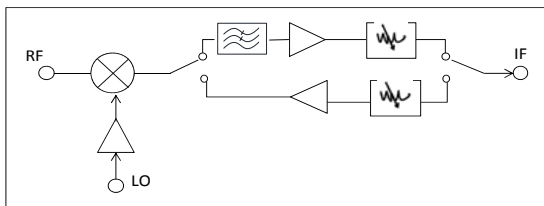


### Features

- LO&RF Frequency: 2.5~5GHz
- IF Frequency: 0.65~1.5GHz
- Conversion Gain: 16dB
- LO input Power: 0dBm
- Chip Size: 4mm×3.2mm×0.1mm

### Functional Diagram



### General Description

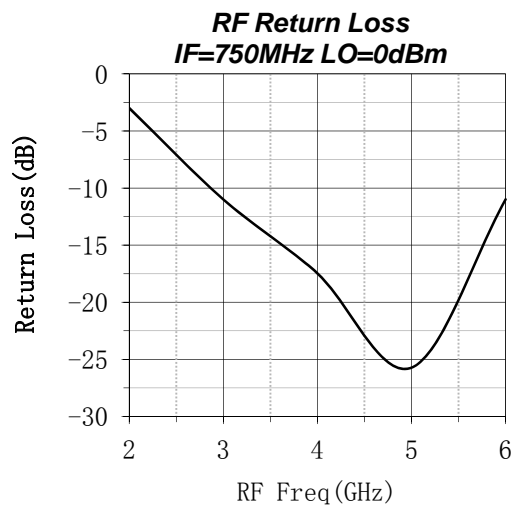
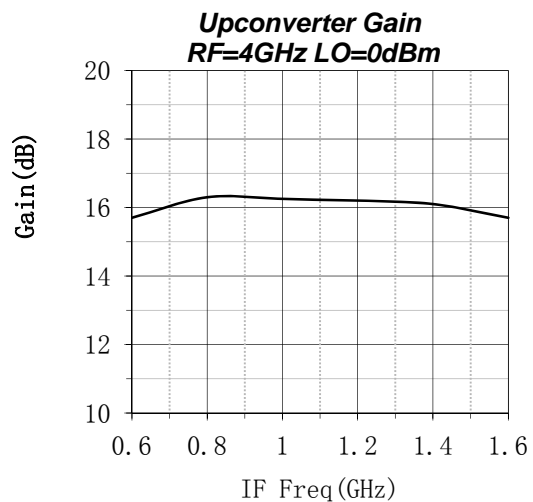
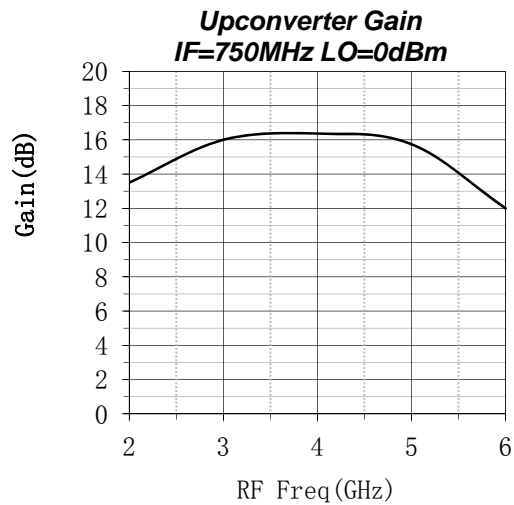
The HG154N is a GaAs pHEMT MMIC multi-fuction chip. It includes RF bidirectional amplifier, LO driver amplifier, low noise amplifier, switch, 3-bit digital attenuator, low pass filter and double-balanced mixer. The features IF Frequency is 0.65~1.5GHz, LO&RF Frequency is 2.5~5GHz, Conversion gain is over 16dB, LO input power is 0dBm.

