MICROARRAY TECHNOLOGIES

Features

RF Frequency: 78～95 GHz

LO/3 Frequency: 26～30 GHz

IF Frequency: DC～10 GHz

LO Input Power: 16 dBm

Conversion Loss: 10 dB

LO to RF Isolation: 30 dB

Supply Voltage: +3.3V@200mA

Chip Size: 2.5mm×0.85mm×0.05mm

General Description

The HG120HA is a GaAs pHEMT MMIC double-balanced mixer that can be used as an upconverter or downconverter between 78 and 95 GHz. This mixer requires no external components or matching circuitry and supports IF frequency between DC and 10 GHz. The mixer operates with LO drive levels of 16 dBm. Conversion loss is 10 dB and LO to RF isolation is 30 dB typically.
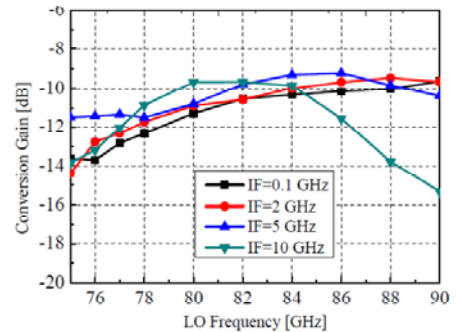
Functional Diagram
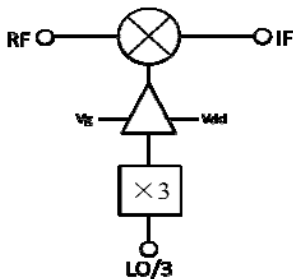
Electrical Specifications

(T_A=25℃,Vdd=3.3V,Vg=-0.3V)

Parameter	Min.	Typ.	Max.
Freq. RF(GHz)	78～95		
Freq. LO/3(GHz)	26～30		
Freq. IF(GHz)	DC～10		
Conversion Loss(dB)	—	10	—
LO to RF Isolation(dB)	—	30	—

Measured Performance

Conversion Loss

LO to RF Isolation
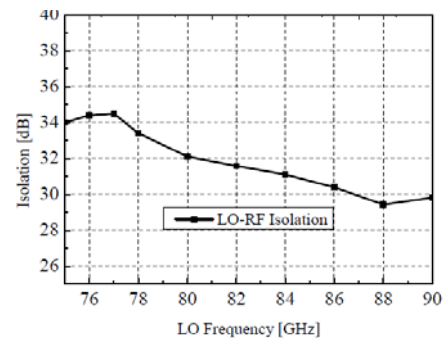
Outline Drawing (mm)

Assembly Diagram

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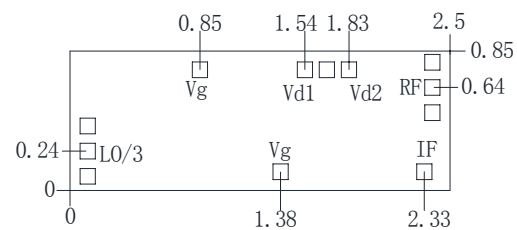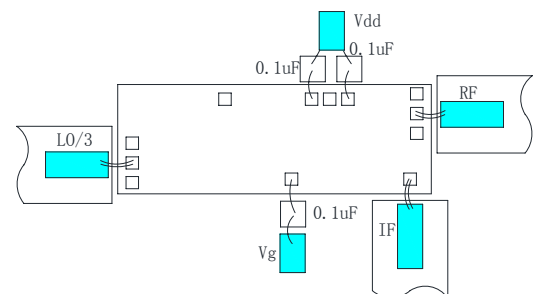
Absolute Maximum Ratings

Supply Voltage	+3.6V
RF Input Power	+10dBm
Operating Temperature	-55℃～125℃
Storage Temperature	-65℃～150℃

Notes:

1. The chip should be stored in a dry and nitrogen environment, and used in a clean environment.

2. GaAs material is brittle, can not touch the surface of the chip, must be careful when using.

3. The chip is welding with conductive adhesive or alloy (alloy temperature should not exceed 300℃, and no more than 30 sec.), and should make it fully grounded.

4. The chip microwave port and substrate gap is not exceeding 0.05mm, with Φ25μm double gold wire bonding, suggested length of gold wire 250～400μm.

5. Chip microwave port without DC blocking capacitor.

6. The chip is sensitive to static electricity, and should be protected against static electricity during storage and use.