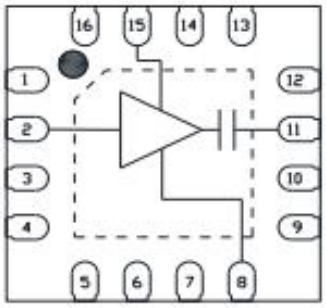
TFLN1017-HP
2.5~4.5GHz GaAs MMIC Low Noise Amplifier

★1.Product Features

- Frequency range: 2.5~4.5 GHz
- Noise figure: 0.9 dB
- Gain: 20 dB
- Output 1 dB compression point power: 17 dBm
- Input return loss: -15 dB
- Output return loss: -15 dB
- Operating current: 40mA @ +3V
- Chip size: 3.0mm × 3.0mm
- Replacement for: HMC716LP3E

Functional Block Diagram



★2.Product Overview

TFLN1017-H is a low-noise amplifier in a plastic package with a size of 3mm × 3mm. It operates at 2.5~4.5 GHz and can work under a supply voltage of +3V to +5V. At +3V , it offers a gain of 20 dB, a noise figure of 0.9 dB, and a P1 dB output power of 17 dBm; at +5V , it provides a gain of 21 dB, a noise figure of 0.8 dB, and a P1 dB output power of 22 dBm.

The center pad on the backside of the chip serves as both the AC ground and the DC ground. Proper grounding is required during use.

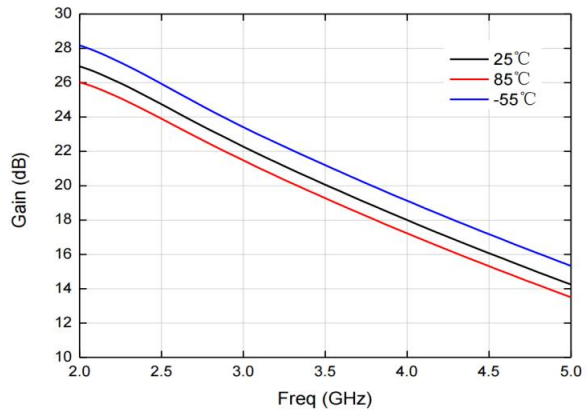
★3.Electrical Performance Table (TA=+25℃, 50Ω system)

Parameters	Symbol	VD=+3V			VD=+5V			Unit
		Min	Typ	Max	Min	Typ	Max	
Operating Frequency	Freq	2.5	-	4.5	2.5	-	4.5	GHz
Gain	Gain	14	20	27	15	21	28	dB
Noise Figure	NF	-	0.9	1.2	-	0.8	1.1	dB
Output P-1 dB	OP1 dB	15.5	17	-	20	22	-	dBm
Saturated Output Power	OP3 dB	-	19	-	-	22	-	dBm
Input Return Loss	RL_in	-	-15	-	-	-15	-	dB
Output Return Loss	RL_out	-	-17	-	-	-17	-	dB
Output Third-Order	OIP3	-	26	-	-	30	-	dBM
Quadrature Current	IDQ	-	40	50	-	85	100	mA

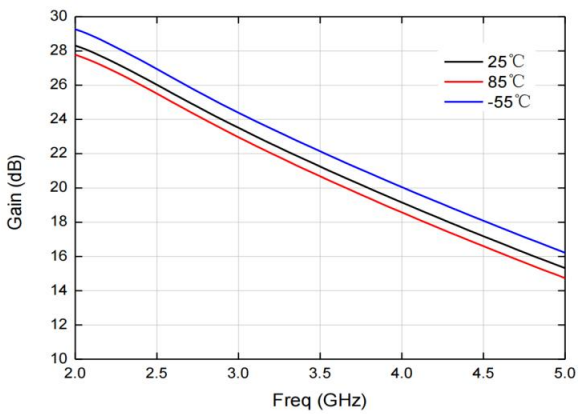
Email: ttf@ttfelectronic.com
Website:ttfelectronic.com
Address: Building 16, Area C, Entrepreneurship and R&D Park, Xi'an High-tech Industrial Development Zone, China

