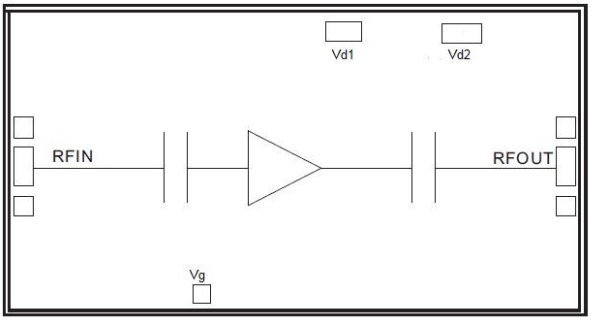
GPA -0206B

GaAs MMIC Power Amplifier Chip, 2-6GHz

Performance characteristics

Frequency range: 2-6GHz
Small Signal Gain: 20 dB
P-1dB: 31.5 dBm
Psat: 32d Bm
Power supply: +8V@365mA
50Ohm input/output
100% on-chip testing
Chip size: 2.53 x 1.84 x 0.1mm

Functional Block Diagram



Product Introduction

GPA -0206B is a broadband high-gain, high-efficiency, high- power amplifier chip based on GaAs technology , covering a frequency range of 2~ 6GHz, with a small signal gain of 20 dB and a Psat output power of 32dBm when operating at +8V . The chip's via metallization process ensures good grounding, and the back side is metallized for eutectic sintering. The chip also supports + 5V operation.

Use restriction parameter [1]	
Maximum drain voltage	+10 V
Maximum gate bias	- 3 V
Maximum input power	+25 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 = +8 V, Vg=-0.65V, Ids= 365 mA)				
index	Minimum	Typical Value	Maximum	unit
Frequency Range		2-6		GHz
Small Signal Gain	-	20	-	dB
Gain Flatness		± 1.1		dB
P-1dB	-	31.5	-	dBm
Psat	-	32	-	dBm
P E		40		%
Input return loss	-	22	-	dB
Output return loss	-	8.5	-	dB
* By tuning the Vg terminal voltage -2V~0V , the recommended gate voltage is -0.65V.				

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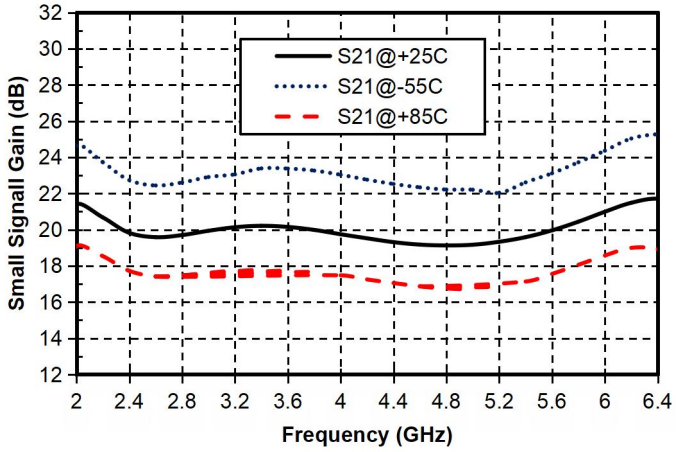
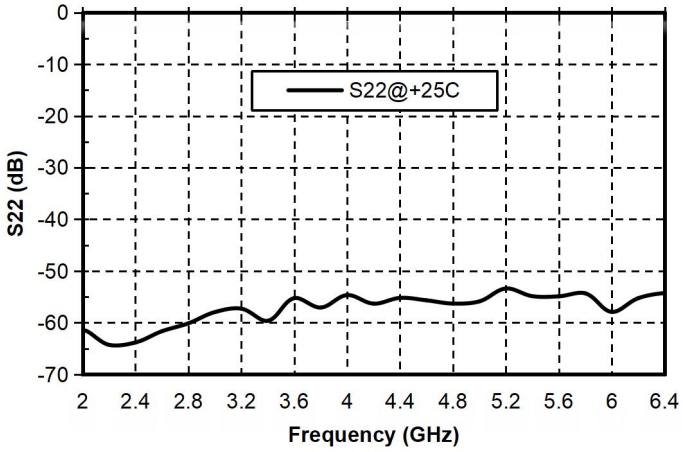
Main index test curve (Vd = +8V)

