

## Features

- RF/LO Frequency: 3.5~9GHz
- IF Frequency: DC~1GHz
- Conversion Loss: -9dB
- LO Power: +13dBm
- Die Size: 1.4mm×1.24mm×0.1mm

## Typical Applications

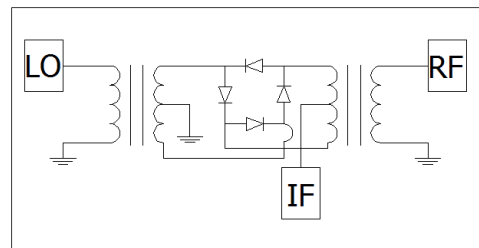
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming

## General Description

SAC3505 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, Up-Converter Performance)

Parameter	Min.	Typ.	Max.	Units
RF/LO Frequency Range	3.5~9			GHz
IF Frequency Range	DC~1			GHz
Conversion Loss	—	—	-7	dB
IF Return Loss	—	-10	—	dB
RF Return Loss	—	-7	—	dB
Input $P_{-1\text{dB}}$	—	7	—	dBm

## Electrical Performance

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

Parameter	Min.	Typ.	Max.	Units
RF/LO Frequency Range	3.5~9			GHz
IF Frequency Range	DC~1			GHz
Conversion Loss	—	—	-9	dB
IF Return Loss	—	-10	—	dB
RF Return Loss	—	-7	—	dB
Input $P_{-1\text{dB}}$	—	12	—	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	-21	—	—	dB
LO to RF Isolation	-35	—	—	dB
RF to IF Isolation	-21	—	—	dB

# SAC3505

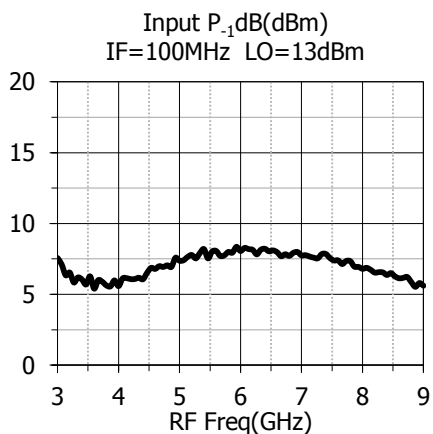
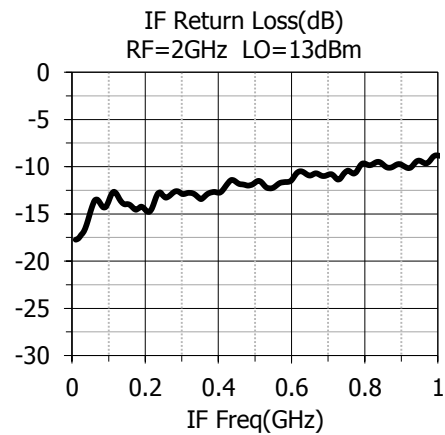
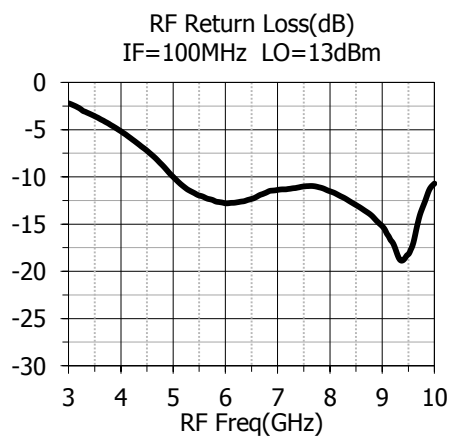
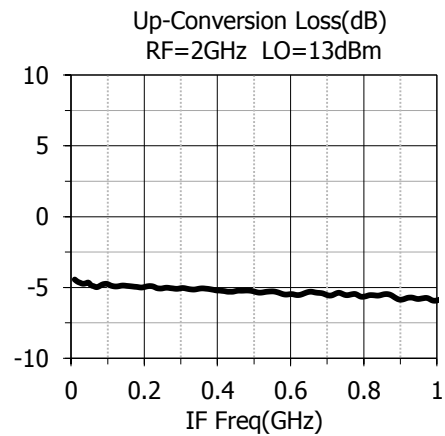
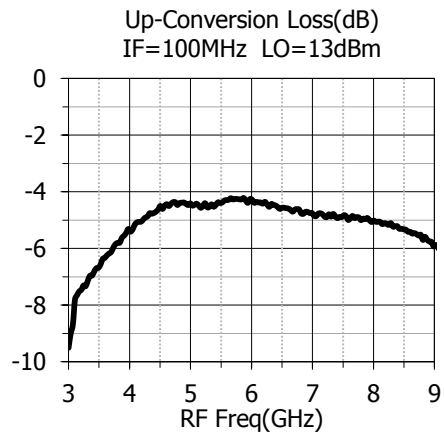
GaAs MMIC Double Balanced Mixer  
3.5~9GHz

