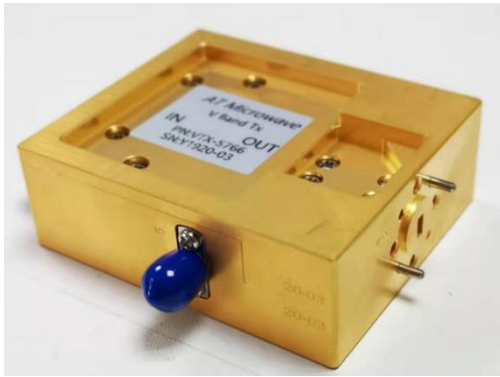


E2 Band Transmitter, 81-86GHz



Product Overview

AT-ETX-8186 is a E-Band Transmitter, with gain=13dB, Pout=+20dBm typical.

The Tx is integrated with High Performance GaAs MMIC chips. RF frequency range is 81-86GHz, LO range is 13.5-14.3GHz with x6 times multiplier inside. IF range is DC-10GHz The transmitter 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

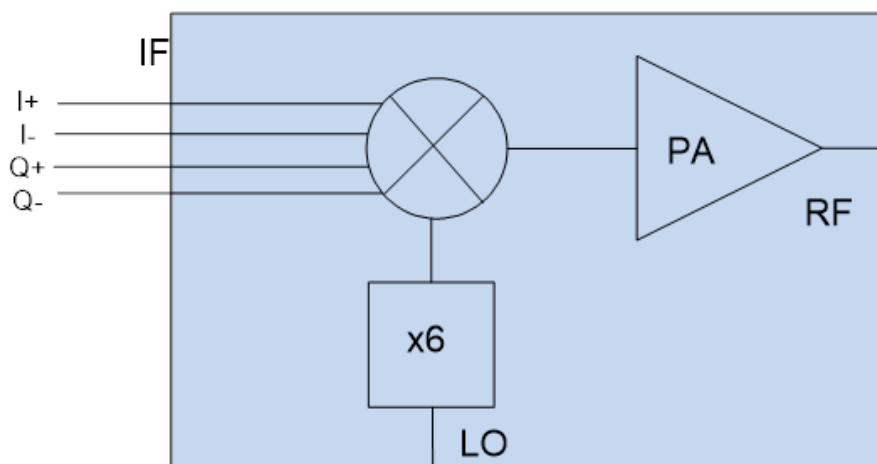
Feature

- ✓ Frequency: 81-86GHz
- ✓ Gain: 15dB typical
- ✓ IF Range: DC-10GHz
- ✓ Pout: +20dBm Typical

Application

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

Diagram Block





AT-ETX-8186

Compact E2 Band Transmitter, 81-86GHz

Key Features

Parameter	Min	Typical	Max
RF Frequency		81-86 GHz	
IF Frequency (Note1)		DC-10 GHz	
LO Frequency		13.5-14.3GHz	
LO Power	+3dBm	+5 dBm	+10dBm
P1 dB		+18 dBm	
Psat		+20 dBm	
Conversion Gain		13 dB	
RF Return Loss		-10 dB	
LO Return Loss		-14 dB	
Drain Power Supply		+5/950mA	+8V
Spec Temp		25C	





AT-ETX-8186

Compact E2 Band Transmitter, 81-86GHz

Mechanical Information

Parameter	Description
RF Port	WR-12
LO Port	SMA Female
IF Port	SMA Female
Case Material (Note)	Copper
Finish	Gold Plated
Weight	315g
Dimension	See outline

Note: Aluminium for lighter weight is available according to request

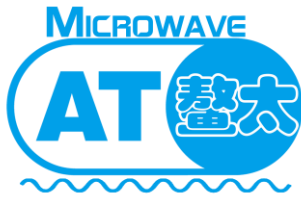
Absolute Maximum Ratings Table

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

Test Condition

Parameter	Setting
IF Input Power	-5dBm
Input Frequency	1GHz
LO Power	+5dBm
Temperature	25C



