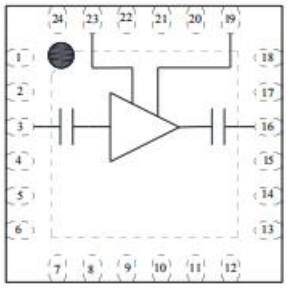
TFLN1015-HP
7~14 GHz GaAs MMIC Low Noise Amplifier

★1.Product Features

- Frequency range: 7~14 GHz
- Noise figure: 1.9 dB
- Gain: 17 dB
- Output P-1dB: 13.5 dBm
- Operating current: 70 mA @ +3 V
- Chip size: 4.0 mm × 4.0 mm
- Replacement for: HMC564LC4

Functional Block Diagram



★2.Product Introduction

TFLN1015-HP is a low noise amplifier plastic-packaged chip with a package size of 4 mm × 4 mm. The chip operates in the 7~14 GHz range, and under +3 V it provides 17 dB of gain and 13.5 dBm of P1dB output power, with a typical noise figure of 1.9 dB. The operating voltage can be increased to +4 V to improve the output power.

The center pad on the backside of the chip serves as both the AC ground and the DC ground, and must be well grounded during use. The chip is manufactured domestically and can meet the requirements of localized applications, and can be used as a replacement for the foreign part HMC564LC4.

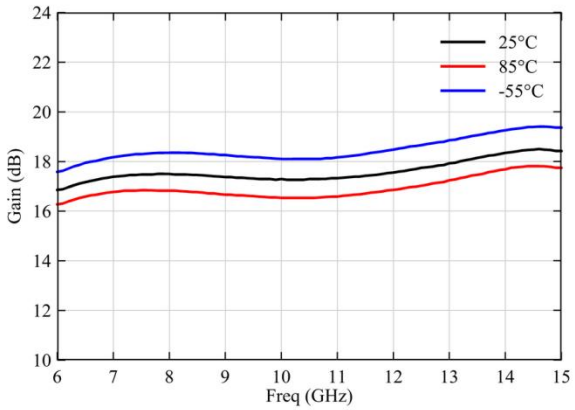
★3.Electrical Characteristics

TA=+25℃，50Ω system，VD1=VD2=+3V

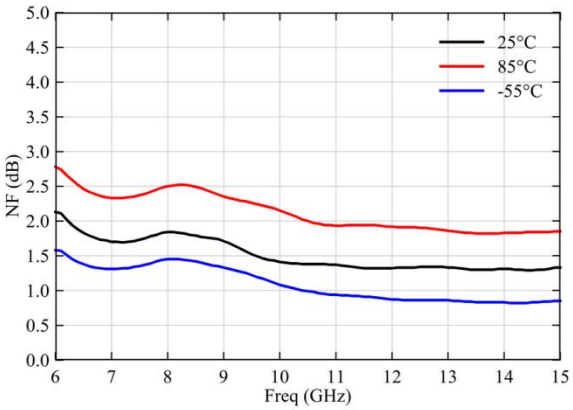
Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	Freq	7	—	14	GHz
Gain	Gain	—	17	—	dB
Output P-1dB	OP1dB	—	13.5	—	dBm
Saturated Output Power	Psat	—	14.5	—	dBm
Input Return Loss	RL_in	—	-13	—	dB
Output Return Loss	RL_out	—	-15	—	dB
Noise Figure	NF	—	1.9	2.2	dB
Output Third-Order Intermodulation Point	OIP3	23	30	—	dBm
Quiescent Current	IDQ	—	65	80	mA

