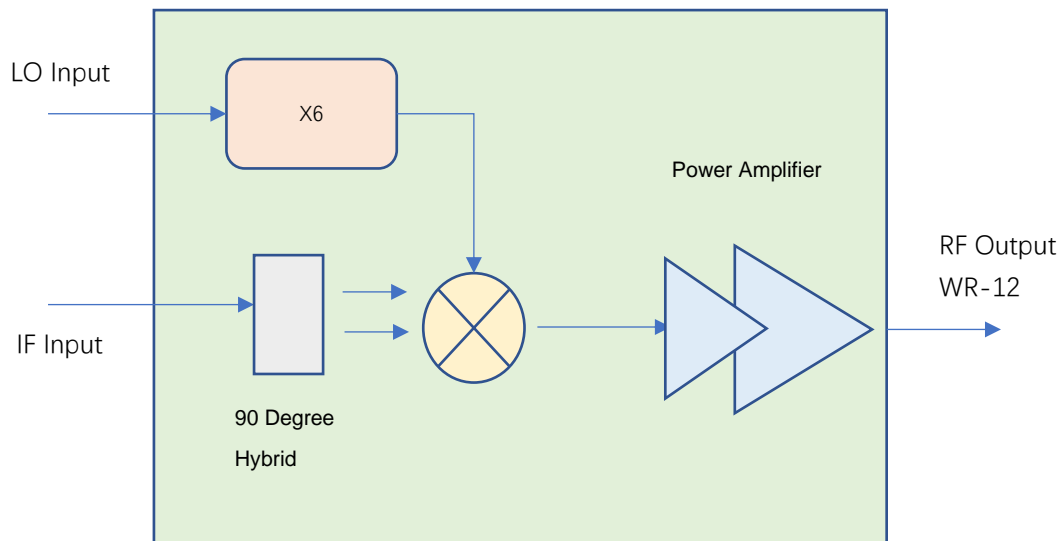
Feature

- ✓ Frequency: 78-86GHz
- ✓ High Power: +20dBm
- ✓ IF Range: 2.5-8.5GHz
- ✓ IF to RF Gain: 13dB
- ✓ Single power supply

Application

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

Diagram Block





AT-ETX-7886SIR-ISC

E Band Transmitter, 78-86GHz, Pout=+20dBm

Key Features

Parameter	Min	Typical	Max
RF Frequency		78-86GHz	
IF to RF Conversion Gain	10dB	13dB	
IF Frequency		2.GHz5-8.5	
LO Band Side Frequency	11.8GHz		14.4GHz
LO Multiplier Factor		X6	
LO Power	+4	+5dBm	+8dBm
Low Band Side Image Rejection (Note)	-10	-20dBc	
P1dB		+18dBm	
Psat		+20dBm	
Power Supply		+5	+8V
Current		0.95A	
Spec Temp		25C	
Operating Temp		0 to 50C	

Note: High band side rejection is available according to request.

Test Condition

Parameter	Setting
IF Input Power	-10dBm
Input Frequency	3GHz
LO Power	5dBm
Temperature	25C

Mechanical Information

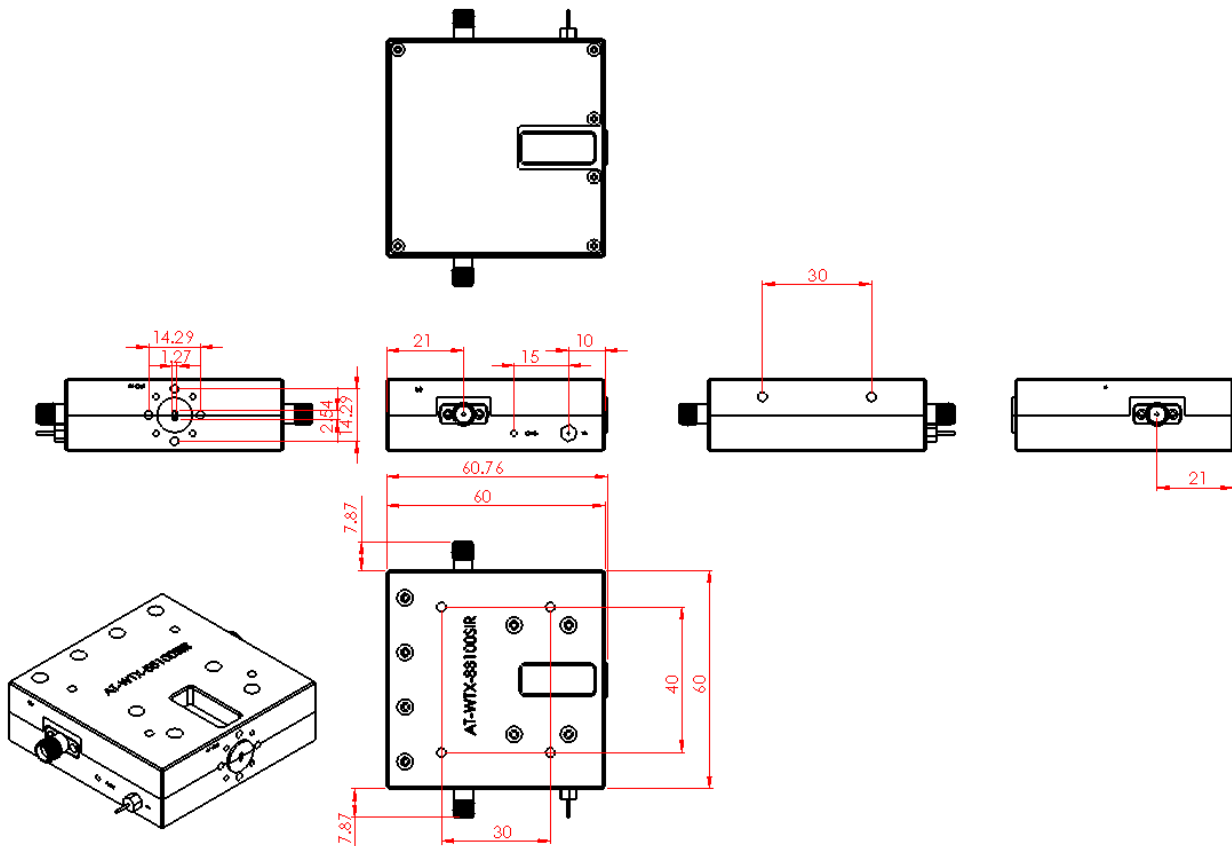
Item	Description
RF Port	WR-12
IF Port	SMA Female
LO Port	SMA Female
Finish	Gold Plated
Weight (Without Heatsink)	225g
Size:	75x40x20mm



