

# 13–16GHz High Power Amplifier

GaAs Monolithic Microwave IC

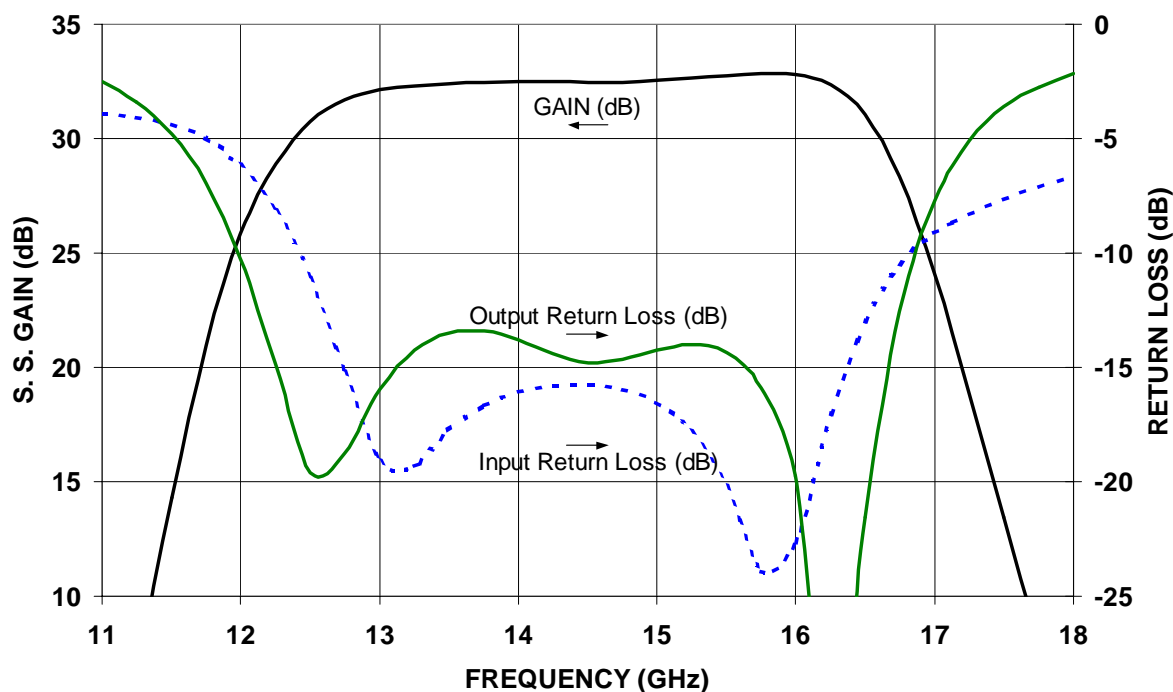
**Target**

## Description

The CHA6042 is a four-stage pHEMT HPA MMIC designed for VSAT ground terminals and other radio applications. The CHA6042 provides 32dBm nominal output power at 1dB gain compression over the 13-16GHz frequency range, and 32dB small-signal gain. This product will be available in chip form.