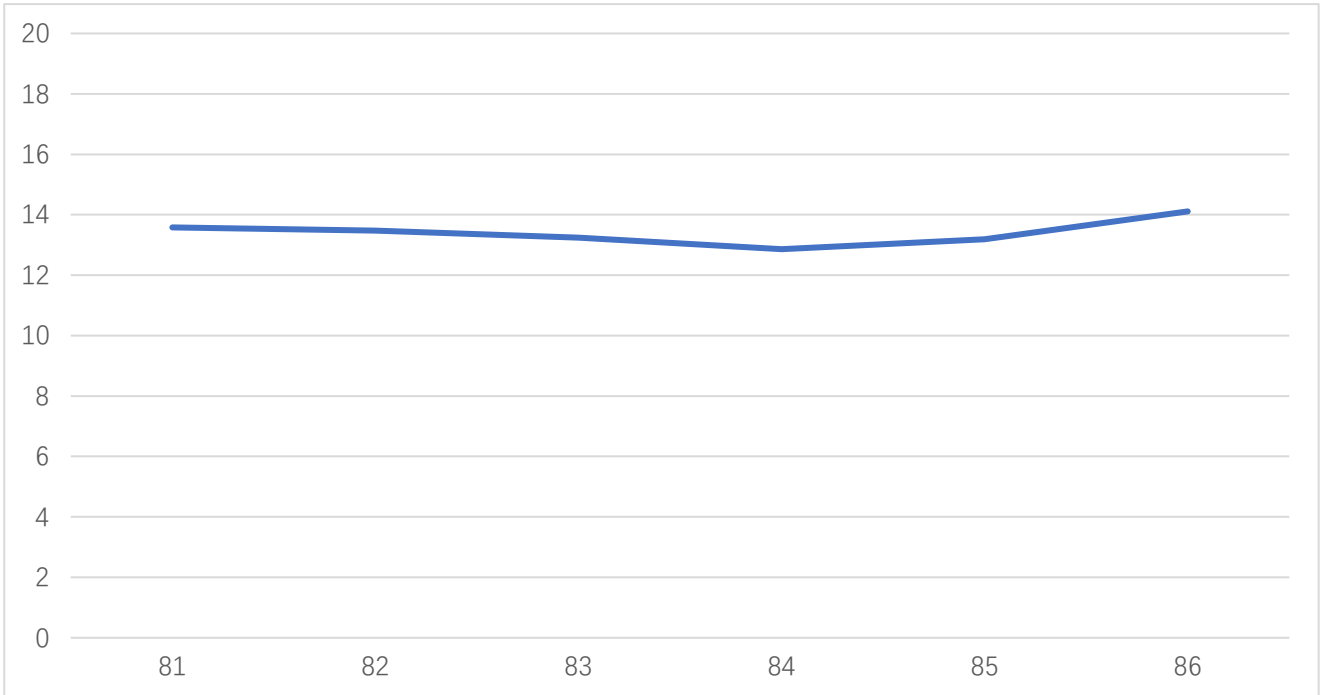


AT-ETX-8186

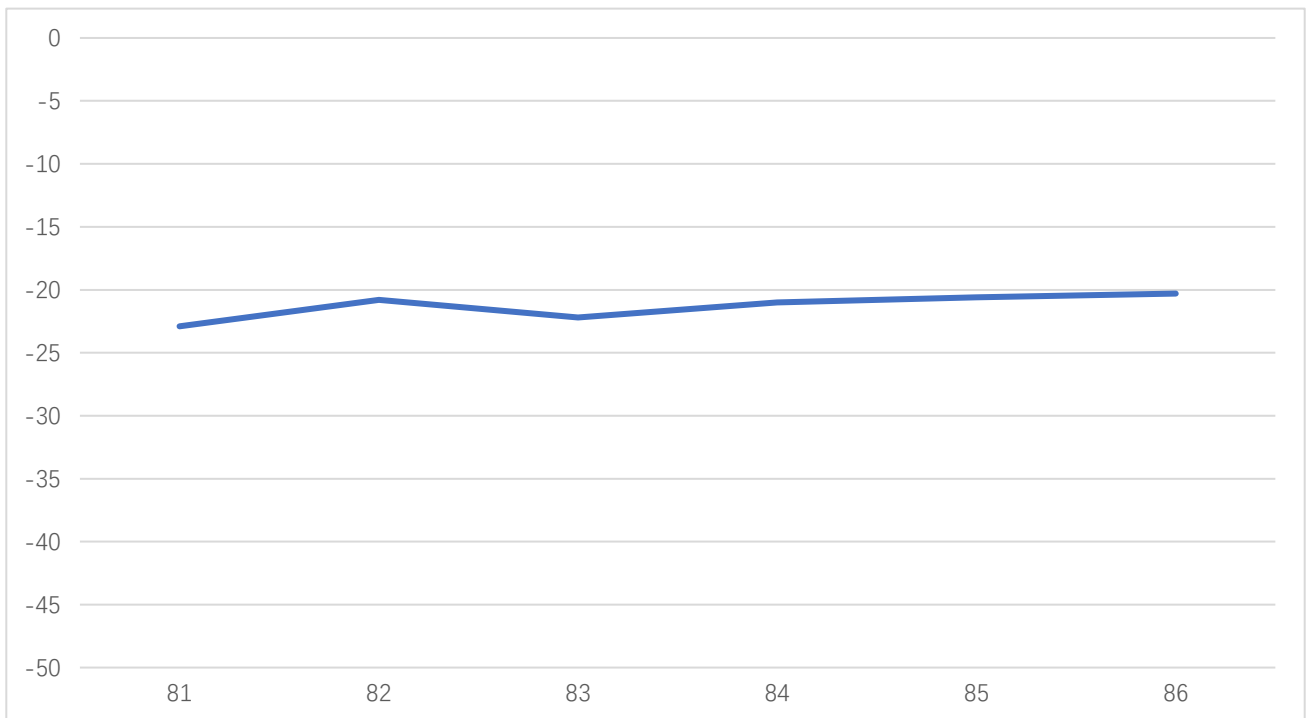
Compact E2 Band Transmitter, 81-86GHz

Test Data (25C)

IF=2GHz, IF Power=-5dBm, Combine IQ together.

