Standard Circuit

GPA-0812E

GaAs MMIC Driver Amplifier Chip , 8-12GHz

Performance characteristics

Frequency range: 8-12GHz
Small Signal Gain: 22 dB
Gain flatness: ± 0.6 dB
P-1dB: 33.5 dBm
Psat: 34 dBm
Power supply: +8 V/ 550 mA
50Ohm input/output
100% on-chip testing
Chip size : 2.7 x 2.0 x 0.1mm

Product Introduction

GPA- 0812E is a broadband, high dynamic range, low noise amplifier chip based on GaAs technology, with a frequency range of 8~12GHz, a small signal gain of 22dB, and a P-1 output power of 33.5dBm . The chip is powered by a +8V power supply. The chip supports +5V operation, and the P-1 output power of 5V operation is 30.5dBm. Please ask the manufacturer for 5V operation data. 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	+10 V
Maximum input power	+2 5 dBm
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 = +8V, * Ids = 550 mA)				
index	Minimum	Typical Value	Maximum	unit
Frequency Range		8-12		G Hz
Small Signal Gain	-	twenty two	-	dB
Gain Flatness		± 0.6		dB
P -1 dB	-	33.5	-	dBm
Psat	-	34	-	dBm
Input return loss		20		dB
Output return loss		10		dB
Quiescent Current		550		mA
*By tuning the Vg terminal voltage from -2V to 0V, the recommended Vg terminal voltage is -0.75V .				

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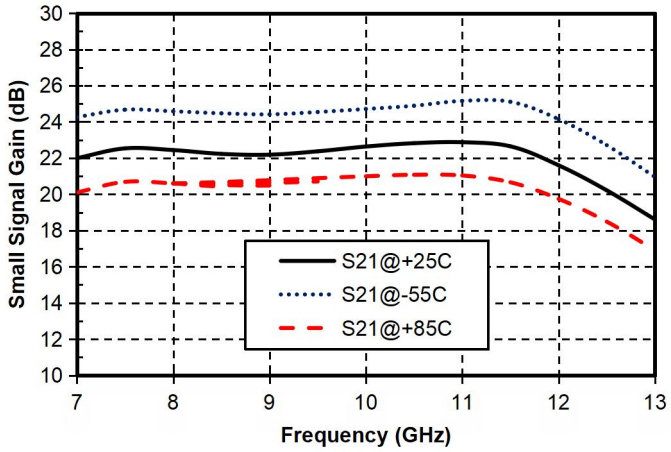
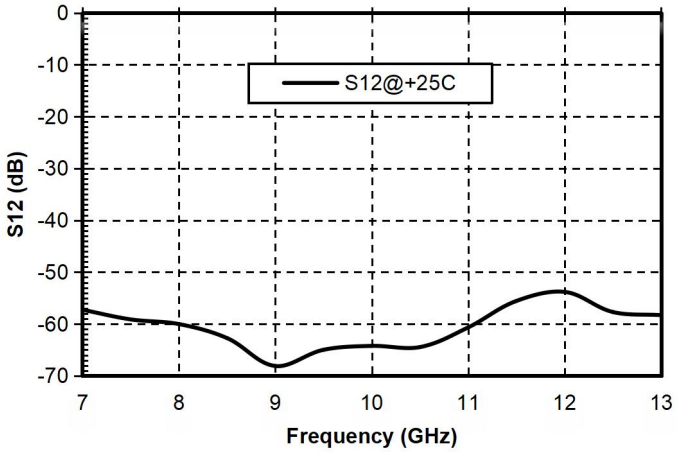
Main index test curve