★4.Typical Test Curve

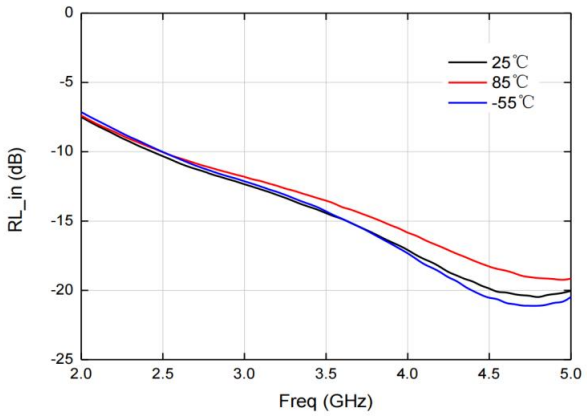
Gain vs. Frequency (VD=+3V)



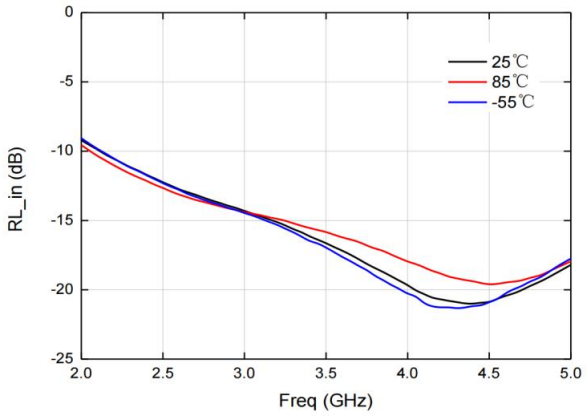
Gain vs. Frequency (VD=+5V)



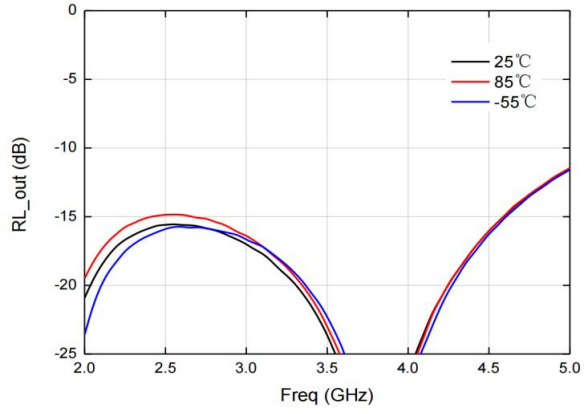
Input return loss vs. frequency (VD=+3V)



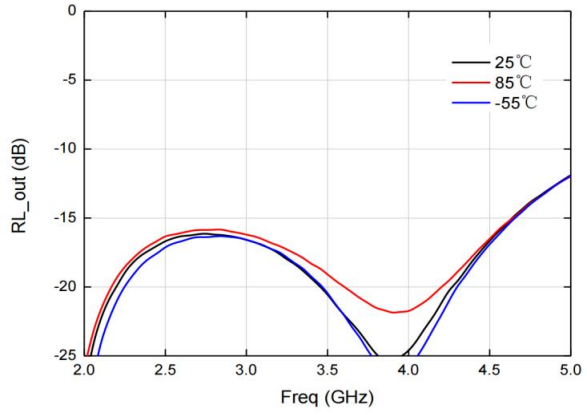
Input return loss vs. frequency (VD=+5V)



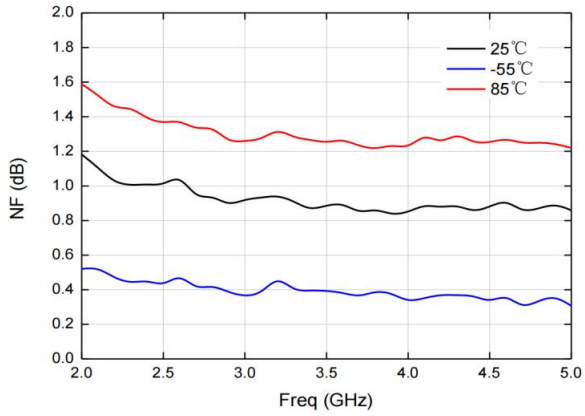
Input return loss vs. frequency (VD=+3V)



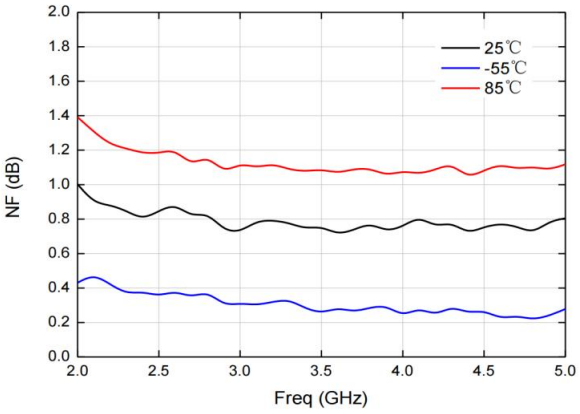
Output return loss vs. frequency (VD=+5V)



