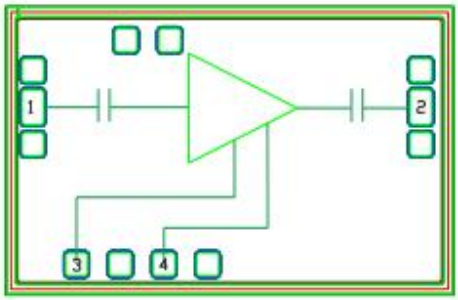
TFLN1019-H
2~22 GHz GaAs MMIC Low Noise Amplifier

★1.Product Features

- Frequency range: 2 ~ 22 GHz
- Noise figure: 2.0 dB
- Gain: 15 dB
- Output P-1dB: 14 dBm
- Input return loss: -6 dB
- Output return loss: -8 dB
- Operating current: 50 mA
- Chip size: 2.0 mm × 1.2 mm × 0.1 mm
- Replacement for: HMC-ALH482

Functional Block Diagram



★2.Product Introduction

The TFLN1019-H is a wideband low noise amplifier chip operating in the 2~22 GHz frequency range. The typical gain is 15 dB, the noise figure is below 2.5 dB over the full band, and the output power at 1 dB gain compression is greater than 14 dBm. The chip can be used in test instruments and radar T/R modules, and is a replacement for HMC-ALH482.

The chip backside is metallized and is suitable for eutectic bonding. The chip uses an on-chip metallized via process to ensure good grounding, is simple to use, and requires no additional grounding measures.

★3.Electrical Characteristics

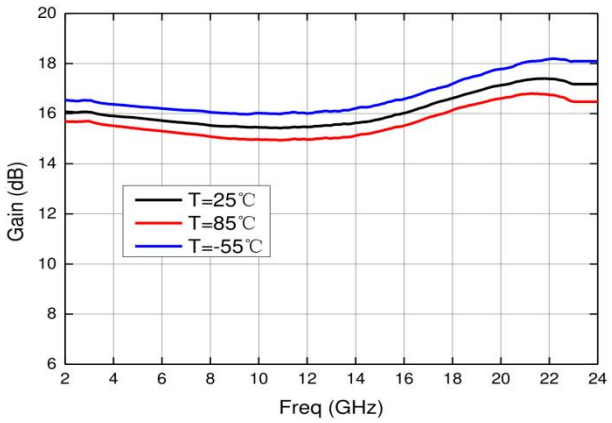
TA=+25℃, 50Ω System，VD=+4V, VG=-0.2V

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	Freq	2	—	22	GHz
Gain	Gain	—	15	—	dB
Gain Flatness	ΔGain	—	±1.5	—	dB
Noise Figure	NF	—	2.0	—	dB
Output P-1dB	OP1dB	—	14	—	dBm
Input Return Loss	RL_in	—	-6	—	dB
Output Return Loss	RL_out	—	-8	—	dB
Quiescent Current	IDQ	—	50	—	mA

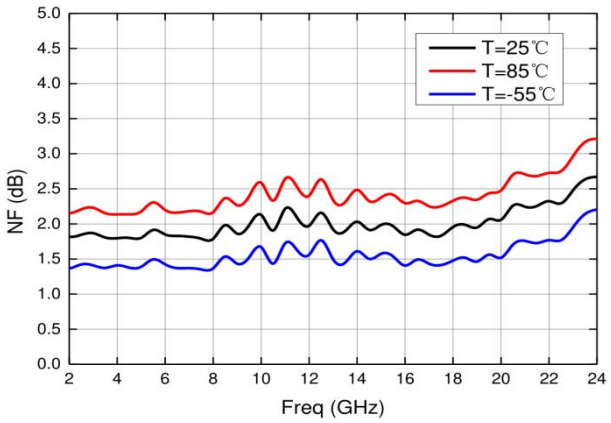
Email: ttf@ttfelectronic.com
Address: Building 16, Area C, Entrepreneurship and R&D Park, Xi'an High-tech Industrial Development Zone, China
Website:ttfelectronic.com