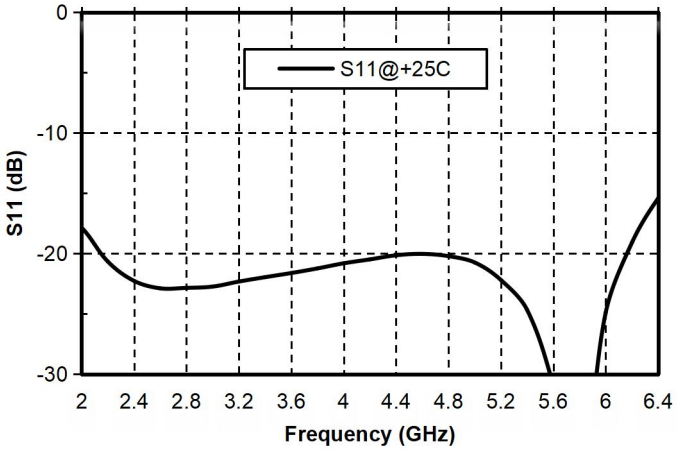
Gain vs. Frequency



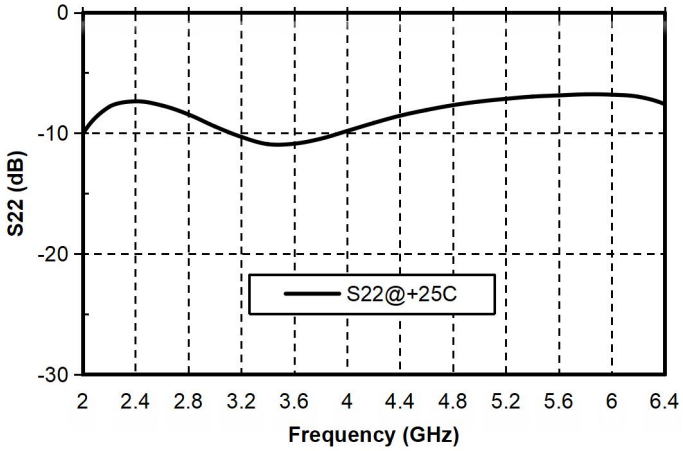
Reverse Isolation vs. Frequency



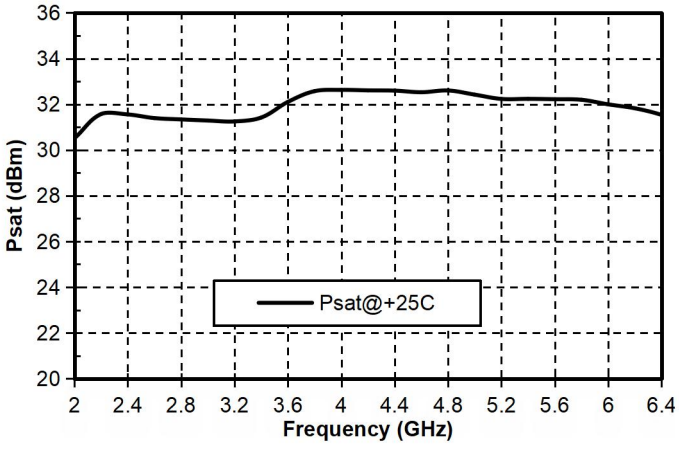
Input Return Loss vs. Frequency



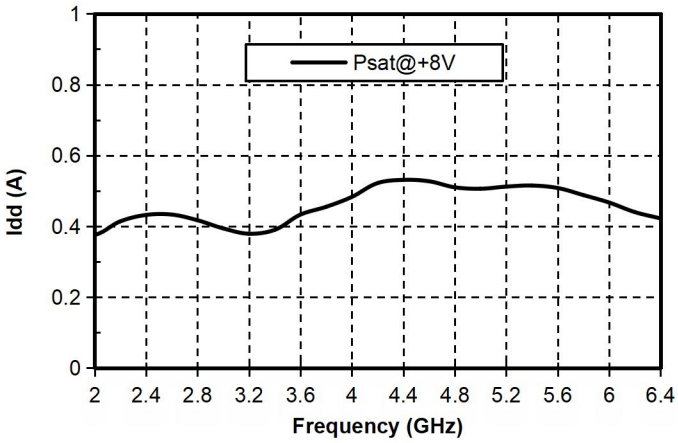
Output Return Loss vs. Frequency



P- 1 vs. Frequency



P sat vs. frequency



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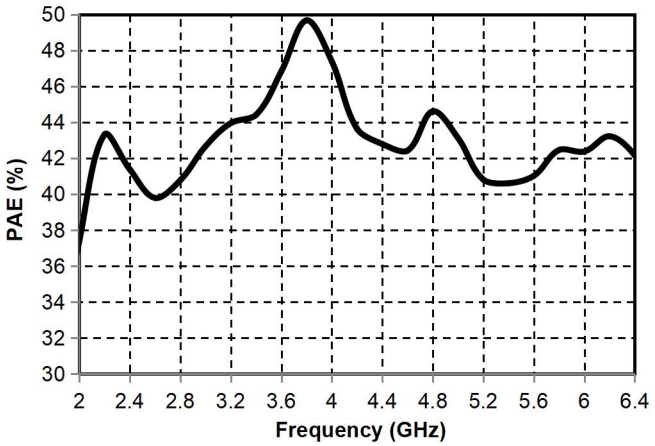
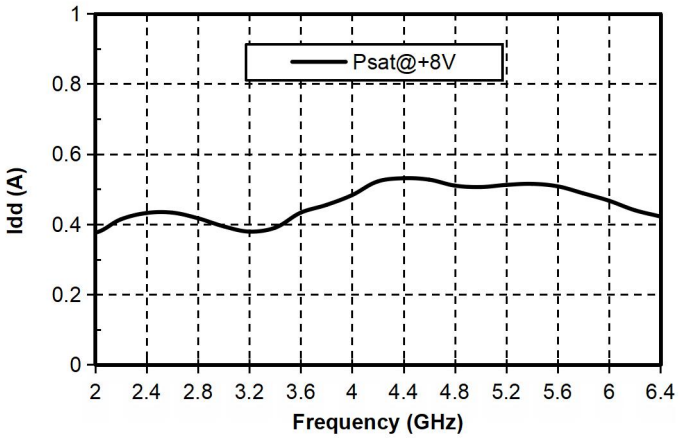
Main index test curve (Vd = +8V)

Efficiency vs. Frequency



