

GaAs MMIC Low Noise Amplifier Chip, 4-9 GHz

Performance Characteristics:

- Frequency range: 4-9 GHz
- Small signal gain: 24dB
- Gain flatness: ± 0.1 dB
- Noise factor: 1.1dB
- P-1dB: 18.5dBm
- Power supply: 5V/85mA
- 50Ohm Input/Output
- 100% on-chip testing
- Chip size: QFN 3X3

Product Description:

The CWA119SP3 is a wideband low noise amplifier with a frequency range of 4GHz~9GHz, a small signal gain of 24dB, and an in-band noise figure of 1.1dB. The CWA119SP3 is powered by a single +5V supply. CWA119SP3 is supplied from a single +5V power supply. It is available in a 3x3mm molded surface mount package with gold-plated pin pads for reflow soldering.

Use of limiting parametric ¹	
Maximum Leakage Voltage	+8V
input power	+20dBm
operating temperature	-55 ~ +85°C
Storage temperature	-65 ~ +150°C

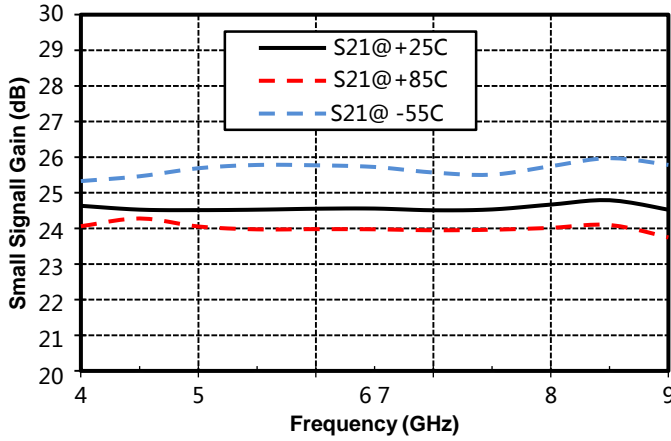
[1] Exceeding any of the above maximum limits may result in permanent damage.

Electrical performance parameters ($T_A = +25^\circ\text{C}$, $V_d = +5\text{V}$)				
norm	minimum value	typical value	maximum values	unit (of measure)
frequency range	4-9			GHz
Small Signal Gain	-	24	-	dB
Gain Flatness	-	± 0.1	-	
Input Return Loss	-	14	-	dB
Output Return Loss	-	22	-	dB
Reverse Isolation	-	33	-	dB
P-1dB	-	18	-	dBm
Psat	-	19	-	dBm
coefficient of noise	-	1.1	-	dB
quiescent current		85		mA
*The noise figure test instrument is N5245B.				

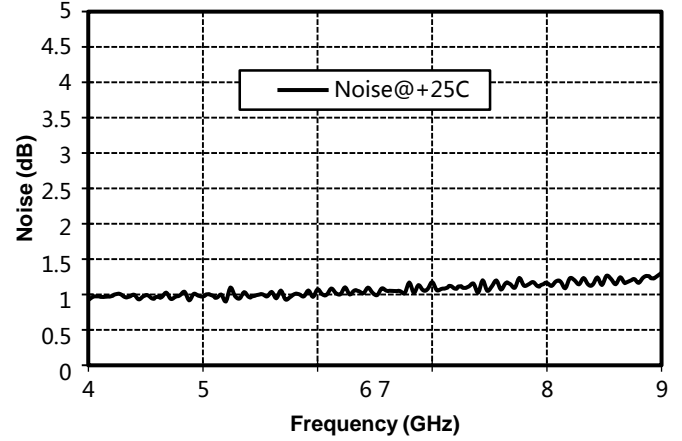
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Test curve of main indicators

