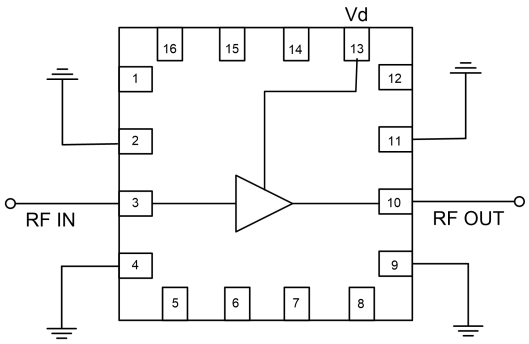
GPA-0618-22-PQ3

GaAs MMIC Driver Amplifier Chip, 6 - 18 GHz

Performance characteristics

- Frequency range: 6 - 18 GHz
- Small signal gain: 17dB
- Gain flatness: ±0.75dB
- Noise figure: 5.5dB
- P -1 dB: 20.5 dBm
- Psat : 21dBm
- OIP3: 30dBm
- Power supply : + 5V/ 140mA
- 50Ohm input / output
- Chip size: QFN 3X3 mm

Functional Block Diagram



Product Introduction

GPA-0618-22-PQ3 is a GaAs monolithic driver amplifier operating at 6 - 18 GHz . The frequency range covers 6GHz~18GHz, with a small signal gain of 17dB, a P-1 output of 20.5dBm, and a noise of 5.5dB. GPA-0618-22-PQ3 is powered by a single +5V power supply. The amplifier is packaged in QFN3X3 plastic surface mount QFN package, and the surface of the pin pad is gold-plated, which is suitable for reflow soldering installation process.

Use restriction parameter [1]	
Maximum drain voltage	+7V
Maximum input power	+20dBm
Operating temperature	-55 ~ + 125 °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		6-18		G Hz
Small Signal Gain @ 1GHz	-	17	-	dB
Gain Flatness	-	±0.75	-	dB
Noise Figure	-	5.5	-	dB
Input return loss	-	14	-	dB
Output return loss	-	12	-	dB
Reverse Isolation	-	46	-	dB
P -1 dB	-	20.5	-	dBm
Psat	-	21	-	dBm

Add: 101 cecil street #14-10, tong eng building singapore 069533
Email: info@standardcircuit.com
Web: www.standardcircuit.com
Tel: +65 82613258

OIP3		30		dBm
Quiescent Current	-	140	-	mA

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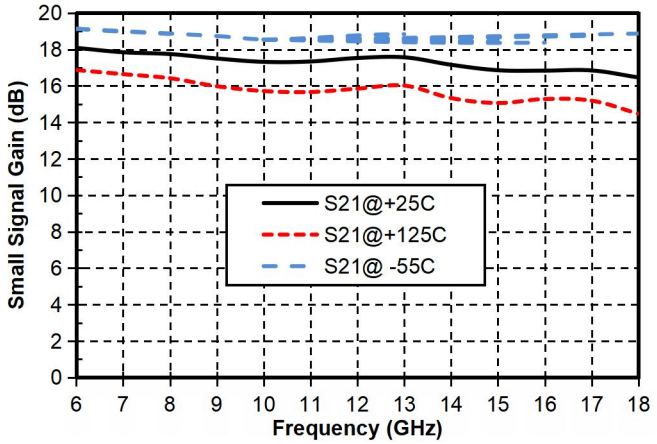
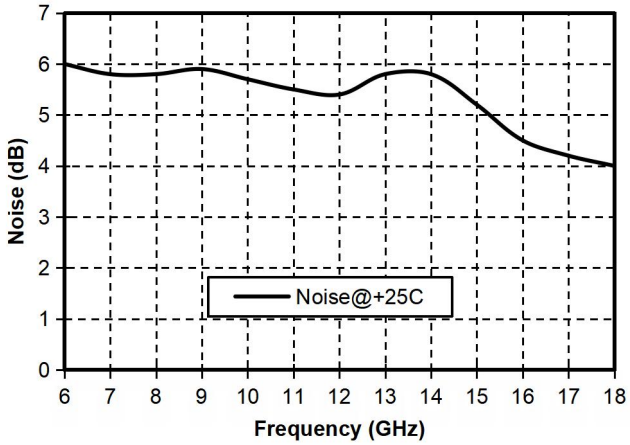
Main index test curve

