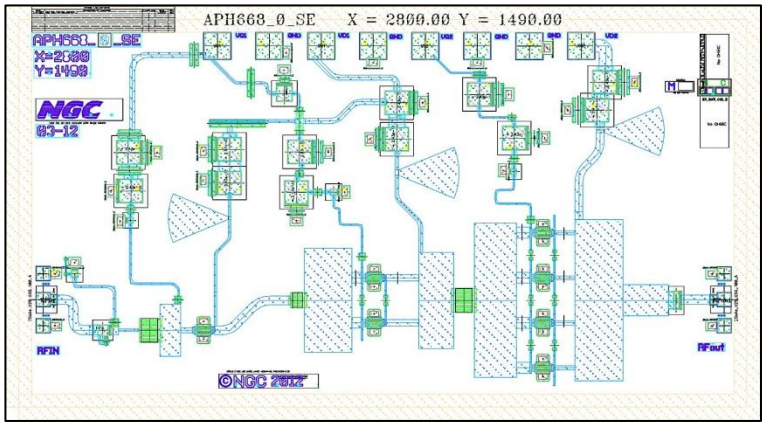
APH670

71-76 GHz Driver Amplifier

Advance Datasheet

Revision: October 2012



X=2800µm Y=1490 µm

Applications

- FCC E-band Communication Systems @ 71-76 GHz Frequency Band
- Short Haul / High Capacity Links
- Enterprise Wireless LAN
- Wireless Fiber Replacement

Product Features

- RF Frequency: 71 to 76 GHz
- Linear Gain: 20.5 dB typ.
- Psat: 25.5 dBm typ.
- Die Size: 4.17 sq. mm.
- 2 mil substrate
- DC Power: 4 VDC @ 315 mA

Product Description

The APH670* is a Gallium Arsenide-based broadband, three-stage power device, designed for use in commercial digital radios and wireless LANs. It can be used as a Driver Amplifier as a companion to the APH668 or as a stand-alone amplifier.

NOTE

Samples of the APH670 may have the product name “APH668_SE “

Performance Characteristics (Ta = 25°C)

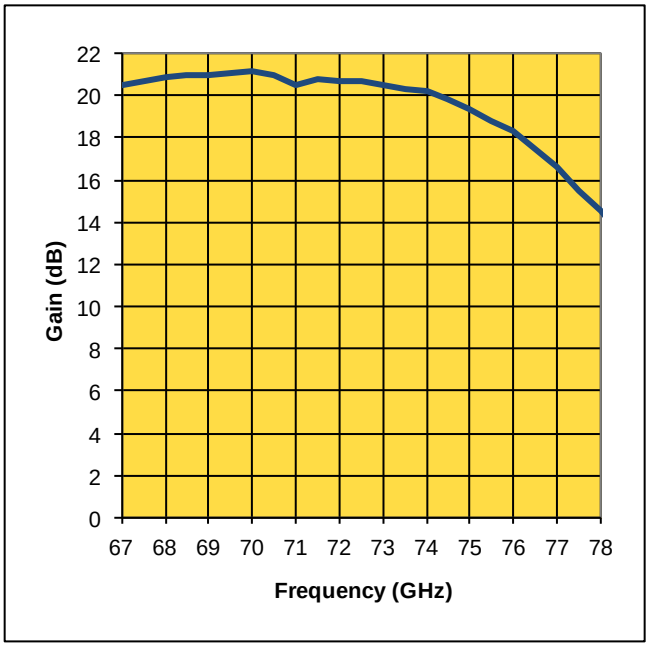
Specification	Min	Typ	Max	Unit
Frequency	71		76	GHz
Linear Gain	18	20.5		dB
Input Return Loss	6	9		dB
Output Return Loss	9	11		dB
P1dB		TBD		dBm
Psat		25.5		dBm
Vd1, Vd2		4		V
Vg1		0		V
Vg2		0		V
Id1		135		mA
Id2		180		mA

Absolute Maximum Ratings (Ta = 25 C)