Rev 2.1

## Absolute Maximum Ratings

Maximum RF 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)

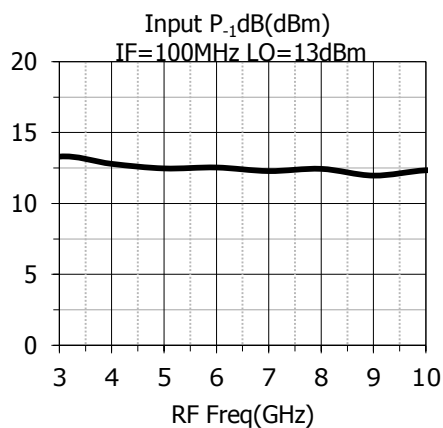
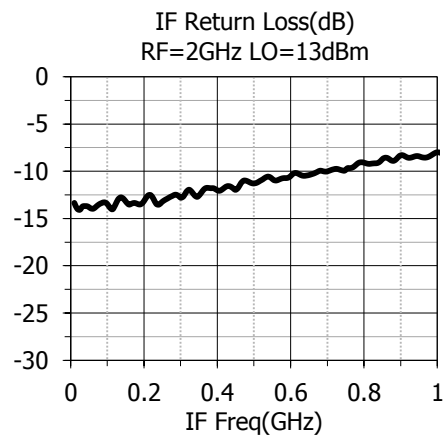
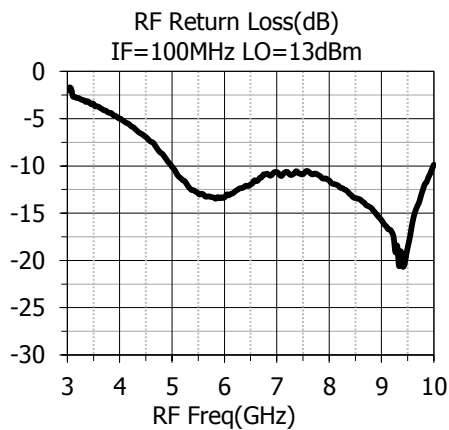
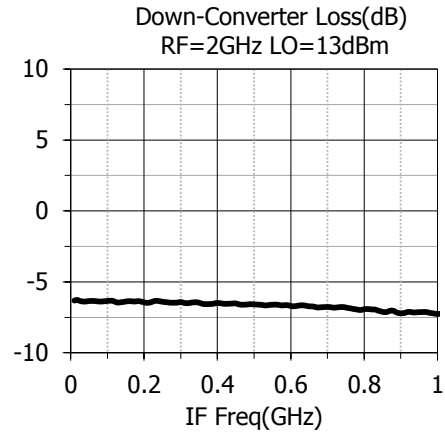
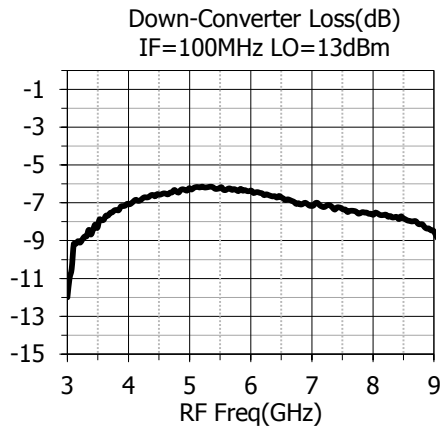


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## Typical Performance Curve (Down-Converter Performance)