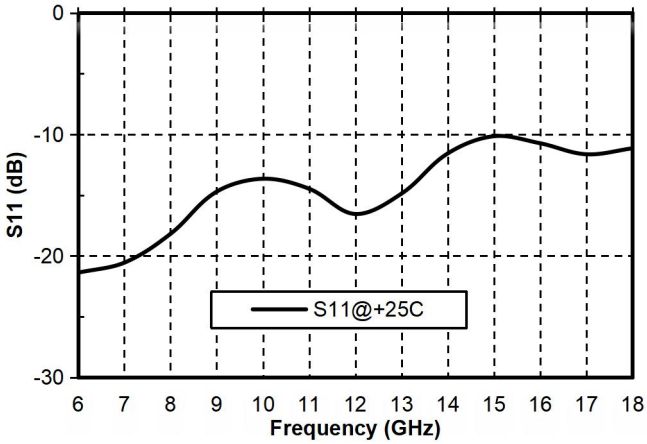
Gain vs. Frequency



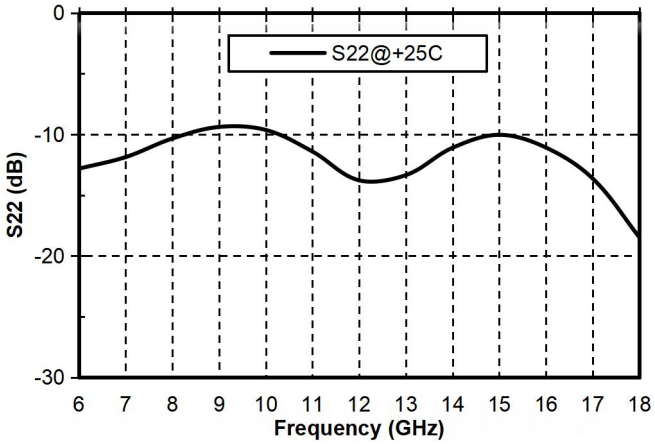
Noise Figure vs. Frequency



Input Return Loss vs. Frequency

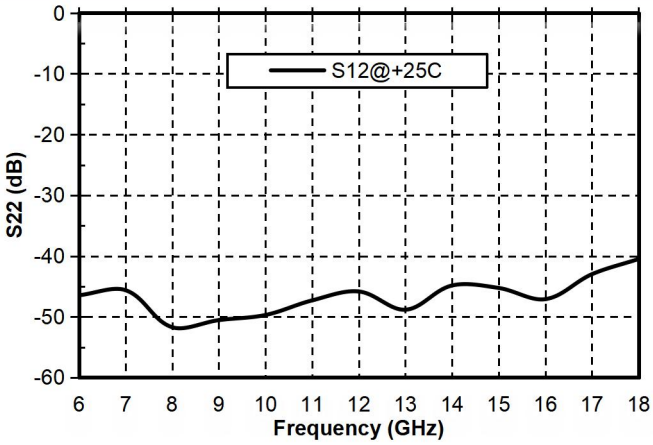


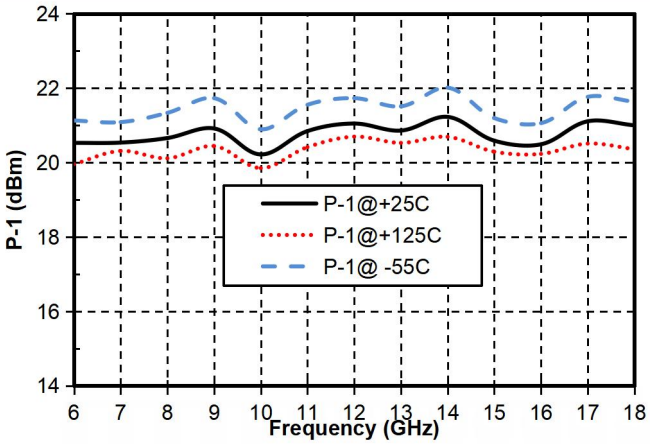
Output Return Loss vs. Frequency



Reverse Isolation vs. Frequency

P-1dB vs. Frequency





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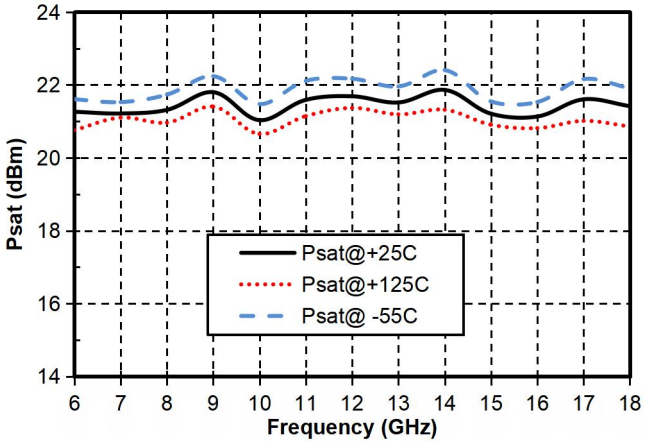
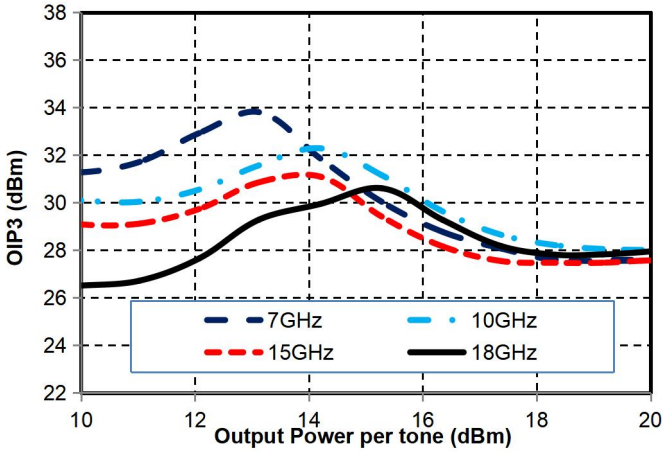
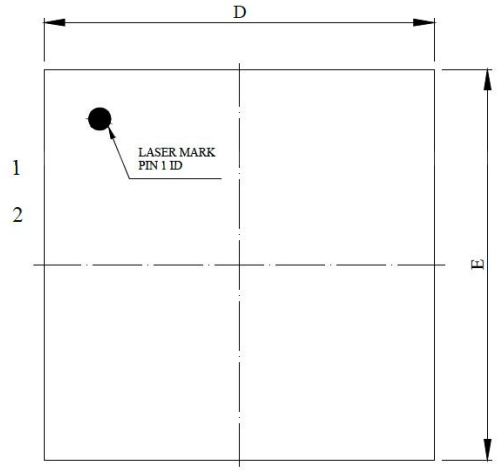
P sat vs. frequency