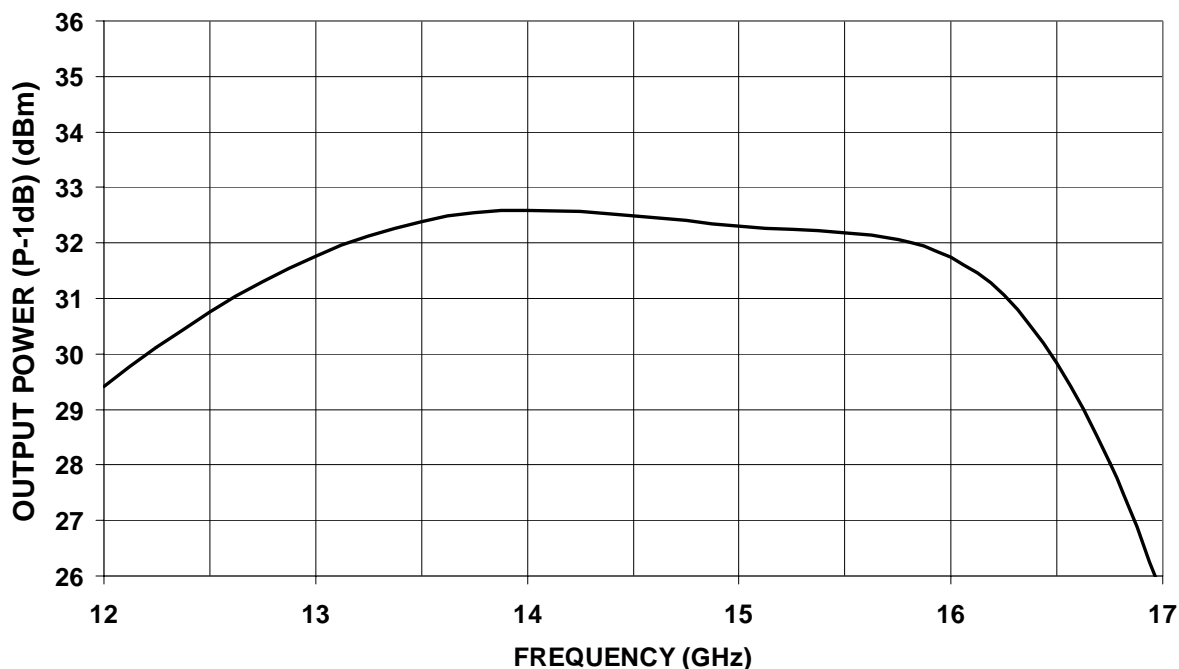
## Main Features

- Frequency Range: 13-16GHz
- Gain: 32dB
- Output Power (P-1dB): 32dBm
- Output TOL: 40dBm
- Input Return Loss: 15dB
- Output Return Loss: 13dB
- Bias: 9V, 1A
- Dimensions: 2.34 x 1.36 x 0.07mm



Target

## Predicted Output Power at 1dB Gain Compression



## Absolute Maximum Ratings

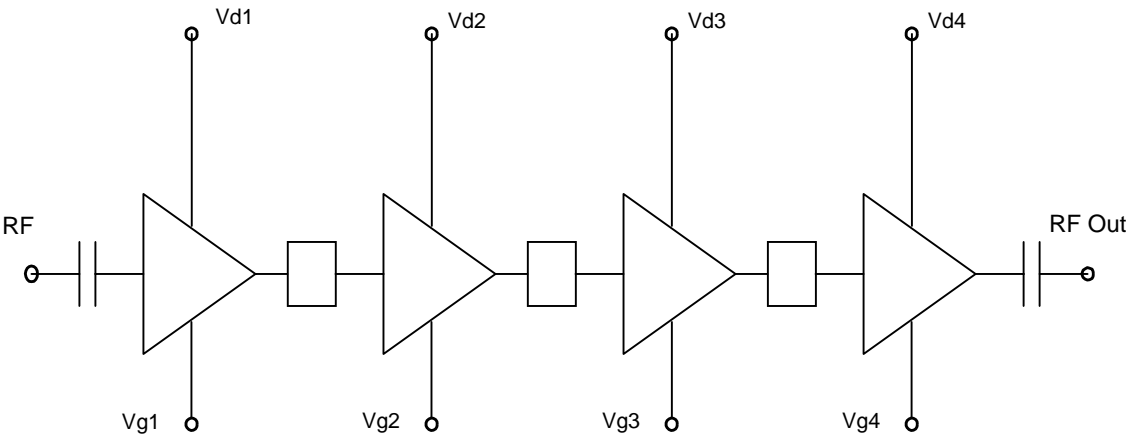
T<sub>amb.</sub> = 25 °C (1)

Symbol	Parameter	Values	Unit
V <sub>ds</sub>	Drain bias voltage_small signal	10.5	V
I <sub>ds</sub>	Drain bias current_small signal	1500	mA
V <sub>gs</sub>	Gate bias voltage	-2 to +0.4	V
V <sub>dg</sub>	Maximum Drain Gate voltage (V <sub>d</sub> -V <sub>g</sub> )	+12	V
P <sub>in</sub>	Maximum peak input power overdrive (2)	+18	dBm
T <sub>a</sub>	Operating Temperature Range (3)	-45 to +80	°C
T <sub>stg</sub>	Storage Temperature Range	-55 to +125	°C

1. Operation of this device above any one of these parameters may cause permanent damage.
2. Duration < 1 s
3. AuSn solder mount to CuW or CuMo carrier assumed

