GPA-1418C

GaAs MMIC Power Amplifier Chip, 14-18GHz

Performance characteristics

Frequency range: 14-18GHz
Small Signal Gain: 30 dB
Gain flatness: ± 0.2 dB
P-1dB: 26.5dBm
Psat: 27.5 dBm
PAE: 44%
Power supply: +5 V/ 220 mA
50Ohm input/output
100% on-chip testing
Chip size : 2.32 x 1.23 x 0.1mm

Product Introduction

GPA-1418C is a broadband amplifier chip based on GaAs technology, covering a frequency range of 14~18GHz, with a small signal gain of 30dB, a Psat output power of 27.5dBm , and an efficiency of 44% . 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 input power	+20dBm
Operating temperature	-55 ~ + 85 °C
Storage temperature	-65 ~ +150°C

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

Electrical parameters (TA = +25°C , Vd = +5V, I_{ds} = 220 mA)				
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range		14-18		GHz
Small Signal Gain	-	30	-	dB
Gain Flatness		± 0.2		dB
P -1 dB	-	26.5	-	dBm
Psat	-	27.5	-	dBm
PAE		44		%
Input return loss	-	16		dB
Output return loss	-	16		dB
Quiescent Current		220		mA
* By tuning the Vg terminal voltage from -2V to 0V , the recommended Vg terminal voltage is -0.8V .				

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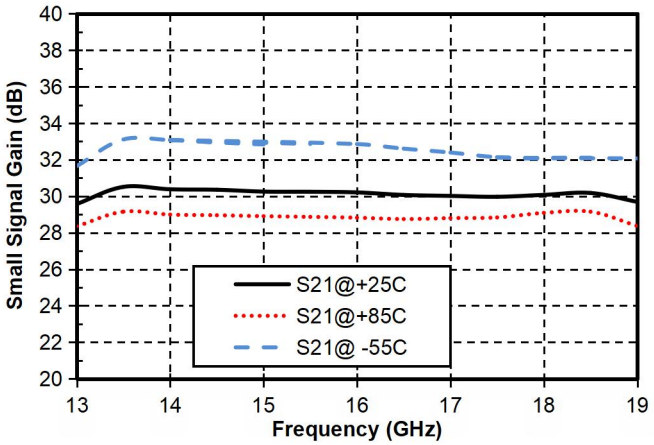
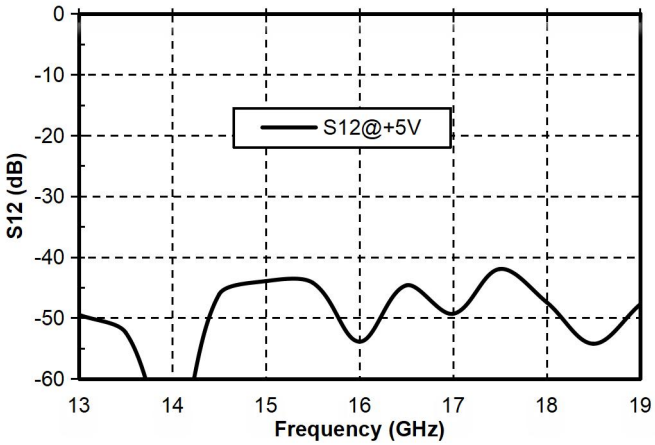
Main index test curve