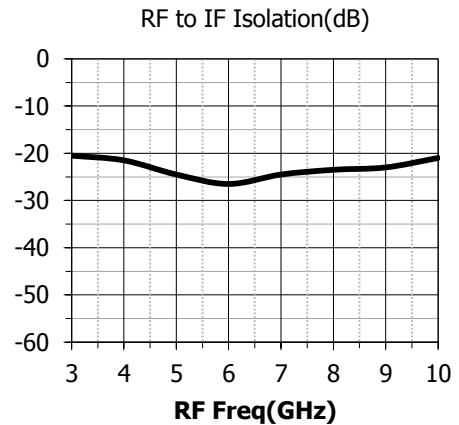
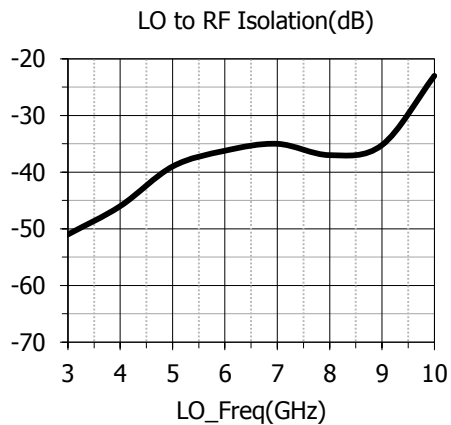
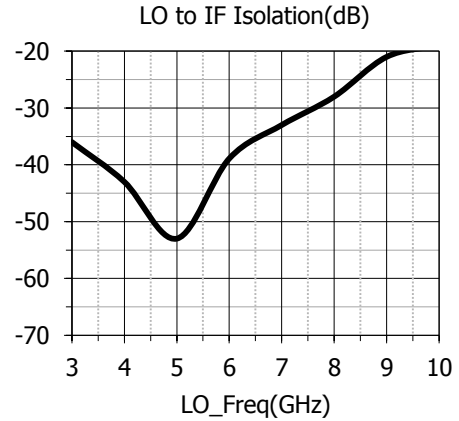
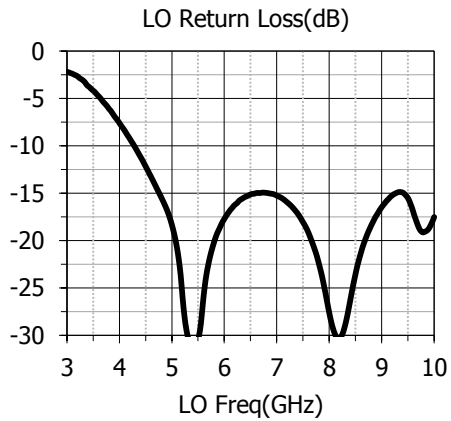


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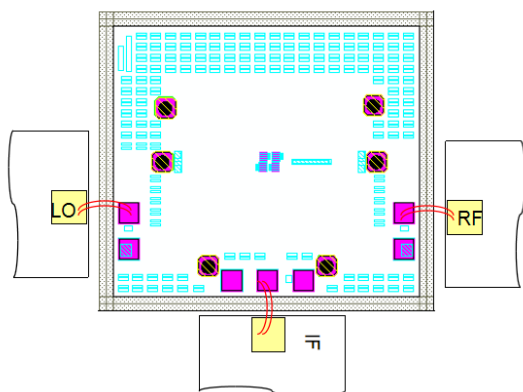
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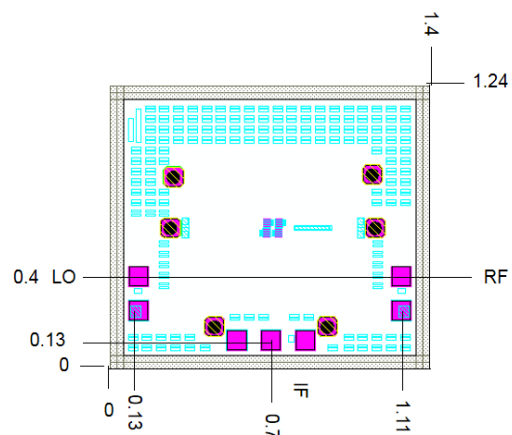
## Typical Performance Curve (Isolation)



## 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.