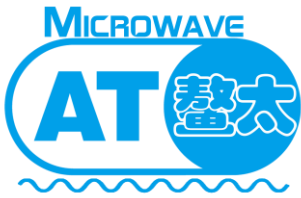


Gain vs Frequency



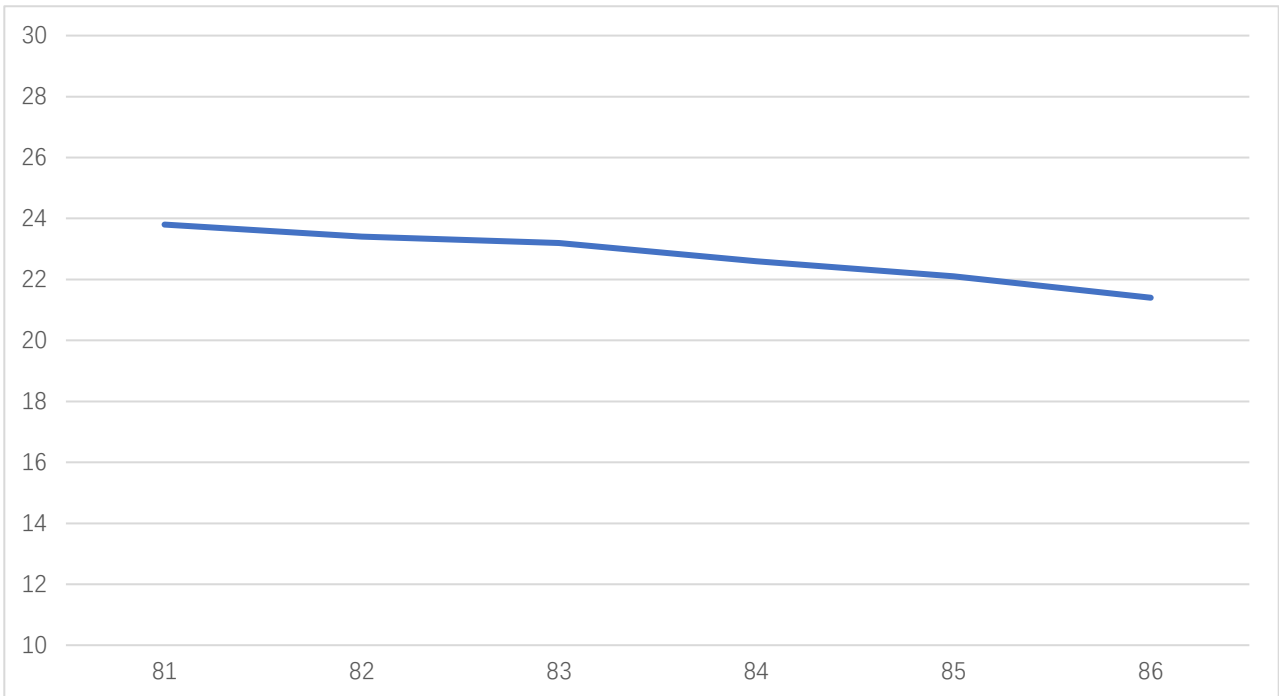
LSB Band side suppression vs RF Frequency, IF=1GHz



