

13–16GHz High Power Amplifier

GaAs Monolithic Microwave IC

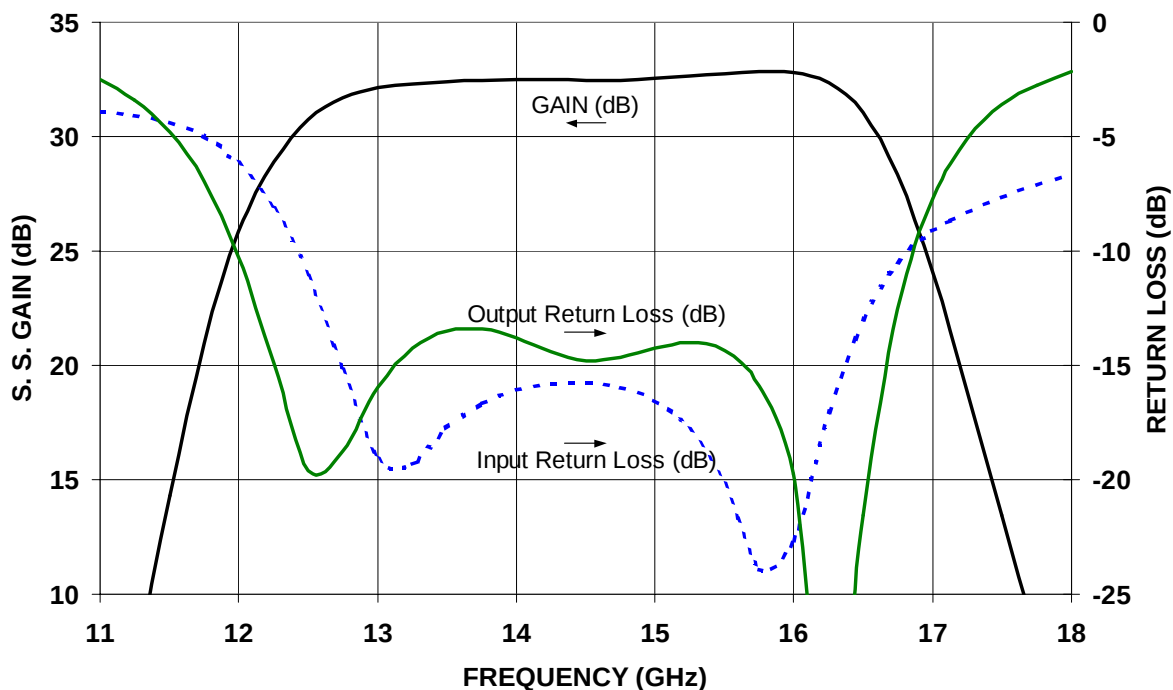
Target

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.