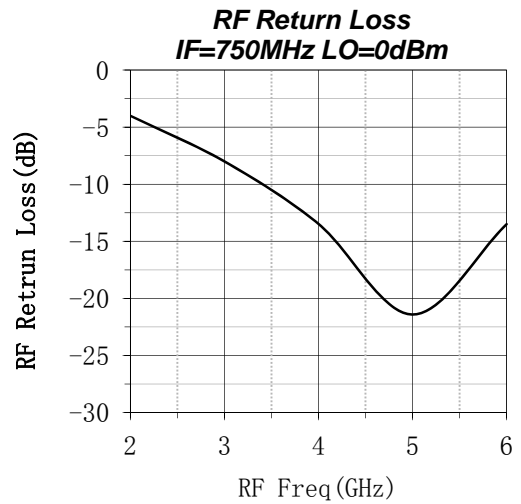
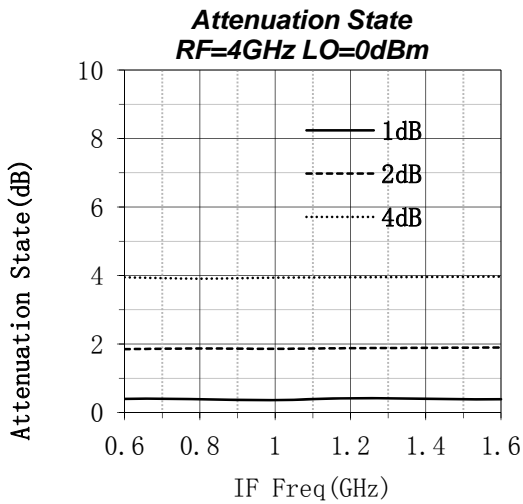
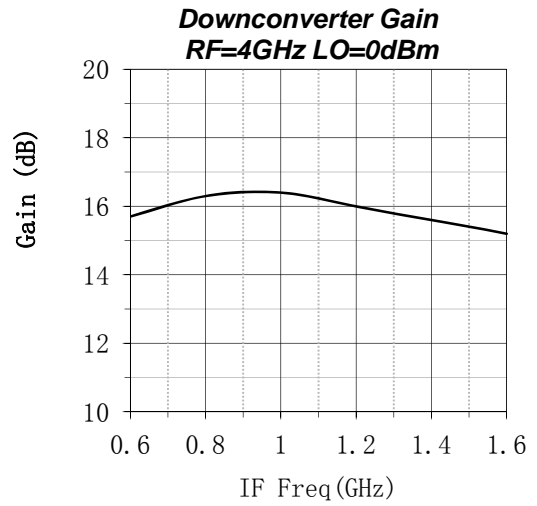
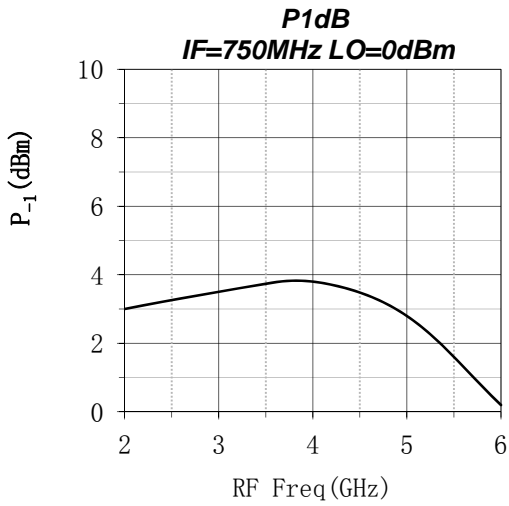
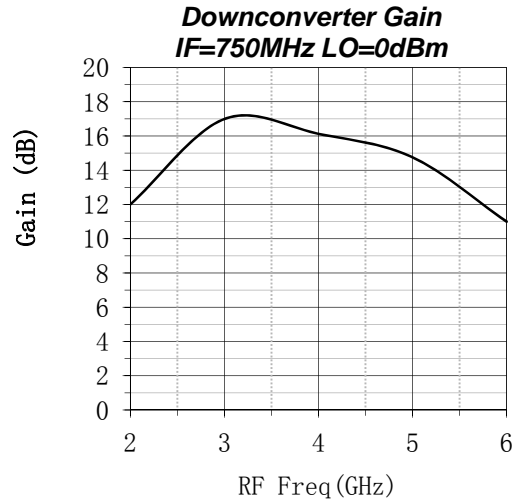
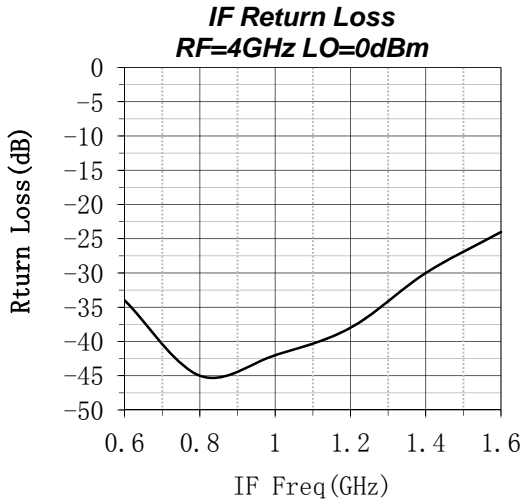
### Electrical Specifications