Absolute Maximum Ratings Table

Parameter	Value
Drain Supply 1	+9V
IF Input Power	+15dBm
LO Power	+15dBm
Operating Temperature	0 to +50C
Storage Temperature	-65 to +150C

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, $IF=2GHz$, $LO=80GHz$, so there will be 78GHz and 82GHz at RF port with same power level.

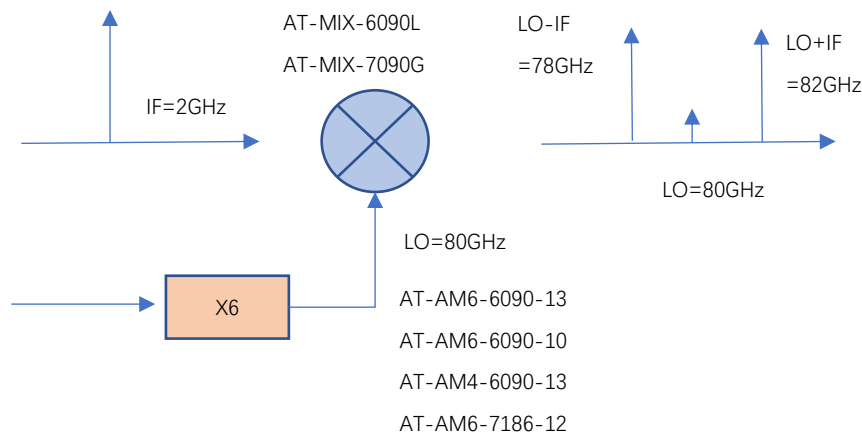


Figure A: General Balance Mixer with Both High and Low Side Output

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 $RF = LO + IF = 82GHz$, while have side suppression (say $-25dBc$) at Low end frequency 78GHz.

When you need low end frequency 78GHz, and make side suppression for high end frequency 82GHz, just applies IF to Input 2 of the hybrid.

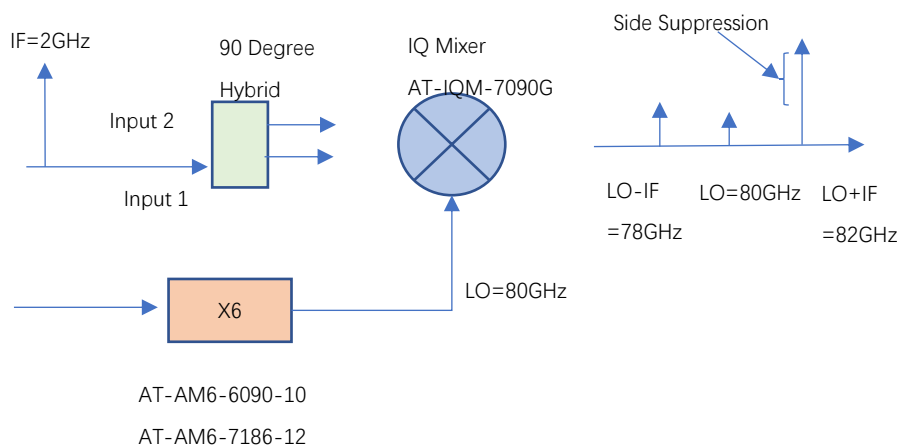


Figure B: IQ Mixer works as side suppression mixer

