

Features

- RF/LO Frequency: 7.0~14GHz
- IF Frequency: DC~3GHz
- Conversion Loss: -8dB
- LO Power: +13dBm
- Die Size: 1.24mm×0.82mm×0.1mm

Typical Applications

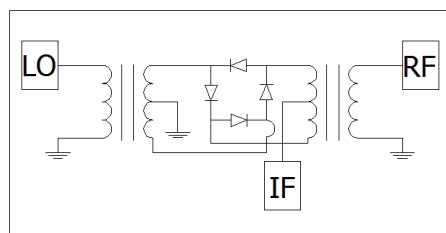
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming

General Description

SAC3504 is general-purpose double balanced mixer. This MMIC mixer is fabricated in a GaAs process and requires no external components or matching circuitry. The device can be used as both up-converter and down-converter.

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

Functional Diagram



Electrical Performance

($T_A=25^{\circ}\text{C}$, LO=+13dBm, Vdd=+5V, Up-Converter Performance)

Parameter	Min.	Typ.	Max.	Units
RF/LO Frequency Range	7.0~14			GHz
IF Frequency Range	DC~3			GHz
Conversion Loss	—	—	-5	dB
IF Return Loss	—	-7	—	dB
RF Return Loss	—	-10	—	dB
Input P ₁ dB	—	6	—	dBm

Electrical Performance

($T_A=25^{\circ}\text{C}$, LO=+13dBm, Vdd=+5V, Down-Converter Performance)

Parameter	Min.	Typ.	Max.	Units
RF/LO Frequency Range	7.0~14			GHz
IF Frequency Range	DC~3			GHz
Conversion Loss	—	—	-8	dB
IF Return Loss	—	-7	—	dB
RF Return Loss	—	-10	—	dB
Input P ₁ dB	—	13	—	dBm

Electrical Performance

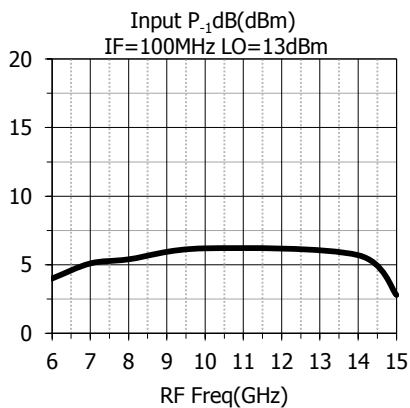
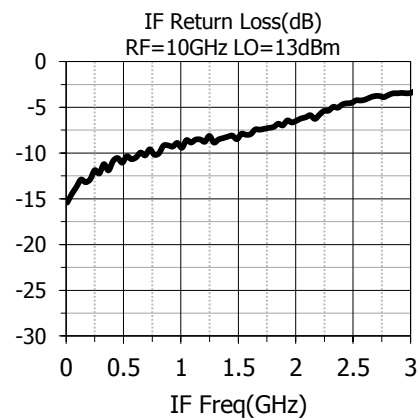
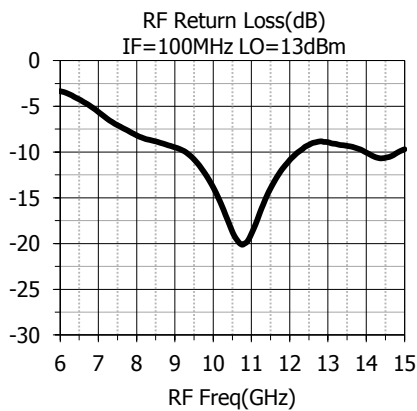
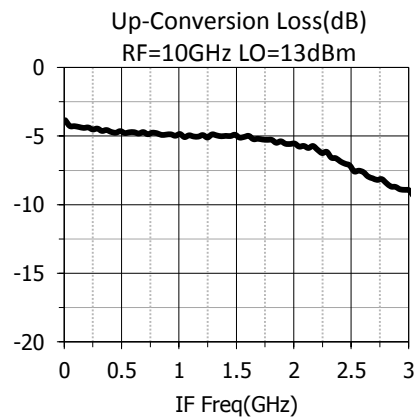
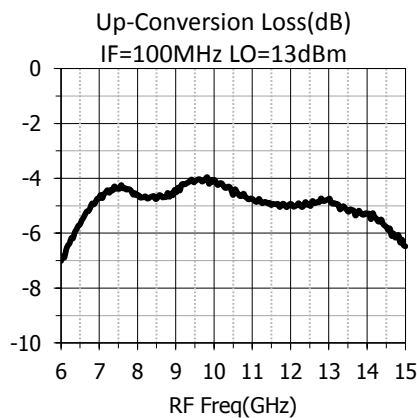
($T_A=25^{\circ}\text{C}$, LO=+13dBm, Isolation)