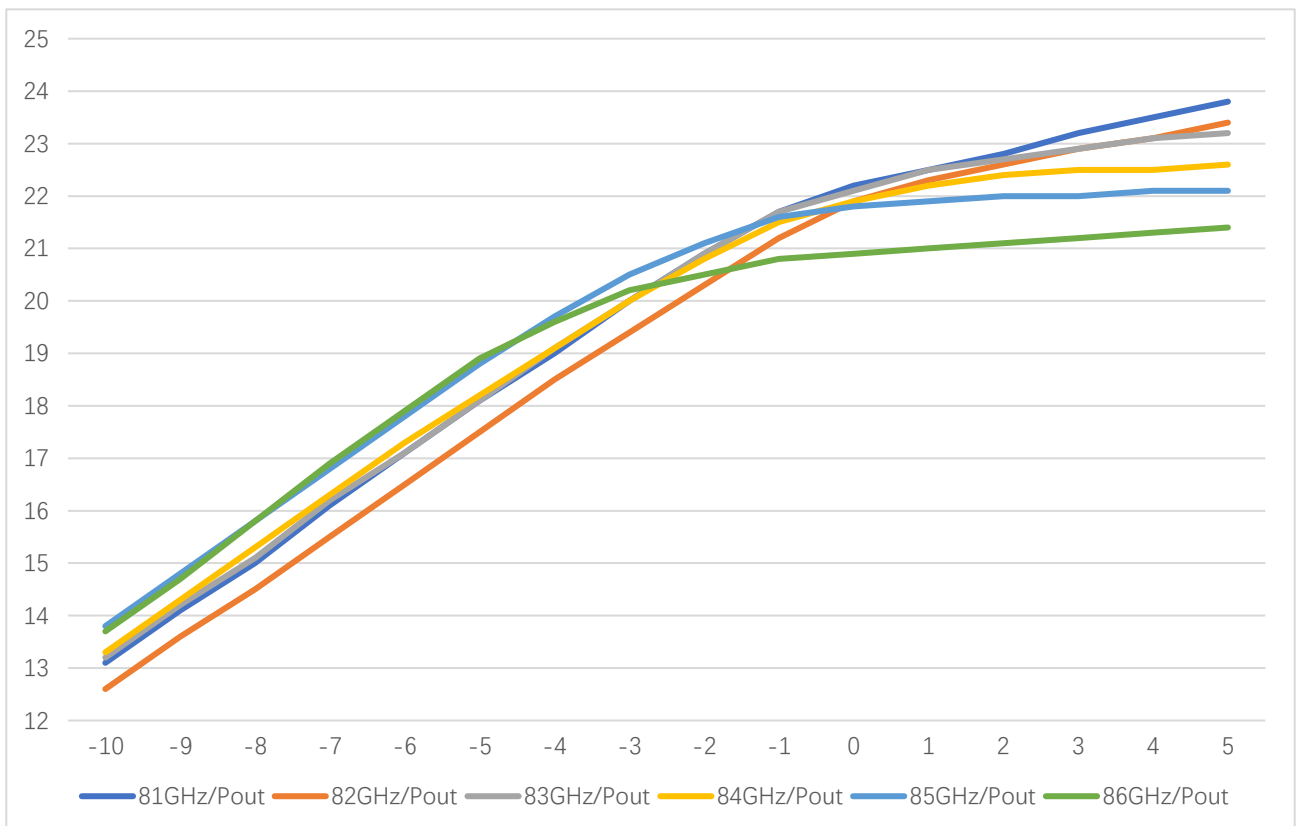


AT-ETX-8186

Compact E2 Band Transmitter, 81-86GHz



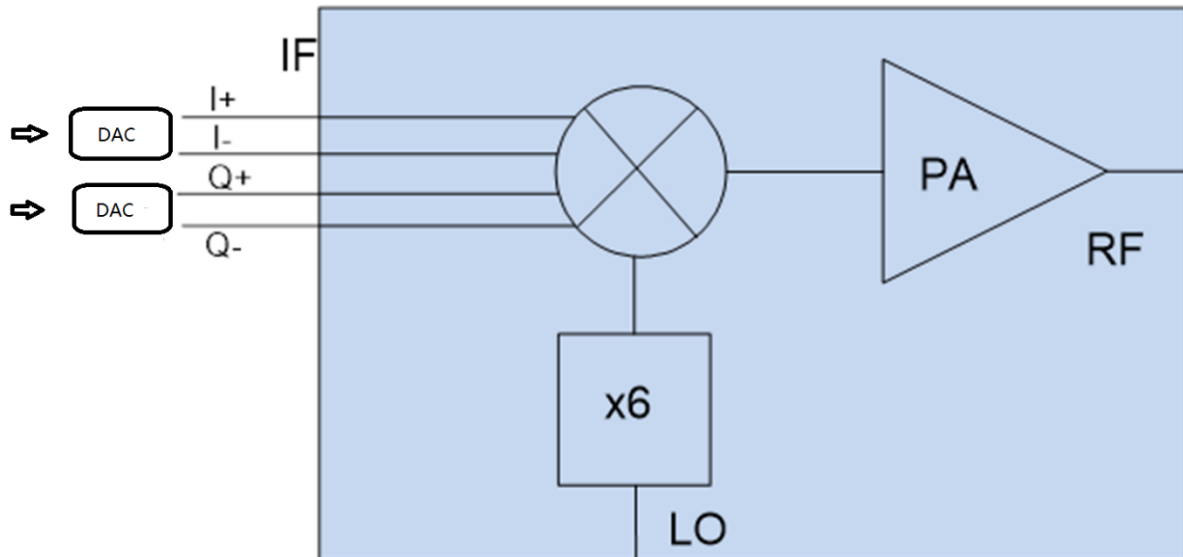
Pout vs Frequency, Pin=+5dBm/ch



Pout vs Input Power/ch

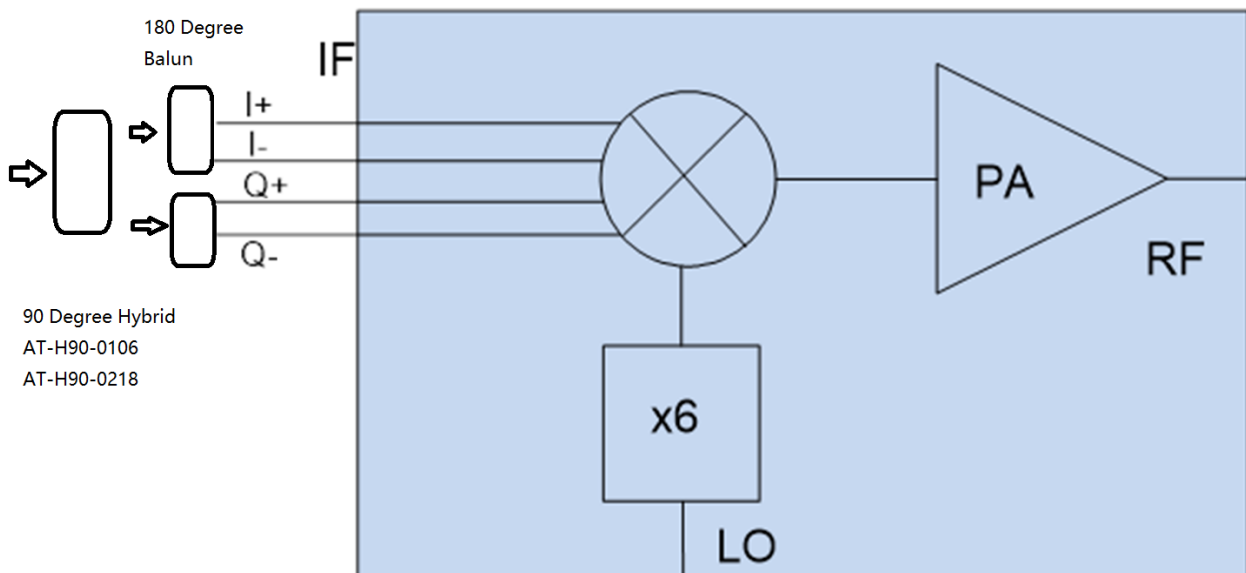


Applicaiton1:



Zero IF Direct Conversion

Applicaiton2:



