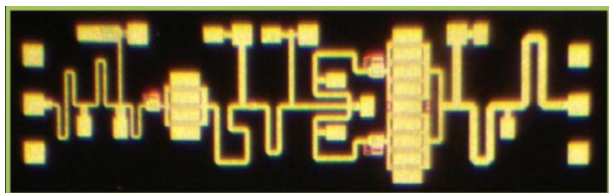


7.5-13.5 GHz GaAs MMIC Power Amplifier



Key Features

- X/K_u Band 1.5W Power Amplifier
- 12.5 dB Large Signal Gain
- 16 dB Small Signal Gain
- +31.5 dBm Saturated Output Power
- 38% Power Added Efficiency

Applications

- Point-to-Point Radio
- Communications
- X-Band Driver

Product Description

The SANDRA-SEMI SDC2012 is a two stage 7.5-13.5 GHz GaAs MMIC power amplifier has a large signal gain of 13 dB with a 32 dBm saturated output power. This MMIC uses 0.25 μ m GaAs PHEMT device model technology, and is based upon optical gate lithography to ensure high repeatability and uniformity. The chip provides a rugged part with backside via holes and gold metallization to allow either a conductive epoxy or eutectic solder die attach process. The reliability of the chip has been verified through extensive tests.

Functional Block Diagram

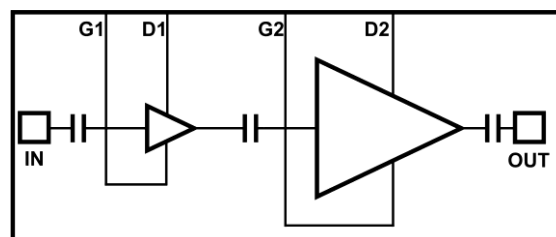


Table1: RF Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Frequency Range	Freq	8		13	GHz
Input Return Loss	S11		-9		dB
Output Return Loss	S22		-10		dB
Small Signal Gain	S21		16		dB
Saturated Output Power	P _{SAT}		31		dBm
Drain Bias Voltage	V _{d1,2}		8		V
Gate Bias Voltage	V _g	-0.9	-0.8	-0.75	V

SDC2012

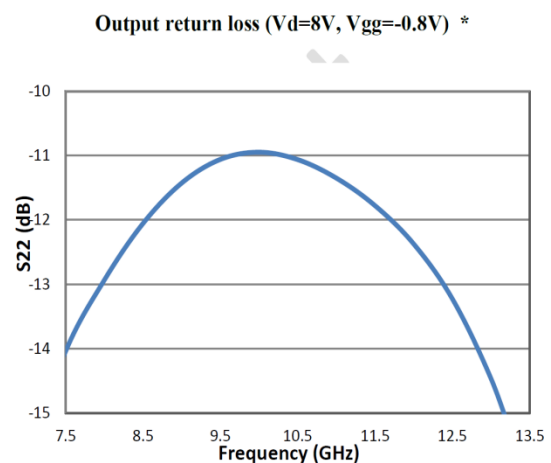
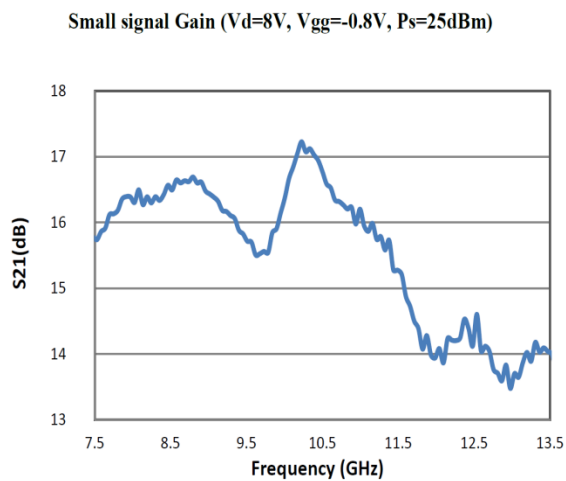
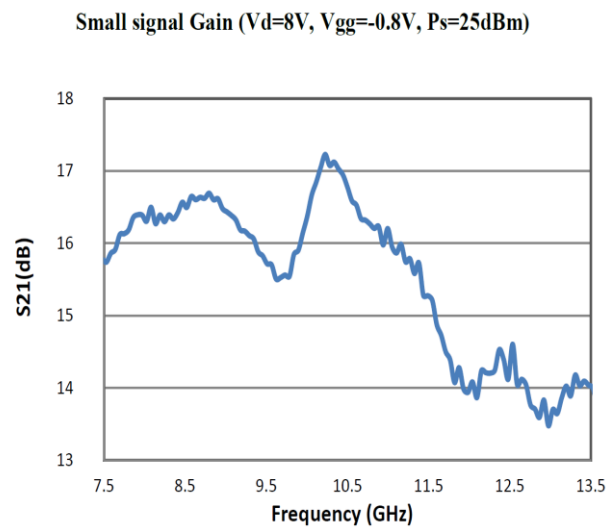
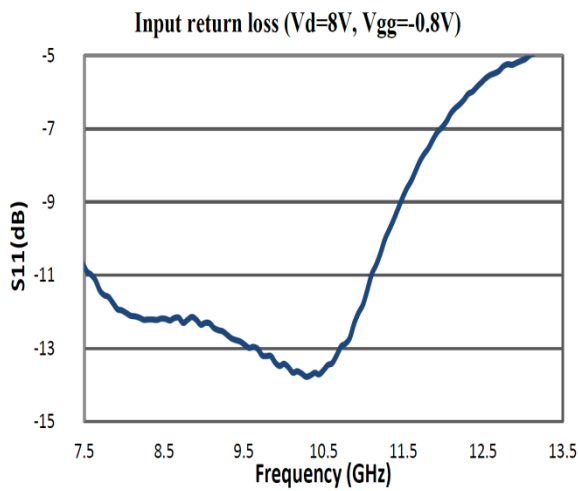
Absolute Maximum Ratings