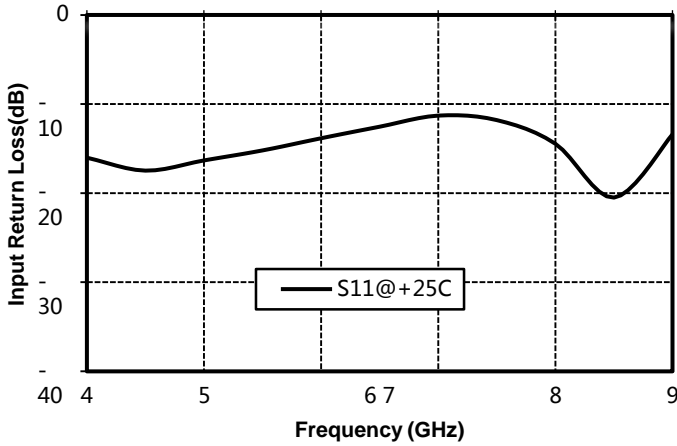
Gain vs. Frequency



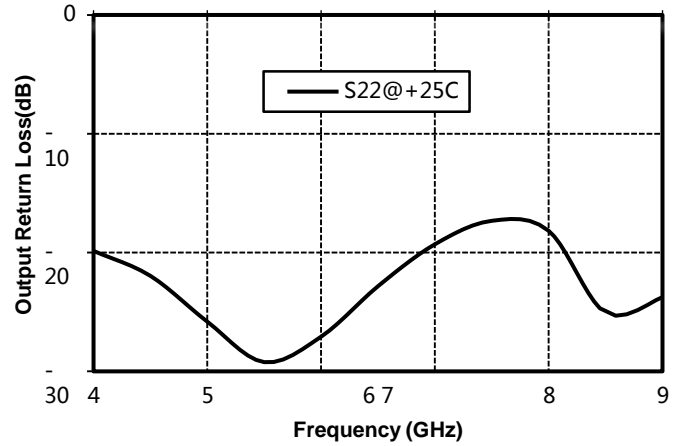
Noise Figure vs. Frequency



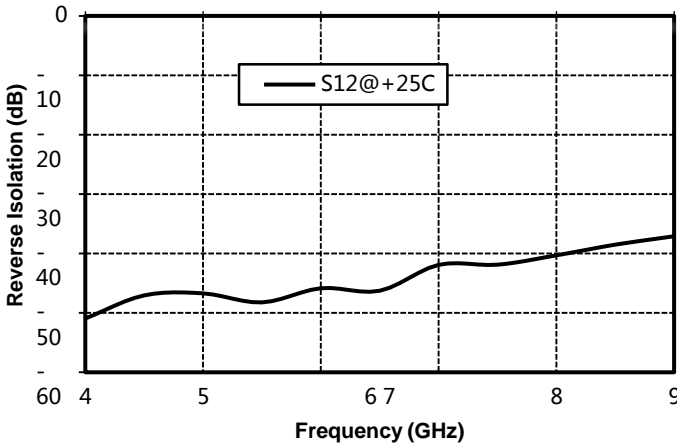
Input Return Loss vs. Frequency



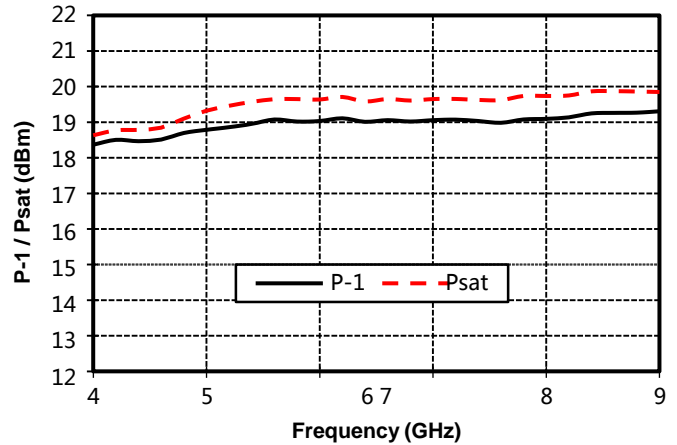
Output Return Loss vs. Frequency



Reverse Isolation vs. Frequency

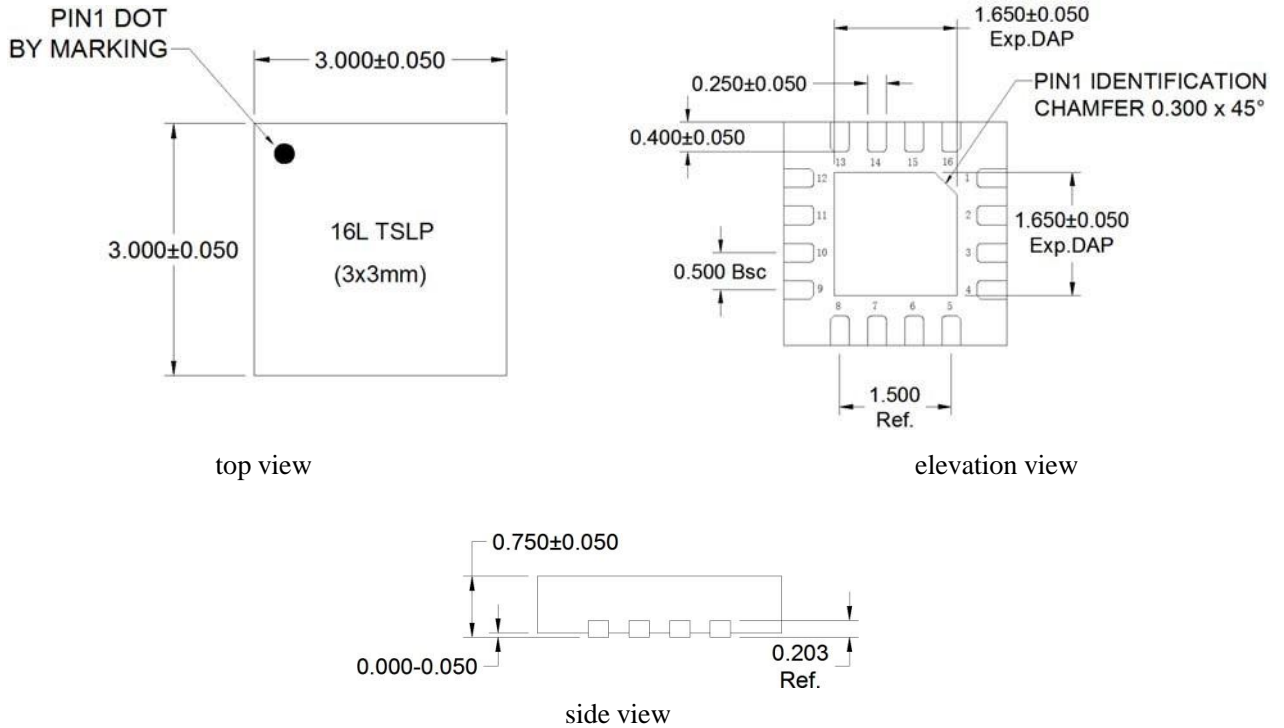


P-1dB/Psat vs. Frequency



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external structure

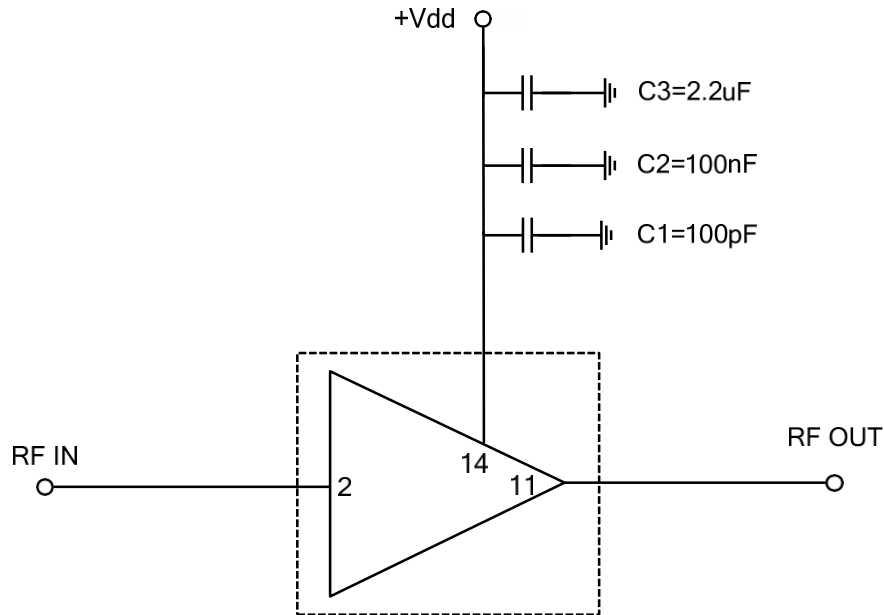


The units in the figure are in millimeters with a tolerance of ± 0.05 mm.

Pin Definitions		
Bonding point serial number	functional symbol	Functional Description
2	RFIN	RF signal input without isolation capacitors
11	RFOUT	RF signal output without isolation capacitors
14	VDD	Amplifier drain bias
1, 3, 10, 12	GND	Bottom of chip, needs to be well grounded to RF and DC
4 to 9, 13, 15, 16	NC	No soldering required

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Recommended Circuits



raw materials	Capacitance, Inductance, Resistance
C1	100pF
C2	100nF
C3	2.2uF

Precautions for use

- Enclosure Material: ROHS compliant low pressure injection molded plastic
- Lead frame material: copper alloy
- Lead wire surface coating: 100% matte tin
- Maximum peak reflow temperature: 260°C
- When the molded device can not be used up after unpacking, it should be immediately stored in a dry box or vacuum preservation, to avoid the molded device to absorb moisture in the air.