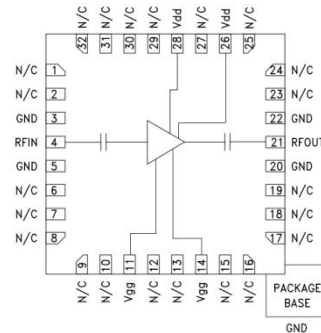


## GaAs MMIC Power Amplifier Chip, 6 - 18 GHz

### Performance characteristics

Frequency range: 6 - 18 GHz  
 Small signal gain: 21dB  
 Gain flatness:  $\pm 1.5$ dB  
 P-1dB: 24 dBm  
 Psat : 25 dBm  
 Power supply: +5 V/ 22 0mA  
 50Ohm input / output  
 Chip size: QFN 5X5

### Block Diagram



### Product Introduction

GPA-0 618D-CQ5 is an ultra-wideband distributed amplifier chip based on pHEMT technology, with a frequency range of 6 ~ 18 GHz, a small signal gain of 21 dB, and a saturated output power of 2.5 dBm. The chip operates with a +5V voltage. The chip uses a 5 x 5 mm ceramic surface mount package to achieve airtight packaging. The surface of the pin pad is gold-plated and is suitable for reflow soldering installation.

Use restriction parameter <sup>1</sup>	
Maximum drain voltage	+ 8V
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.

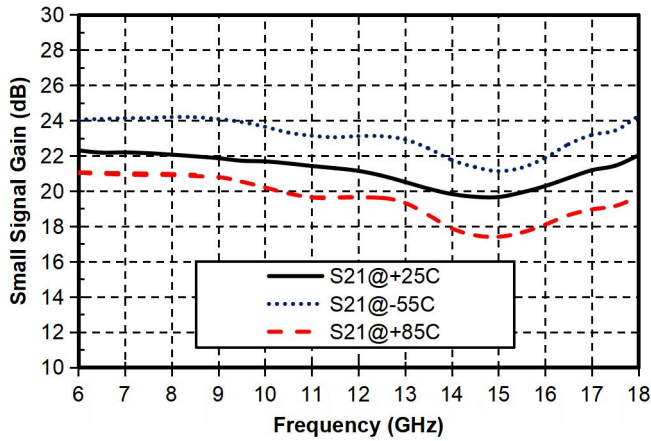
Electrical parameters (Ta=+25°C, Vd = +5V)				
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range		6 - 18		GHz
Small Signal Gain	-	21	-	dB
Gain Flatness	-	$\pm 1.5$	-	dB
P-1dB	-	24	-	dBm
Psat	-	25	-	dBm
Input return loss	-	12	-	dB
Output return loss	-	14	-	dB
Quiescent Current	-	220	-	mA

\* By tuning the Vg terminal voltage from -2V to 0V , the recommended gate voltage is -0.8V .

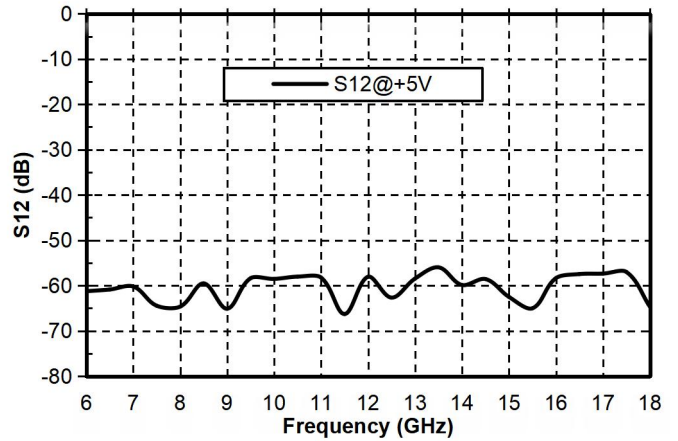
## GaAs MMIC Power Amplifier Chip, 6-18 GHz