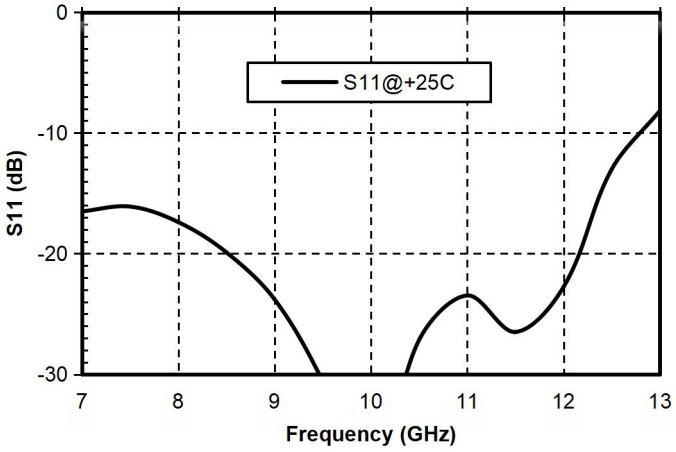
Gain vs. Frequency



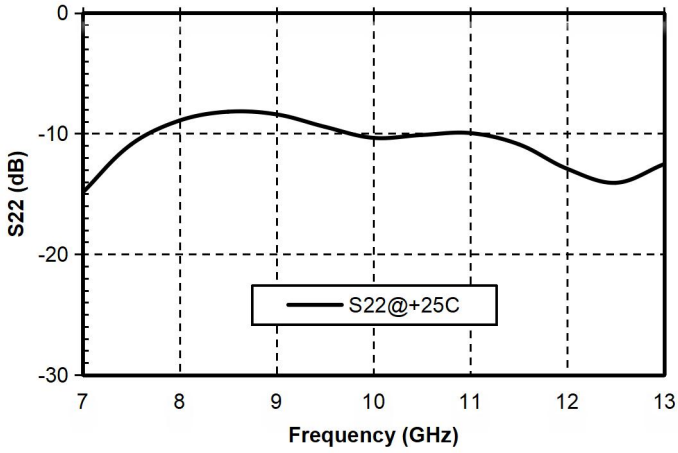
Reverse Isolation vs. Frequency



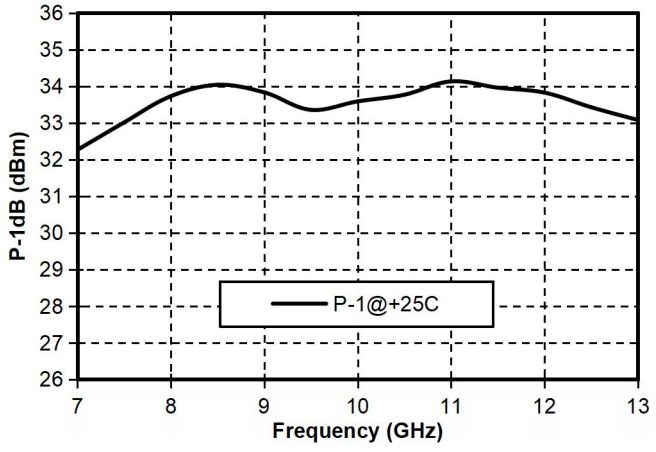
Input Return Loss vs. Frequency



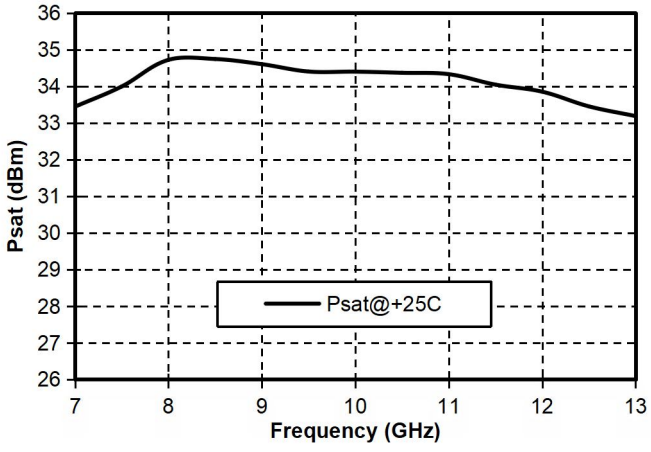
Output Return Loss vs. Frequency



P-1dB vs. Frequency



P sat vs. frequency



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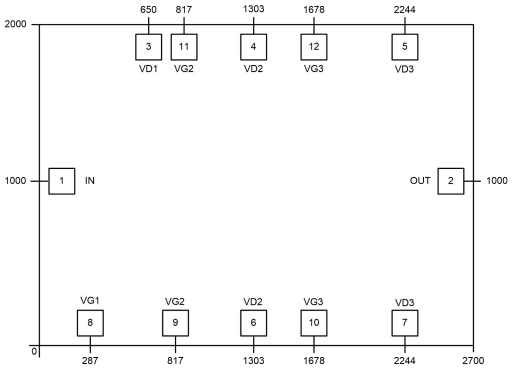
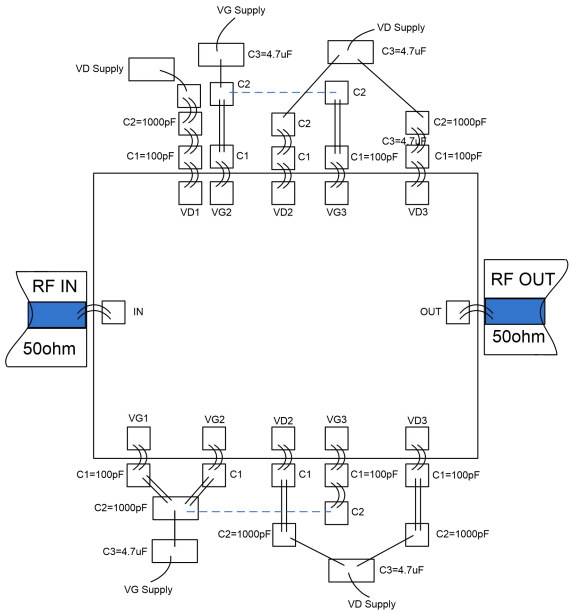
Appearance structure [2]



【 2 】The units in the figure are all micrometers (dimensional tolerance: ±100um.)

Bonding point definition		
Bonding point number	Function Symbol	Functional Description
1	RF IN	RF signal input terminal, no DC blocking capacitor required
2	RF OUT	RF signal output terminal, no DC blocking capacitor required
3, 4, 5, 6, 7	Vd 1, Vd 2	Amplifier drain bias, external 100pF , 1000pF, 4.7uF bypass capacitors are required
8, 9, 10, 11, 12	Vg1, Vg2	Amplifier gate bias, external 100pF , 1000pF, 4.7uF bypass capacitors are required
Chip bottom	GND	needs to be in good contact with the RF and DC grounds

Recommended assembly diagram



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