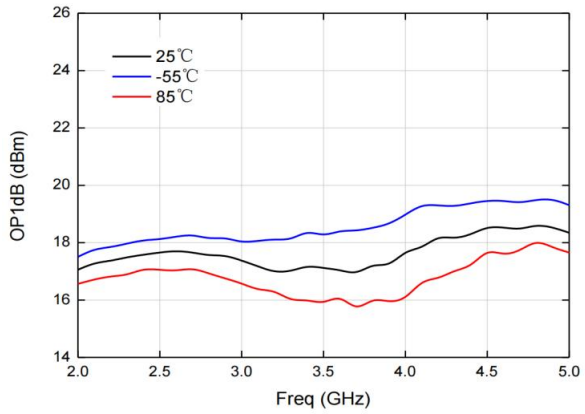
Noise figure vs. frequency (VD=+3V)



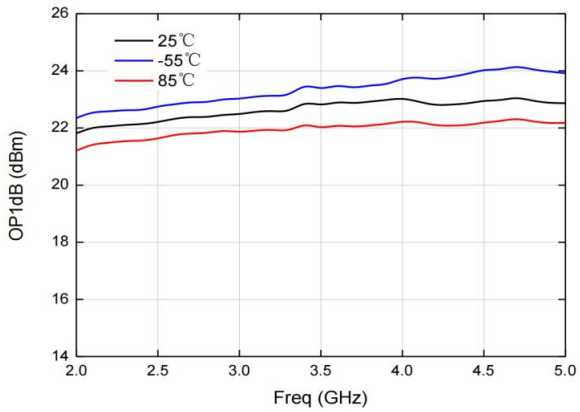
Noise figure vs. frequency (VD=+5V)



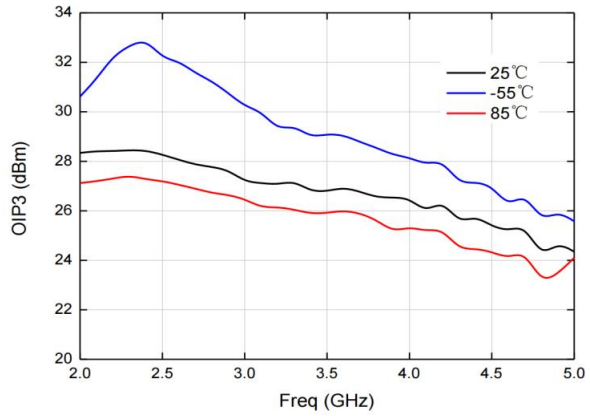
Output P1dB power vs. frequency (VD=+3V)



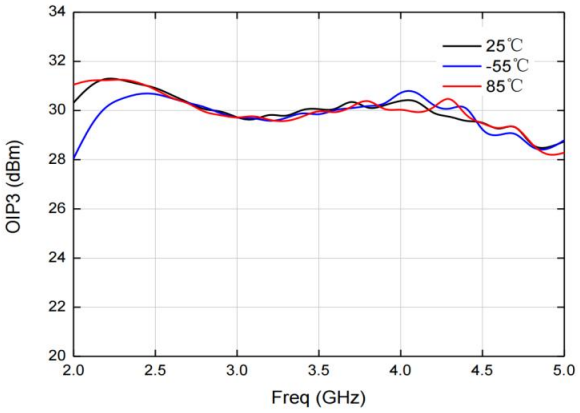
Output P1dB power vs. frequency (VD=+5V)



