SAC3507AQ5

GaAs MMIC Double Balanced Mixer (Package)
0.9~3GHz

Rev 2.2

Features

- RF/LO Frequency Range: 0.9GHz~3GHz
- IF Frequency Range: DC~0.8GHz
- Conversion Loss: 8dB
- LO Power: +0dBm
- Size: 5mm×5mm×1.3mm

Typical Applications

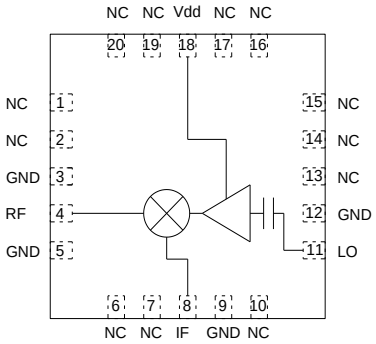
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming

General Description

SAC3507AQ5 is general-purpose double balanced mixer in QFN surface mount package. 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.

SAC3507AQ5 is assembled in a 5mm × 5mm QFN plastic package.

Functional Diagram



Electrical Performance

T_A=25℃, LO=+0dBm, V_D=+5V, I_D=38mA

Parameter	Min.	Typ.	Max.	Units
RF/LO Frequency Range		0.9~3.0		GHz
IF Frequency Range		DC~0.8		GHz
Conversion Loss	—	-8	—	dB
IF Return Loss	—	-10	—	dB
RF Return Loss	—	-10	—	dB
LO Return Loss	—	-15	—	dB
LO to RF Isolation	—	-35	—	dB
LO to IF Isolation	—	-30	—	dB
RF to IF Isolation	—	-18	—	dB

Absolute Maximum Ratings

Maximum RF/IF Input	+20dBm	Operating Temperature	-55℃～+85℃
Maximum LO Input	+10dBm	Storage Temperature	-65℃～+150℃
Maximum Input Voltage	+8V		

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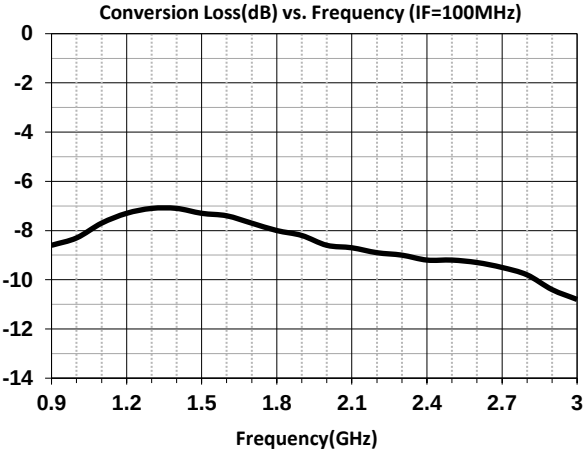
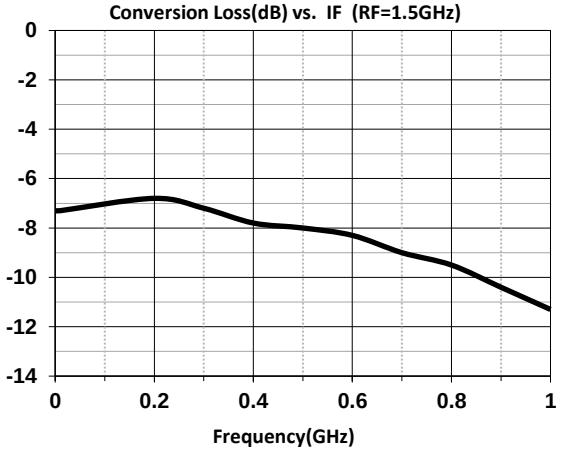
Typical Performance Curve

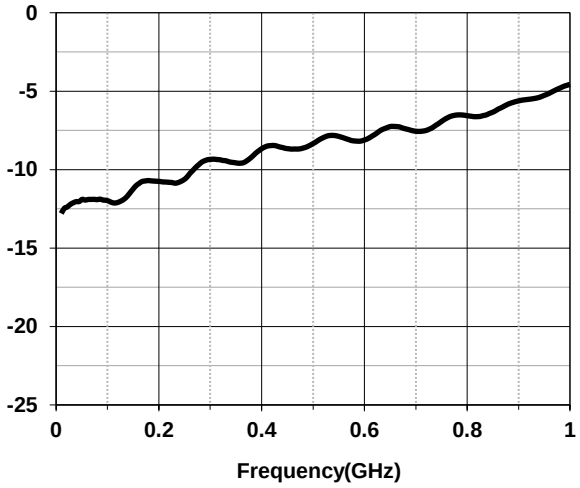
Conversion Loss(dB) vs. Frequency (IF=100MHz)



