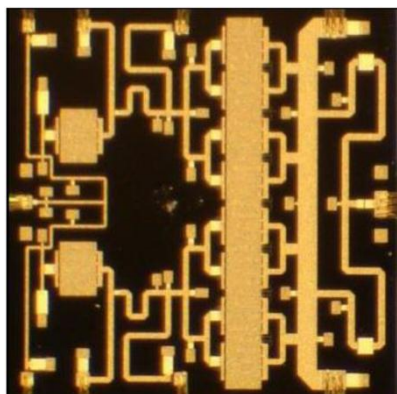


## 7.5-12.0 GHz GaAs MMIC Power Amplifier



### Key Features

- X Band 8W Power Amplifier
- 12 dB Large Signal Gain
- +39.0 dBm Saturated Output Power
- 35% Power Added Efficiency

### Applications

- Point-to-Point Radio
- Communications

### Product Description

The SANDRA-SEMI SDC2017 is a two stage 7.5-12 GHz GaAs MMIC power amplifier has a large signal gain of 12 dB with a 39.0 dBm saturated output power. This MMIC uses 0.25um 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.

**Table1: RF Specifications**

Parameter	Symbol	Min	Typical	Max	Unit
Frequency Range	Freq	7.5		12	GHz
Input Return Loss	S11		-10		dB
Output Return Loss	S22		-12		dB
Small Signal Gain	S21	15	18	20	dB
Large Signal Gain			12		
Saturated Output Power	P <sub>SAT</sub>	38.5	39	40	dBm
Drain Bias Voltage	V <sub>d1,2</sub>		8		V
Gate Bias Voltage	V <sub>g</sub>		-0.8		V

# SDC2017

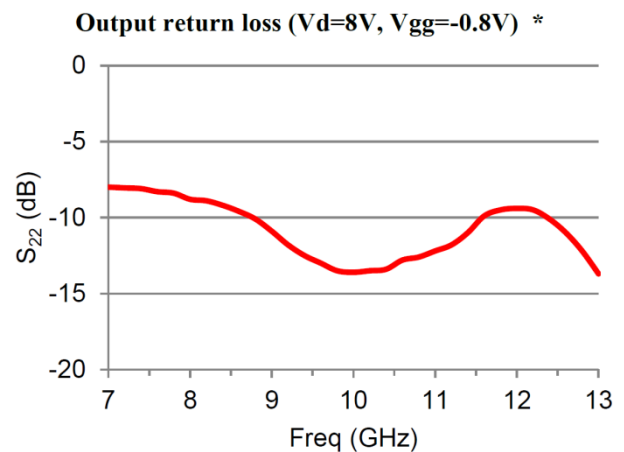
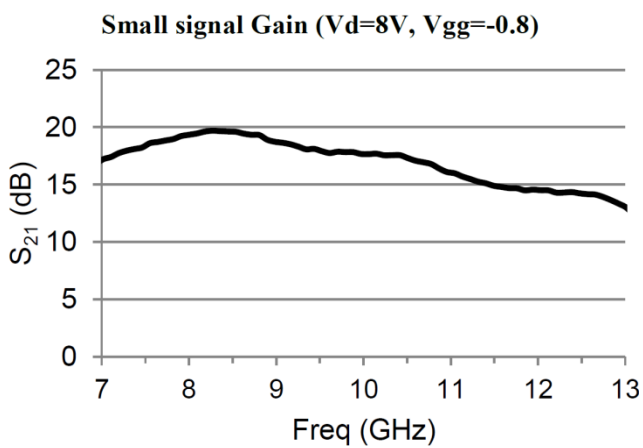
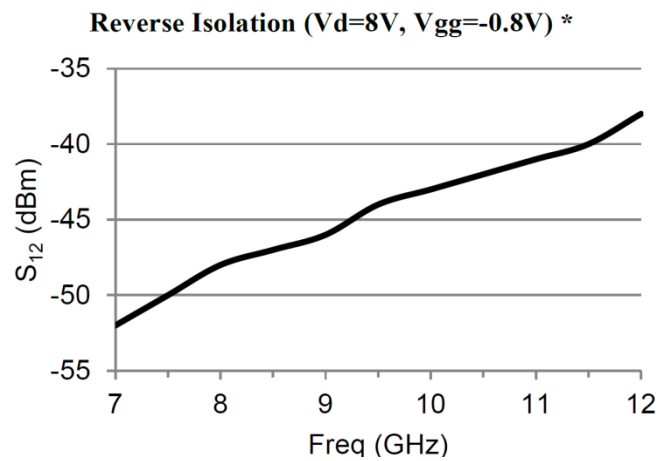
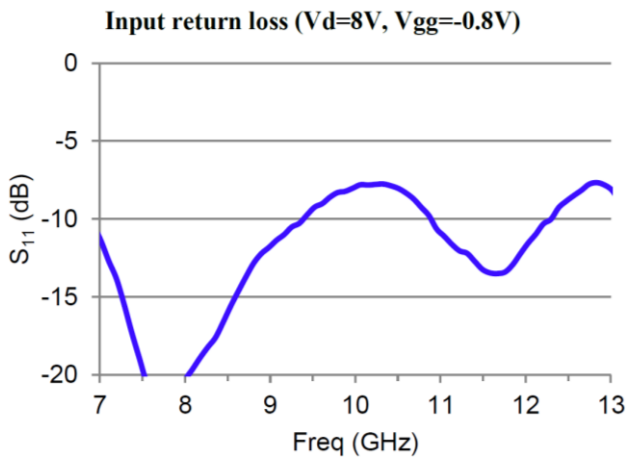
## Absolute Maximum Ratings