★4.Typical Test Curve

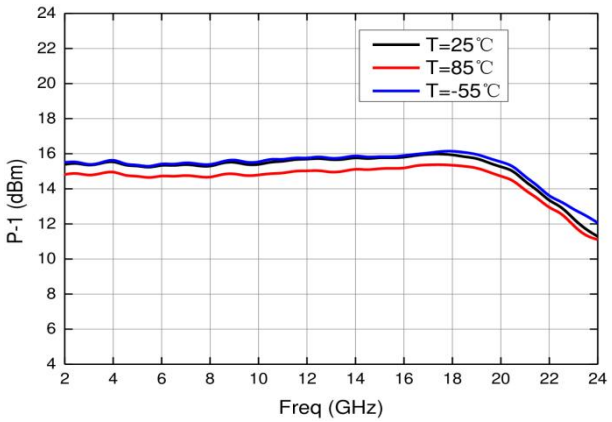
Gain vs. Frequency



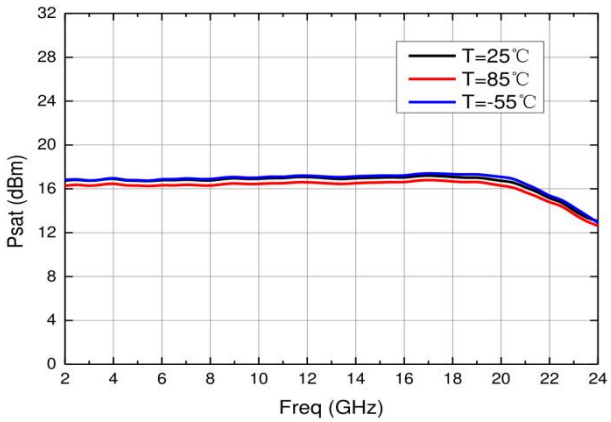
Noise Figure vs. Frequency



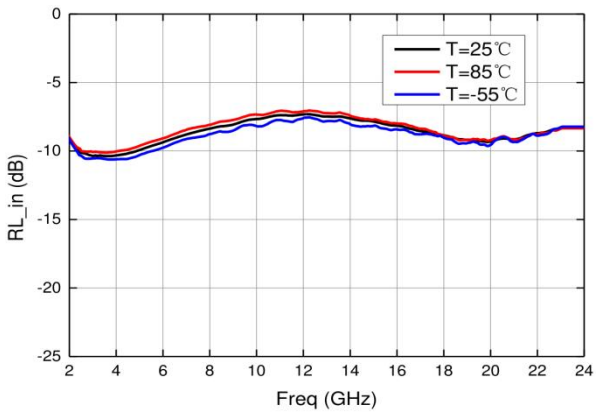
Output P-1dB vs. Frequency



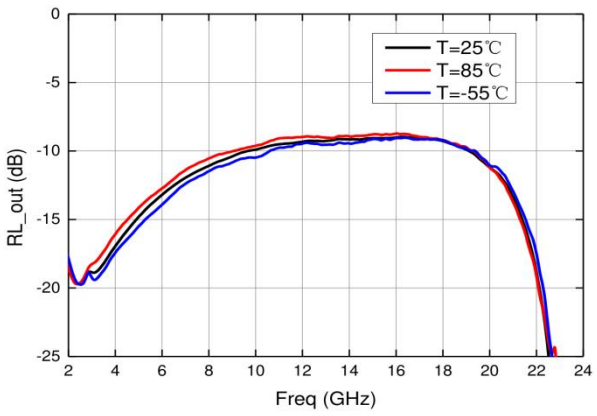
Saturated Output Power vs. Frequency



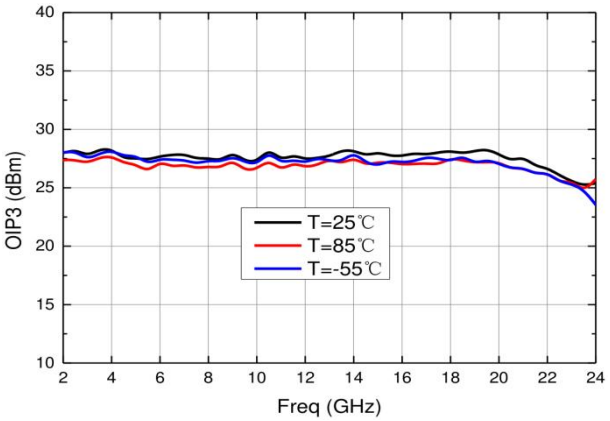
Input Return Loss vs. Frequency



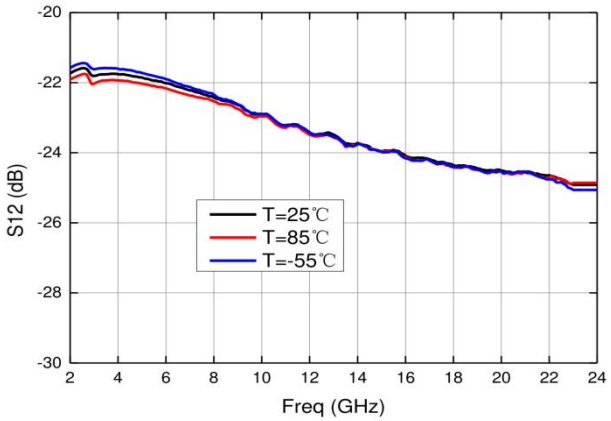
Output Return Loss vs. Frequency



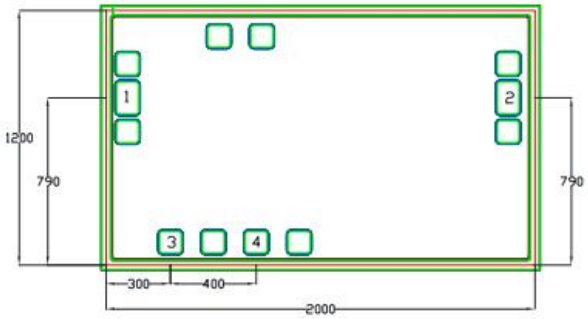
Output IP3 vs. Frequency



Reverse Isolation vs. Frequency



★5.Outline Dimensions

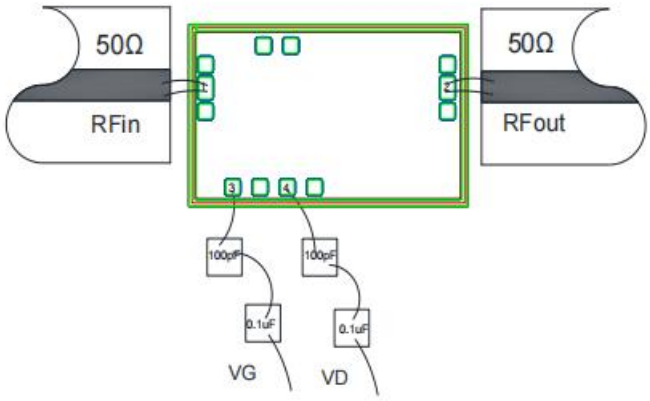


Notes:
1. Unit: μm
2. Chip backside is gold-plated and grounded
3. RF pad size: 150 μm × 100 μm
4. DC pad size: 100 μm × 100 μm
5. Outline dimension tolerance: ±50 μm

★6.Bonding Pressure Point Definition

Pressure Point Number	Function Definition	Function Description
1	RFin	RF signal input port, connected to an external 50 Ω system, with internal DC_Block
2	RFout	RF signal output port, connected to an external 50 Ω system, with internal DC_Block
3	VG	Gate negative voltage supply port
4	VD	Drain positive voltage supply port

★7.Suggested Assembly Drawing



★8.Precautions

Absolute Maximum Ratings	Numerical value
Input Power (Pin, 50 Ω)	+13 dBm
Drain Voltage	+6 V
Storage Temperature	-65 ℃ ~ +150 ℃
Operating Temperature	-55 ℃ ~ +125 ℃
Sintering Temperature (30 s, N_2 Protection)	300 ℃
Exceeding any of the above conditions may cause permanent damage to the chip	



This product is sensitive to static electricity.

Please take precautions against static electricity during use.

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