Parameter	Min.	Typ.	Max.	Units
LO Return Loss	—	-15	—	dB
LO to IF Isolation	-27	—	—	dB
LO to RF Isolation	-35	—	—	dB
RF to IF Isolation	-18	—	—	dB

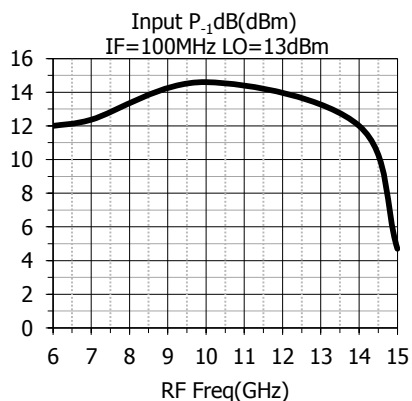
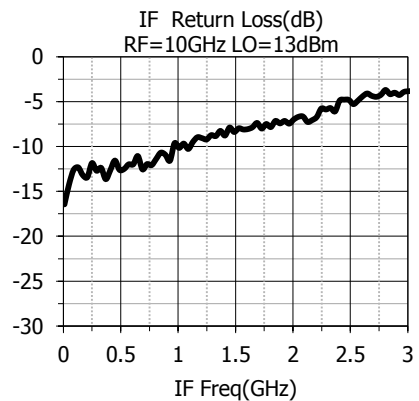
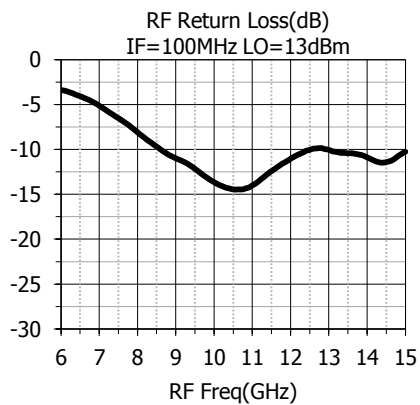
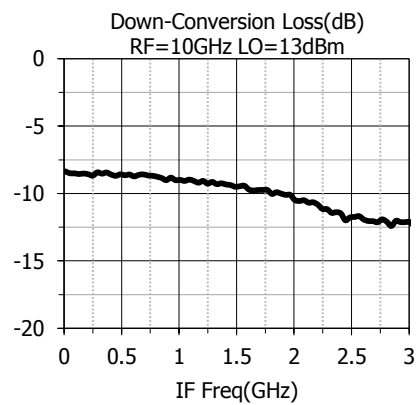
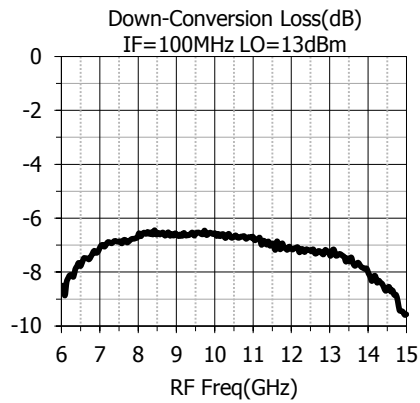
Absolute Maximum Ratings

