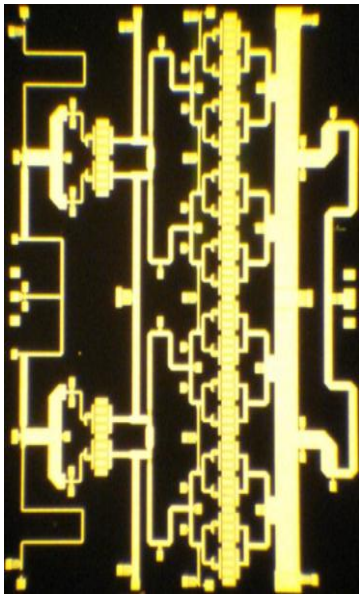
SDC2018

7.5-13.5 GHz GaAs MMIC Power Amplifier



Key Features

- X/K_u Band 10W Power Amplifier
- 15dB Large Signal Gain
- +40 dBm Saturated Output Power
- 35% power Added Efficiency

Applications

- Point-to-Point Radio
- Communications

Product Description

The SANDRA-SEMI SDC2018 is a two stage 7.5-13.5 GHz GaAs MMIC power amplifier has a large signal gain of 15 dB with a 40.0 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	8		13	GHz
Input Return Loss	S11		-9		dB
Output Return Loss	S22		-10		dB
Large Signal Gain	S21		15		dB
Saturated Output Power	P_{SAT}		40		dBm
Drain Bias Voltage	V_d		8		V
Gate Bias Voltage	V_g	-0.9	-0.8	-0.7	V

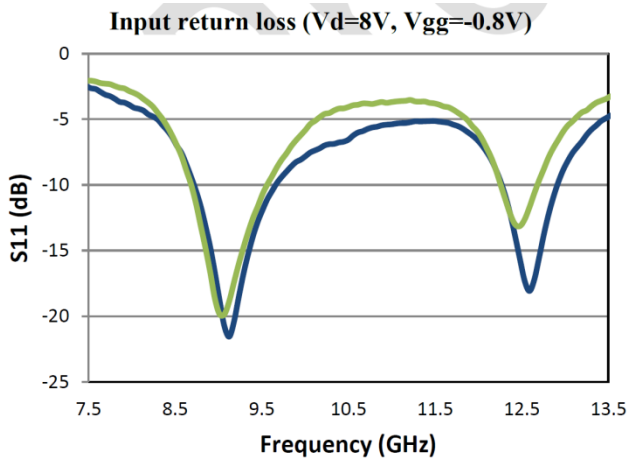
Absolute Maximum Ratings

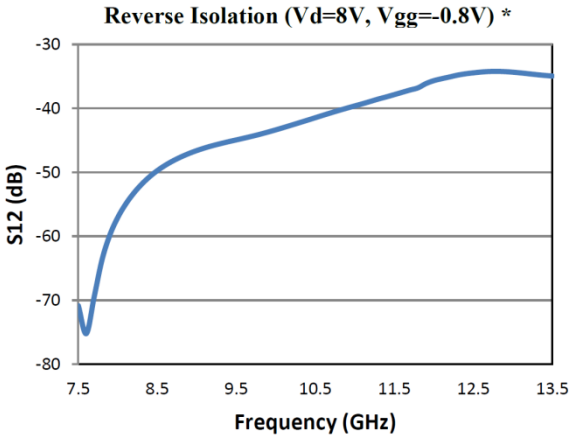
Parameter	Value
Drain Voltage	8
Gate Voltage 1, Vg1	-0.8
Gate Voltage 2, Vg2	-0.8
Drain Current, Id	3.5
Channel Temperature, Tch	175 ºC
Storage Temperature	-65 to +150 ºC

