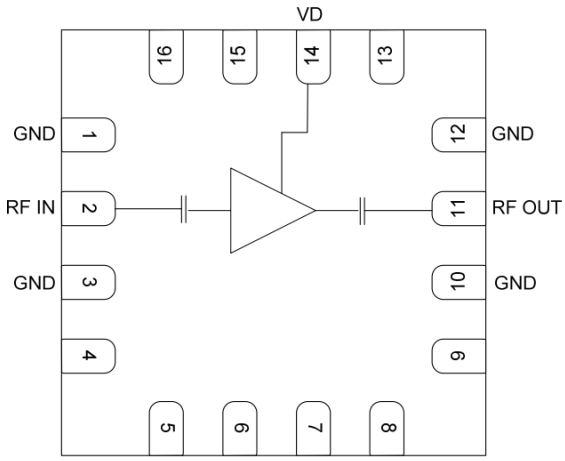
GaAs MMIC Low Noise Amplifier Chip, 1-12 GHz

Performance Characteristics:

- Frequency range: 1-12 GHz
- Small signal gain: 16.5dB
- Noise figure: 1.5dB typ./1.8dB max.
- P-1dB: 18.5dBm
- Power supply: +5V/40mA
- 50Ohm Input/Output
- 100% on-chip testing
- Chip size: QFN 3X3

schematic



Product Description:

The CWA270SP3 is a broadband low noise amplifier with a frequency range of 1GHz to 12GHz, a small signal gain of 16.5dB, and an in-band noise figure of 1.5dB. The CWA270SP3 is supplied from a single +5V supply. The CWA270SP3 is supplied from a single +5V power supply and is available in a 3x3mm molded surface mount package with gold plating on the pin pads for reflow soldering.

Use of limiting parameters [1]	
Maximum Leakage Voltage	+7V
Maximum 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°C, Vd = +5V)				
norm	minimum value	typical value	maximum values	unit (of measure)
frequency range		1-12		GHz
Small Signal Gain	16	16.5	17.5	dB
Gain Flatness		±0.75		dB
coefficient of noise	-	1.5	1.8	dB
P-1dB	18	18.5	19.5	dBm
Psat	18.5	19.5	20.5	dBm
Input Return Loss	10.5	12.5	-	dB
Output Return Loss	12	17	-	dB
quiescent current		40		mA

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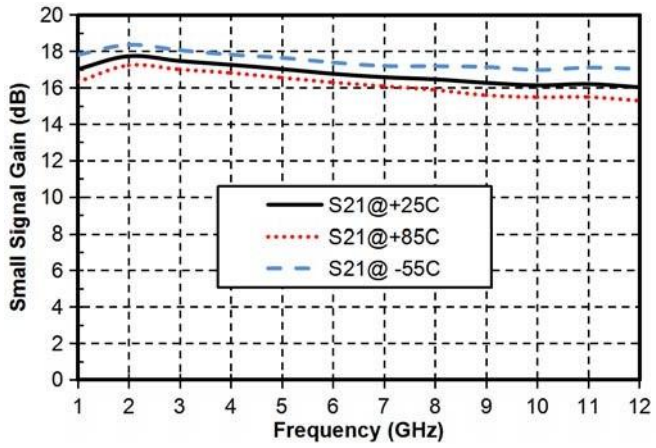
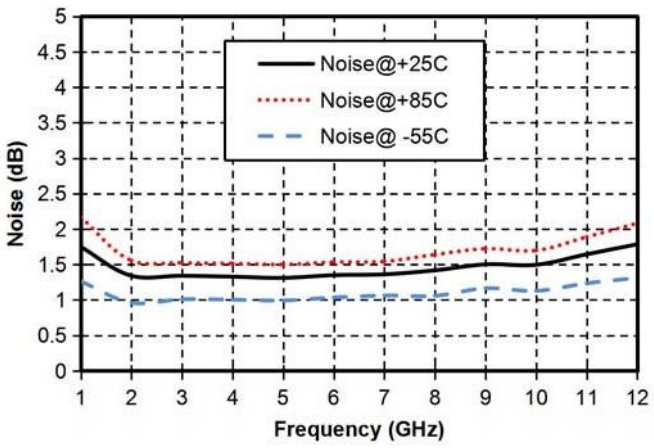
Test curve of main indicators

