

SAC3510

GaAs MMIC Double Balanced Mixer
5.0~16.0GHz

Rev 2.0

Features

- RF/LO Frequency: 5~16GHz
- IF Frequency: DC~6GHz
- Conversion Loss: 8.5dB
- LO Power: +13dBm
- Die Size: 0.88mm×0.85mm×0.1mm

Typical Applications

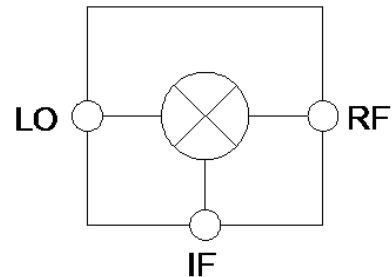
- Microwave radio including point to point communication
- Telecommunication
- Weather radar
- Optical communication
- Test instrumentation
- SatCom
- VSAT
- Military and Aerospace

General Description

SAC3510 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)

| Parameter | Min. | Typ. | Max. | Units |
|----------------------------|----------|------|------|-------|
| RF/LO Frequency Range | 5.0~16.0 | | | GHz |
| IF Frequency Range | DC~6 | | | GHz |
| Conversion Loss | — | -8.5 | -13 | dB |
| IF Return Loss | -8 | -12 | — | dB |
| RF Return Loss | -7 | -13 | — | dB |
| LO Return Loss | -4 | -7.5 | — | dB |
| LO to RF Isolation | 25 | 38 | — | dB |
| LO to IF Isolation | 17 | 33 | — | dB |
| RF to IF Isolation | 10 | 16 | — | dB |
| Input 1dB Gain Compression | 10 | 12 | — | dBm |

Absolute Maximum Ratings

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

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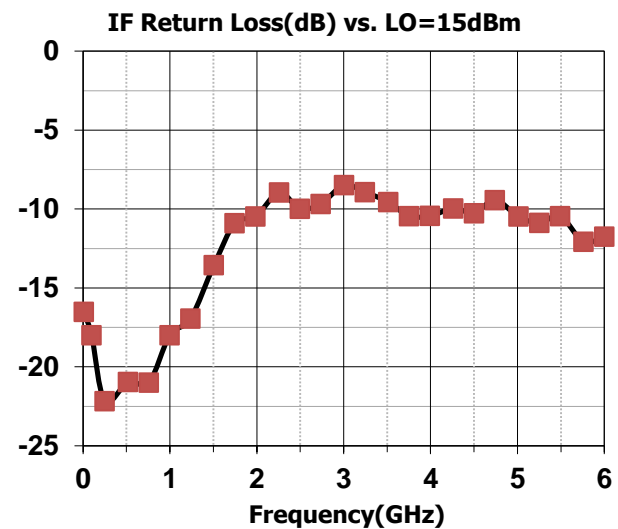
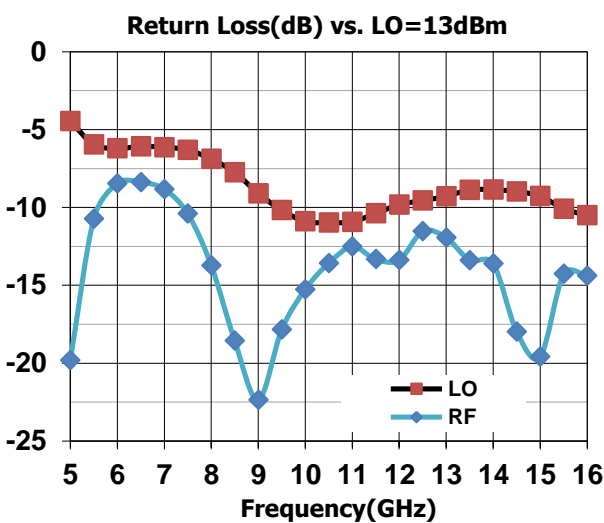
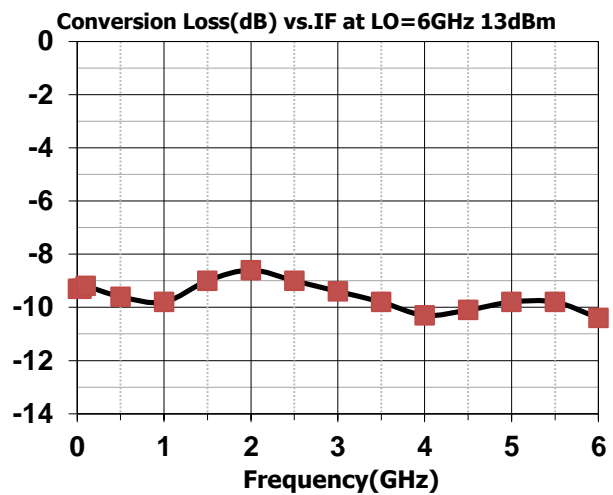
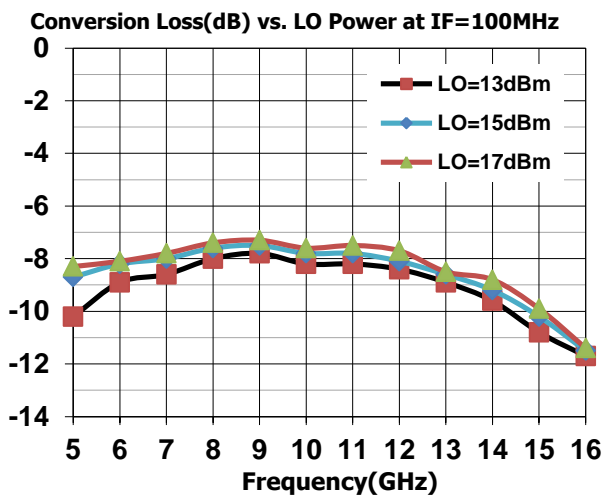
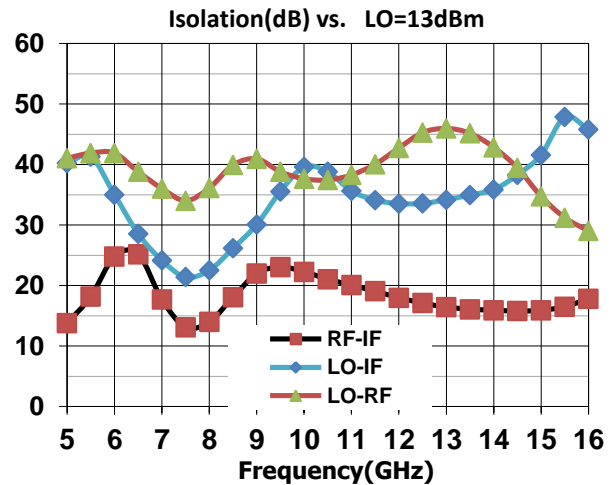
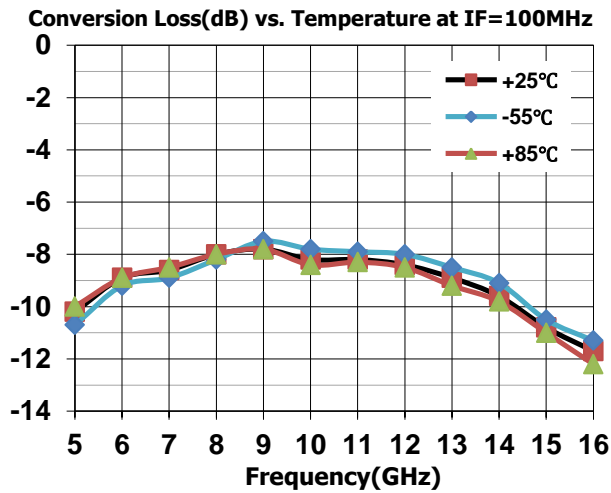
Address: 1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-573-9866, 1-847-505-8319
E-mail: sales@superapexco.com
Website: www.superapexco.com