Parameter	Value
Drain Voltage	8
Gate Voltage 1, Vg1	-0.8
Gate Voltage 2, Vg2	-0.8
Drain Current, Id	0.45
Channel Temperature, Tch	175 °C
Storage Temperature	-65 to +150 °C

Recommended Operating Conditions

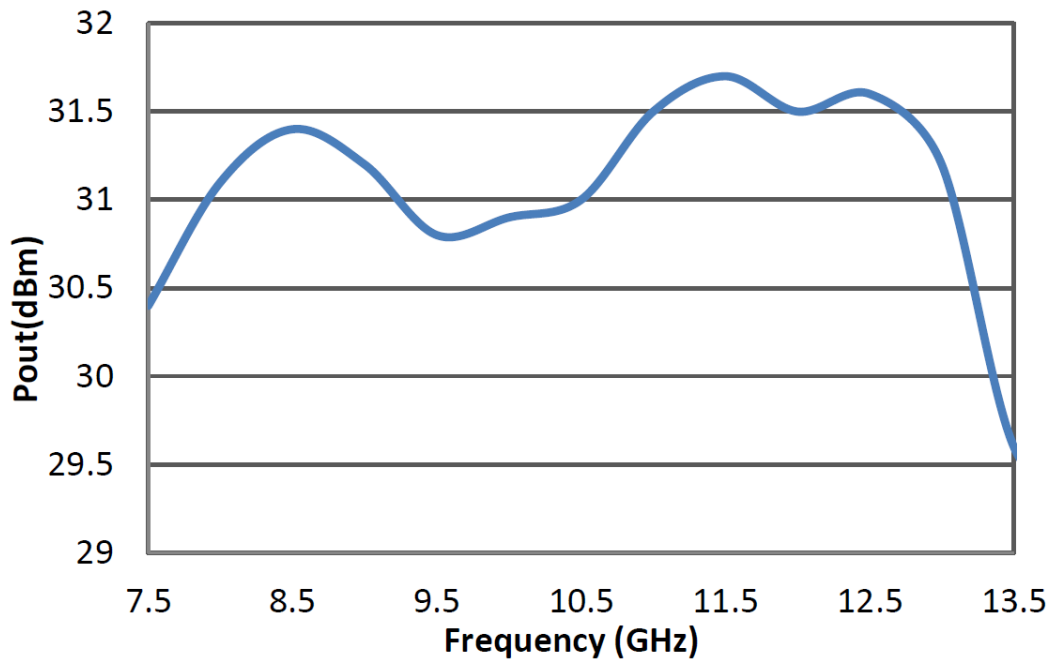
Parameter	Min	Typ	Max	Unit
Vd		8		V
Id		400		mA
Vg1		-0.8		V
Vg2		-0.8		V