Parameter	Value
Drain Voltage	8
Gate Voltage 1, Vg1	-0.8
Gate Voltage 2, Vg2	-0.8
Drain Current, Id	3 A
Channel Temperature, Tch	175 °C
Storage Temperature	-65 to +150 °C

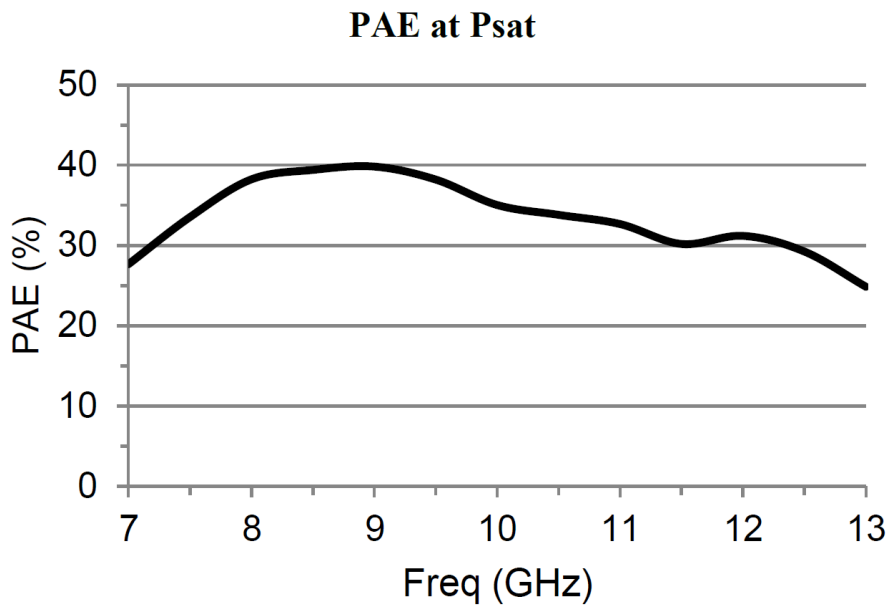
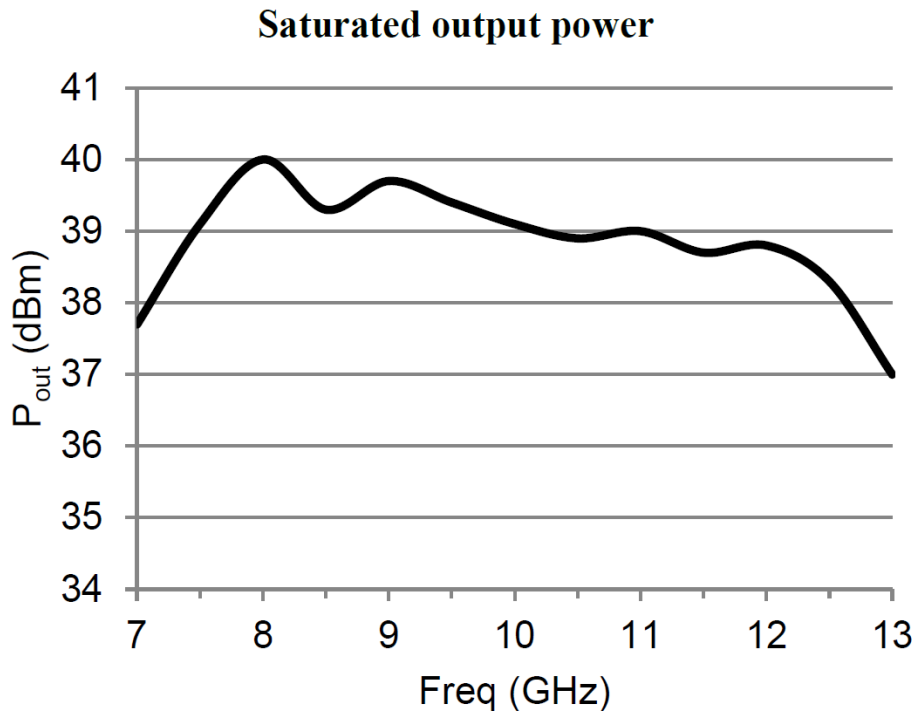
## Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
Vd		8		V
Id	2.7	3	3.3	A
Vg1		-0.8		V
Vg2		-0.8		V

