

Features

- RF Frequency: 2.0~3.5GHz
- LO Frequency: LSB: 2.6~3.5 GHz
USB: 2.0~2.9 GHz
- IF Frequency: 10~600MHz
- Conversion Gain: 13dB
- Noise Figure: 6.5dB
- Output P_{1dB}: +4.5dBm
- Supply Voltage: 85mA@5V

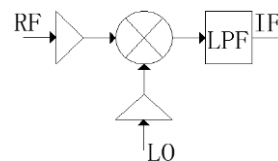
Typical Applications

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

General Description

SAC3502 is a general-purpose down-converter. This monolithic MMIC mixer is fabricated in GaAs process and requires no external components or matching circuitry.

Functional Diagram



Electrical Performance (T_A=25°C, 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	6.5			dB
Output P _{1dB}	—	3	—	dBm
RF Return Loss	—	-15	—	dB
IF Return Loss	—	-22	—	dB

Electrical Performance (T_A=25°C, LO=+0dBm, V_D=+5V, USB)

Parameter	Min.	Typ.	Max.	Units
RF Frequency Range	2.0~3.5			GHz
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RF Return Loss	—	-15	—	dB
IF Return Loss	—	-22	—	dB

Absolute Maximum Ratings

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

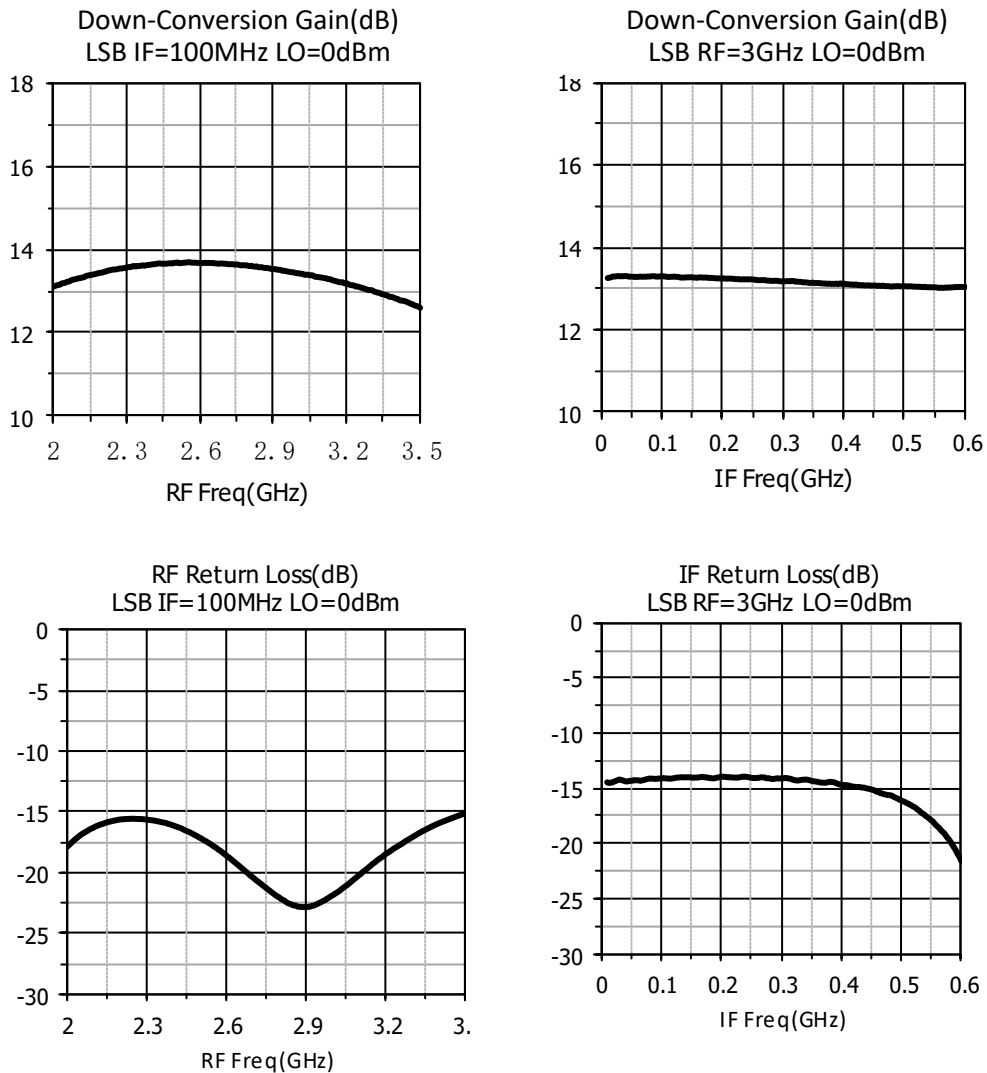
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Electrical Performance ($T_A=25^\circ\text{C}$, $LO=+0\text{dBm}$, $V_D=+5\text{V}$, USB)