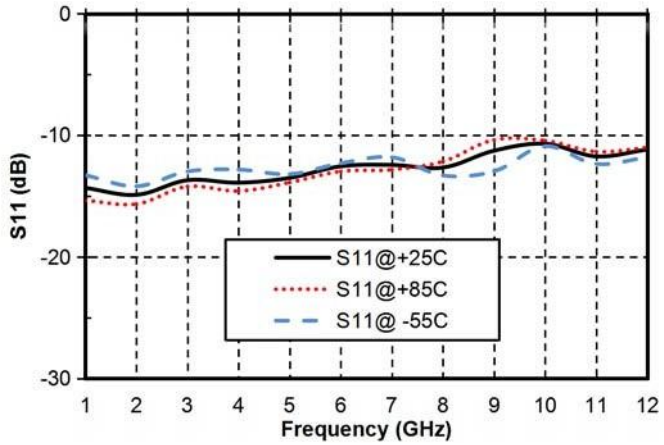
Gain vs. temperature



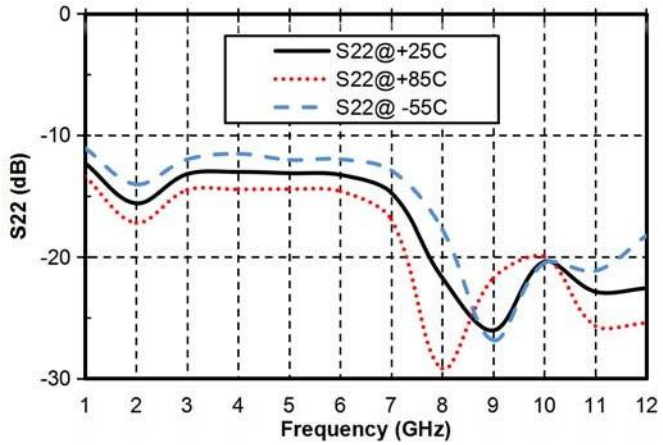
Noise Figure vs. temperature



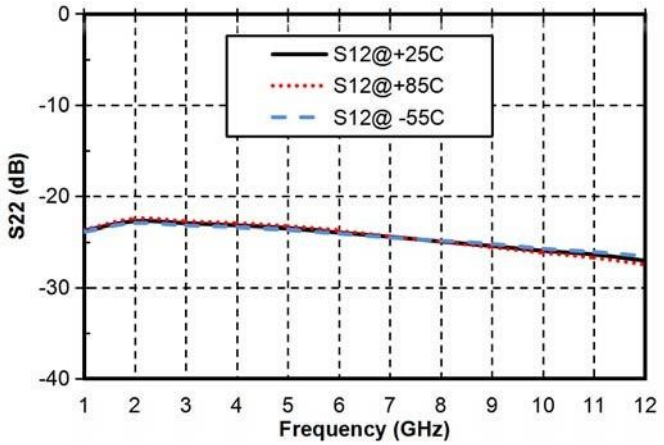
Input Return Loss vs. Frequency



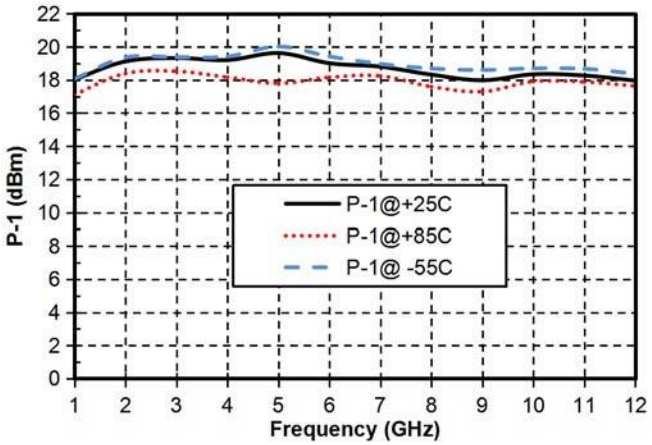
Output Return Loss vs. Frequency



Reverse Isolation vs. Frequency



P-1dB vs. temperature



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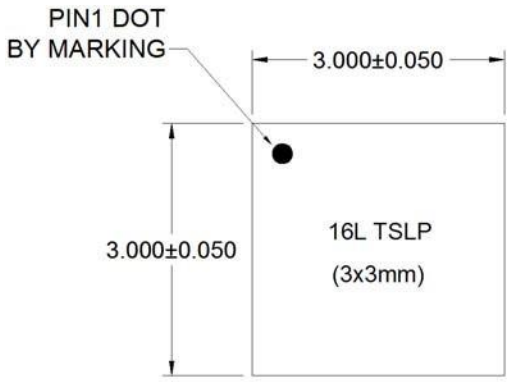
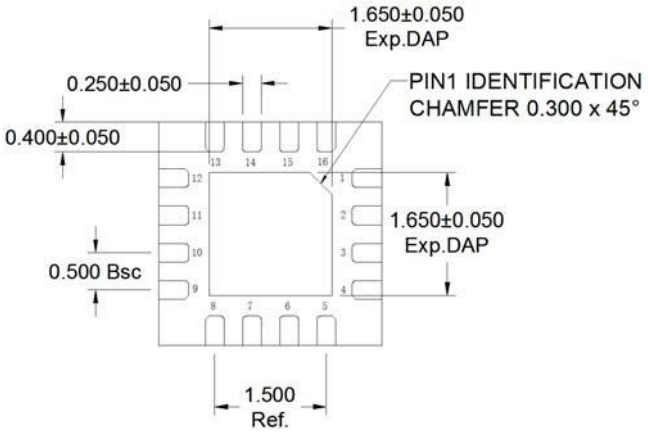
