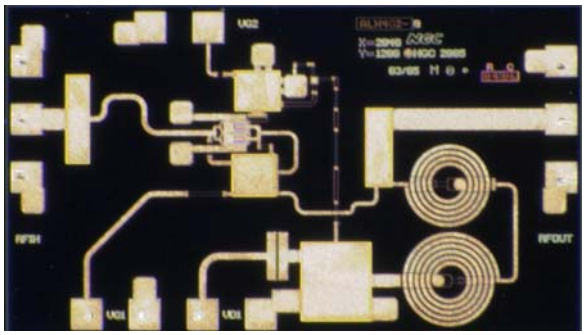
NORTHROP GRUMMAN

Velocium Products

ALH482
2 – 22 GHz Low Noise Amplifier

Product Datasheet



X=2040 µm Y=1200 µm

Applications

- Wide Band Communication systems
- Surveillance Systems
- Point-to-Point Digital Radios
- Point-to-Multipoint Digital Radios

Product Features

- RF frequency: 2 to 22 GHz
- Noise figure:
  - 2 to 12 GHz: 1.7 dB Typical
  - 12 to 22 GHz: 2.1 dB Typical
- Linear gain: 16 dB
- P1dB: 14 dBm, expected
- Unconditionally stable
- DC Power: 4 Vdc at 45 mA
- Die Size: < 2.5 sq. mm

Product Description

The ALH482 monolithic HEMT is a broadband, single stage, low noise device. To ensure rugged and reliable operation, HEMT devices are fully passivated. Both bond pad and backside metallization are Ti/Au, which is compatible with conventional die attach, thermocompression and thermosonic wire bonding assembly techniques.

Performance Characteristics (Ta = 25°C)

Specification	Min	Typ	Max	Unit
Frequency	2		22	GHz
Linear Gain	15	16		dB
Noise Figure			2.5	dB
2 to 12 GHz		1.7		dB
12 to 22 GHz		2.1		dB
Input Return Loss		6		dB
Output Return Loss		10		dB
P1dB		14		dBm
Vd		4		V
Vg1		-0.2		V
Id1		45		mA

Absolute Maximum Ratings (Ta = 25°C)

Parameter	Min	Max	Unit
Vd		5	V
Id1		60	mA
Vg1	-1	0.3	V
Input drive level		5	dBm
Assy. Temperature (60 seconds)		300	deg. C

Velocium Products • Phone: (310) 814-5000 • Fax: (310) 812-7011 • E-mail: st-velocium.sales@ngc.com • Web: www.st.northropgrumman.com/velocium/

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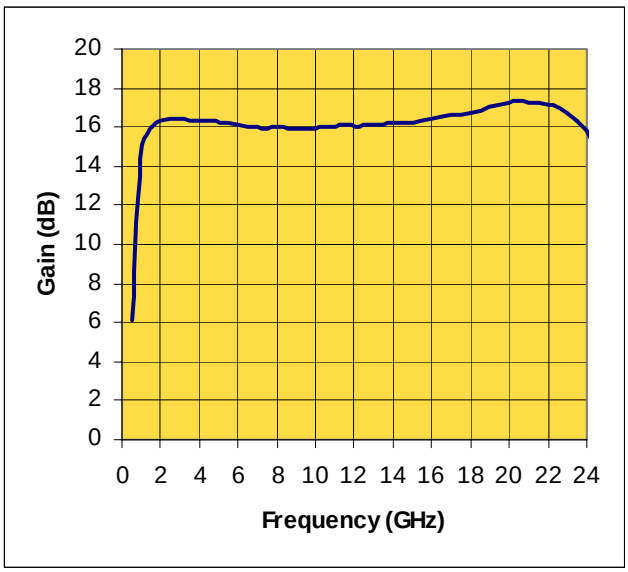
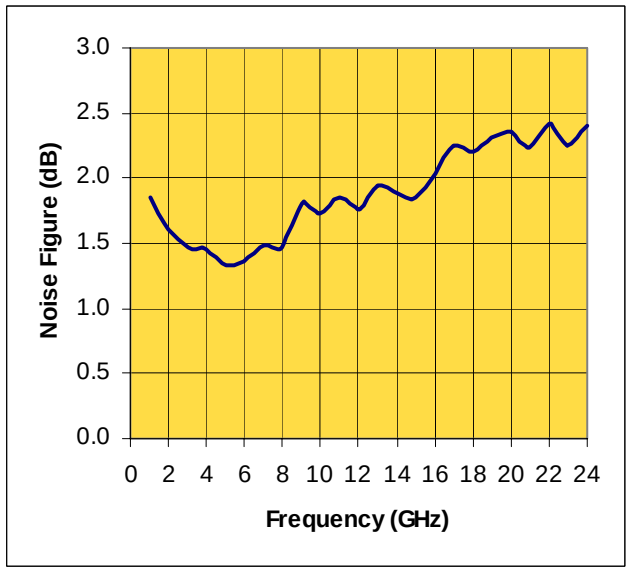
Measured Performance Characteristics (Typical Performance at 25°C)
Vd = 4 V, Id1= 45mA

