SAC3513

GaAs MMIC Double Balanced Mixer
18～32GHz

Rev 1.1

Features

- RF/LO Frequency：18～32GHz
- IF Frequency：DC～10GHz
- Conversion Loss：7.5dB
- LO Power：13dBm
- Die Size：0.58mmX0.9mmX0.1mm

Typical Applications

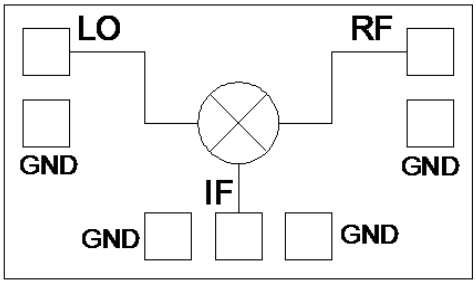
- Microwave radio including point to point communication
- Telecommunication
- Weather radar
- Optical communication
- Test instrumentation
- SatCom
- VSAT
- Military and Aerospace

General Description

SAC3513 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℃, LO=13dBm, IF=100MHz)

Parameter	Min.	Typ.	Max.	Units
RF/LO Frequency Range	18～32			GHz
IF Frequency Range	DC～10			GHz
Conversion Loss	—	-7.5	-10	dB
IF Return Loss	—	-10	—	dB
RF Return Loss	—	-10	—	dB
LO Return Loss	—	-7.5	—	dB
LO to RF Isolation	25	40	—	dB
LO to IF Isolation	25	30	—	dB
RF to IF Isolation	18	35	—	dB
Input P_{-1}dB	10	14	—	dBm

Absolute Maximum Ratings

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

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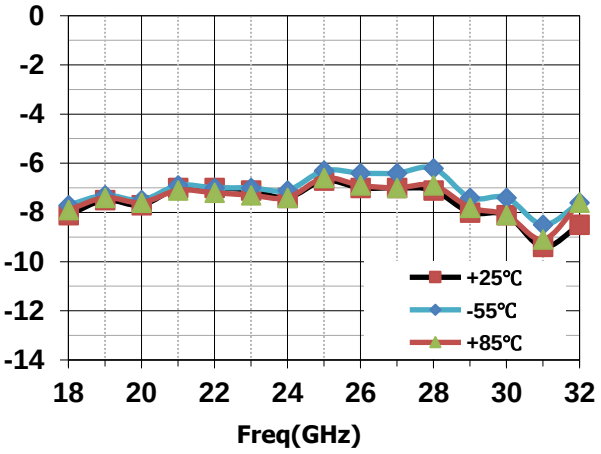
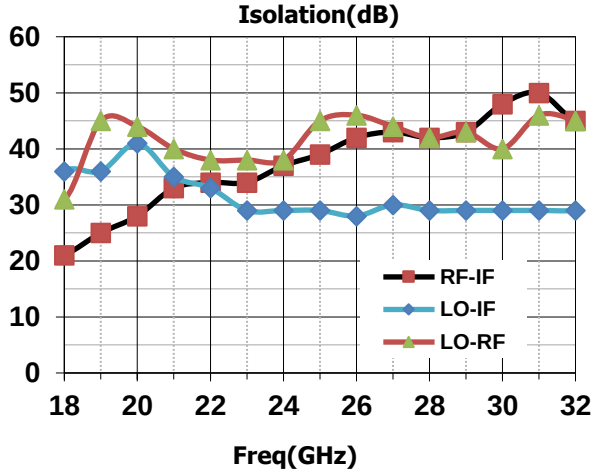
Typical Performance Curve

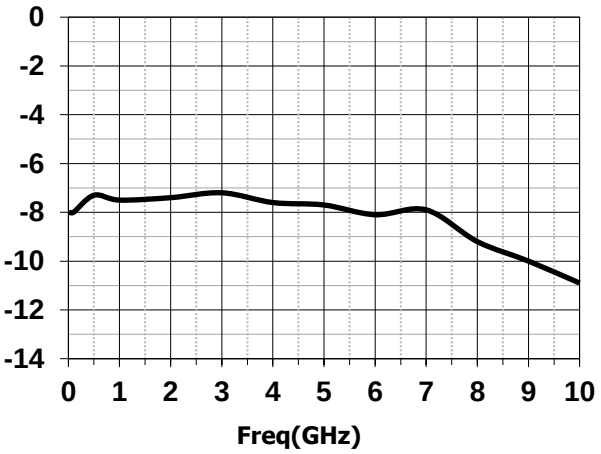
Conversion Loss(dB)@ IF=100MHz LO=13dBm



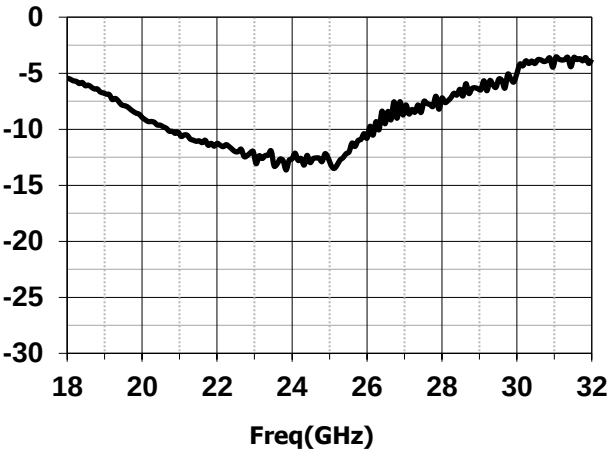
Isolation(dB)