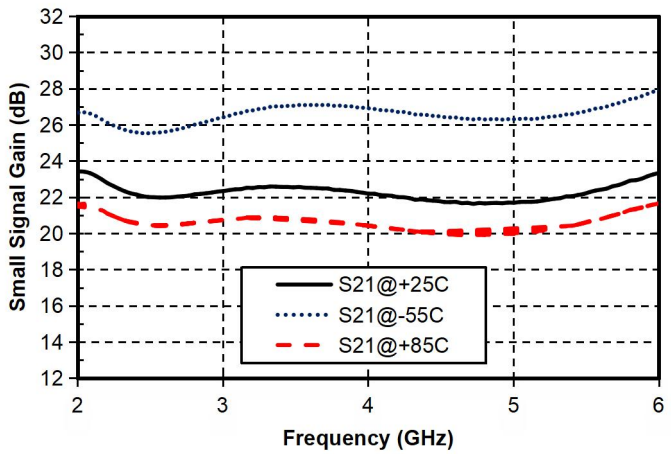
Dynamic Current vs. Frequency



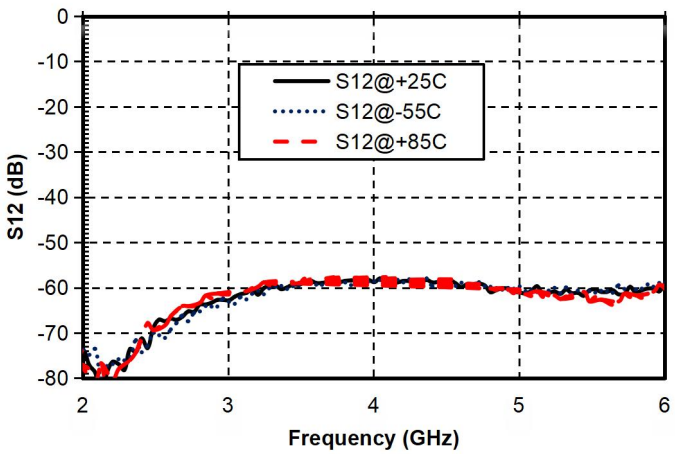
Electrical parameters (Ta=+25°C, Vd = +5 V, Vg=-0.55V, Ids= 365 mA)				
index	Minimum	Typical Value	Maximum	unit
Frequency Range		2-6		GHz
Small Signal Gain	-	twenty two	-	dB
Gain Flatness		± 0.9		dB
P-1dB	-	27.5	-	dBm
Psat	-	28.5	-	dBm
P E		44		%
Input return loss	-	16	-	dB
Output return loss	-	11	-	dB
* By tuning the Vg terminal voltage -2V~0V , the recommended gate voltage is -0.55V.				