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Typical Performance Curve



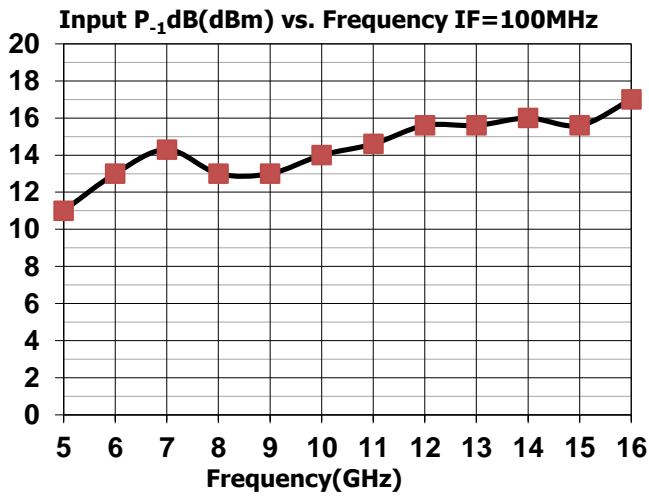
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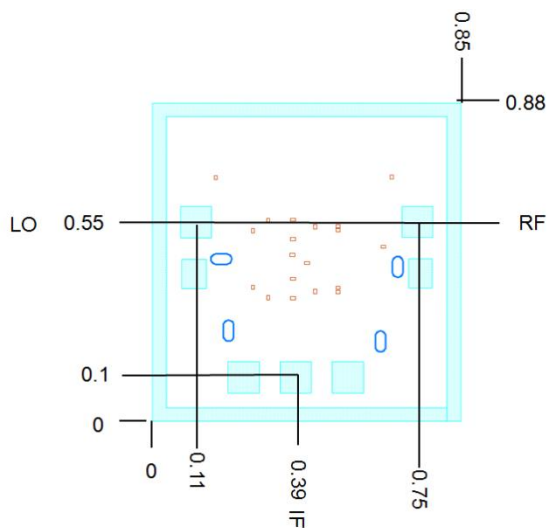
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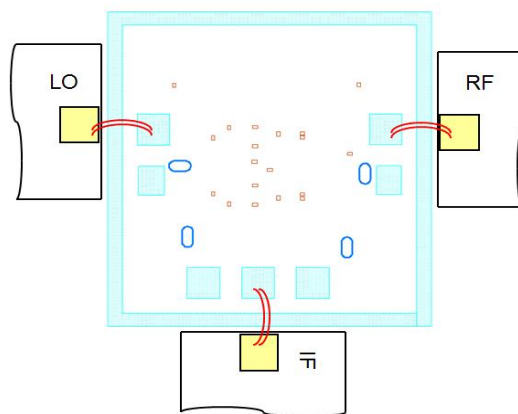
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Die Outline
(all dimensions in mm)



Assembly Diagram



Attention:

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