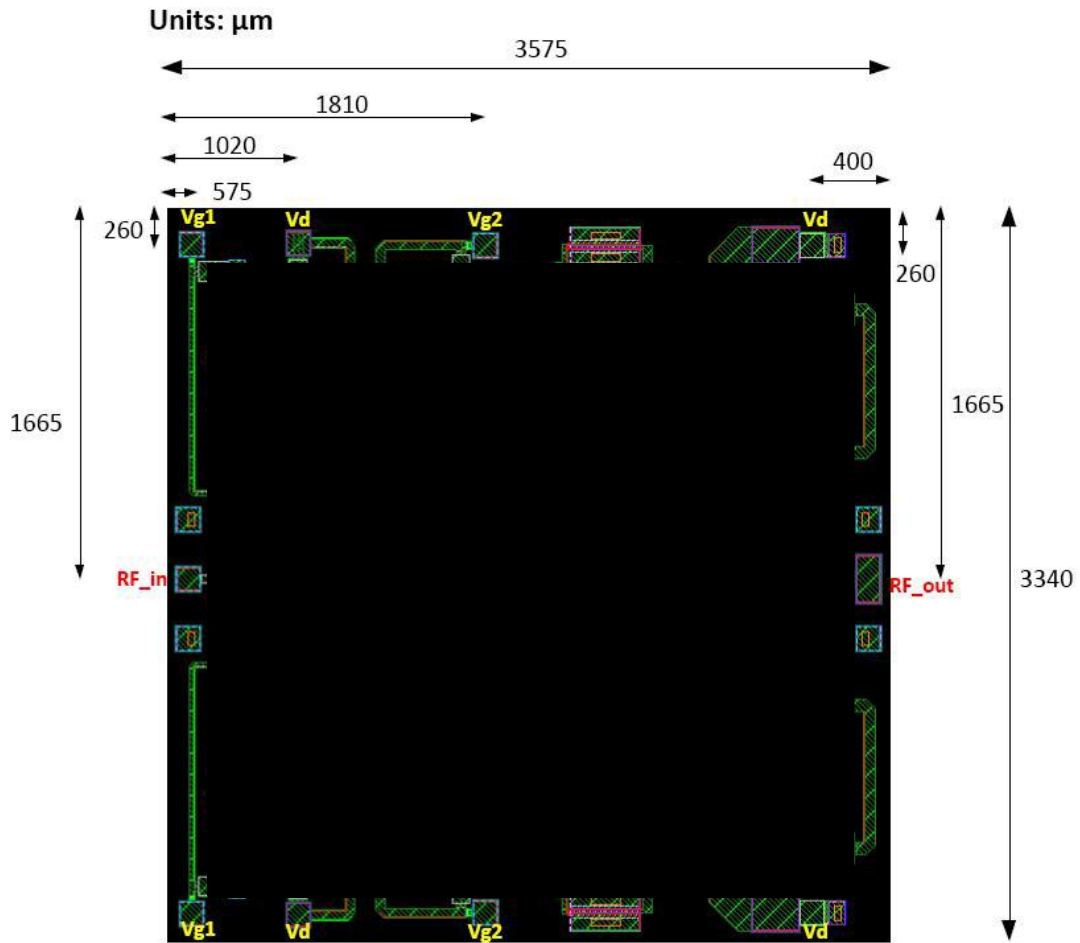
## Small Signal Performance



## Large Signal Performance



## Mechanical Drawing



\*Units:  $\mu\text{m}$

## Pin Description

Pad Name	DC Voltage	Description
<b>VG1</b>	<b>-0.8 v</b>	<b>Gate bias of first stage</b>
<b>VDD1</b>	<b>8 v</b>	<b>Drain bias of first stage</b>
<b>VG2</b>	<b>-0.8 v</b>	<b>Gate bias of second stage</b>
<b>VDD2</b>	<b>8 v</b>	<b>Drain bias of second stage</b>
<b>RF in</b>	<b>-</b>	<b>Input signal</b>
<b>RF out</b>	<b>-</b>	<b>Output Signal</b>