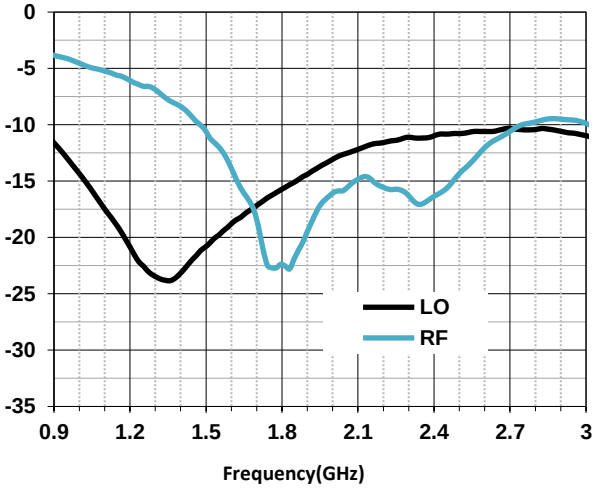
Conversion Loss(dB) vs. IF (RF=1.5GHz)



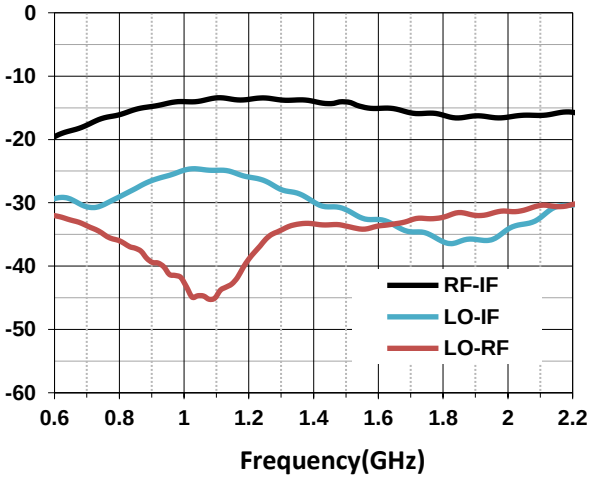
IF Return Loss(dB) vs.Frequency(GHz) LO=0dBm



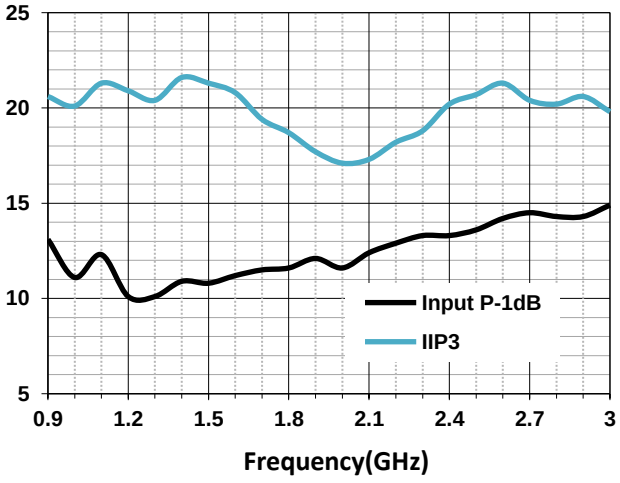
Return Loss(dB) LO=0dBm



Isolation(dB) LO=0dBm

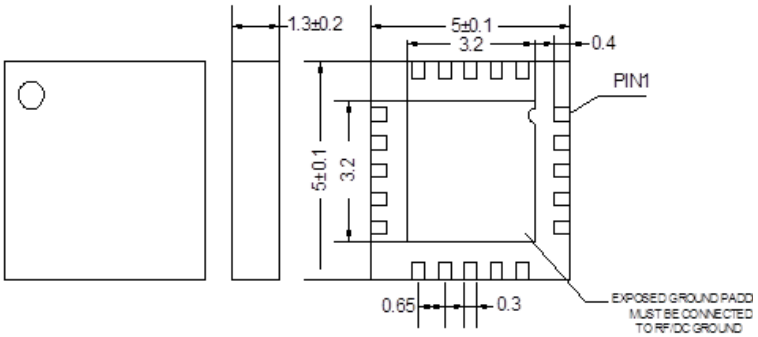


Input P-1dB & IIP3 (dBm) vs. Frequency

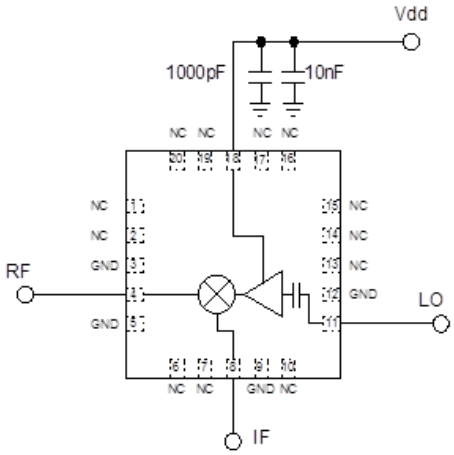


Outline Drawing

(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.

Special instructions

Packaging process changes after 16 weeks in 2020. Cover made of the same material as the package shell. The thickness changed from 1.2mm ± 0.1mm to 1.3mm ± 0.2mm.