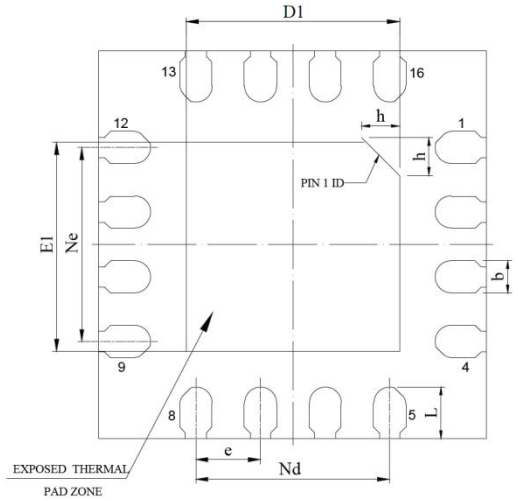
OIP3 vs. Frequency



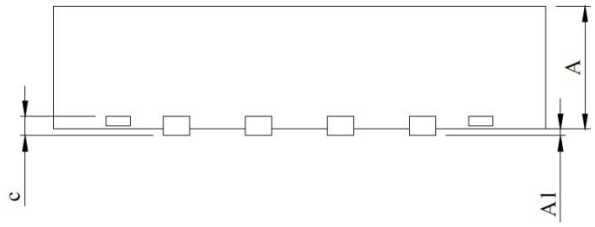
Appearance structure



Top view



Bottom view



Side View

All units in the figures are millimeters .

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Structure size

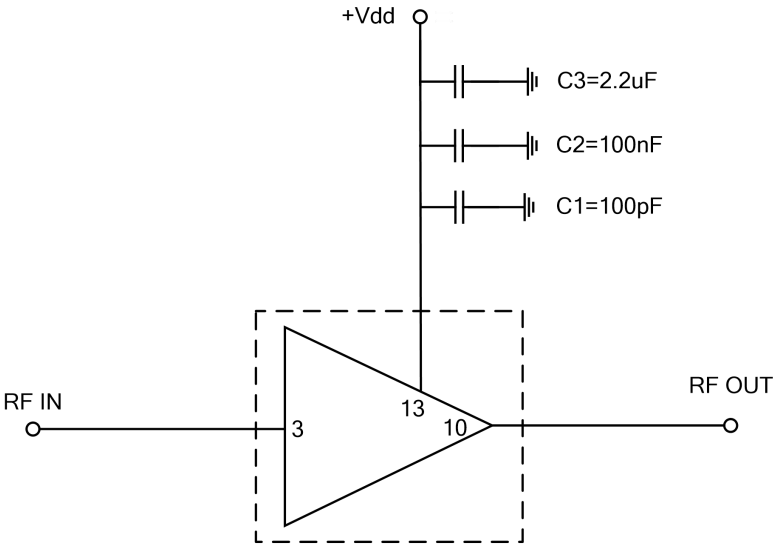
Annotation	Minimum	Standard	Maximum	Annotation	Minimum	Standard	Maximum
A	0.70	0.75	0.80	Ne	1.50BSC		
A1	-	0.02	0.05	Nd	1.50BSC		
b	0.20	0.25	0.30	E	2.9	3.0	3.1
c	0.203REF			E1	1.6	1.7	1.8
D	2.90	3.00	3.10	L	0.35	0.40	0.45
D1	1.6	1.7	1.8	h	0.25	0.30	0.35
e	0.50BSC						

All units in the figures are millimeters .

Pin Definition

Bonding point number	Function Symbol	Functional Description
3	RF IN	RF signal input terminal, no external DC blocking capacitor required
10	RFOUT	RF signal output terminal, no external DC blocking capacitor required
2, 4, 9, 11	GND	Grounding
13	VDD	Amplifier Drain Bias
Back lot	GND	The bottom of the chip needs to be well grounded to RF and DC
1, 5-8, 12, 14-16	NC	The pin is left floating and can be grounded

Recommended bias circuit


+Vdd
C3=2.2uF
C2=100nF
C1=100pF
RF IN
3
13
10
RF OUT