Imaging Rejection Single IF Application

Contact with us for 180degree balun and 90degree hybrid.



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 81GHz and 82GHz at RF port with same power level.

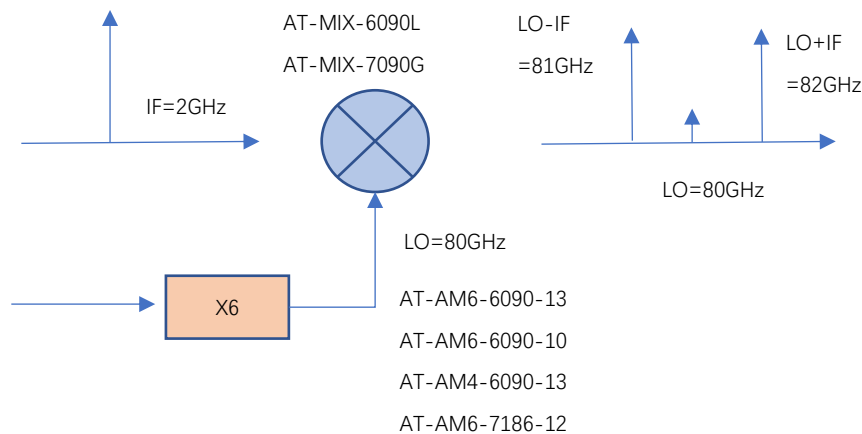


Figure A: General Balance Mixer with Both High and Low Side Output