*(T<sub>A</sub>=25 °C, DLO/VDR/VDT =+5V, LO=0dBm)*

Parameter	Min.	Typ.	Max.
Freq. RF&LO (GHz)	2.5~5		
Freq. IF(GHz)	0.65~1.5		
Conversion Gain (dB)	—	16	—
Downconverter output P-1(dBm)	14	—	—
LO to RF Isolation(dB)	—	48	—
Upconverter output P-1(dBm)	3	—	—
Return Loss(dB)	—	12	—

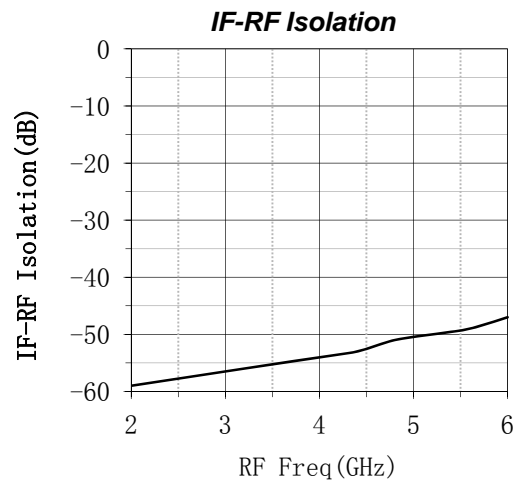
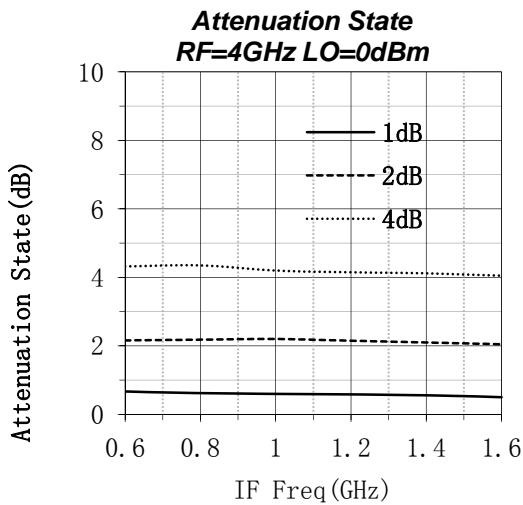
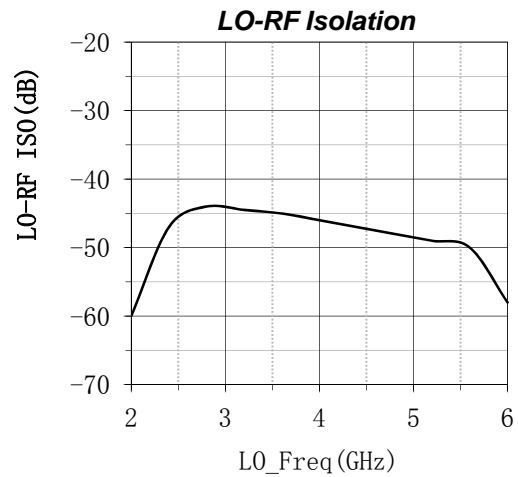
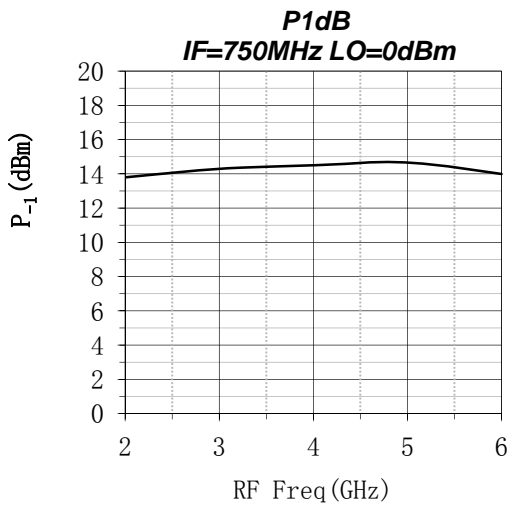
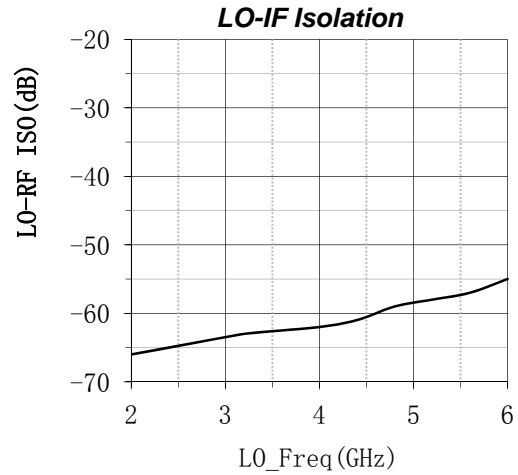
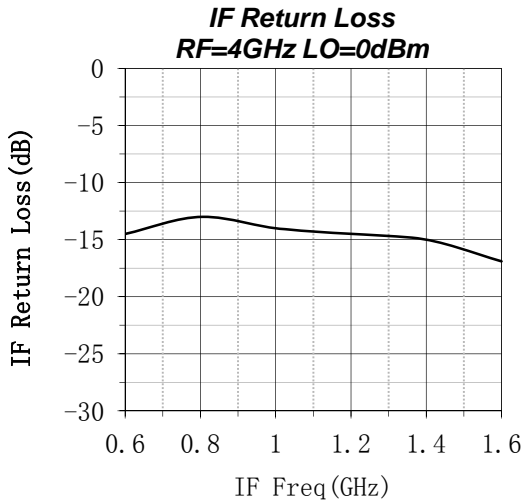
### Measured Performance (upconverter)

