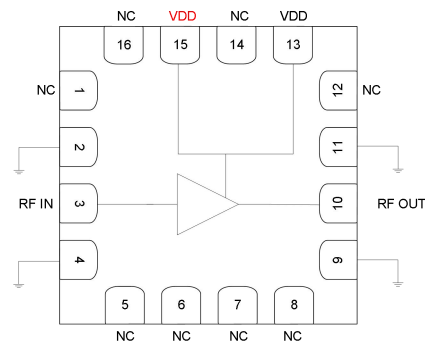


GaAs MMIC Power Amplifier Chip, 4-20 GHz

Performance characteristics

- Frequency Range: 4 - 20 GHz
- Small signal gain: 24.5dB
- Gain Flatness: ± 1.0 dB
- Noise figure: 4.5dB
- P -1 dB : 20.5dBm
- Psat : 21dBm
- Power supply: +5 V /150mA
- 50Ohm input / output
- Chip size: QFN 3X3

Block Diagram



Product Introduction

GPA-0420F-PQ3 is a broadband amplifier chip with a frequency range of 4GHz~20GHz, a small signal gain of 24.5dB, and a P-1 output of 20.5dBm. GPA-0420F-PQ3 is powered by a single +5V power supply. The chip supports +3.5V, +4V, and +6V operation. The chip is packaged in a 3 x 3 mm plastic surface mount package, and the surface of the pin pad is tinned, which is suitable for reflow soldering installation.

Using the Limit Parameter

Maximum drain voltage	+7V
Maximum input power	+20dBm
Operating temperature	-55 ~ +85°C
Storage temperature	-65 ~ +150°C

Exceeding any of these maximum limits may cause permanent damage.

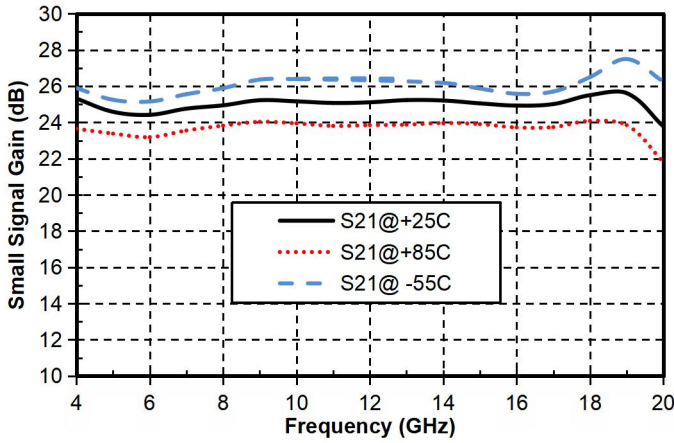
Electrical performance parameters (TA = +25°C , Vd = +5V)

Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	4-20			G Hz
Small Signal Gain	-	24.5	-	dB
Gain Flatness	-	± 1.0	-	dB
P -1dB	-	20.5	-	dBm
Psat	-	21.0	-	dBm
Input return loss	-	12	-	dB
Output return loss	-	14	-	dB
Quiescent Current		150		mA

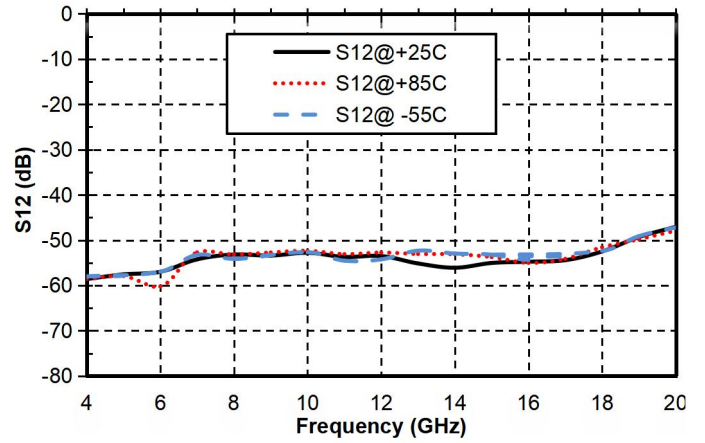
GaAs MMIC Power Amplifier Chip, 4 - 20 GHz