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

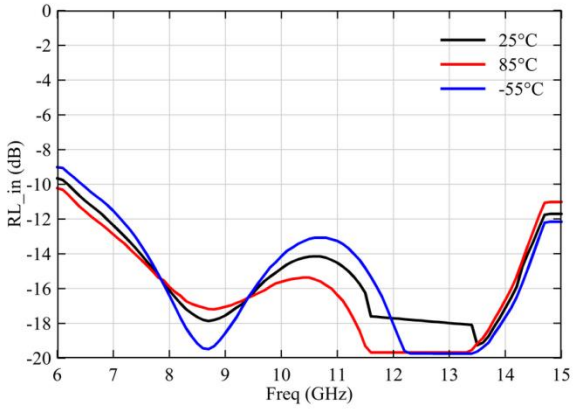
★4.Typical Test Curves



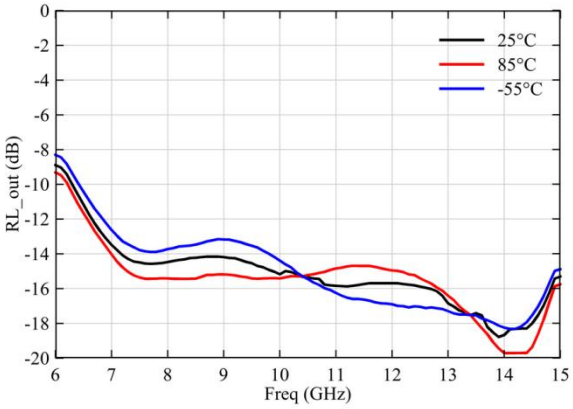
Gain vs. Frequency



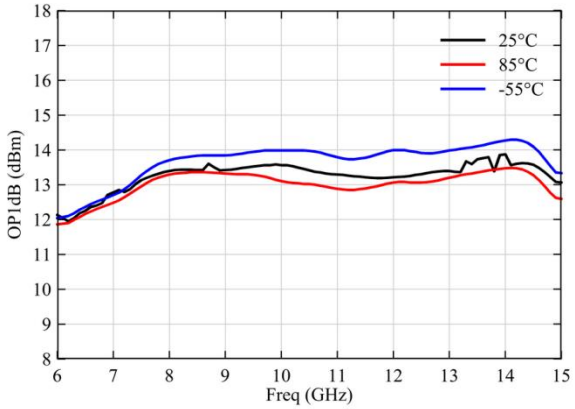
Noise Figure vs. Frequency



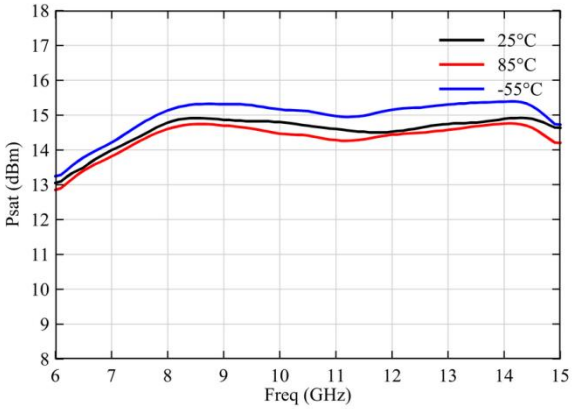
Input Return Loss vs. Frequency



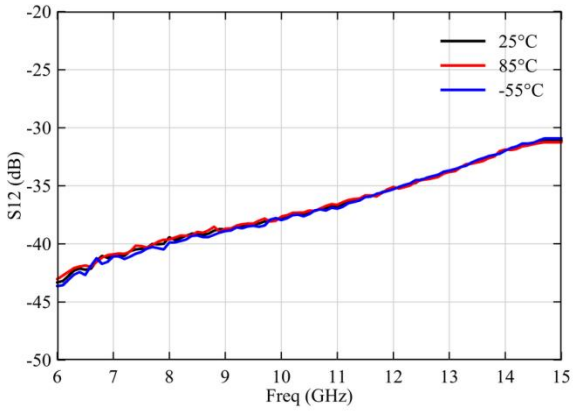
Output Return Loss vs. Frequency



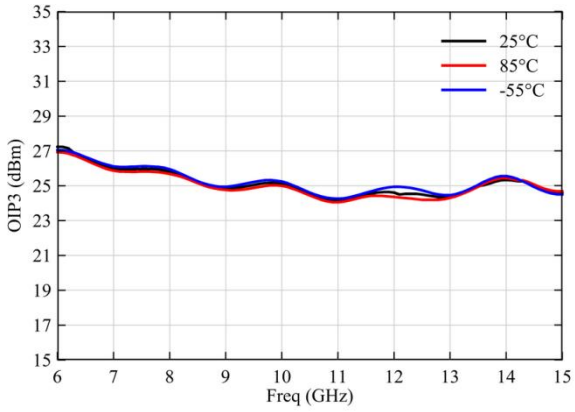
Output P-1dB vs. Frequency



Saturated Output Power vs. Frequency

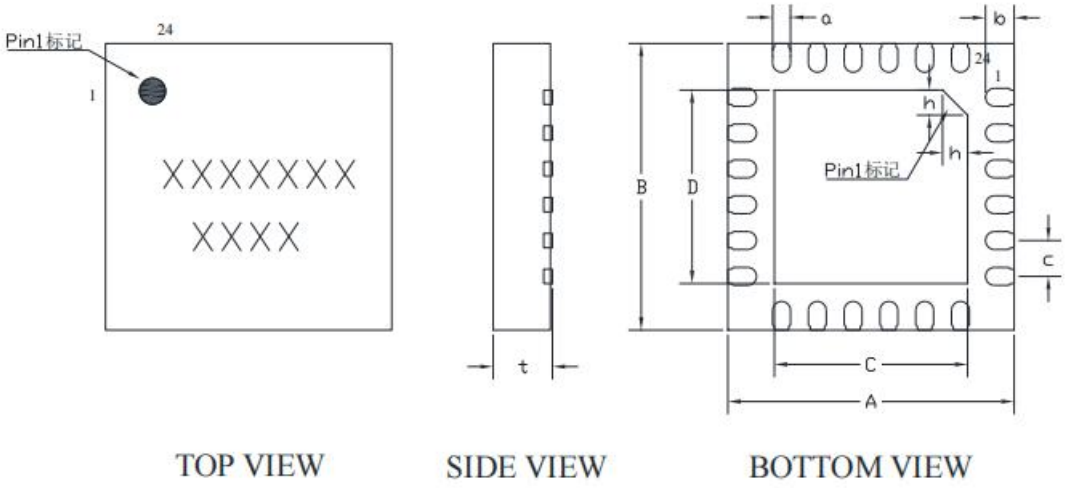


Reverse Isolation vs. Frequency



Output IP3 vs. Frequency

★5.Outline Dimensions



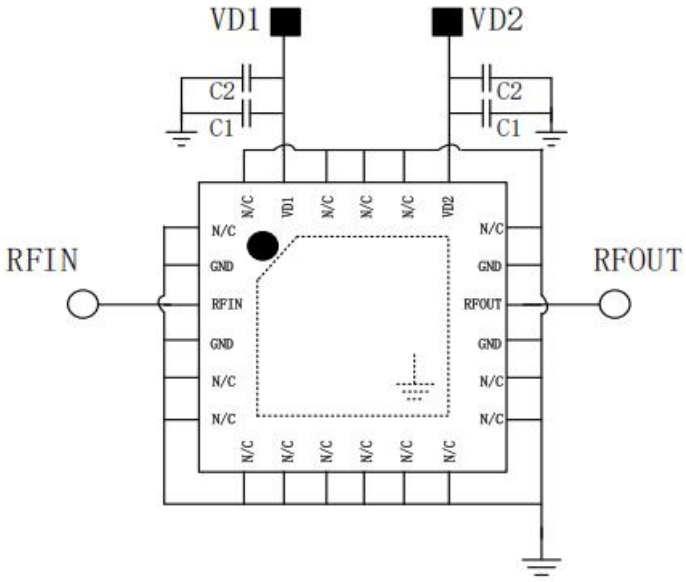
TOP VIEW SIDE VIEW BOTTOM VIEW

Identifier	Min	Nom	Max
A, B	3.90	4.00	4.10
C, D	2.60	2.70	2.80
a	0.20	0.25	0.30
b	0.35	0.40	0.45
c	0.45	0.50	0.55
h	0.30	0.35	0.40
t	—	0.85	1.00

★6.Pin Definitions

Pin No.	Function Definition	Function Description
3	RFIN	RF signal input, connected to a 50Ω system, DC block inside the chip
16	RFOUT	RF signal output, connected to a 50Ω system, DC block inside the chip
23	VD1	Drain feed terminal 1
19	VD2	Drain feed terminal 2
2/4/15/17	GND	Ground pad, must be grounded during use
—	GND	Center pad on the bottom of the chip, AC ground and DC ground of the chip, must be well grounded
Others	N/C	No-connect pad, recommended to be grounded during use

★7.Application Circuit



Symbol	Device	Value
C1	Capacitor	100 pF
C2	Capacitor	0.1uF

Notes:

1. The center pad on the bottom serves as the AC and DC ground for the chip and must be well-grounded.
2. The pins are made of Cu with a NiPdAu surface finish.
3. It is recommended that N/C (not connected) pads be grounded during use.

★8.Precautions

Absolute Maximum Ratings	Numerical value
Input Power (Pin, 50Ω)	+15 dBm
Drain Voltage	+4.5 V
Storage Temperature	-65℃～+150℃
Operating Temperature	-55～+85℃
Soldering Temperature	250℃
Soldering Time	10 s
Exceeding 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.