Features

Freq: 27.5～30GHz

Gain: 19dB

Output Power:36dBm

PAE:24%

Supply Voltage: +6V

Supply Current: 1.8A

Chip Size: 3.5mm×4.2mm×0.1mm

General Description

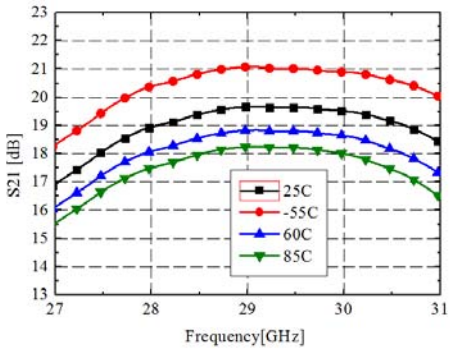
The HG138F-1 is a GaAs pHEMT MMIC Power Amplifier operating between 27.5 and 30GHz. The amplifier has been optimized to provide 19dB gain, 36 dBm of saturated power ,and 24% PAE.

Electrical Specifications(T_A=25 ℃,Vdd = +6V, Vg = -0.8V)

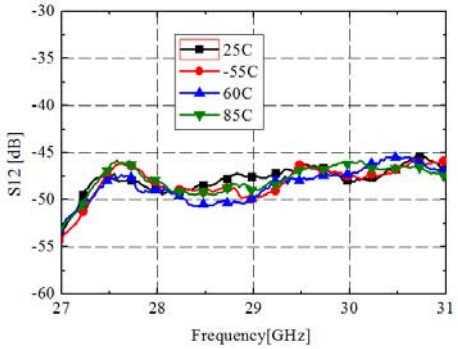
Parameter	Min.	Typ.	Max.
Freq(GHz)		27.5～30	
Gain (dB)	—	19	—
Gain Flatness (dB)	—	±1	—
Input Return Loss (dB)	—	20	—
Output Return Loss (dB)	—	20	—
Output Power for 1 dB Compression(dBm)	—	35	—
Saturation Power (dBm)	—	36	—
PAE	—	24%	—

