

Features

- RF&LO Frequency: 1~3.5GHz
- IF Frequency: DC~1.5GHz
- LO Input Power: 13 dBm
- Conversion Loss: 9.5 dB
- LO/RF Isolation: 40 dB
- Chip Size: 1.84mm×1.22mm×0.1mm

General Description

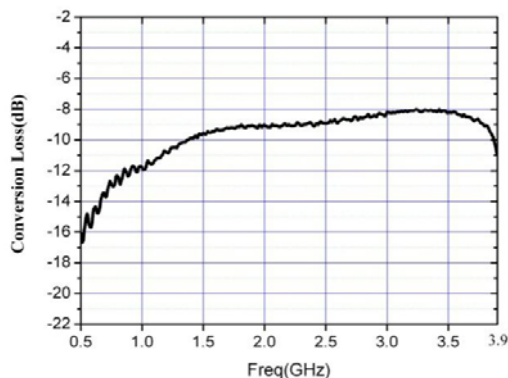
The HG123H is a GaAs pHEMT MMIC passive double-balanced mixer that can be used as an upconverter or downconverter between 1 and 3.5 GHz. This mixer requires no external components or matching circuitry and supports IF frequency between DC and 1.5 GHz. Conversion loss is 9.5 dB.

Electrical Specification ($T_A=25^\circ\text{C}$)

Parameter	Min.	Typ.	Max.
Freq. RF&LO(GHz)	1~3.5		
Freq. IF (GHz)	DC~1.5		
Conversion Loss(dB)	—	9.5	12.7
LO~RF Isolation(dB)	23	40	—
LO~IF Isolation(dB)	18	32	—
RF~IF Isolation(dB)	7	8	—
Output Power for 1dB Compression(dBm)	10	—	—

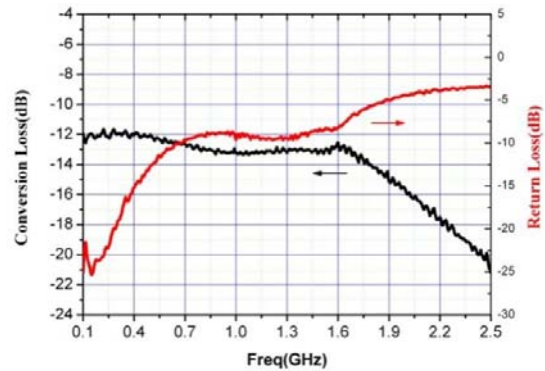
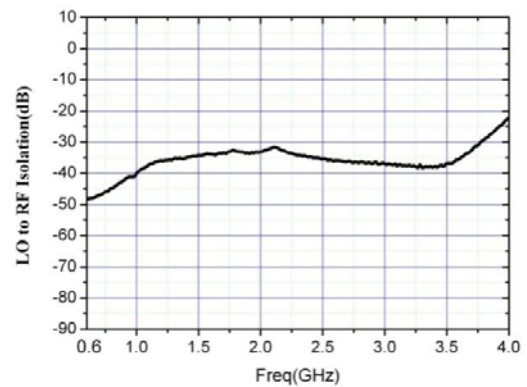
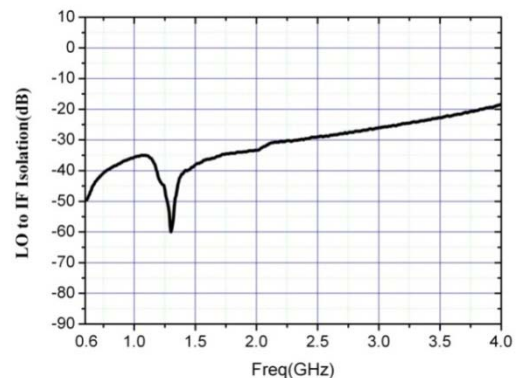
Measured Performance

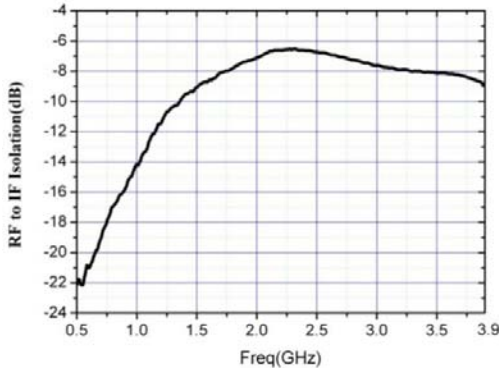
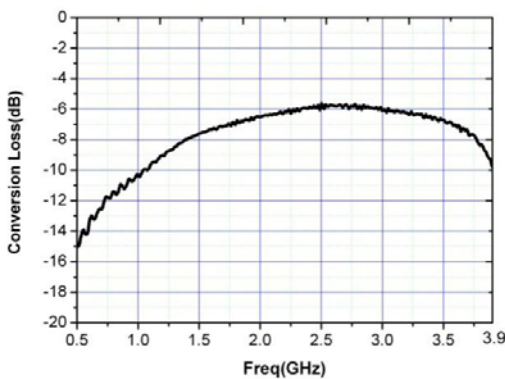
Unless otherwise noted, IF=100MHz.

Conversion Loss


IF Bandwidth

RF: 1GHz LO: 1.1~3.5GHz IF: 0.1~2.5GHz

Return Loss

LO-RF Isolation

LO-IF Isolation


RF-IF Isolation

Up-Conversion Loss

Absolute Maximum Ratings

RF Input Power	+20dBm
Operating Temperature	-55°C ~ 125°C
Storage Temperature	-65°C ~ 150°C

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°C, 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 $\Phi 25\mu\text{m}$ double gold wire bonding, suggested length of gold wire 250~400 μm .
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.

Outline Drawing (mm)