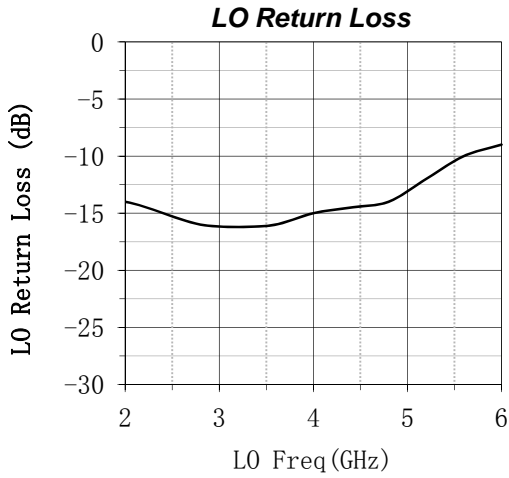




**Measured Performance(dowconverter)**

**Measured Performance (Isolation)**





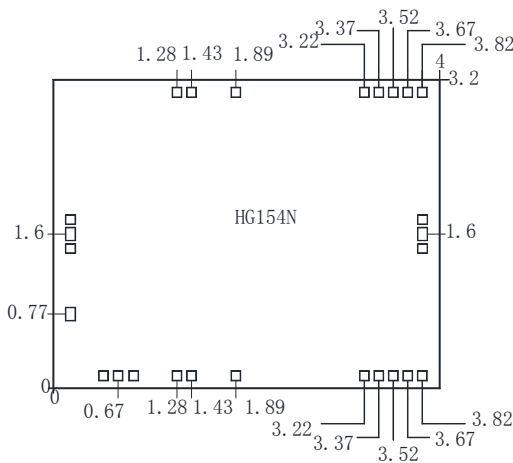
**Truth Table**

Path	Vc1	Vc2
Downconverter(RF-IF)	-5V	0V
upconverter(IF-RF)	0V	-5V

**Absolute Maximum Ratings**

Control voltage range	-5.5~0.5V
Operating Voltage	+5.5V
RF input Power	+13dBm
Operating Temperature	-55℃~125℃
Storage Temperature	-65℃~150℃

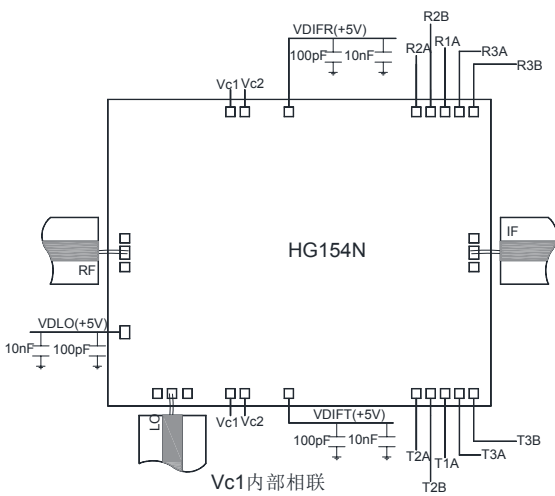
**Outline Drawing (mm)**



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

**Assembly Diagram**



Note: Vc1 connect internally, Vc2 connect internally.