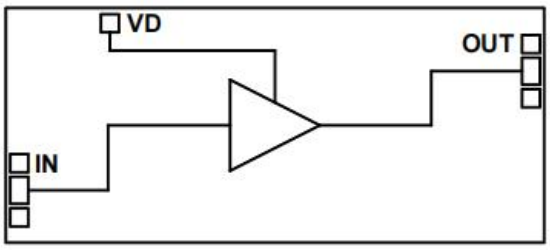
★1.Product Features

- Frequency range: 2 GHz ~ 30 GHz
- Gain: 16 dB
- Noise figure: 2.5 dB
- Input return loss: 18 dB
- Output return loss: 18 dB
- Output P1dB: 15 dBm
- Single-supply operation: +5 V @ 58 mA
- Chip size: 3.0 mm × 1.3 mm × 0.1 mm

Functional block diagram



★2.Product Introduction

TFLN0230-B is a GaAs MMIC ultra-wideband low noise amplifier chip whose operating frequency range covers 2 GHz ~ 30 GHz. It provides 16 dB gain and a typical in-band noise figure of 2.5 dB, and operates from a +5 V single supply.

★3.Electrical Characteristics (TA=+25 ℃, Vd=+5 V)

Table 1 Electrical characteristics

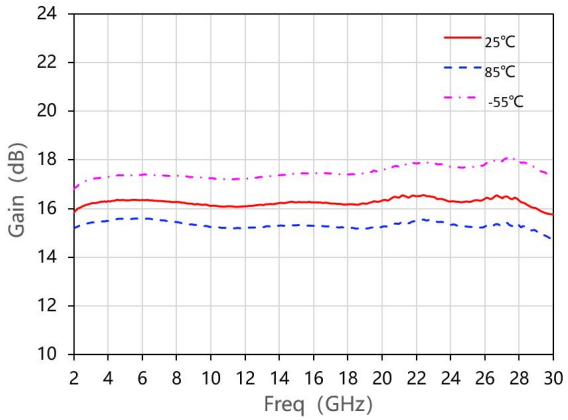
Parameter	Min.	Typ.	Max.	Unit
Frequency range		2 ~ 30		GHz
Gain	15.8	16	—	dB
Gain flatness	—	±0.3	—	dB
Noise figure	—	2.5	4	dB
Reverse isolation	—	35	—	dB
Output P1dB	11	14	—	dBm
Saturated output power	14.5	16	18	dBm
OIP3	—	25	—	dBm
Input return loss	—	18	—	dB
Output return loss	—	18	—	dB
Quiescent current	—	58	—	mA

★4.Absolute Maximum Ratings

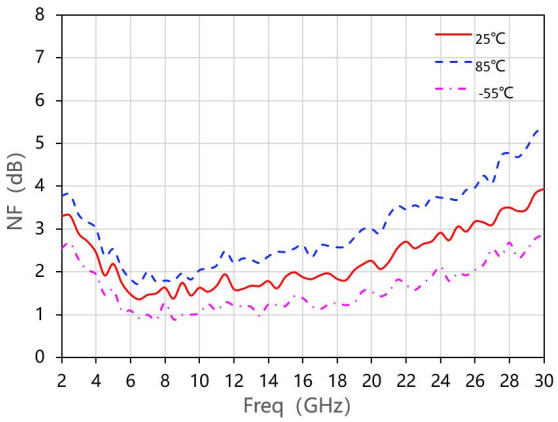
Parameter	Value
Max. input power	+18 dBm
Max. drain voltage	+9 V
Storage temperature	-65 ℃ ~ +150 ℃
Operating temperature	-55 ℃ ~ +85 ℃
Note: exceeding any of the above maximum limits may cause permanent damage.	

