XT3503

GaAs MMIC Down-converter Mixer
2.0～3.5GHz

Rev 2.1

Features

- RF/LO Frequency：2.0～3.5GHz
- IF Frequency：10～600MHz
- Conversion Gain：13dB
- Noise Figure：6.5dB
- LO Power：+0dBm
- Supply Voltage：85mA@5V
- Output P_{-1}dB：+4.5dBm

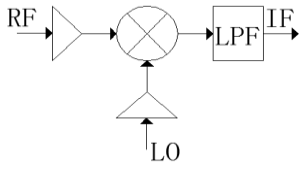
General Description

XT3503 is general-purpose down-converter. This MMIC mixer is fabricated in a GaAs process and requires no external components or matching circuitry.

Typical Applications

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

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	—	13	—	dB
Noise Figure		5.5		dB
Output P_{-1}dB	—	3	—	dBm
RF Return Loss	—	-15	—	dB
IF Return Loss	—	-22	—	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	—	13	—	dB
Noise Figure		5.5		dB
Output P_{-1}dB	—	3	—	dBm
RF Return Loss	—	-15	—	dB
IF Return Loss	—	-22	—	dB

Absolute Maximum Ratings

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

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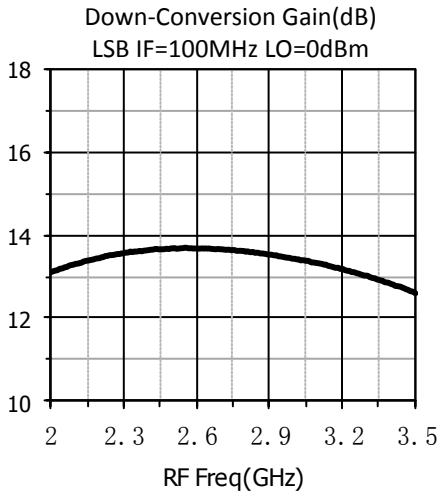
Electrical Performance

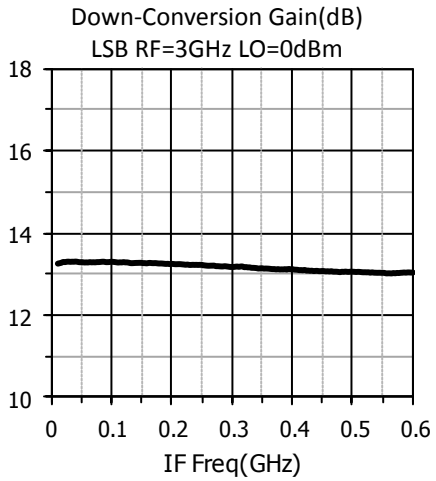
（T_A=25℃, LO=+0dBm ,V_D=+5V）

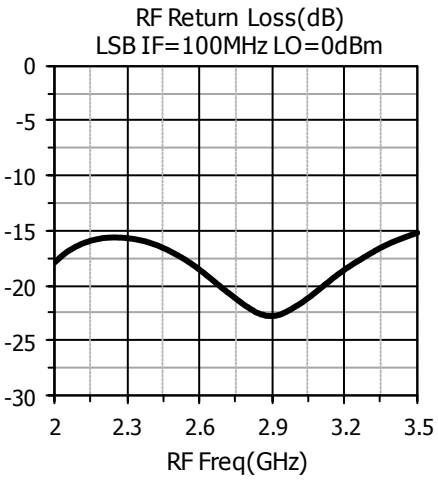
Parameter	Min.	Typ.	Max.	Units
LO Frequency Range		2.6～3.5		GHz
LO to RF Isolation	—	-45	—	dB
LO to IF Isolation	—	-47	—	dB
RF to IF Isolation	—	-38	—	dB
LO Return Loss	—	-15	—	dB
Supply Current(I_D)	—	85	—	mA

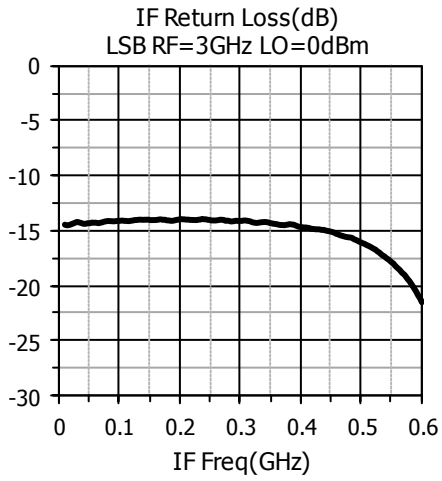
Typical Performance Curve

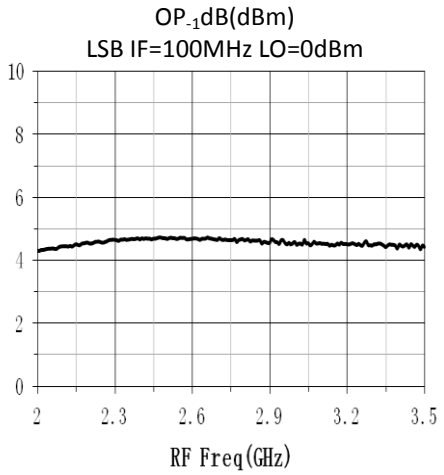
(RF<LO)