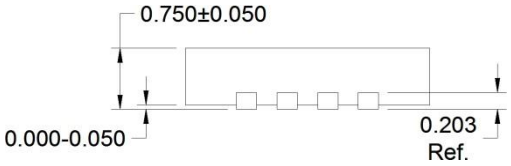
external structure



top view



elevation view



side view

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

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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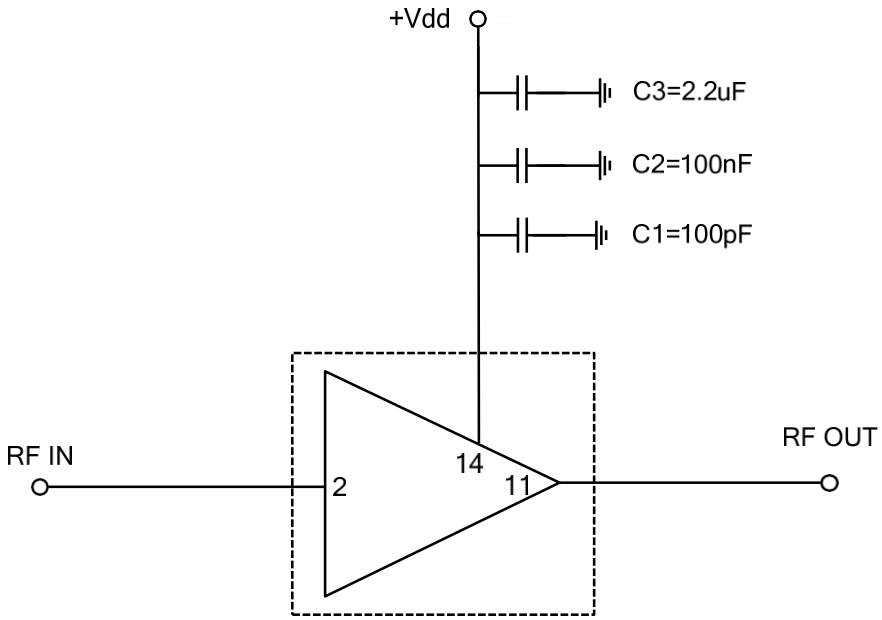
Recommended Circuits



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

Precautions for use

- Enclosure Material: ROSH 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.