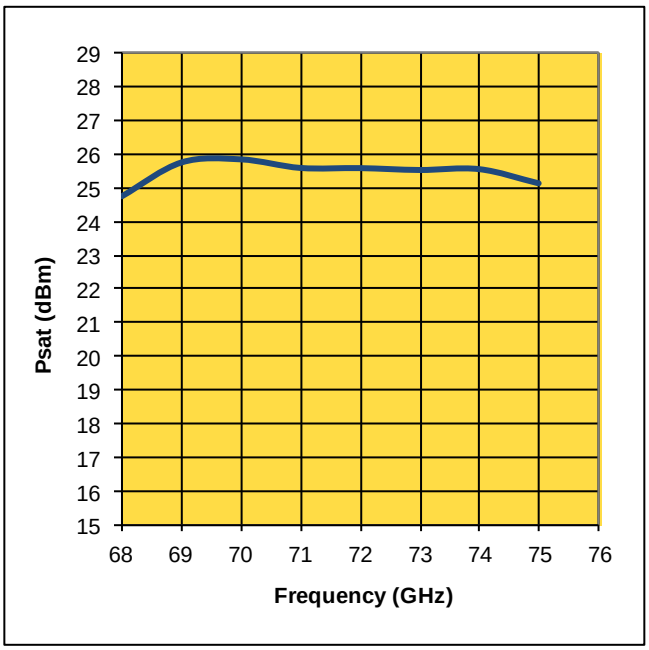
Parameter	Min	Max	Unit
Vd1=Vd1a, Vd2=Vd2a		4.5	V
Vg1=Vg1a	-0.8	0.3	V
Vg2a=Vg2b	-0.8	0.3	V
Id1+Id1a		150	mA
Id2+Id2a		200	mA
Input Drive Level		16	dBm
Assy. Temperature (60 seconds)		300	deg. C

Measured (On-Wafer) Performance Characteristics (Typical Performance at 25°C)
Vd = 4V, Id1 = 135 mA, Id2 = 177 mA

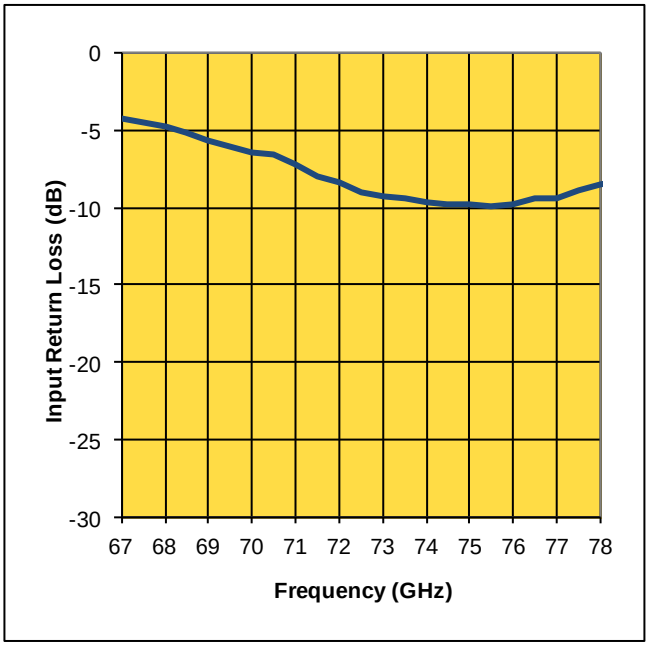
Linear Gain Versus Frequency



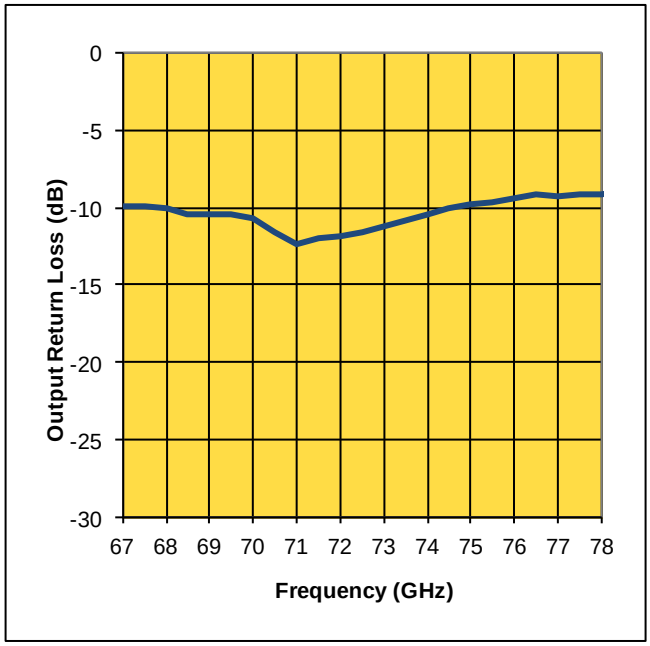
Pulsed Power Output Power Versus Frequency