Maximum RF/IF Input	+20dBm	Operating Temperature	-55°C~+85°C
Maximum LO Input	+24dBm		
Maximum Input Voltage	+8V	Storage Temperature	-65°C~+150°C

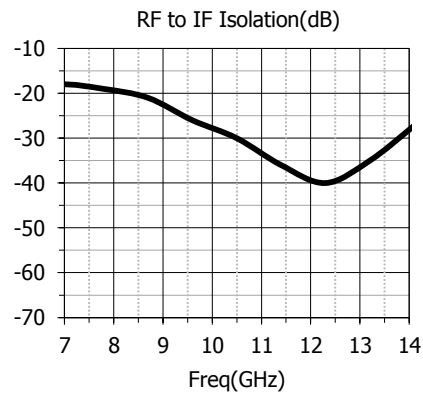
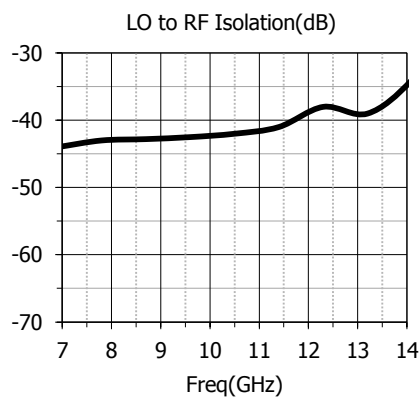
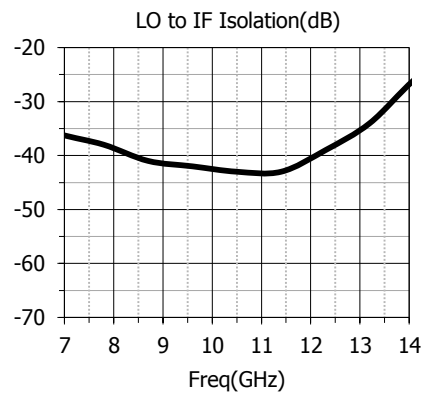
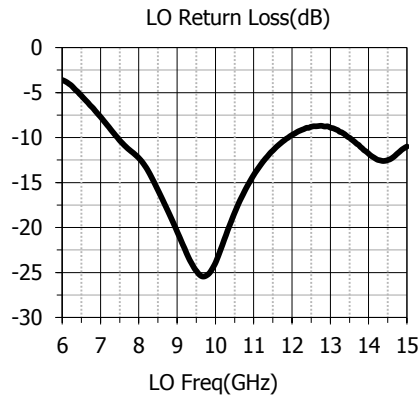
Typical Performance Curve (Up-Converter Performance)



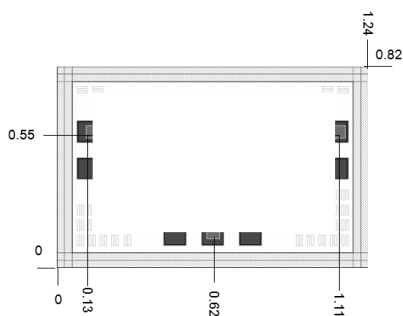
Typical Performance Curve (Down-Converter Performance)



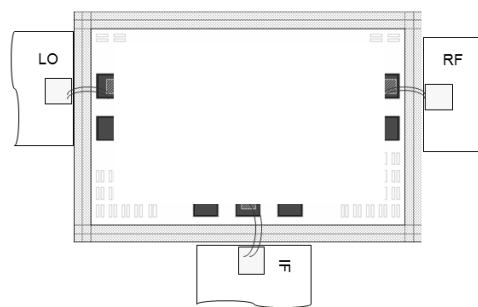
Typical Performance Curve (Isolation)



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.