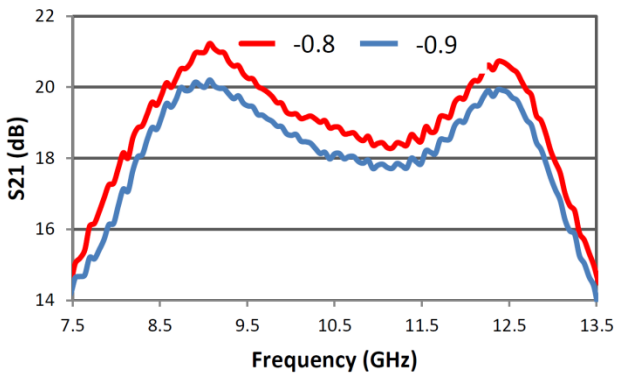
Recommended Operating Conditions

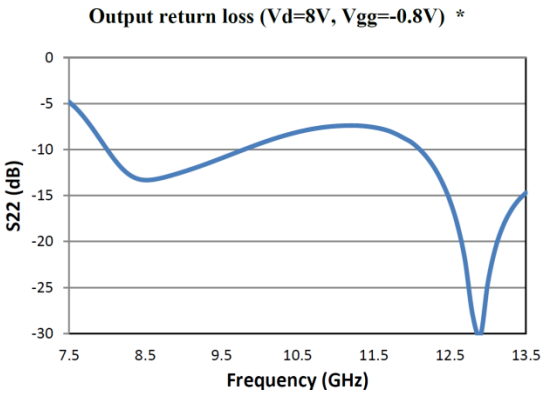
Parameter	Min	Typ	Max	Unit
Vd		8		V
Id		3.5		A
Vg1		-0.8		V
Vg2	-0.9	-0.8	0.7	V

