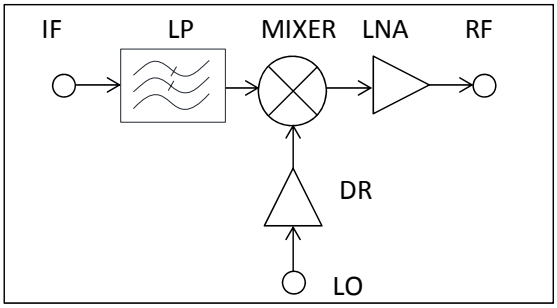
Features

RF&LO Frequency: 2～3.5 GHz
IF Frequency: DC～0.6 GHz
Conversion Gain: 8.5dB
LO-RF Isolation: 20dB
LO-IF Isolation: 45dB
IF-RF Isolation: 38dB
Supply Voltage: +5V@100mA
Chip Size: 3.1mm×1.25mm×0.1mm

Functional Diagram



General Description

The HG133U is a GaAs pHEMT MMIC upconverter which is operating between 2 and 3.5GHz. The upconverter features of LO Frequency is 2～3.5GHz, IF Frequency is between DC and 0.6GHz, LO input power is -3~+3dBm.

Electrical Specifications(T_A=25℃,Vdd=+5V)

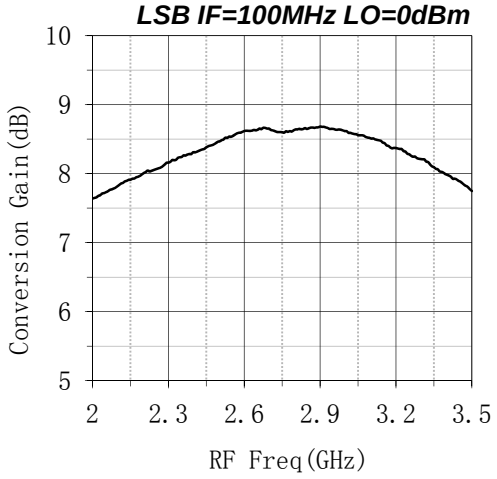
Parameter	Min.	Typ.	Max.
Freq. RF &LO(GHz)		2～3.5	
Freq. IF(GHz)		DC～0.6	
Conversion Gain(dB)	—	8.5	—
RF Output P-1 (dBm)	—	8	—
LO to RF Isolation(dB)	—	20	—
LO to IF Isolation(dB)	—	45	—
IF to RF Isolation(dB)	—	38	—

Absolute Maximum Ratings

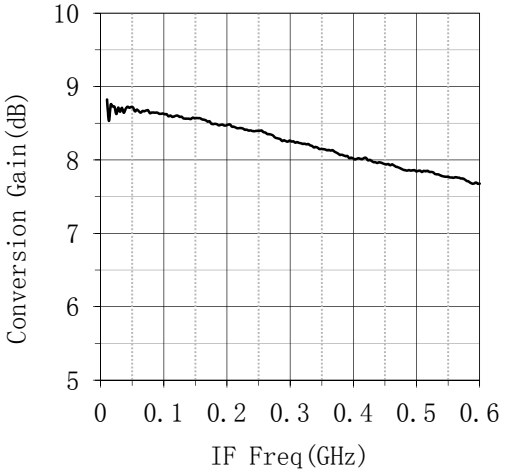
Supply Voltage	+5.5V
RF Input Power	+15dBm
Operating Temperature	-55℃～125℃
Storage Temperature	-65℃～150℃

Measured Performance

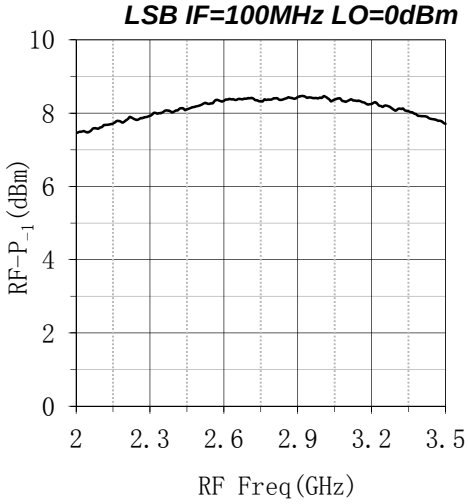
Upconverter Gain
LSB IF=100MHz LO=0dBm



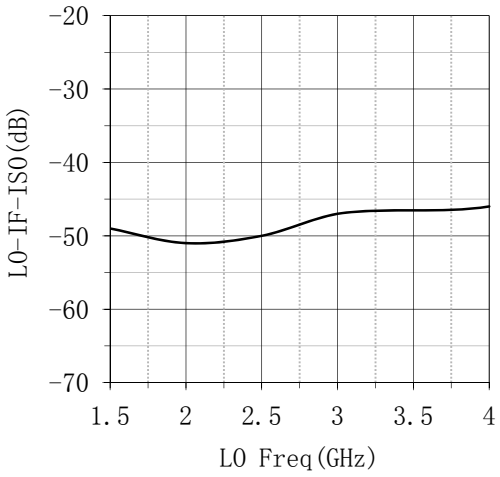
Upconverter Gain
LSB RF=3GHz LO=0dBm



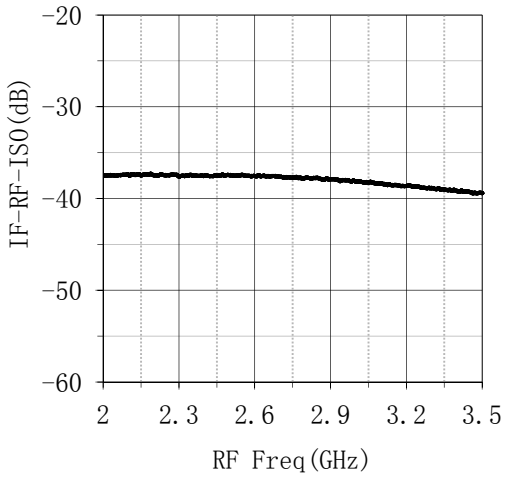
RF Ouput P1dB
LSB IF=100MHz LO=0dBm



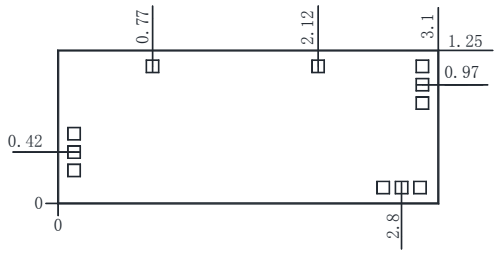
LO-IF Isolation



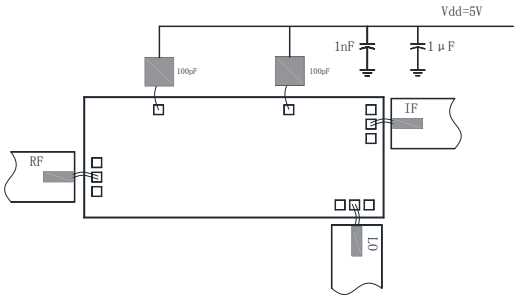
IF-RF Isolation



Outline Drawing (mm)



Assembly Diagram



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 IF port without DC blocking capacitor, RF and LO port with one independently.
6. The chip is sensitive to static electricity, and should be protected against static electricity during storage and use.