Measured Performance

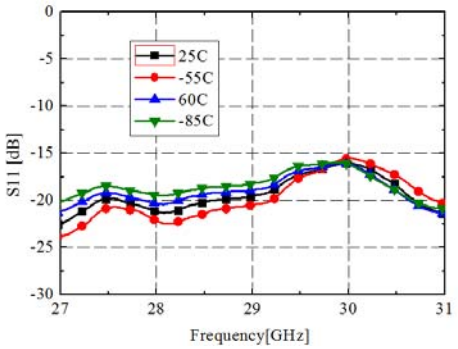
Gain vs. Temperature



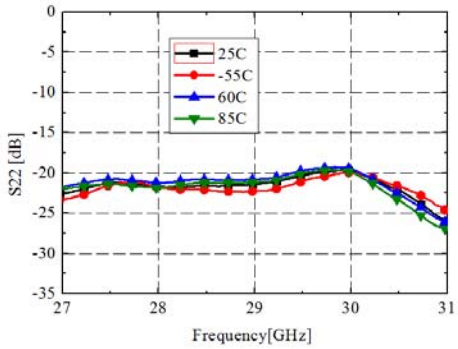
Reverse Isolation vs. Temperature



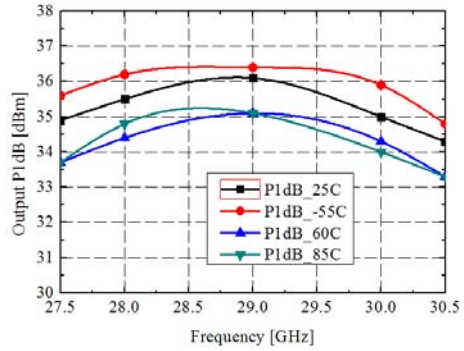
Input Return Loss vs. Temperature



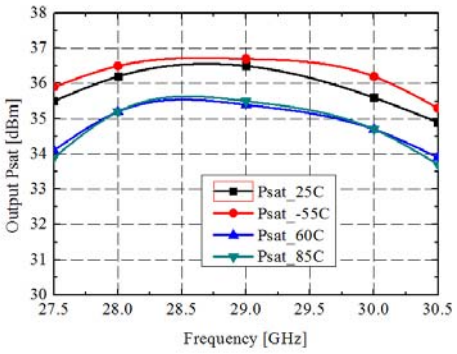
Output Return Loss vs. Temperature



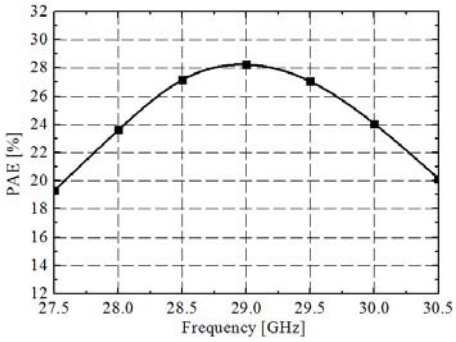
P1dB vs. Temperature



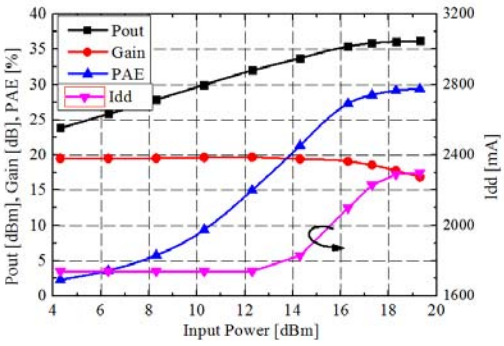
Psat vs. Temperature



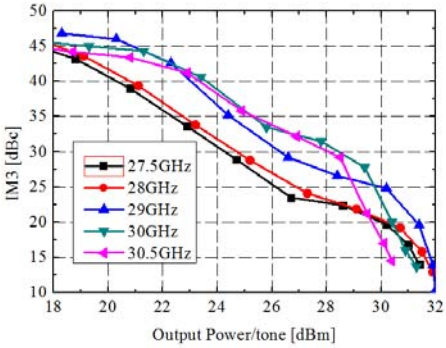
PAE



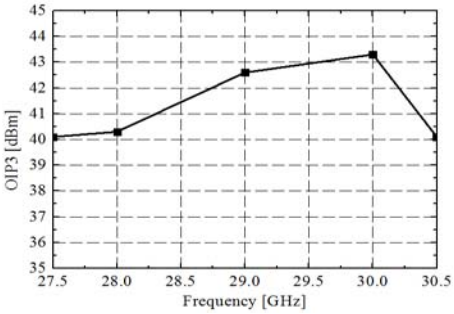
Pout & Gain & PAE & Idd



IMD3 vs. Freq



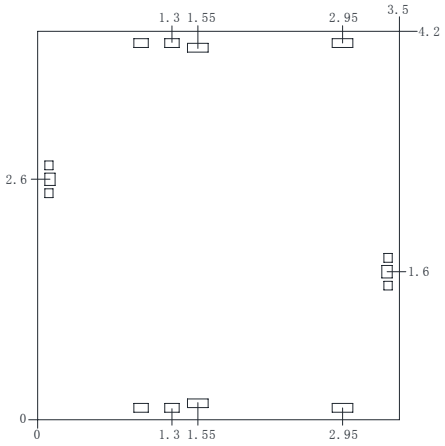
Output IP3@Pout/tone=17dBm



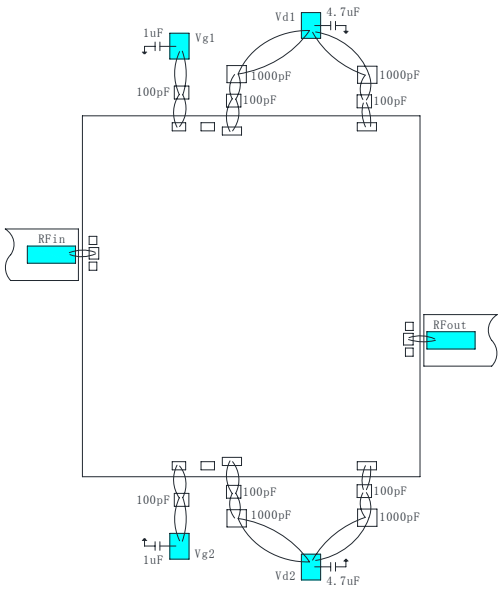
Absolute Maximum Ratings

Supply Voltage	+6.5V
RF Input Power	+25dBm
Operating Temperature	-55℃～85℃
Storage Temperature	-65℃～150℃

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 50μm double gold ribbon bonding, suggested length of gold wire 250～400μm.
5. Chip microwave port with a DC blocking capacitor.
6. The chip is sensitive to static electricity, and should be protected against static electricity during storage and use.