XT3501

GaAs MMIC Up-converter Mixer
2.0～3.5GHz

Rev 2.0

Features

- RF/LO Frequency：2.0～3.5GHz
- IF Frequency：10～600MHz
- Conversion Gain：8dB
- Output P_{-1}dB：+8dBm
- LO Power：0dBm
- Supply Voltage：85mA@5V

Typical Applications

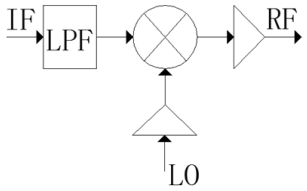
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming

General Description

XT3501 is general-purpose Up-converter. This MMIC mixer is fabricated in a GaAs process and requires no external components or matching circuitry.

The chip offers full passivation for increased reliability and moisture protection.

Functional Diagram



Electrical Performance

（T_A=25℃, LO=+0dBm ,V_D=+5V, LSB）

Parameter	Min.	Typ.	Max.	Units
RF Frequency Range		2.0～3.5		GHz
LO Frequency Range		2.6～3.5		GHz
IF Frequency Range		10～600		MHz
Conversion Gain	—	8	—	dB
Output P_{-1}dB	—	8	—	dBm
RF Return Loss	—	-12	—	dB
IF Return Loss	—	-15	—	dB

Electrical Performance

（T_A=25℃, LO=+0dBm ,V_D=+5V, USB）

Parameter	Min.	Typ.	Max.	Units
RF Frequency Range		2.0～3.5		GHz
LO Frequency Range		2.0～2.9		GHz
IF Frequency Range		10～600		MHz
Conversion Gain	—	8	—	dB
Output P_{-1}dB	—	8	—	dBm
RF Return Loss	—	-12	—	dB
IF Return Loss	—	-15	—	dB

Absolute Maximum Ratings

Maximum RF Input	+10dBm	Operating Temperature	-55℃～+85℃
Maximum LO Input	+10dBm	LO Power	-3～+3 dBm
Maximum Input Voltage	+8V	Storage Temperature	-65℃～+150℃

Chengdu Fairchild Technology Co., Ltd.
Add.: 4F, Block B, No.98 Tiancai road, Hi-Tech(West)Zone, Chengdu.
Cel.: 18381641733 Tel.: +86-28-8792 9948, +86-28-8793 2498 Fax: 028-8793 3348
E-mail: sales@fairchild-tech.com. Web.: www.fairchild-tech.com
WeChat: R18381641733.