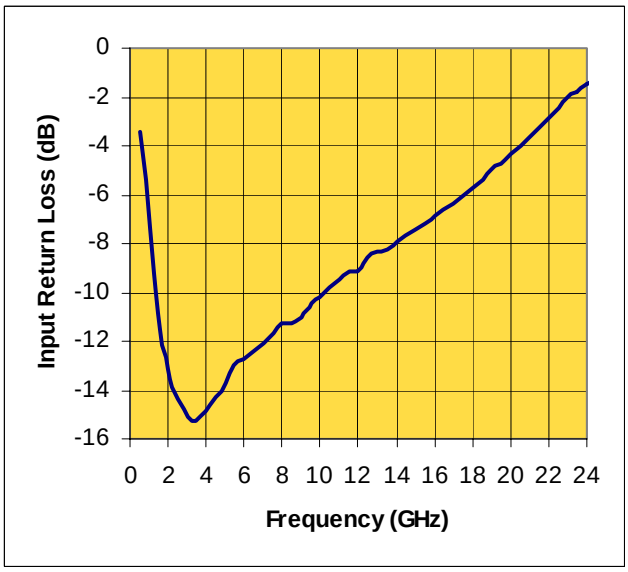
Linear Gain Versus Frequency



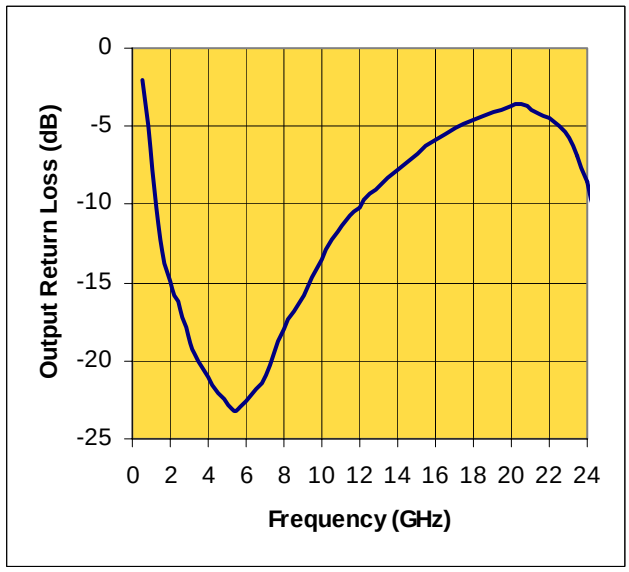
Noise Figure Versus Frequency



Input Return Loss Versus Frequency



Output Return Loss Versus Frequency



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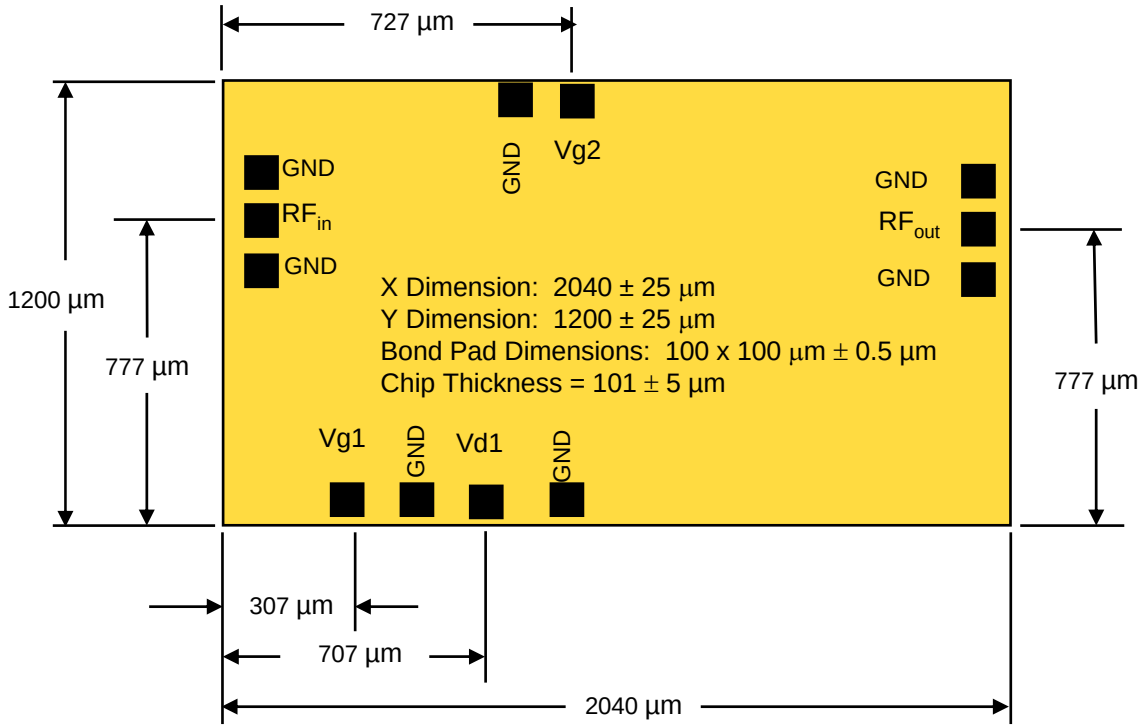
