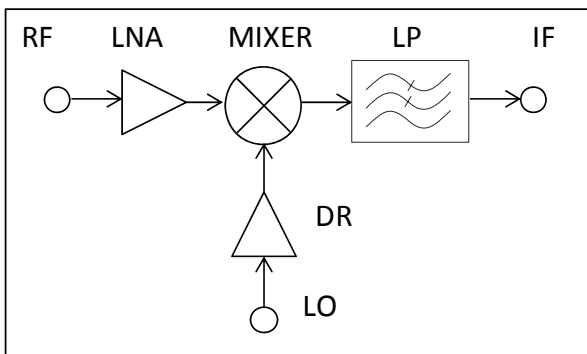


Features

RF Frequency: 2.5~4GHz
 LO Frequency: 2.5~4GHz
 IF Frequency: DC~0.6GHz
 Conversion Gain: 12.5dB
 LO-RF Isolation: 60dB
 LO-IF Isolation: 45dB
 RF-IF Isolation: 30dB
 Supply Voltage: +5V@85mA
 Chip Size: 2.74mm×1.58mm×0.1mm

Functional Diagram

General Description

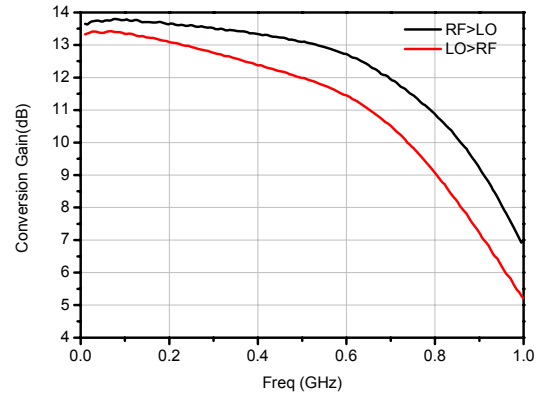
The HG133V-1 is a GaAs pHEMT MMIC downconverter which is operating between 2.5 and 4GHz. It includes driver amplifier, low noise amplifier, switch, low pass filter and mixer. The downconverter features LO and RF Frequency is 2.5~4GHz, IF Frequency is between DC and 0.6GHz.

Electrical Specifications ($T_A=25^\circ\text{C}$, $V_{dd}=5\text{V}$)

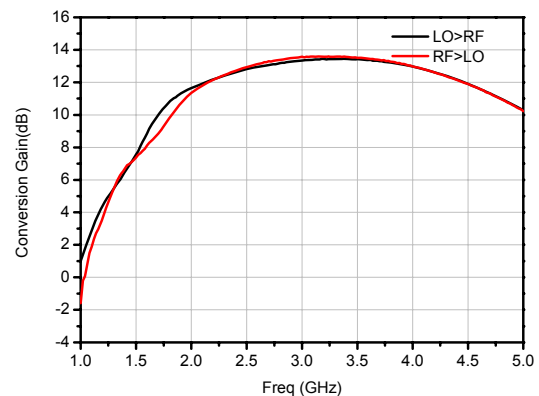
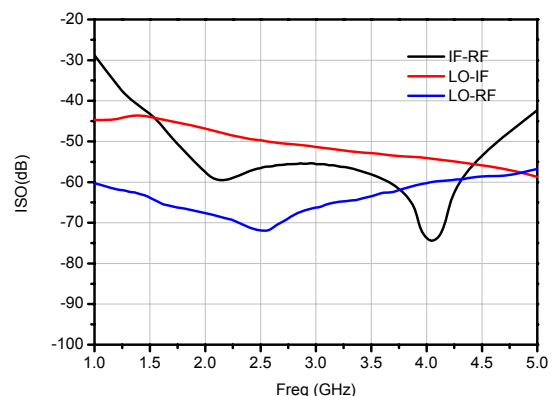
Parameter	Min.	Typ.	Max.
Freq. RF & LO (GHz)	2.5~4		
Freq. IF (GHz)	DC~0.6		
Conversion Gain (dB)	—	12.5	—
IF Output P-1 (dBm)	—	3	—
LO to RF Isolation (dB)	—	60	—
LO to IF Isolation (dB)	—	45	—
RF to IF Isolation (dB)	—	30	—
Noise Figure (dB)	—	2.5	—

Measured Performance
Conversion Gain

RF=3GHz LO=0dBm

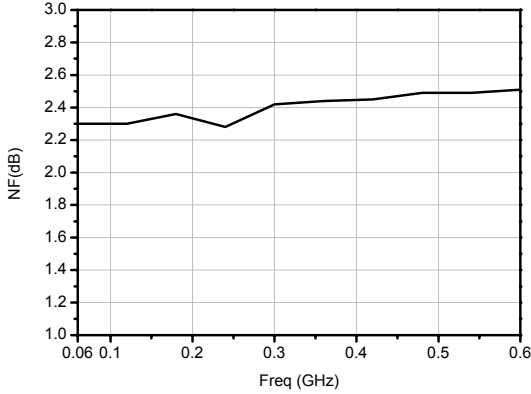

Conversion Gain

RF=3GHz LO=0dBm


Isolation


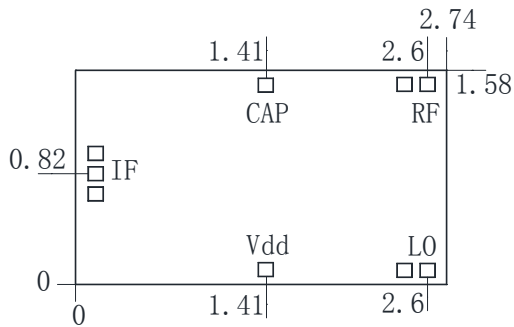
Noise Figure

RF=3GHz LO=0dBm

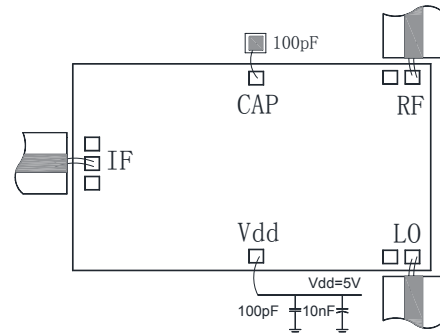


Test Condition	IF Output P-1
IF=100MHz RF=2G,LO=1.9GHZ	3.23dBm
IF=100MHz RF=2.5G,LO=2.4GHZ	3.53dBm
IF=100MHz RF=3G,LO=2.9GHZ	1.8dBm

Outline Drawing (mm)



Assembly Diagram



Absolute Maximum Ratings

RF Input Power	+15dBm
Operating Voltage	+5.5V
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 Φ25μm double gold wire bonding, suggested length of gold wire 250~400μm.
5. Chip microwave IF port without DC blocking capacitor, RF and LO ports with one.
6. The chip is sensitive to static electricity, and should be protected against static electricity during storage and use.