Small Signal Performance

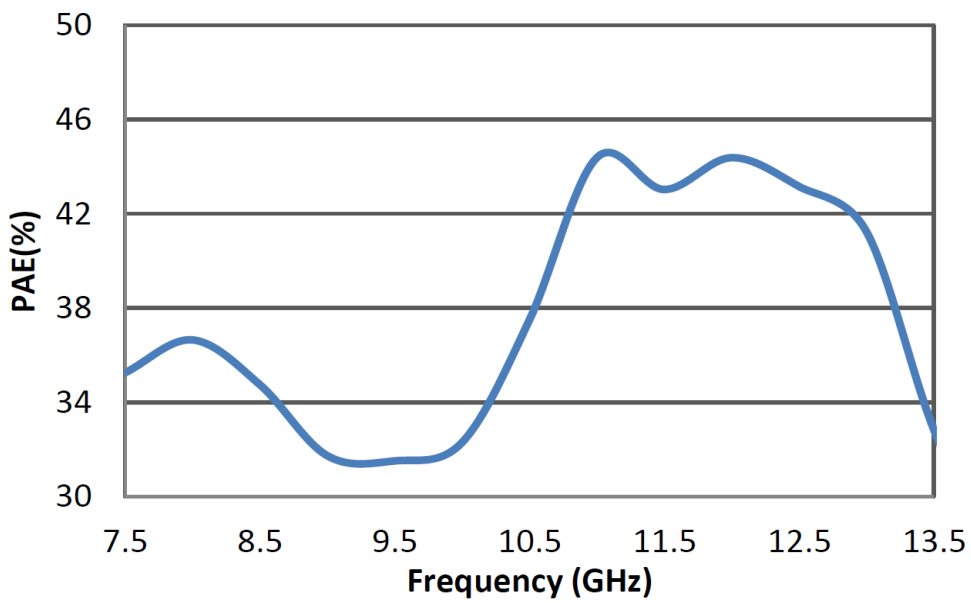


Large Signal Performance

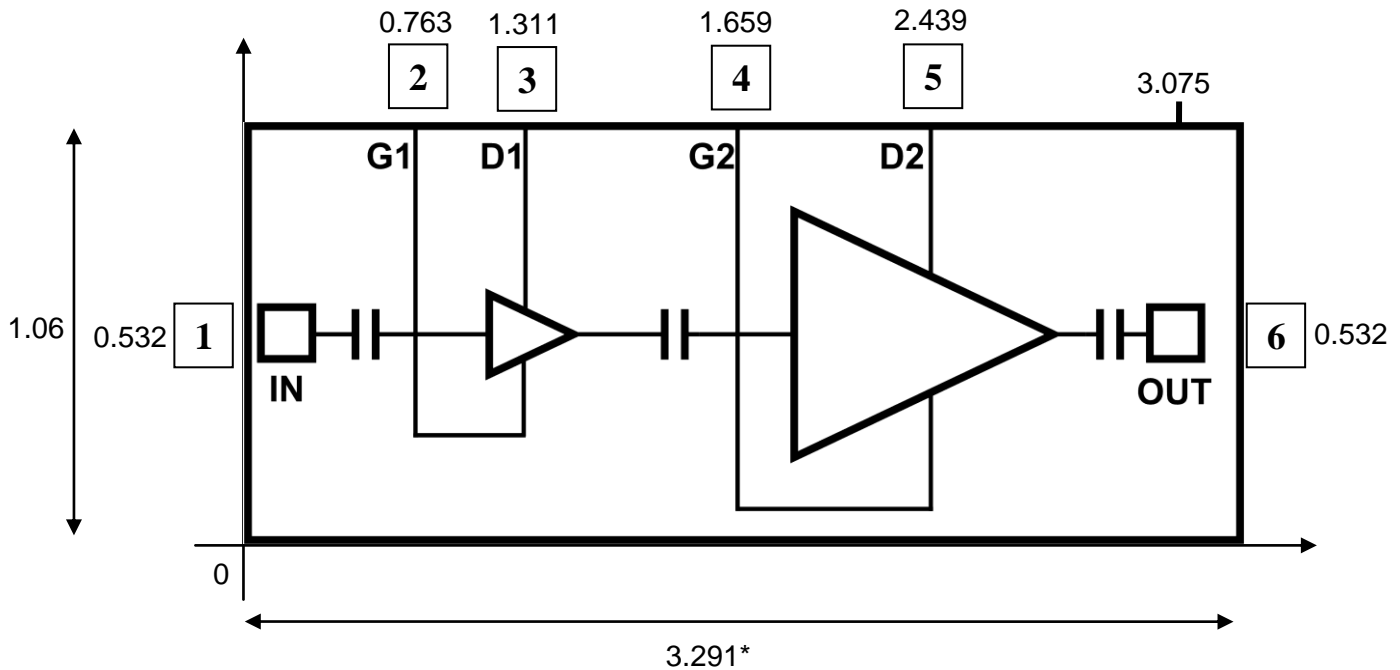
Saturated Power



PAE at Psat



Mechanical Drawing



*Units: mm

Pin Description

Symbol	Pin	Description
RF_IN	1	RF Input
V_{g1}	2	Gate Voltage 1
V_{d1}	3	Drain Voltage 1
V_{g2}	4	Gate Voltage 2
V_{d2}	5	Drain Voltage 2
RF_OUT	6	RF Output