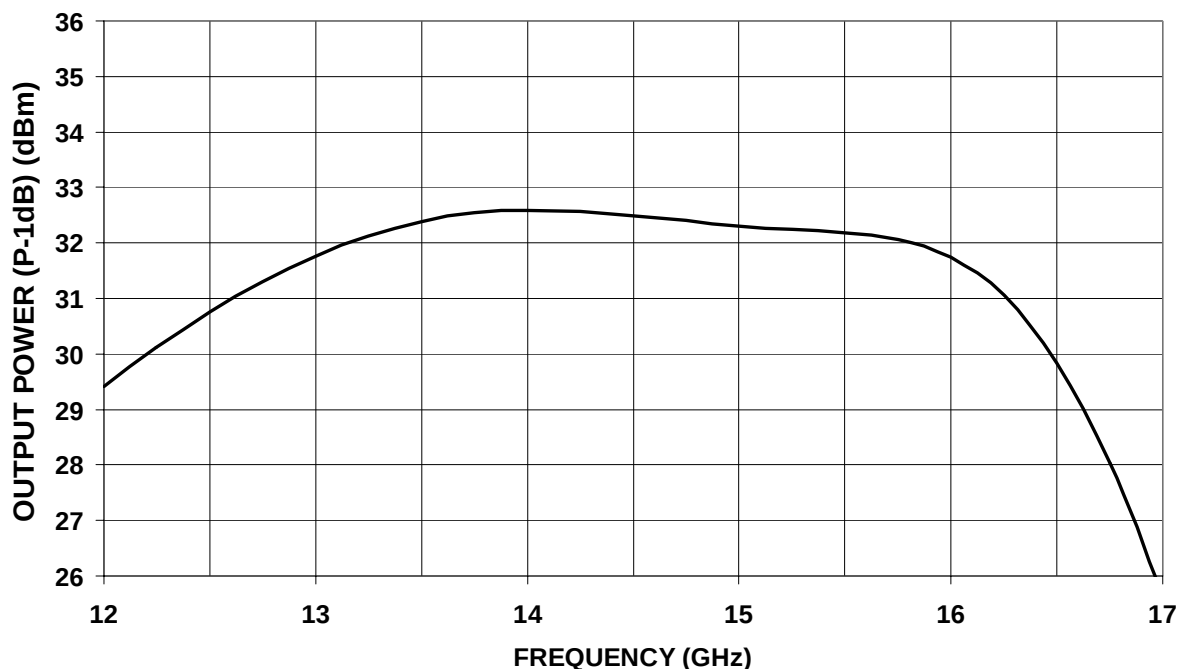
Main Features

- Frequency Range: 13-16GHz
- Gain: 32dB
- Output Power (P-1dB): 32dBm
- Output TOI: 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

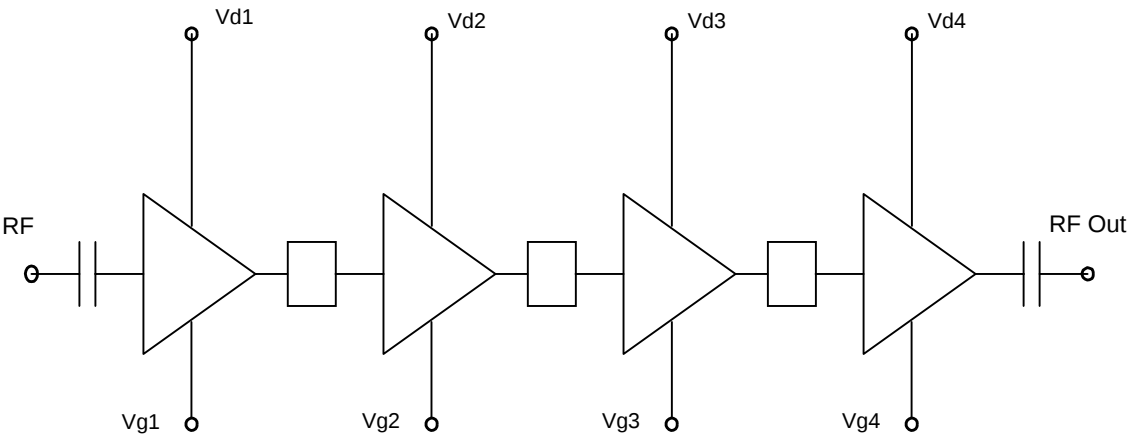
T_{amb.} = 25 °C (1)

Symbol	Parameter	Values	Unit
V _{ds}	Drain bias voltage_small signal	10.5	V
I _{ds}	Drain bias current_small signal	1500	mA
V _{gs}	Gate bias voltage	-2 to +0.4	V
V _{dg}	Maximum Drain Gate voltage (V _d -V _g)	+12	V
P _{in}	Maximum peak input power overdrive (2)	+18	dBm
T _a	Operating Temperature Range (3)	-45 to +80	°C
T _{stg}	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

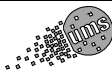
Target



Typical Bias Conditions

Tamb. = 25 °C

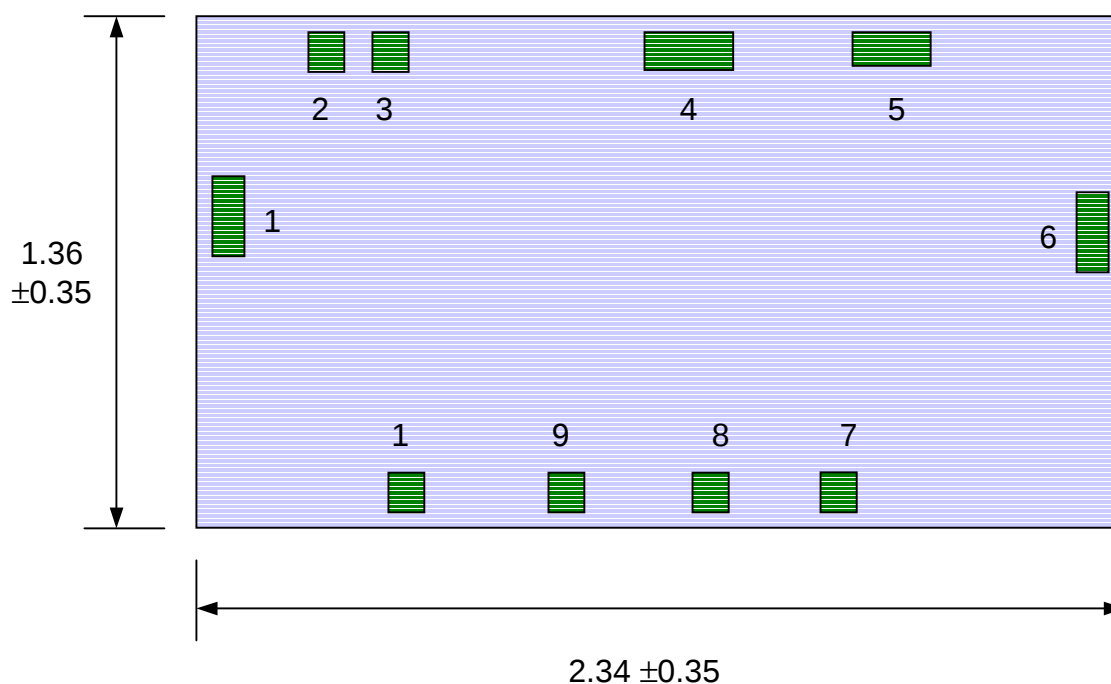
Symbol	Parameter	Values	Unit
Vd 1, 2, 3, 4	Drain bias voltage	9.0	V
Vg 1, 2, 3, 4	Gate bias voltage	-0.5	V
Idd	Total drain current	1000	mA