Parameter	Min.	Typ.	Max.	Units
LO Frequency Range	2.0~3.5			GHz
LO to RF Isolation	—	-45	—	dB
LO to IF Isolation	—	-47	—	dB
RF to IF Isolation	—	-38	—	dB
LO Return Loss	—	-16	—	dB
Supply Current(I_D)	—	85	—	mA

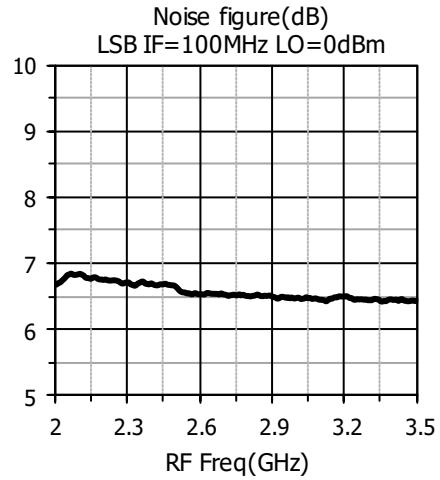
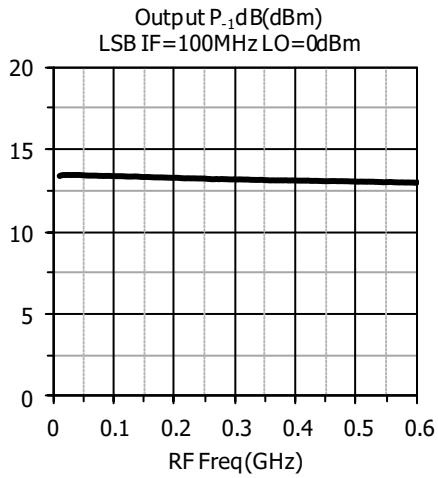
Typical Performance Curve ($RF < LO$)