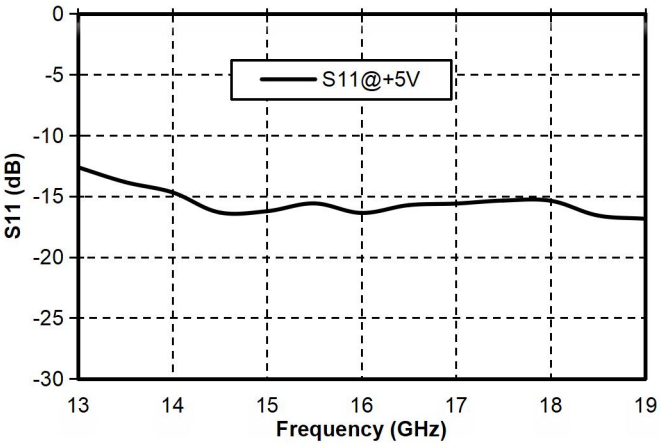
Gain vs. Frequency



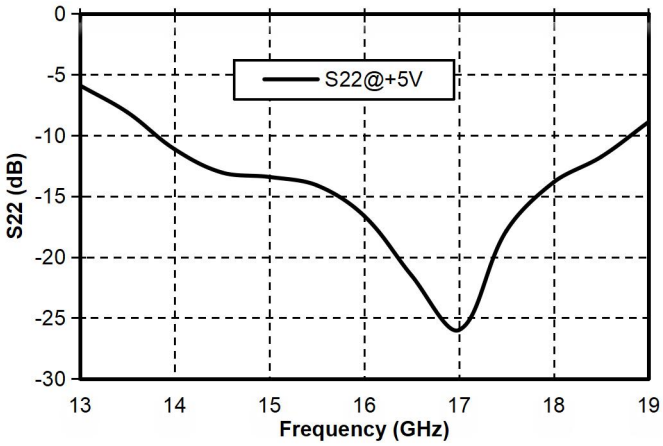
Reverse Isolation vs. Frequency



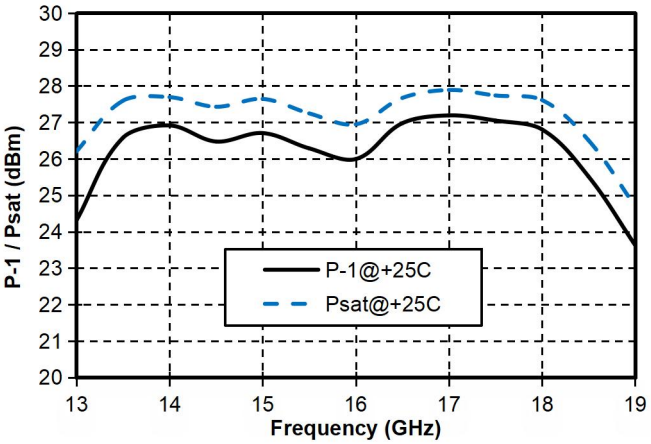
Input Return Loss vs. Frequency



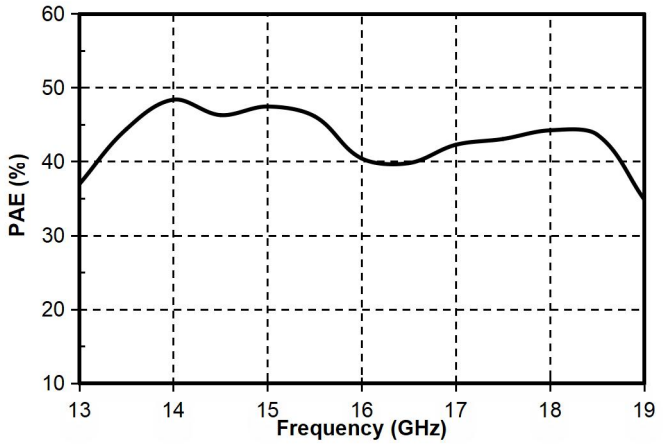
Output Return Loss vs. Frequency



P-1/ Psat vs. Frequency



PAE vs. Frequency



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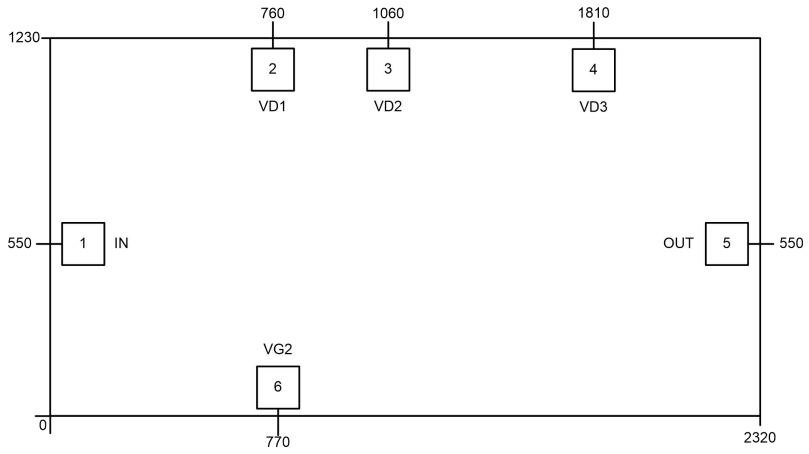
Appearance structure [2]



【 2 】The units in the figure are all micrometers (dimensional tolerance : ± 50um .)

Bonding point definition		
Bonding point number	Function Symbol	Functional Description
1	RF IN	RF signal input terminal, no DC blocking capacitor required
5	RF OUT	RF signal output terminal, no DC blocking capacitor required
2, 3, 4	V D1~VD3	Amplifier drain bias, external 100pF , 1000pF bypass capacitor required
6	VG	Amplifier gate bias, external 100pF , 1000pF bypass capacitor required
Chip bottom	GND	The bottom of the chip needs to be in good contact with the RF and DC grounds

Recommended assembly diagram