

GaAs MMIC Power Amplifier Chip, 15-45GHz

Performance characteristics

Frequency range: 15-45GHz

Small Signal Gain: 15.5 dB

Gain flatness: ± 1.8 dB

P-1dB: 24 dBm

Psat: 24.5 dBm

OIP3: 24dBm (+10dBm Output)

Power supply: +5 V/ 300 mA

50Ohm input/output

100% on-chip testing

Chip size: 2.4 x 1.79 x 0.1mm

Product Introduction

GPA-1545D is a broadband amplifier chip based on GaAs technology, covering a frequency range of 15~45GHz, a small signal gain of 15.5dB, and a saturated output power of 24.5Bm. The chip is powered by a +5V power supply. The chip through-hole metallization process ensures good grounding, and the back side is metallized, which is suitable for eutectic sintering or conductive adhesive bonding process.

Use restriction parameter ¹

Maximum drain voltage	+7 V
Maximum gate bias	-3V
Maximum input power	+15 dBm
Operating temperature	-55 ~ + 85 °C
Storage temperature	-65 ~ +150°C

【1】 Exceeding any of these maximum limits may cause permanent damage.

Electrical performance parameters (TA = +25°C , Vd = +5V)

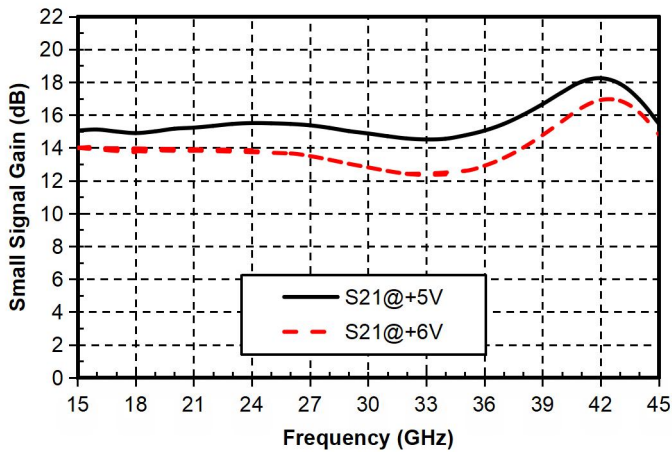
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	15-45			GHz
Small Signal Gain	-	15.5	-	dB
Gain Flatness		± 1.8		dB
P -1 dB	-	twenty four	-	dBm
Psat	-	24.5	-	dBm
Input return loss	-	18	-	dB
Output return loss	-	twenty two	-	dB
Quiescent Current		300		mA

* By tuning the Vg terminal voltage from -2V to 0V , 300 mA is achieved and the Vg terminal voltage is expected to be -0.6 V.

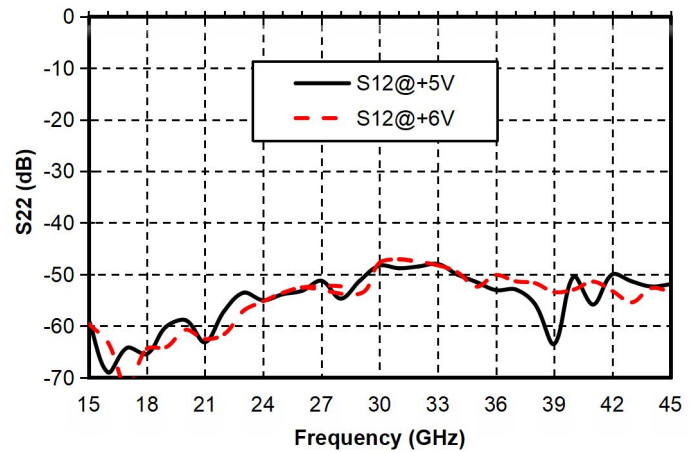
GaAs MMIC power amplifier chip, 15-45GHz

Main index test curve (the following data is based on probe test)