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 81GHz.

When you need low end frequency 81GHz, and make side suppression for high end frequency 82GHz, just applies IF to Input 2 of the hybrid.

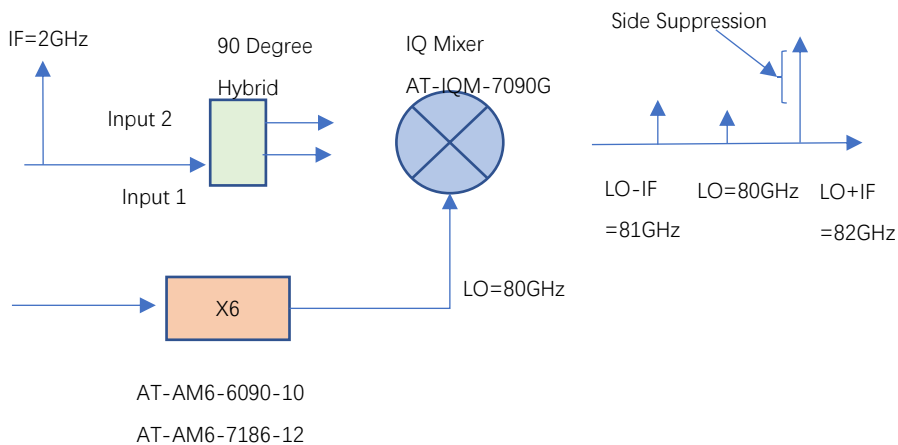


Figure B: IQ Mixer works as side suppression mixer



Dimension (mm)