Target

MMIC Outline & Bond Pads

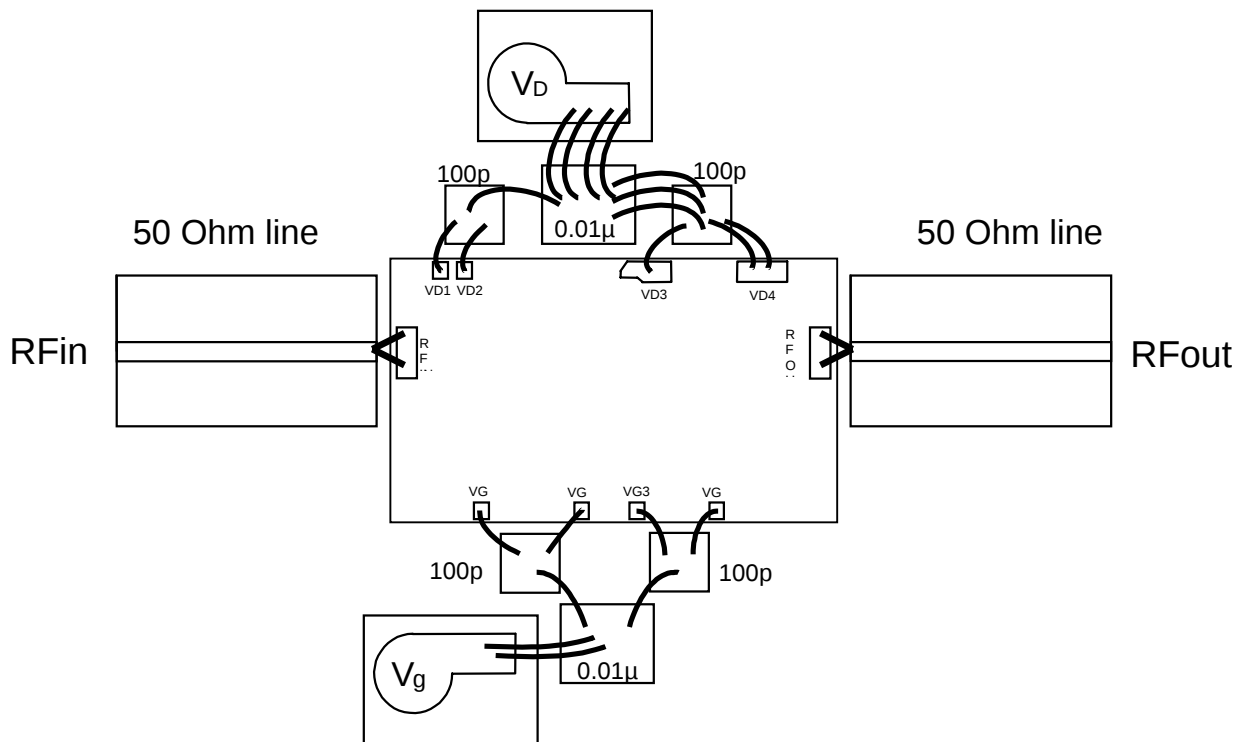
Not to scale, dimensions are in millimeters



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

Information furnished is believed to be accurate and reliable. However **United Monolithic Semiconductors S.A.S.** assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of **United Monolithic Semiconductors S.A.S.**. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. **United Monolithic Semiconductors S.A.S.** products are not authorised for use as critical components in life support devices or systems without express written approval from **United Monolithic Semiconductors S.A.S.**