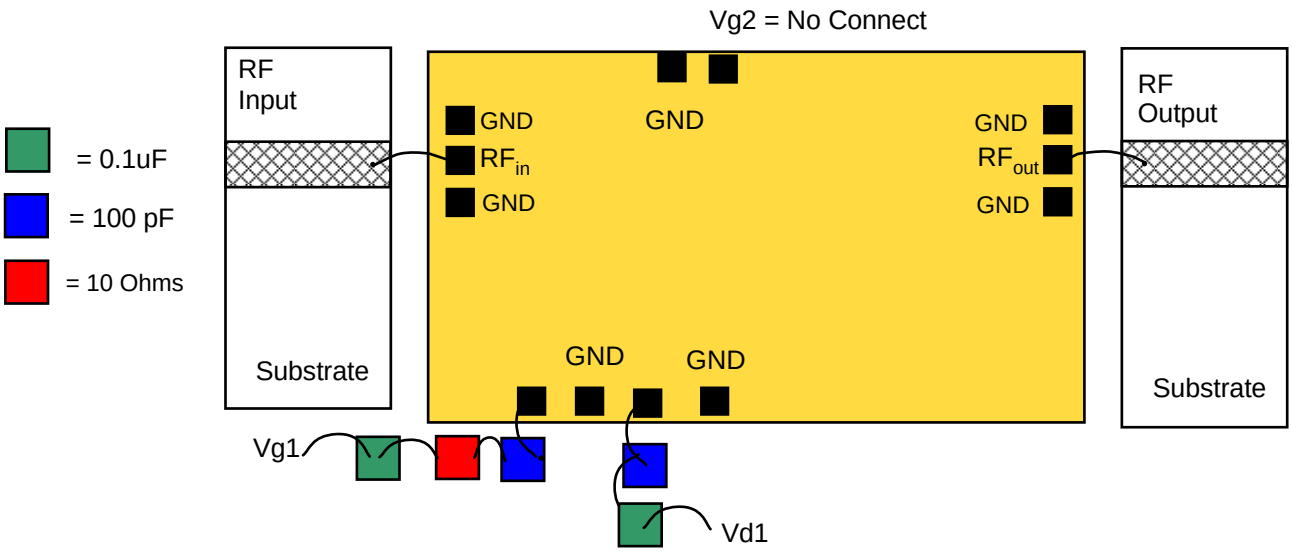
Die Size and Bond Pad Locations



Suggested Bonding Arrangement



Recommended Assembly Notes

1. Bypass caps should be 100 pF (approximately) ceramic (single-layer) placed no farther than 30 mils from the amplifier.
2. Best performance obtained from use of <6 mil (long) by 2 by 0.5 mil ribbons on input and output.