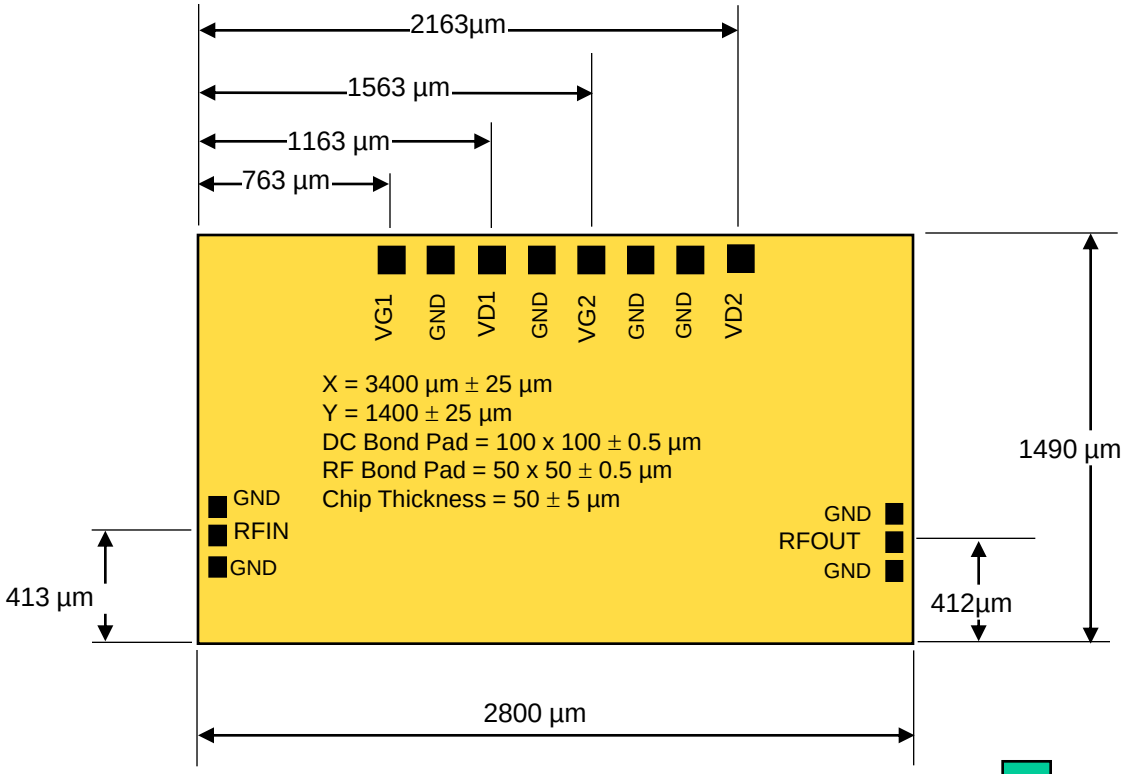
Input Return Loss Versus Frequency



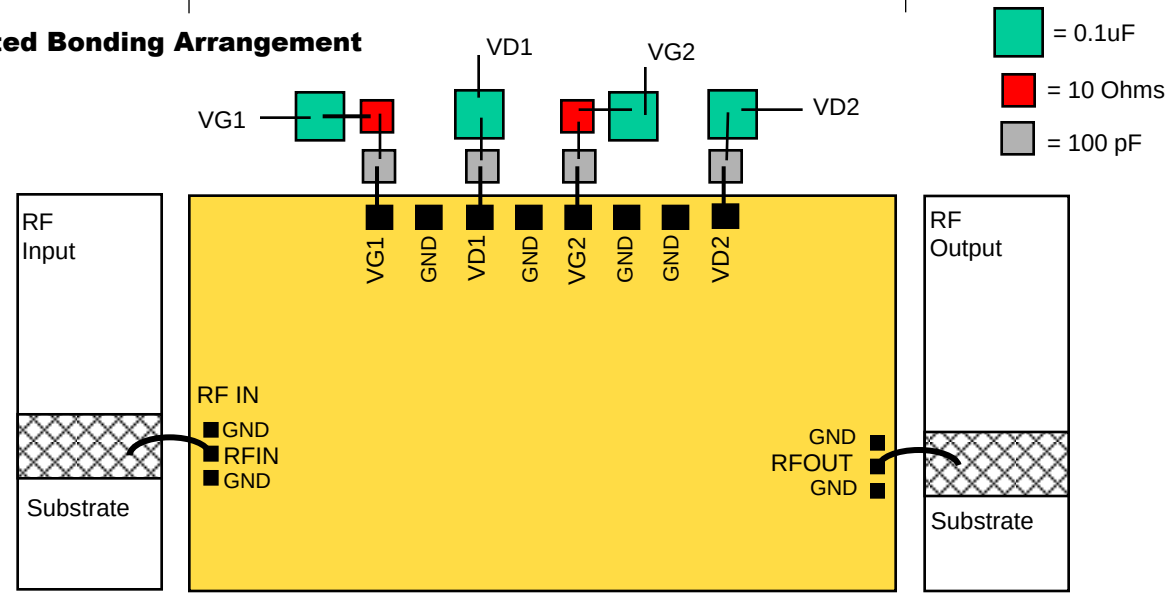
Output Return Loss Versus Frequency



Die Size and Bond Pad Locations



Suggested Bonding Arrangement



Recommended Assembly Notes

1. Bypass caps should be 100 pF ceramic (single-layer) placed no further than 30 mils from the amplifier.
2. Best performance obtained from use of <10 mil (long) by 3 by 0.5 mil ribbons on input and output.

Approved for Public Release: Northrop Grumman Case 12-1853, 10/18/12