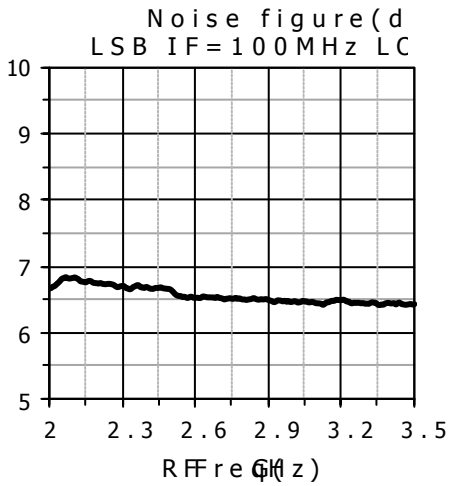






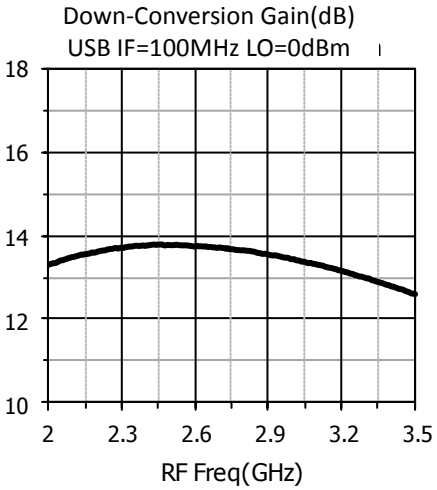


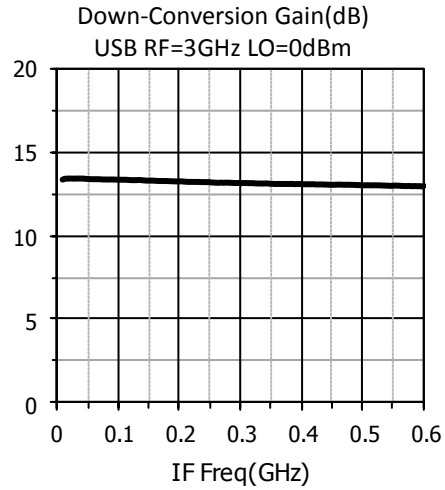


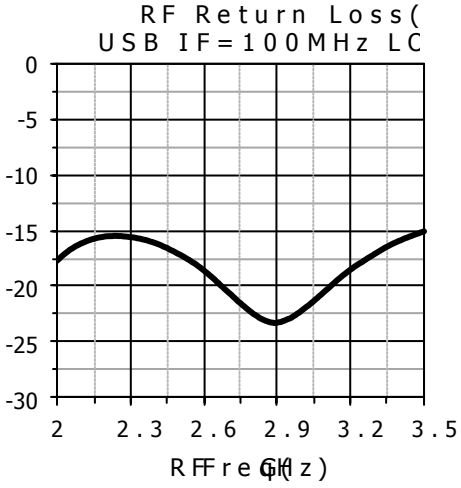


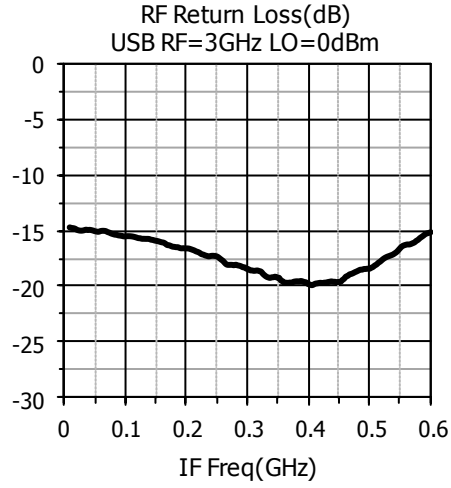
Typical Performance Curve

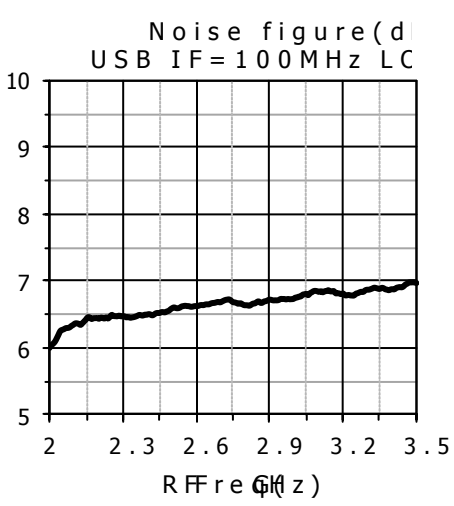
(RF>LO)