Small Signal Performance

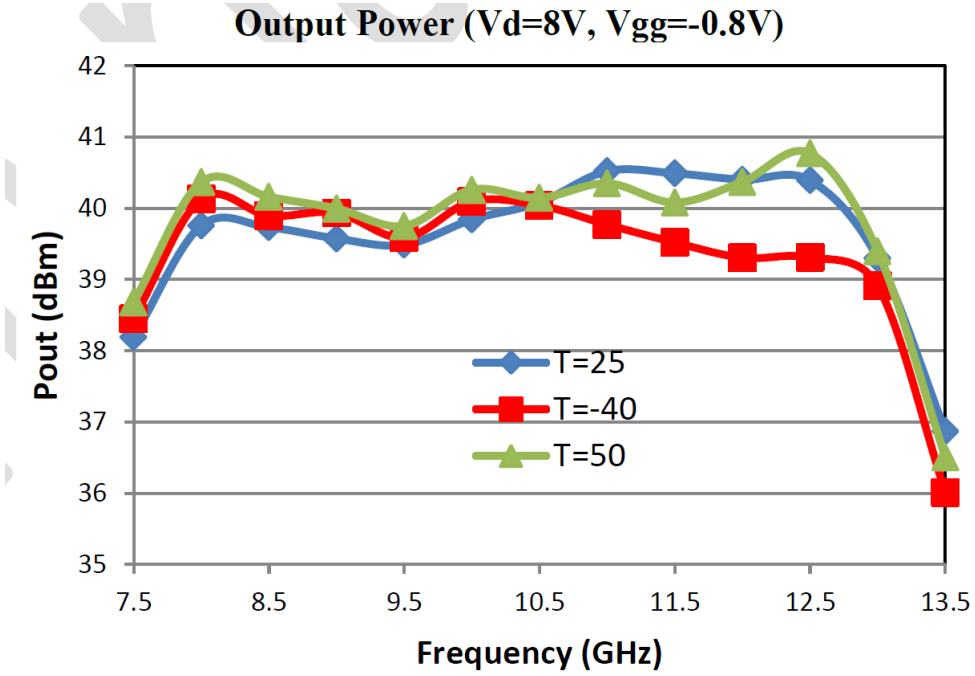


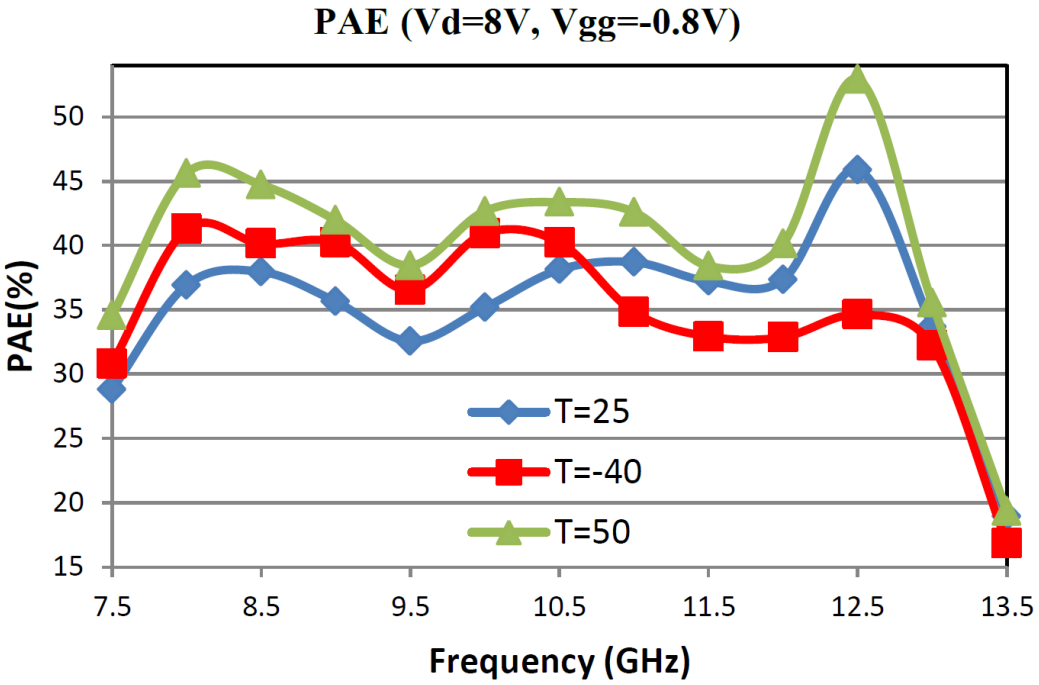




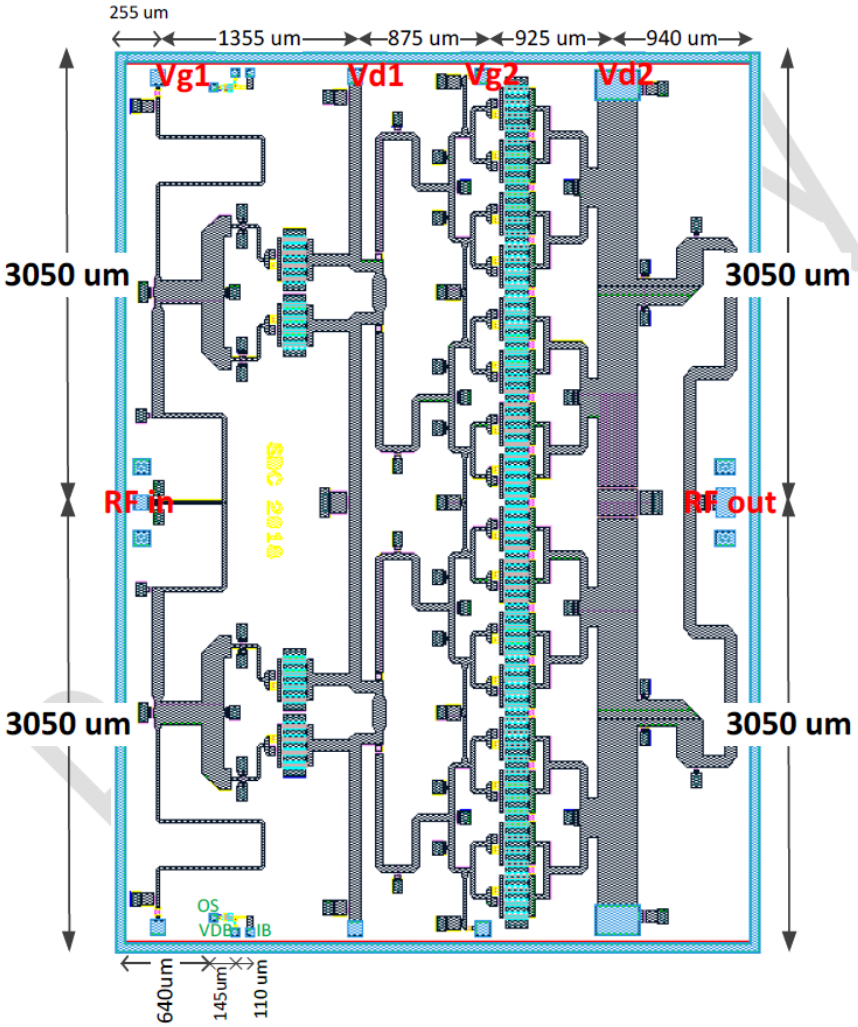


Large Signal Performance





Mechanical Drawing



Pin Description

Symbol	Description
Vg1	Gate bias of first stage
Vd1	Drain bias of first stage
Vg2	Gate bias of second stage
Vd2	Drain bias of second stage
RF_{in}	Input Signal
RF_{out}	Output Signal
VD	Drain bias of biasing circuit
OB	Control signal for biasing circuit
IB	Output of biasing circuit