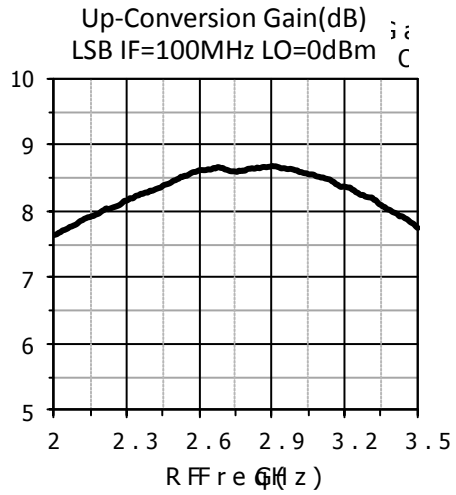
Electrical Performance

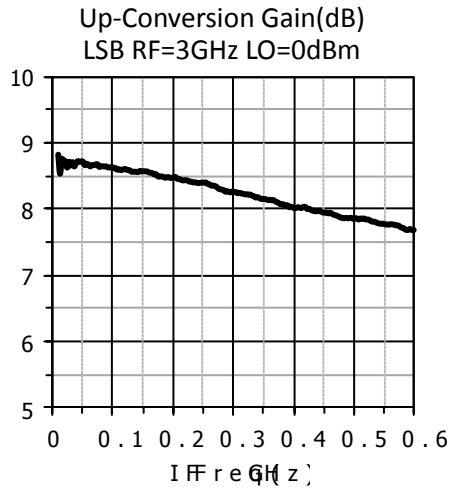
（T_A=25℃, LO=+0dBm ,V_D=+5V,）

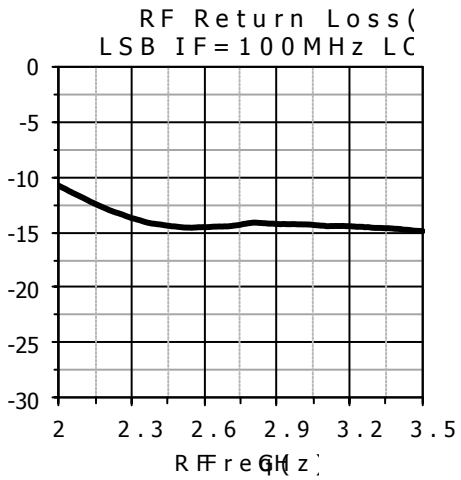
Parameter	Min.	Typ.	Max.	Units
LO Frequency Range		2.6～3.5		GHz
LO to IF Isolation	—	-60	—	dB
LO to RF Isolation	—	-40	—	dB
RF to IF Isolation	—	-26	—	dB
LO Return Loss	—	-15	—	dB
Supply Current	—	85	—	mA

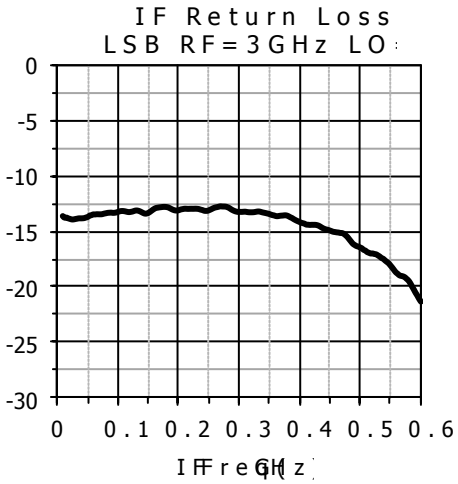
Typical Performance Curve

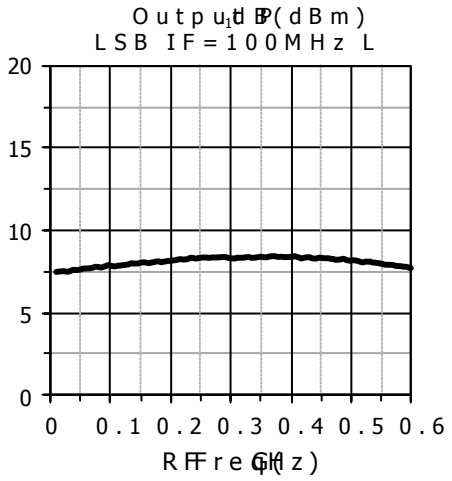
(RF<LO)