Main index test curve (Vd = +5V)

Gain vs. Frequency



Reverse Isolation vs. Frequency



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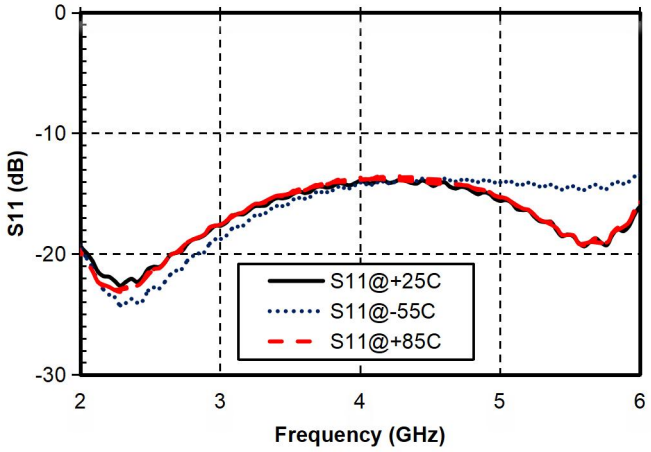
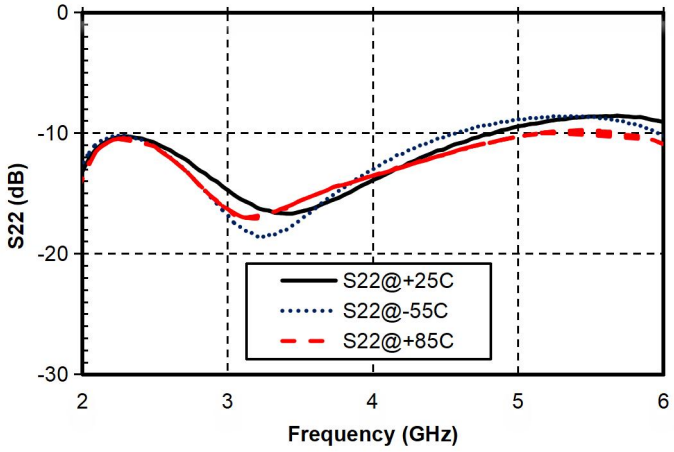
Main index test curve (Vd = +5V)