Main index test curve

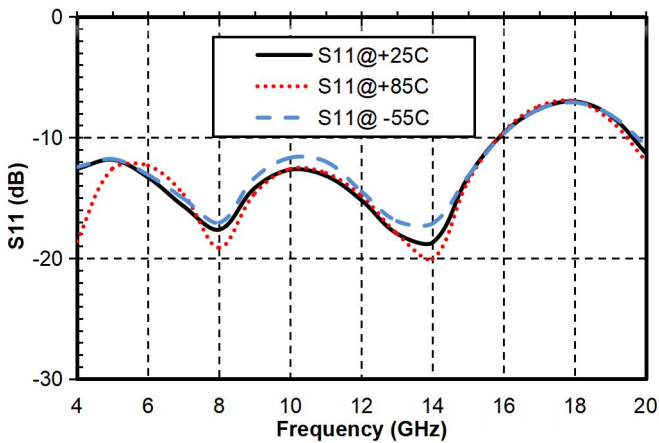
Gain vs. Frequency



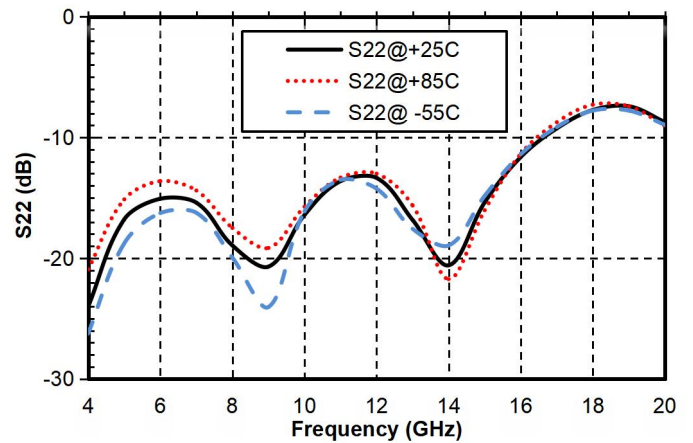
Reverse Isolation vs. Frequency



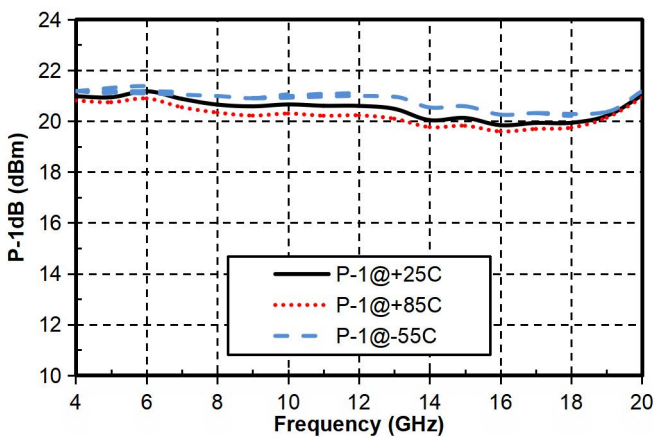
Input Return Loss vs. Frequency



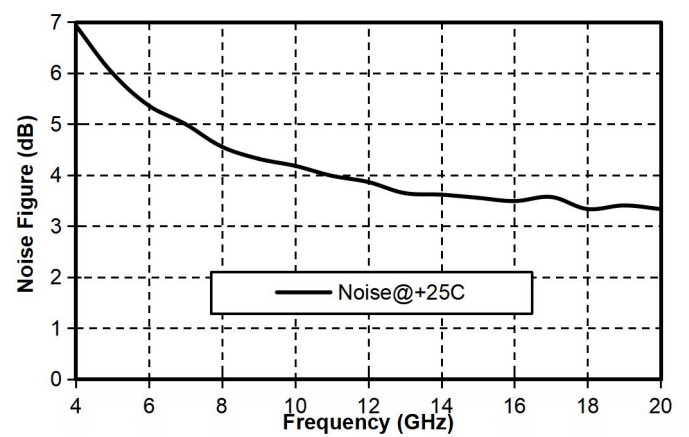
Output Return Loss vs. Frequency



P-1dB vs. Frequency

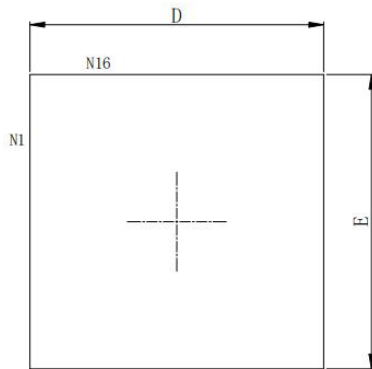


Noise vs. Frequency

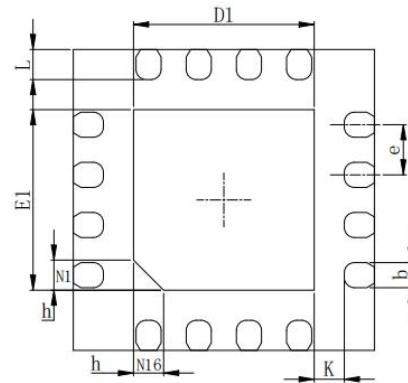


GaAs MMIC Power Amplifier Chip, 4 - 20 GHz

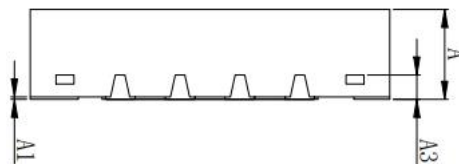
Appearance structure



Top view



Bottom view



Side View

SYMBOL	MIN	NOM	MAX
A	0.700	0.750	0.800
A1	0.000	0.020	0.050
A3	0.203 REF		
b	0.200	0.250	0.300
D	2.900	3.000	3.100
E	2.900	3.000	3.100
e	0.500 BSC		
D1	1.700	1.800	1.900
E1	1.700	1.800	1.900
L	0.200	0.300	0.400
k	0.300 REF		
h	0.300 REF		

Pin Definition

Pin Definition	Function Symbol	Functional Description
3	RF IN	RF signal input terminal, no external DC blocking capacitor required
10	RFO UT	RF signal output terminal, no external DC blocking

		capacitor required
13, 15	Vdd	Amplifier drain bias, external 100pF, 1000pF bypass capacitor required
2, 4, 9, 11	GND	The bottom of the chip needs to be well grounded to RF and DC
Other	NC	No welding required

GaAs MMIC Power Amplifier Chip, 4 - 20 GHz

Recommended Circuit