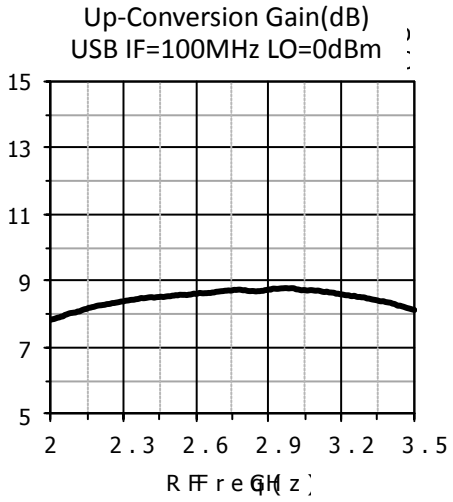


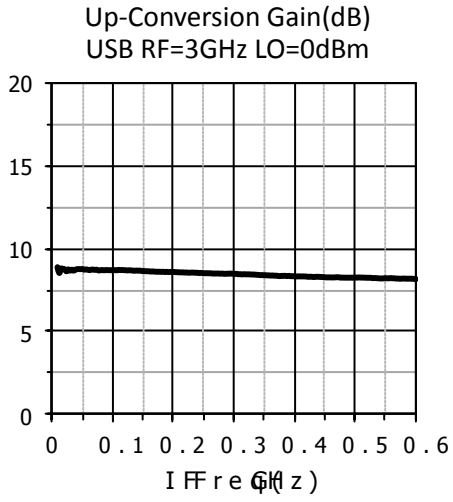


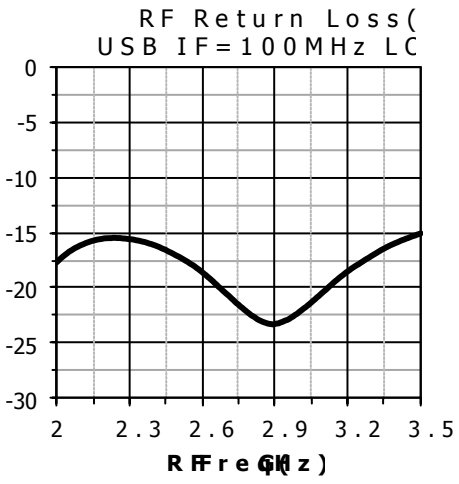


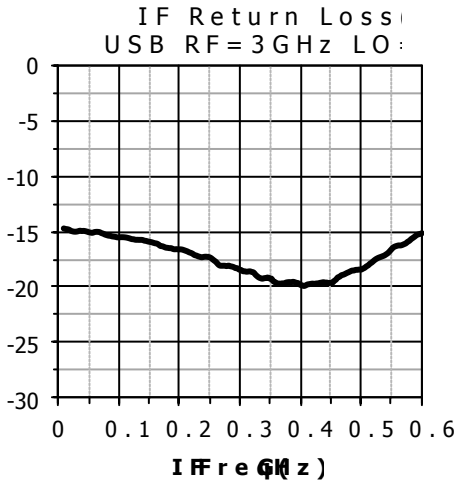
Typical Performance Curve

(RF>LO)