SAC3502

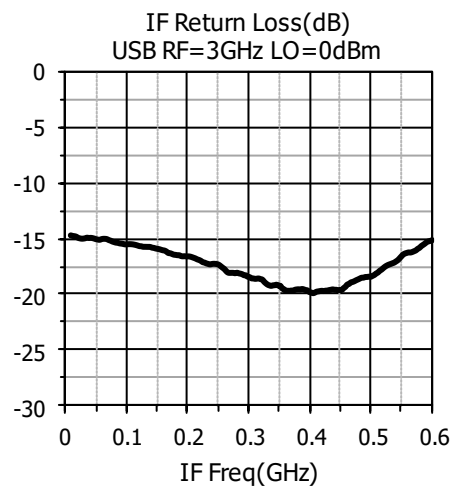
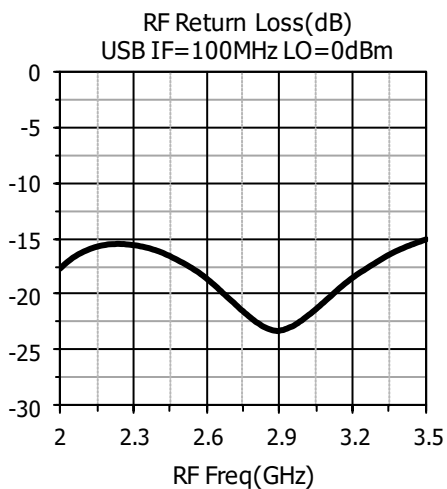
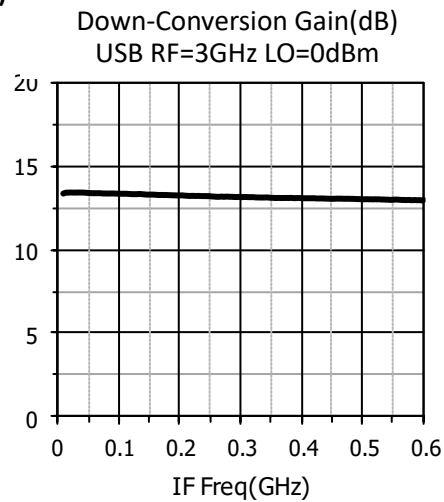
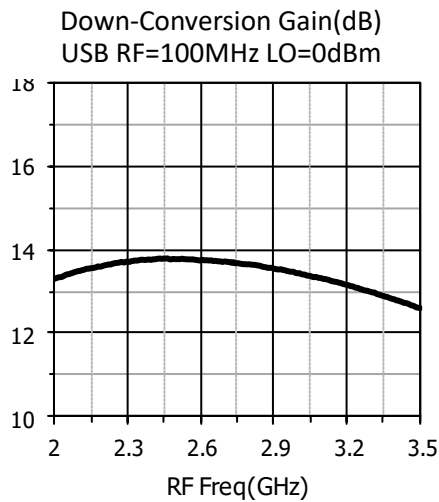
GaAs MMIC Down-converter Mixer
2.0~3.5GHz

Rev 2.3



Typical Performance Curve

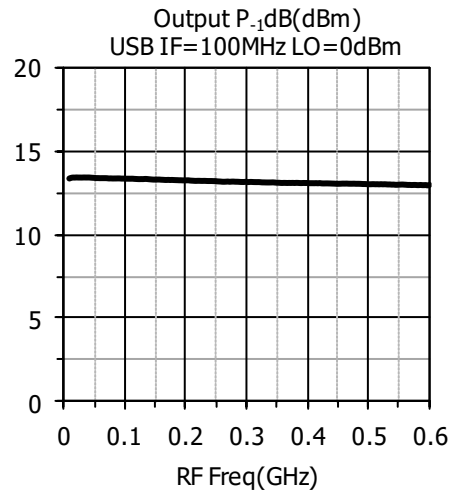
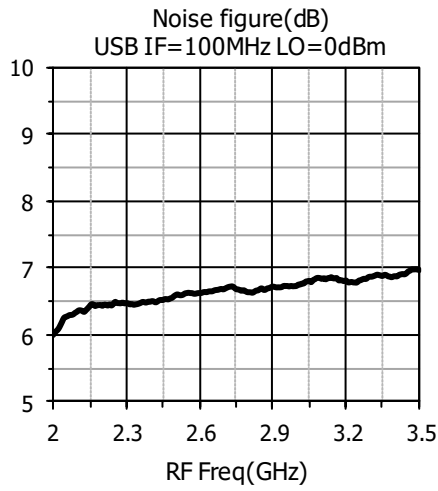
(RF>LO)