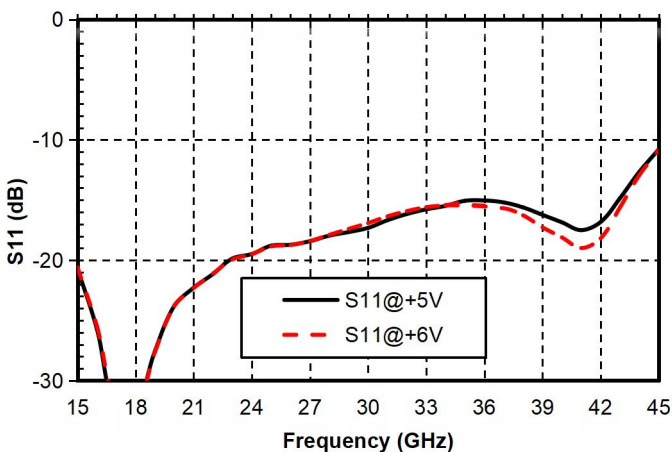
Gain vs. Frequency



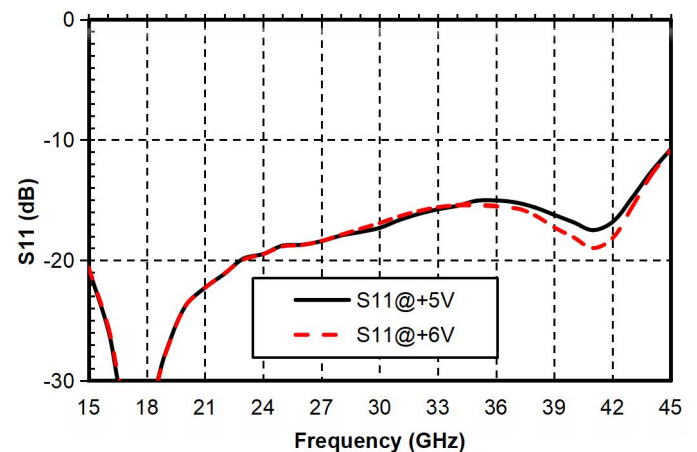
Reverse Isolation vs. Frequency



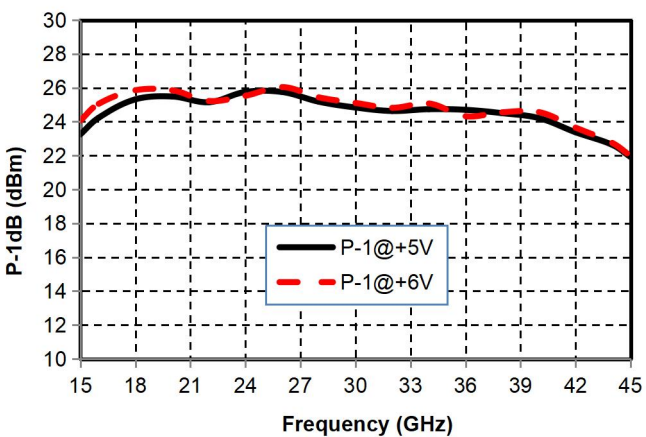
Input Return Loss vs. Frequency



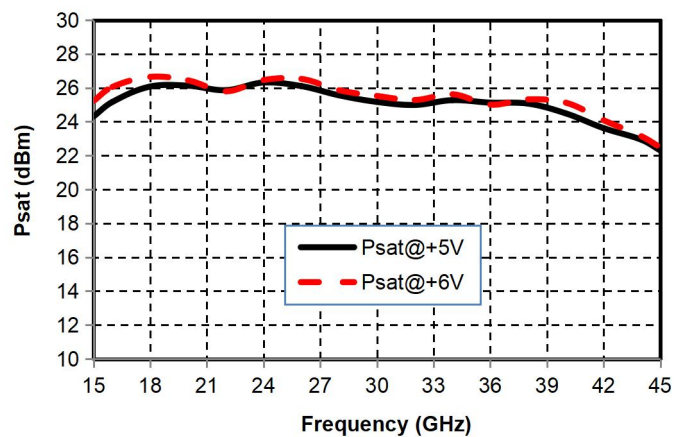
Output Return Loss vs. Frequency



P -1 vs. Frequency

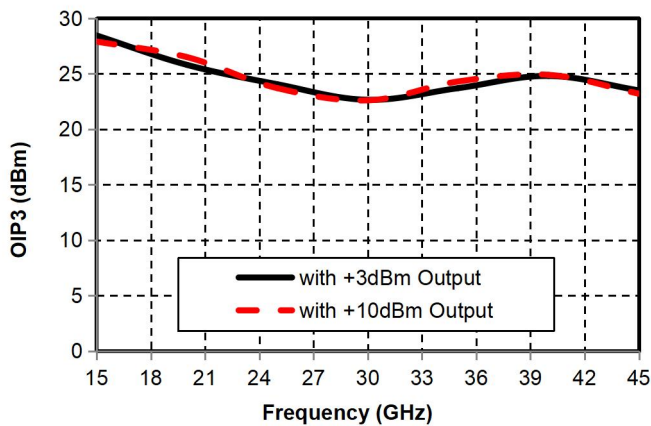


P sat vs. frequency

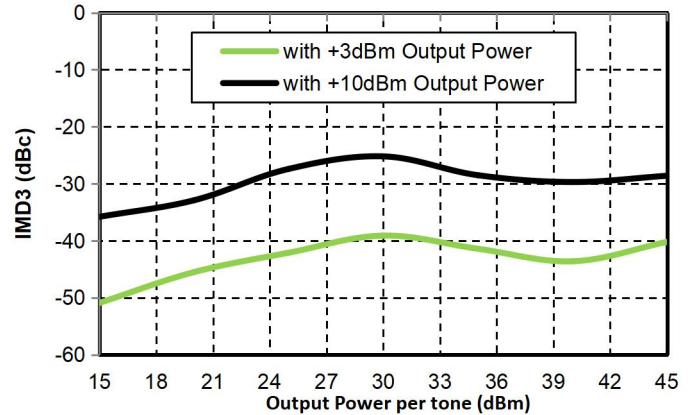


GaAs MMIC Power Amplifier Chip, 15-45GHz

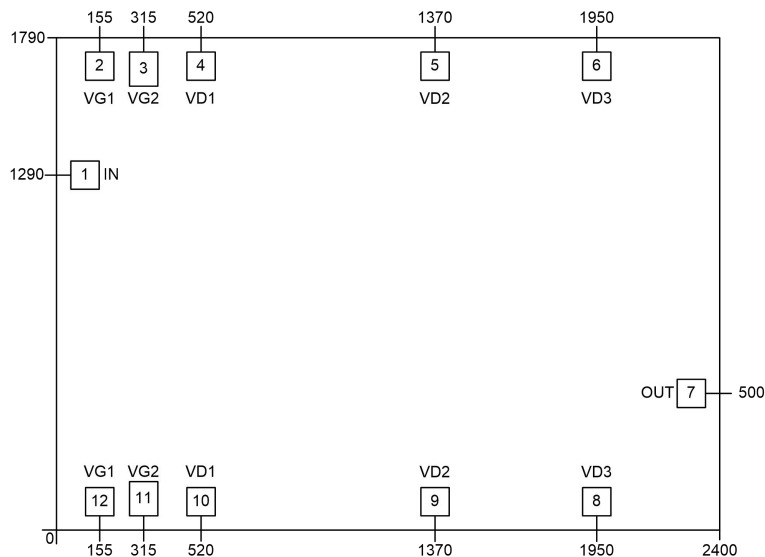
OIP3 vs. Frequency



IMD3 vs. Frequency



Appearance structure ²



【 2 】 All units in the figure are micrometers

Bonding point definition

Bonding point number	Function Symbol	Functional Description
1	RF IN	RF signal input terminal, no DC blocking capacitor required
7	RF OUT	RF signal output terminal, no DC blocking capacitor required
2, 3, 11, 12	VG1, VG2	Amplifier drain bias, external 10 pF, 1000 pF, 4.7 uF bypass capacitors are required
4, 5, 6, 8, 9, 10	VD1~VD3	Amplifier gate bias, external 10 pF, 1000 pF, 4.7 uF bypass capacitors are required
Chip bottom	GND	needs to be in good contact with the RF and DC grounds

GaAs MMIC Power Amplifier Chip, 15-45GHz

Recommended assembly diagram