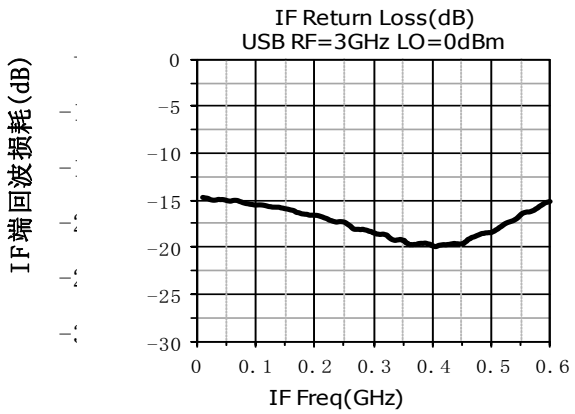


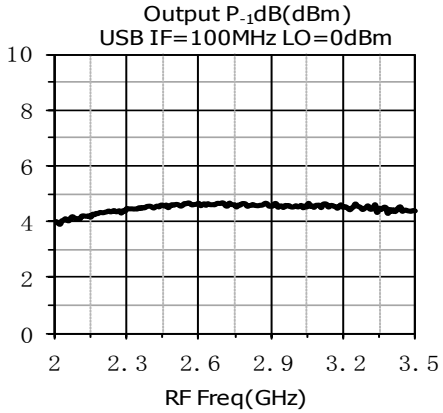




IF端回波损耗

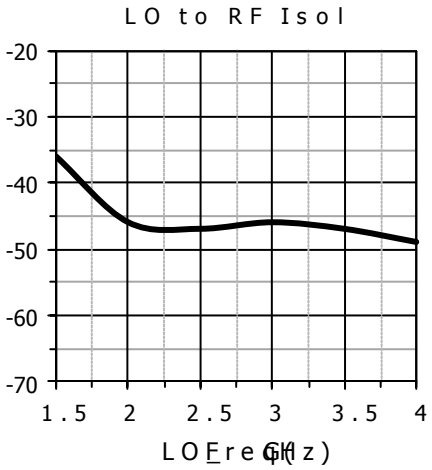
USB RF=3GHz LO=0dBm

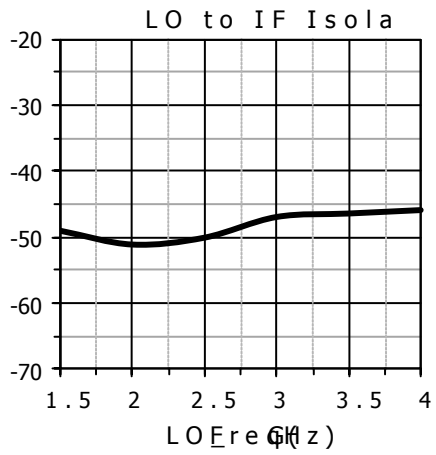


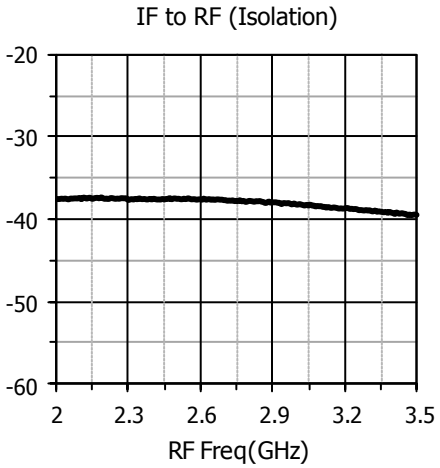


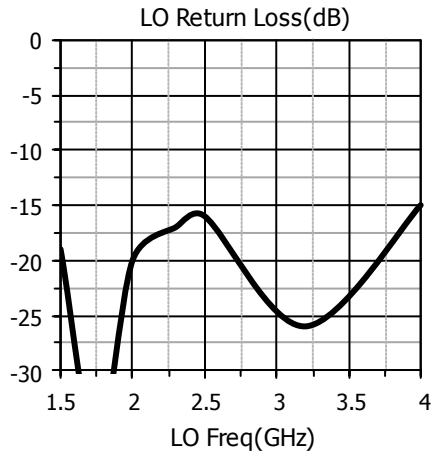
Typical Performance Curve

(Isolation)

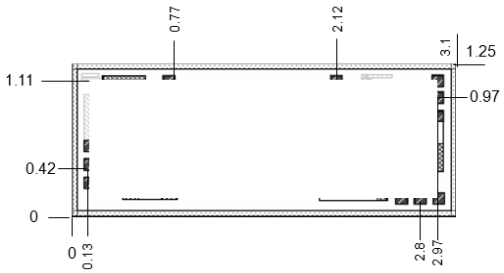




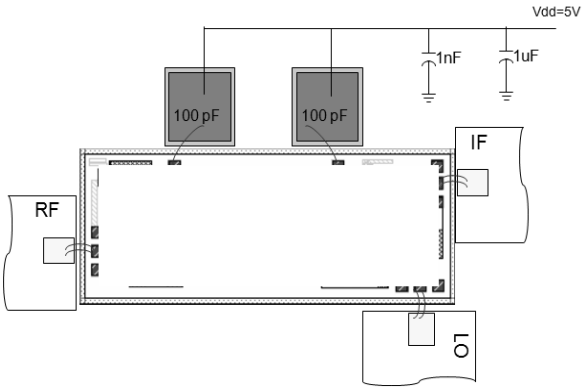




Die Outline
(all dimensions in mm)



Assembly Diagram



Attention:

GaAs MMIC devices are susceptible to damage from electrostatic discharge. Proper precautions should be observed during handling, assembly and test.