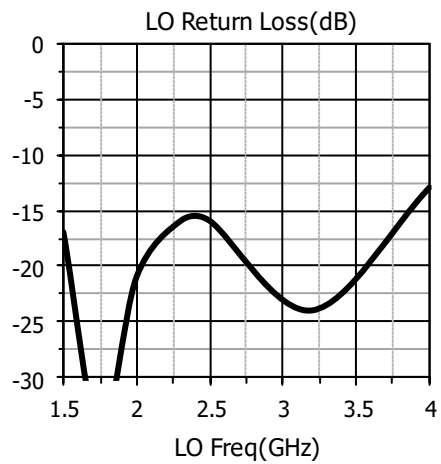
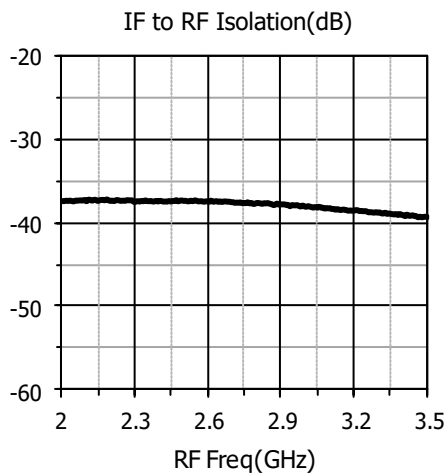
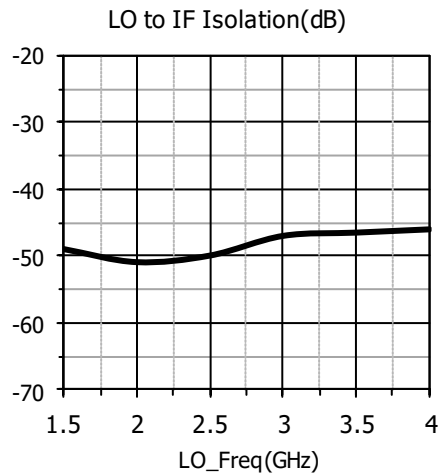
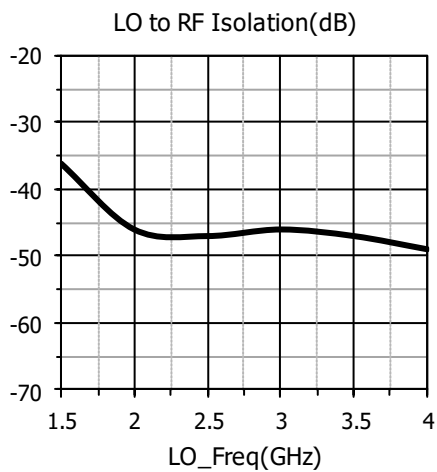
SAC3502

GaAs MMIC Down-converter Mixer
2.0~3.5GHz

Rev 2.3



Typical Performance Curve (Isolation)

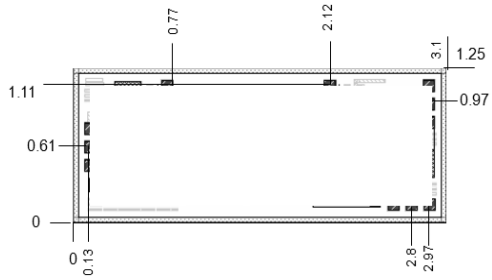


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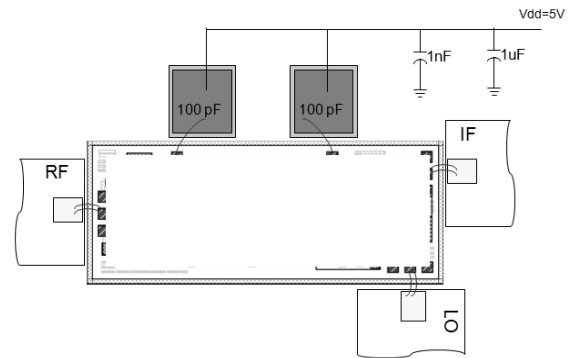
GaAs MMIC Down-converter Mixer
2.0~3.5GHz

Rev 2.3

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.