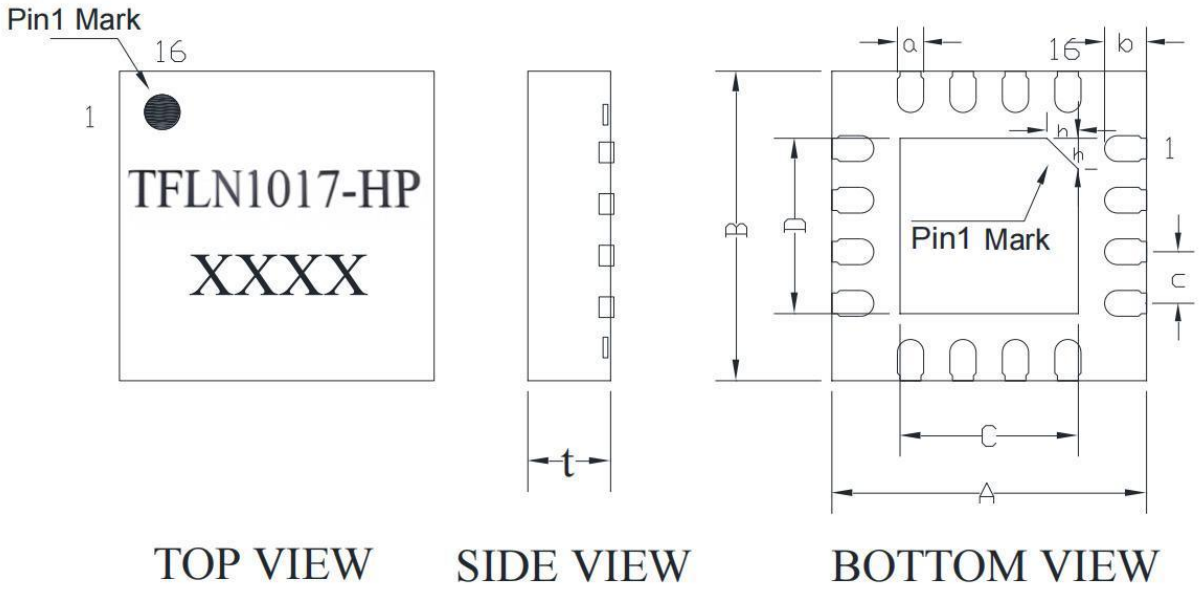
Output third-order intermodulation vs. frequency (VD=+3V)



Output third-order intermodulation vs. frequency (VD=+5V)

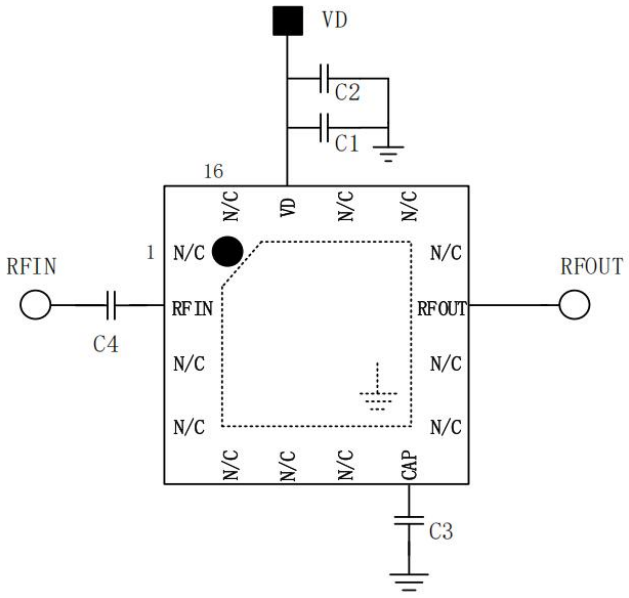


★5.External Dimensions (unit: mm)



Identifier	Min	Standard value	Max
A, B	2.90	3.00	3.10
C, D	1.60	1.70	1.80
a	0.20	0.25	0.30
b	0.35	0.40	0.45
c	0.45	0.50	0.55
h	0.25	0.30	0.35
t	--	0.75	0.90

★6.Application Circuits



Reference value

Identifier	Component	Value
C1	Surface-mount capacitors	1nF
C2	Surface-mount capacitors	0.47uF
C3	Surface-mount capacitors	10nF
C4	Surface-mount capacitors	100pF

Notes:

1. The bottom center pad is the chip's AC and DC ground and must be properly grounded;
2. The pin material is Cu, and the surface plating is NiPdAu.
3. It is recommended to ground the N/C floating pads during

★7.Pin Definitions

Pressure Point Number	Function Definition	Function Description
2	RFIN	RF signal input, external 50Ω system required; no DC blocking internally.
11	RFOUT	RF signal output, external 50Ω system required; DC blocking internally.
15	VD	Drain feed terminal: +3V~+5V.
8	CAP	External capacitor matching terminal.
--	GND	Bottom center pad: chip AC ground and DC ground;
Other	N/C	Unused pad; center grounding recommended.

★8.Precautions

Absolute Maximum Ratings	Numerical value
Input Power (Pin, 50 Ω)	+15 dBm
Drain Voltage	+6V
Storage Temperature	-65℃ ~ + 150℃
Operating Temperature	-55 ~ +125℃
Soldering Temperature	250℃
Soldering Time	10s
ESD HBM	200V
[1] 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.

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