Main index test curve

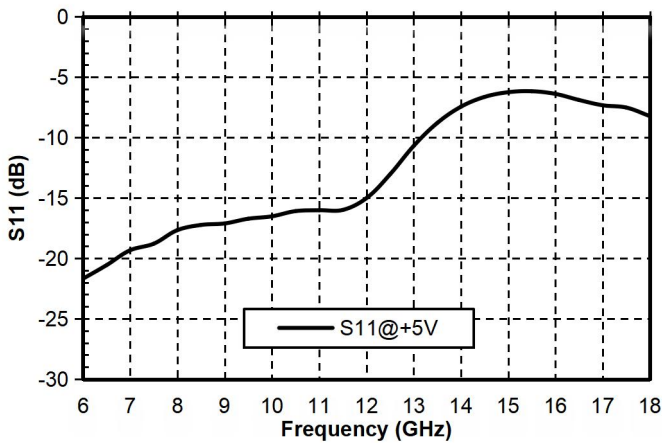
Gain vs. Frequency



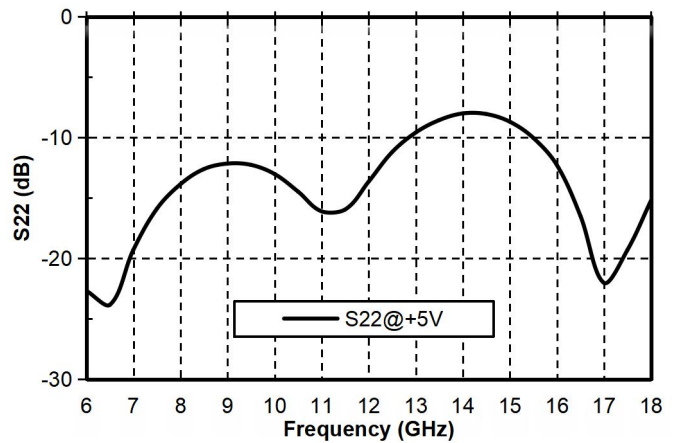
Reverse Isolation vs. Frequency



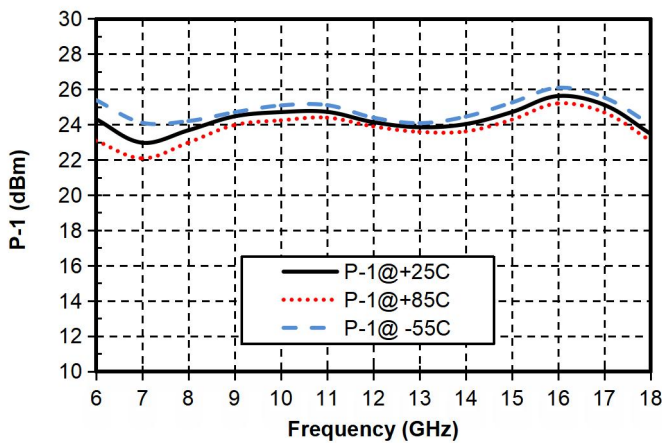
Input Return Loss vs. Frequency



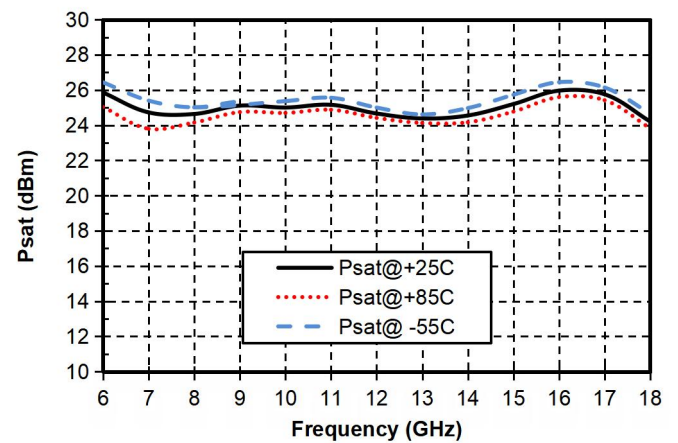
Output Return Loss vs. Frequency



P-1dB vs. Frequency

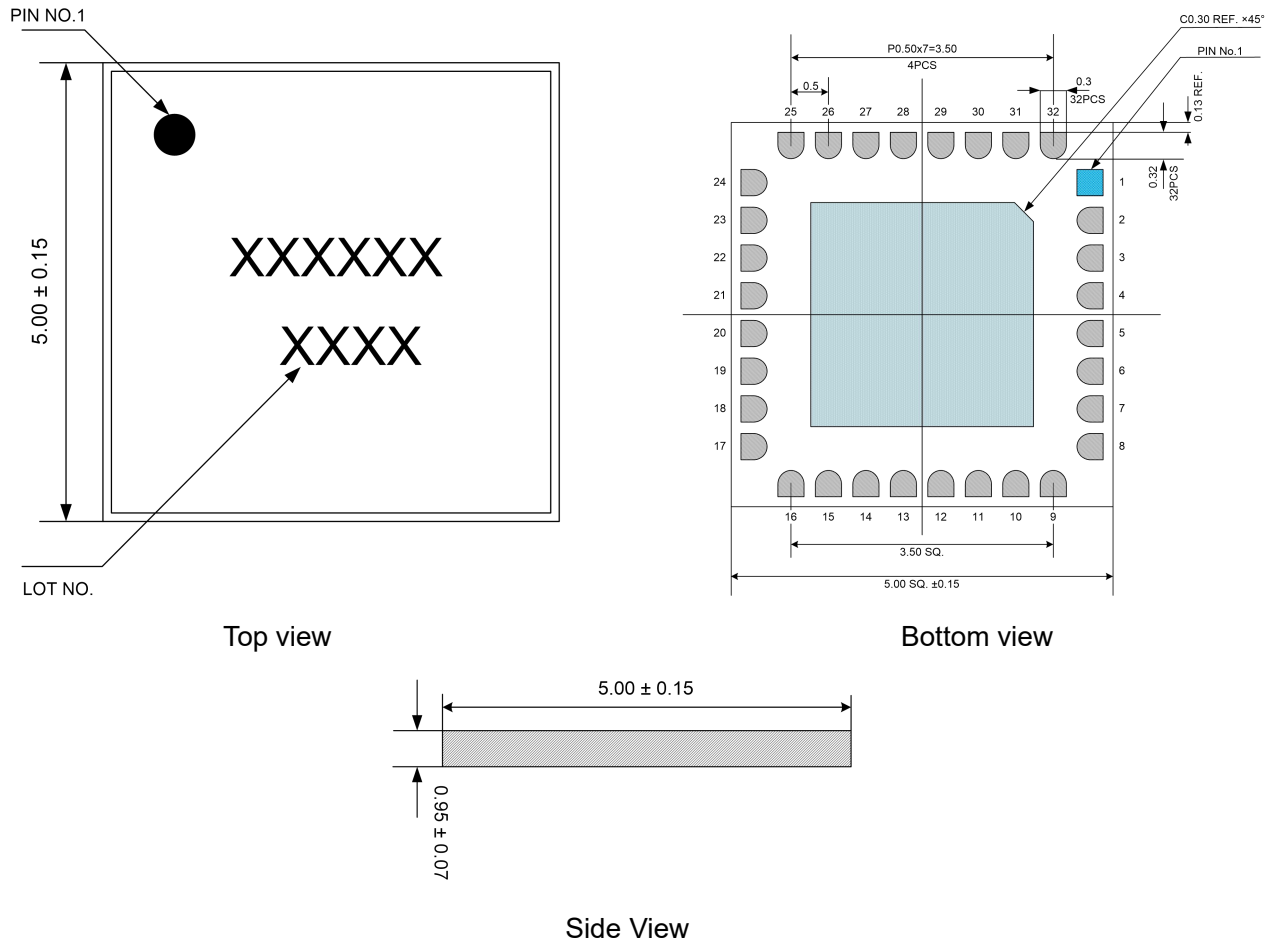


Psat vs. Frequency