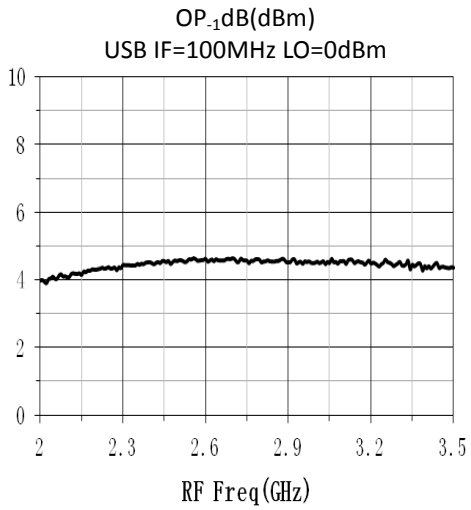






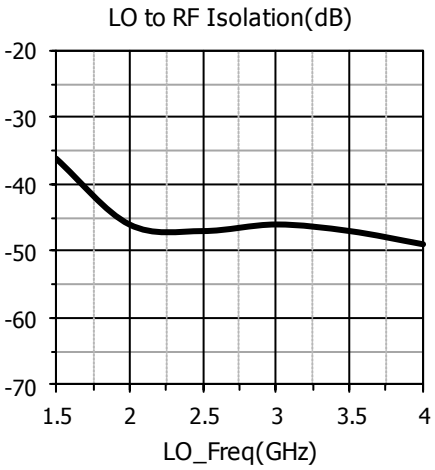


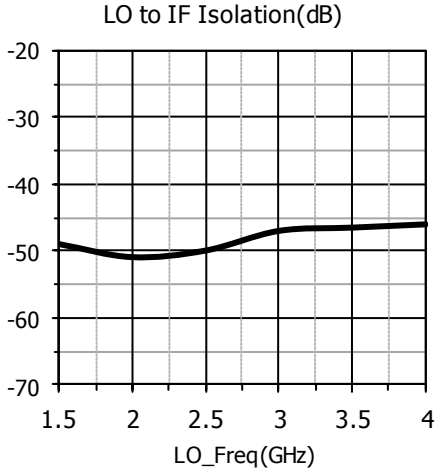


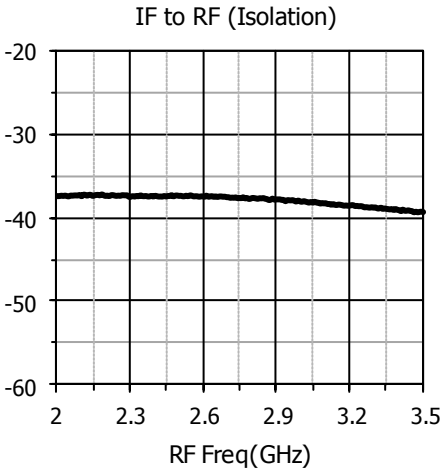


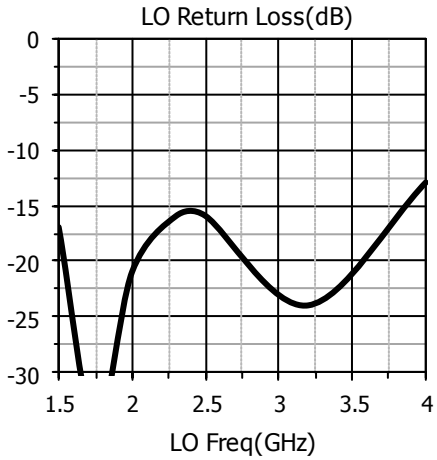
Typical Performance Curve

(Isolation)

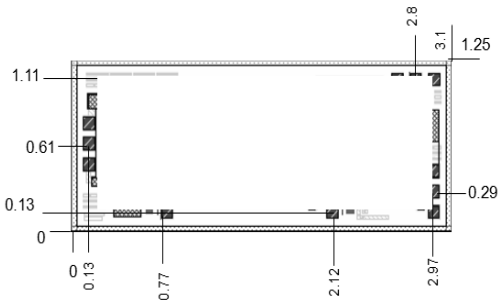




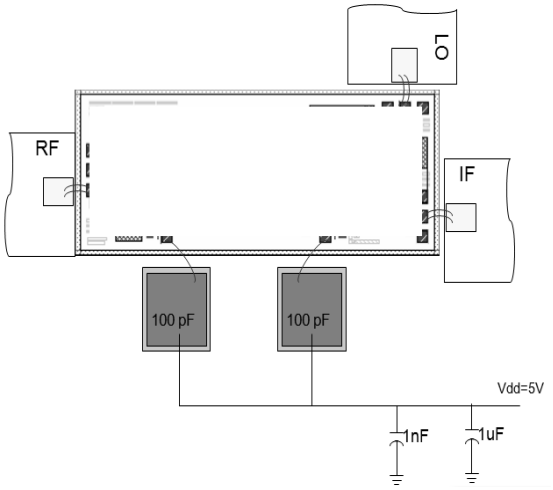




Die Outline
(all dimensions in mm)



Assembly Diagram



Attention:

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