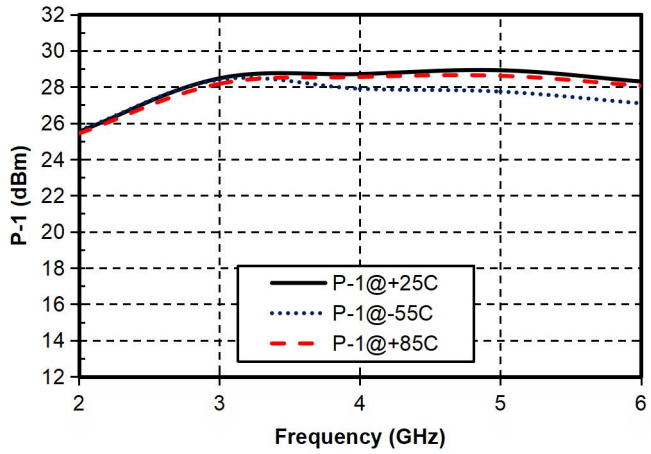
Input Return Loss vs. Frequency



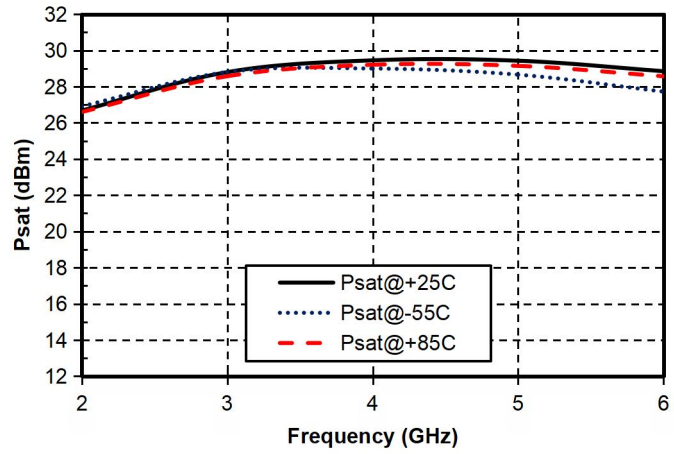
Output Return Loss vs. Frequency



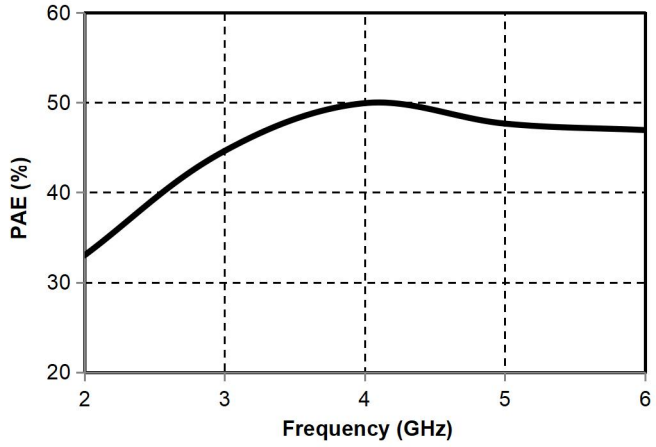
P- 1 vs. Frequency



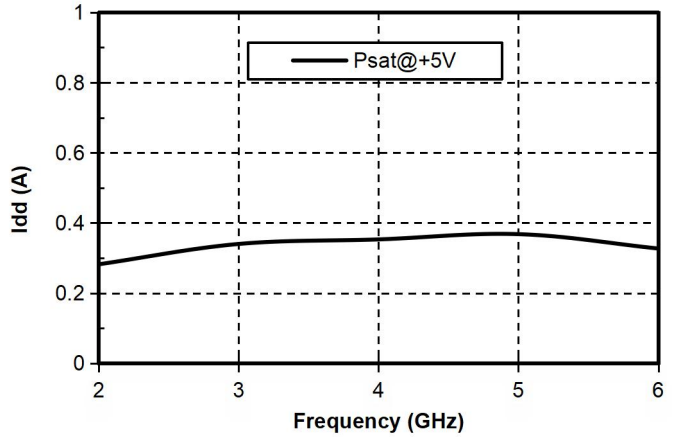
P sat vs. frequency



Efficiency vs. Frequency



Dynamic Current vs. Frequency



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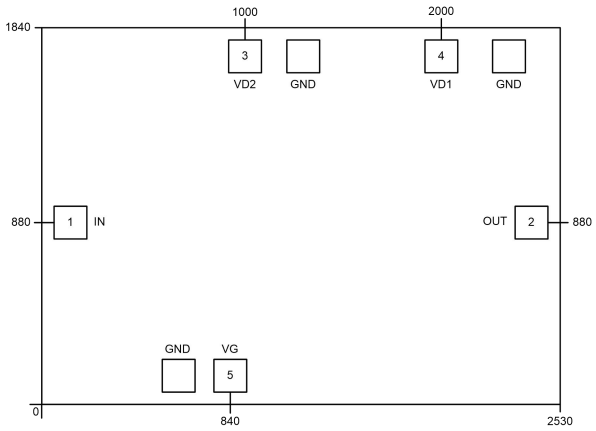
Appearance structure [2]



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

Bonding point definition		
Bonding point number	Function Symbol	Functional Description
1	RF IN	The signal input terminal is connected to a 50 ohm circuit, and no DC blocking capacitor is required
2	RF OUT	The signal output terminal is connected to a 50 ohm circuit, and no DC blocking capacitor is required
3.4	V D1~2	Amplifier drain bias, external 1000 pF , 4.7uF bypass capacitors are required
5	VG	Amplifier gate bias, requires external 100 0 pF bypass capacitor
Chip bottom	GND	needs to be in good contact with the RF and DC grounds

Recommended assembly diagram