## GaAs MMIC Power Amplifier Chip, 6 - 18 GHz

### Appearance structure

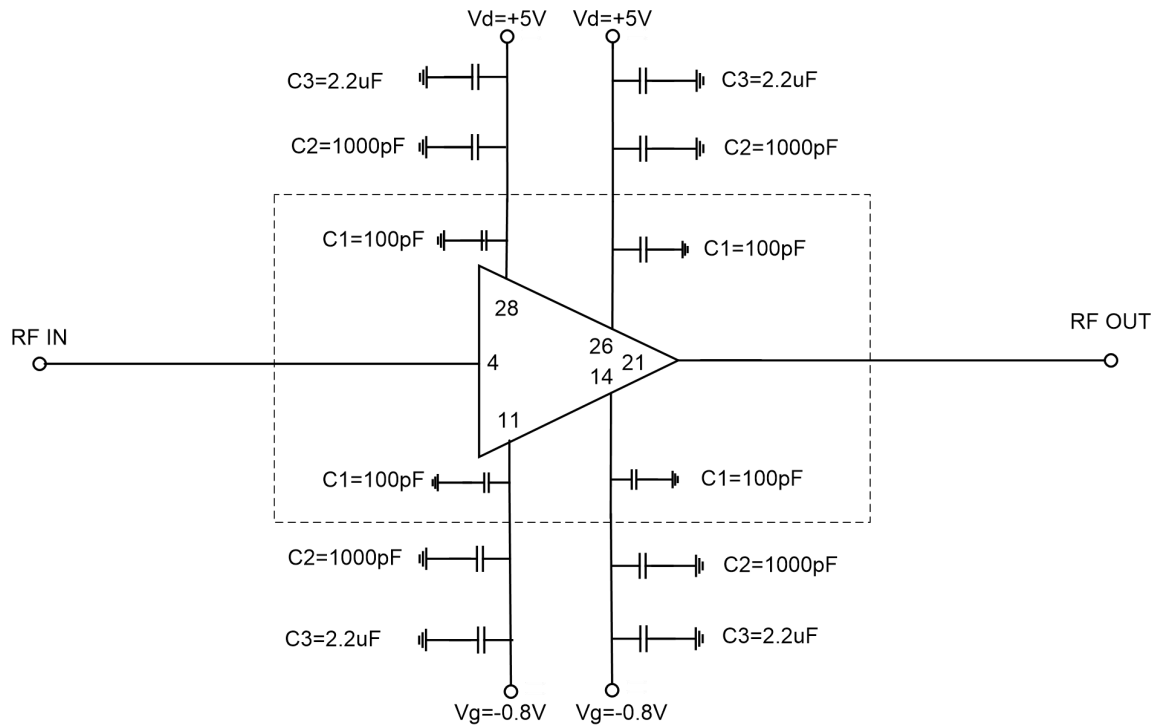


The units in the figures are all in millimeters , and the tolerance is  $\pm 0.15$  mm.

Pin Definition		
Pin Definition	Function Symbol	Functional Description
4	RFIN	RF signal input terminal, no DC blocking capacitor required
21	RFOUT	RF signal output terminal, no DC blocking capacitor required
26 , 2 8	VDD	Amplifier drain bias
1 1 , 1 4	V G G	Amplifier Gate Bias
3 , 5 , 20 , 2 2	GND	The pins need to be well grounded to the RF and DC grounds
Chip bottom	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, 6 - 18 GHz

### Recommended Circuit



### Precautions for use

- Sealing material : Ceramic material that meets ROHS standards
- Lead frame material: copper alloy
- Lead surface plating: gold, gold layer thickness 0.3um
- Maximum reflow peak temperature: 260 °C