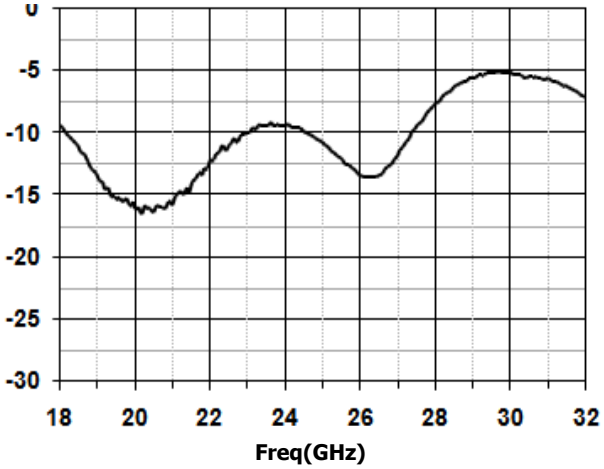
Conversion Loss(dB)@ IF(MHz) LO=18dBm



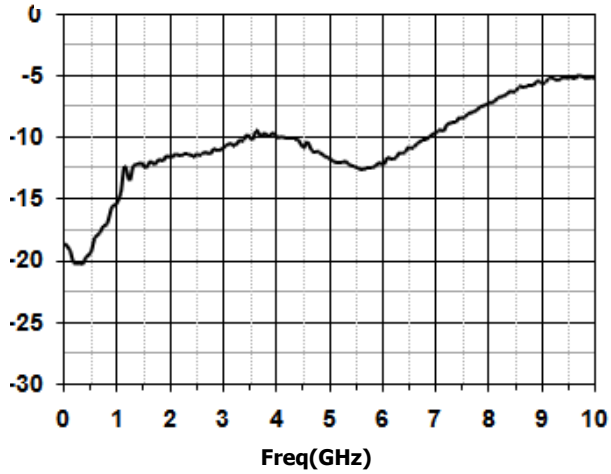
LO Return Loss(dB) vs. Freq(GHz) LO=13dBm



RF Return Loss(dB) vs. Freq(GHz) LO=13dBm



IF Return Loss(dB) vs. Freq(GHz) LO=13dBm



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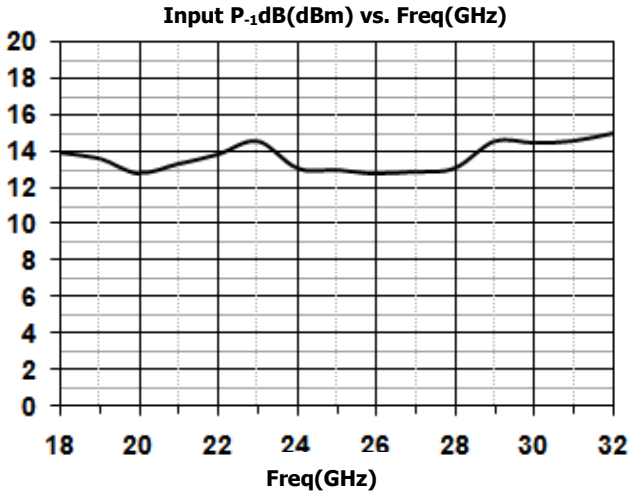
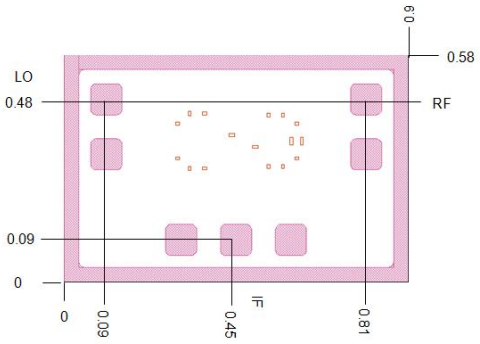
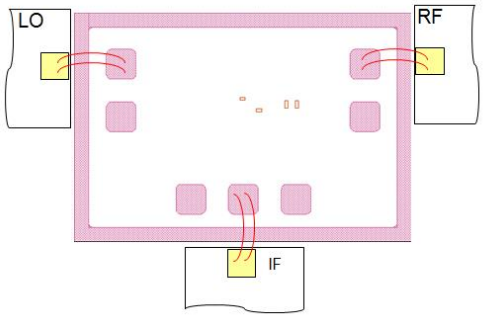


Die Outline
(All dimensions in mm)



Assembly Diagram



Attention:

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