★5.Typical Test Curves

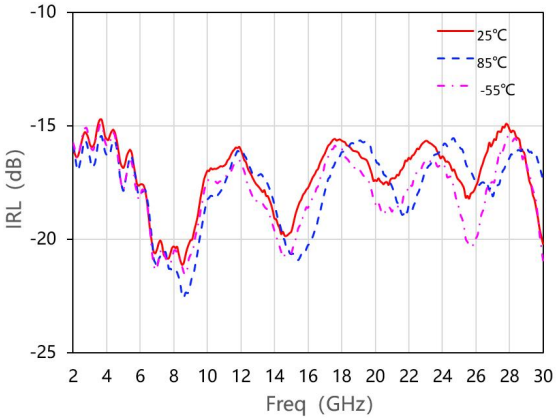
Gain vs. temperature



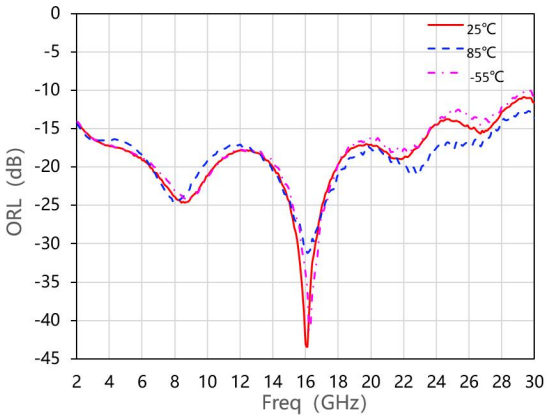
Noise figure vs. temperature



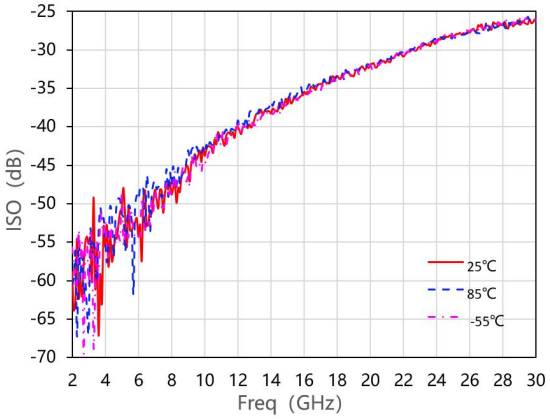
Input return loss vs. temperature



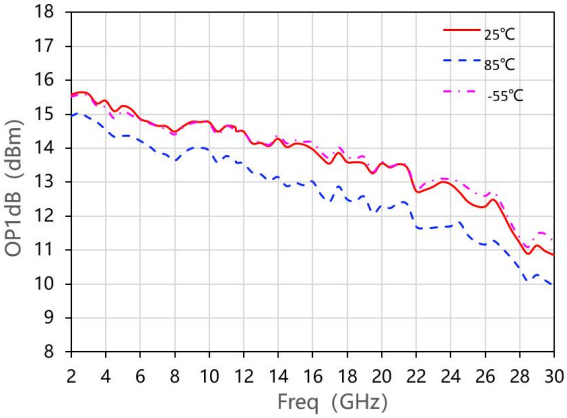
Output return loss vs. temperature



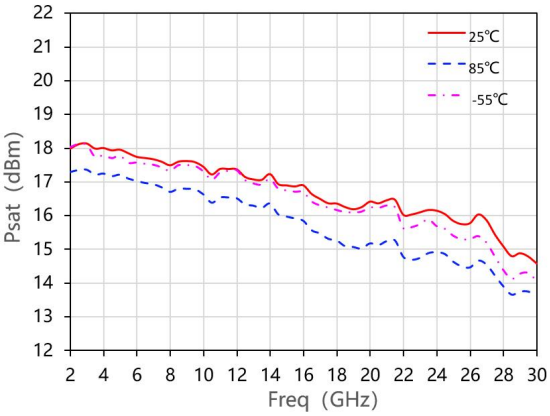
Reverse isolation vs. temperature



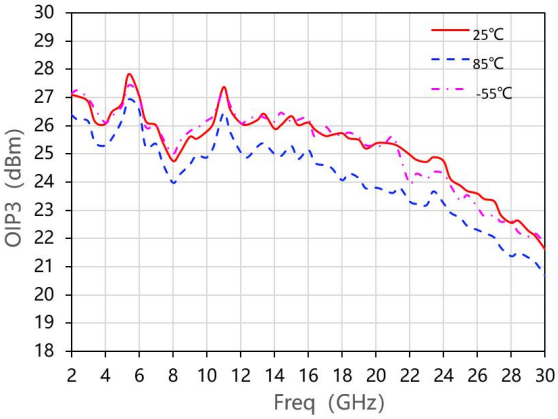
Output P1dB vs. temperature



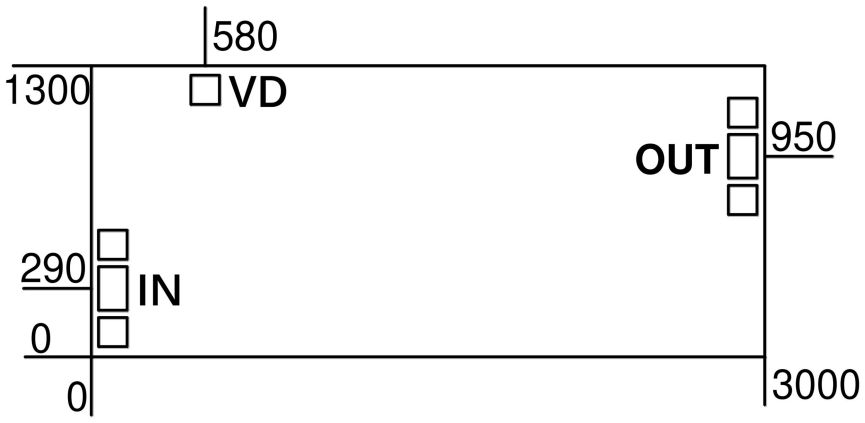
Saturated output power vs. temperature



OIP3 vs. temperature



★6.Outline Dimensions

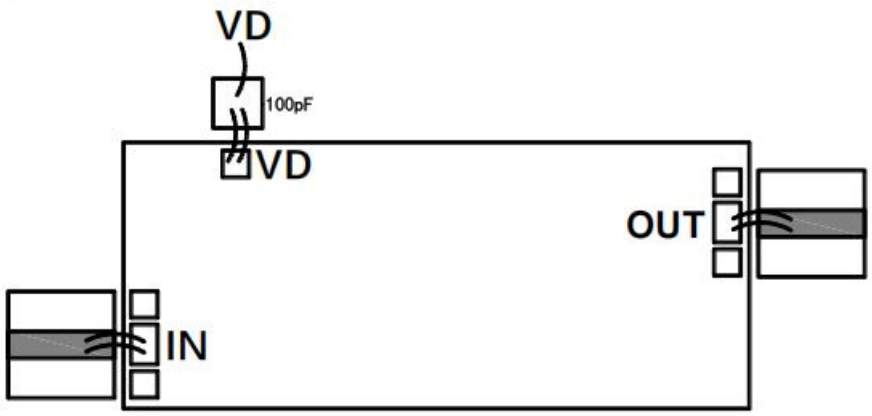


Note: all dimensions are in micrometers (μm); tolerance ±50 μm.

★7.Bonding Pressure Point Definition

Pad	Function
IN	RF input; DC blocking capacitor integrated on chip.
VD	Drain voltage; typical value +5 V.
OUT	RF output; DC blocking capacitor integrated on chip.

★8.Suggested Assembly Drawing



Instructions for use:

1. The chip shall be stored in a dry and clean N2 environment.
2. The chip is an electrostatic sensitive device. ESD protection shall be strictly observed to avoid electrostatic damage to the bare die.
3. Good grounding of the chip shall be ensured during operation.
4. Gold wire bonding with a diameter of 25 μm is recommended.
5. Reverse connection of the power supply is forbidden, otherwise the device may be permanently damaged.