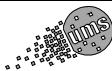
Schematic

Target



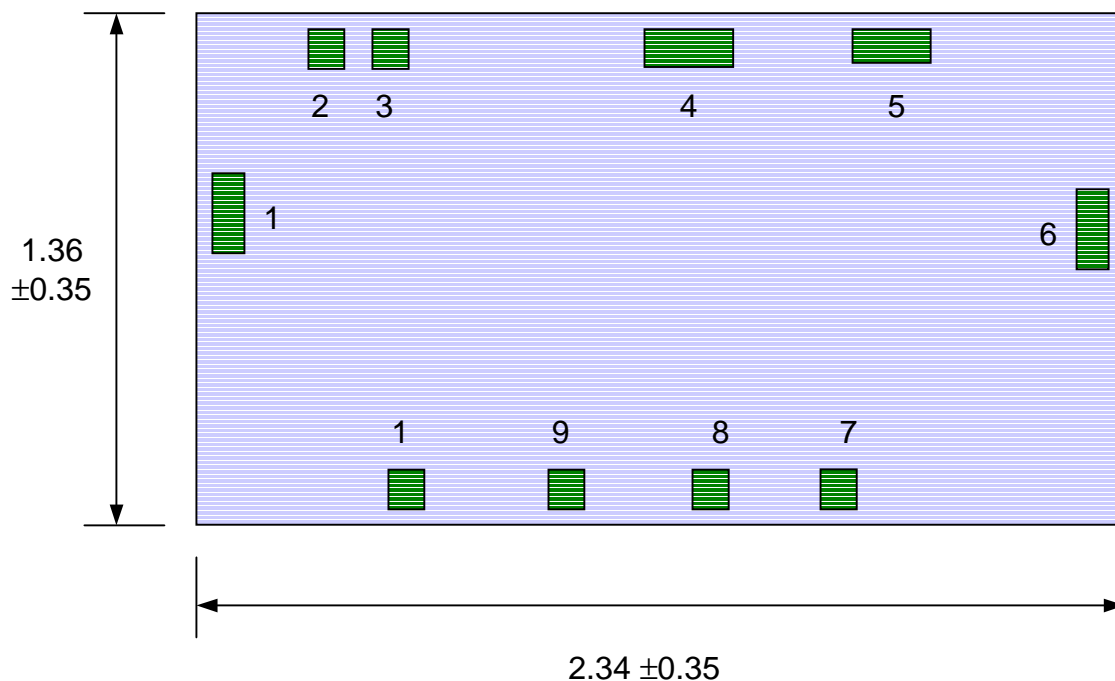
Typical Bias Conditions  
Tamb. = 25 °C

Symbol	Parameter	Values	Unit
Vd 1, 2, 3, 4	Drain bias voltage	9.0	V
Vg 1, 2, 3, 4	Gate bias voltage	-0.5	V
Idd	Total drain current	1000	mA



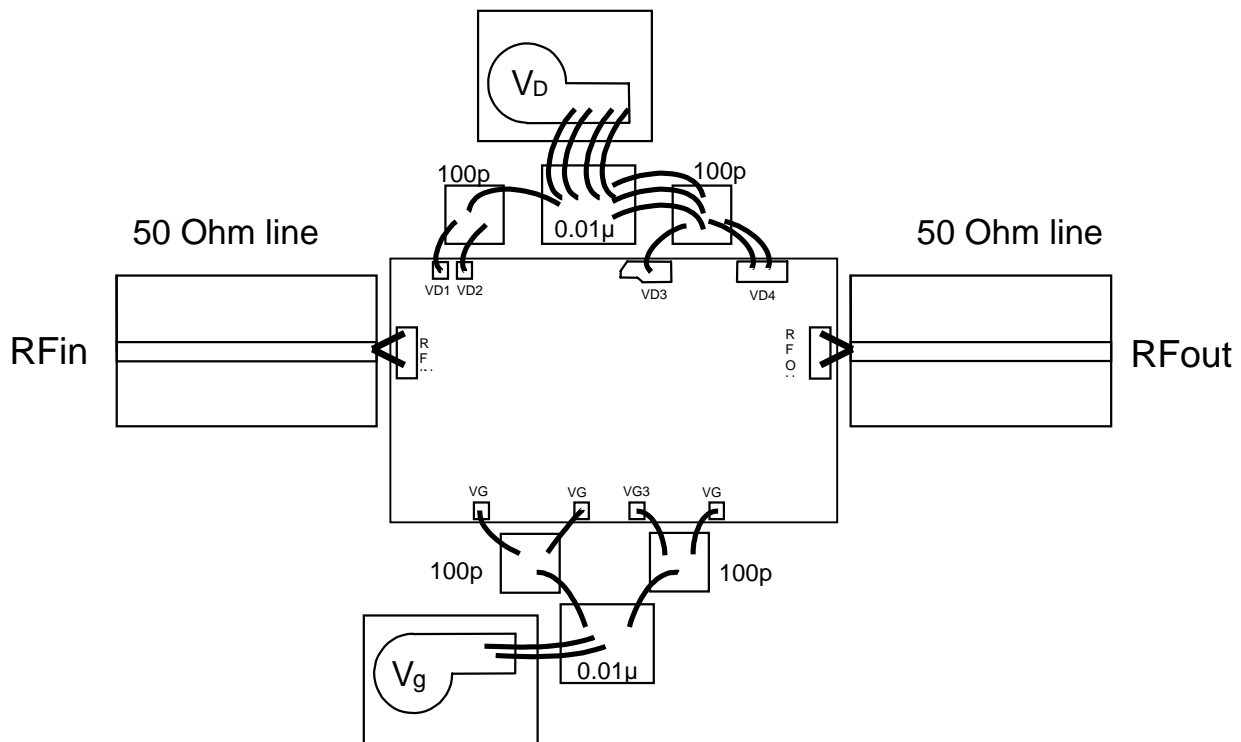

**MMIC Outline & Bond Pads**

Not to scale, dimensions are in millimeters



Bond Pad	Symbol	x-dim. (um)	y-dim. (um)	x-center (um)	y-center (um)
1	RF input	100	200	115	835
2	Vd1	100	100	305	1255
3	Vd2	100	100	470	1255
4	Vd3	150	100	1280	1255
5	Vd4	200	100	1775	1255
6	RF output	100	200	2235	785
7	Vg4	100	100	1630	105
8	Vg3	100	100	1310	105
9	Vg2	100	100	920	105
10	Vg1	100	100	525	105

Chip size : 2340μm +/-35μm x 1360μm +/- 35μm

**MMIC Assembly and Bonding Diagram ( not to scale )**

Target

## Ordering Information

Chip form : CHA6042-99F/00

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