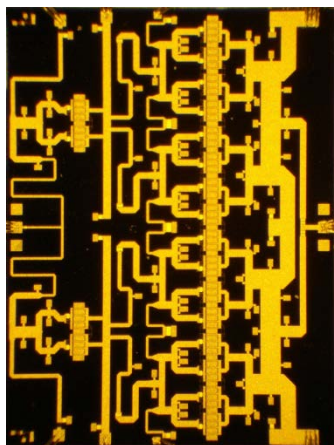


13.5-17.5 GHz GaAs MMIC Power Amplifier



Key Features

- Ku Band 8W Power Amplifier
- 13 dB Large Signal Gain
- +39.0 dBm Saturated Output Power
- 30% Power Added Efficiency

Applications

- Point-to-Point Radio
- Communications

Product Description

The SANDRA-SEMI SDC2028 is a two stage 13.5-17.5 GHz GaAs MMIC power amplifier has a large signal gain of 13 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	13.5		17.5	GHz
Input Return Loss	S11	-21	-10	-6	dB
Output Return Loss	S22	-20	-12	-10	dB
Small Signal Gain	S21	12	16	18	dB
Large Signal Gain	A_v		13		dB
Saturated Output Power	P_{SAT}		39	39.5	dBm
Power Added Efficiency	PAE		28		%
Drain Bias Voltage	$V_{d1,2}$		8		V
Gate Bias Voltage	V_g	-0.85	-0.8	-0.75	V

SDC2028

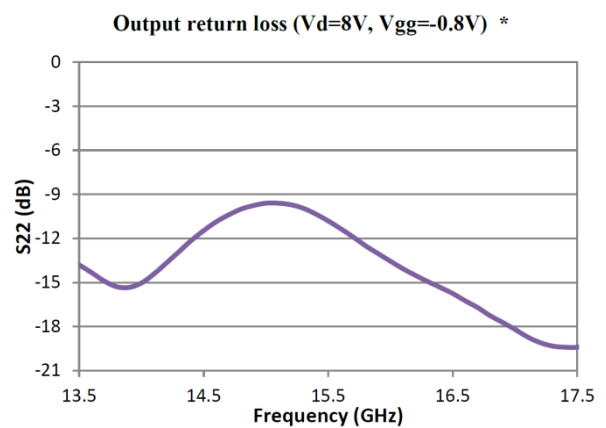
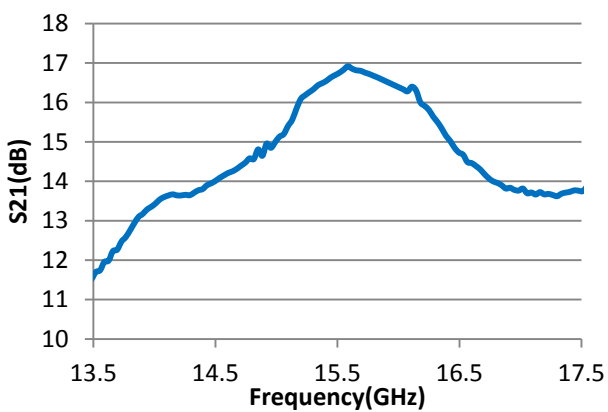
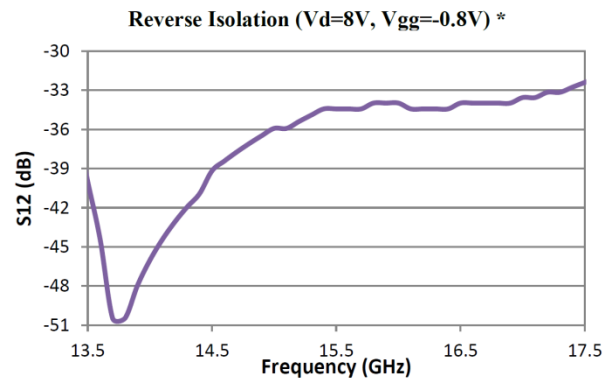
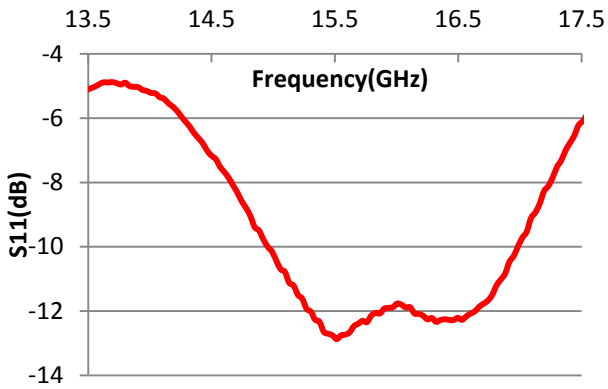
Absolute Maximum Ratings

Parameter	Value
Drain Voltage	8
Gate Voltage 1, Vg1	-0.8
Gate Voltage 2, Vg2	-0.8
Drain Current, Id	4 A
Channel Temperature, Tch	175 °C
Storage Temperature	-65 to +150 °C

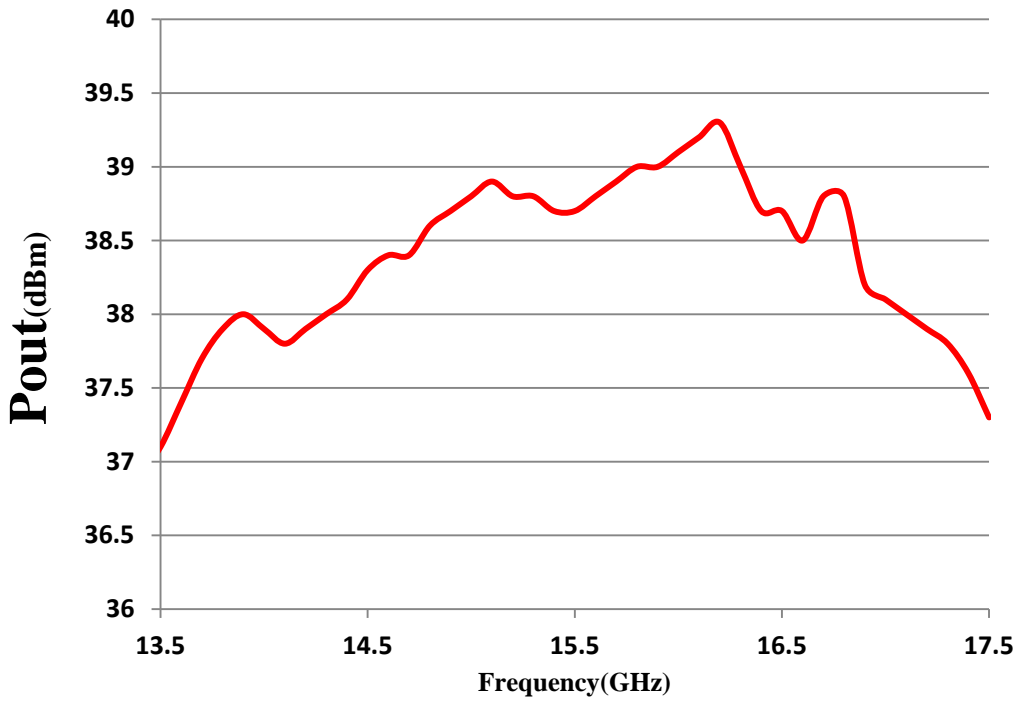
Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
Vd		8		V
Id	3	3.5	4	A
Vg1		-0.8		V
Vg2		-0.8		V

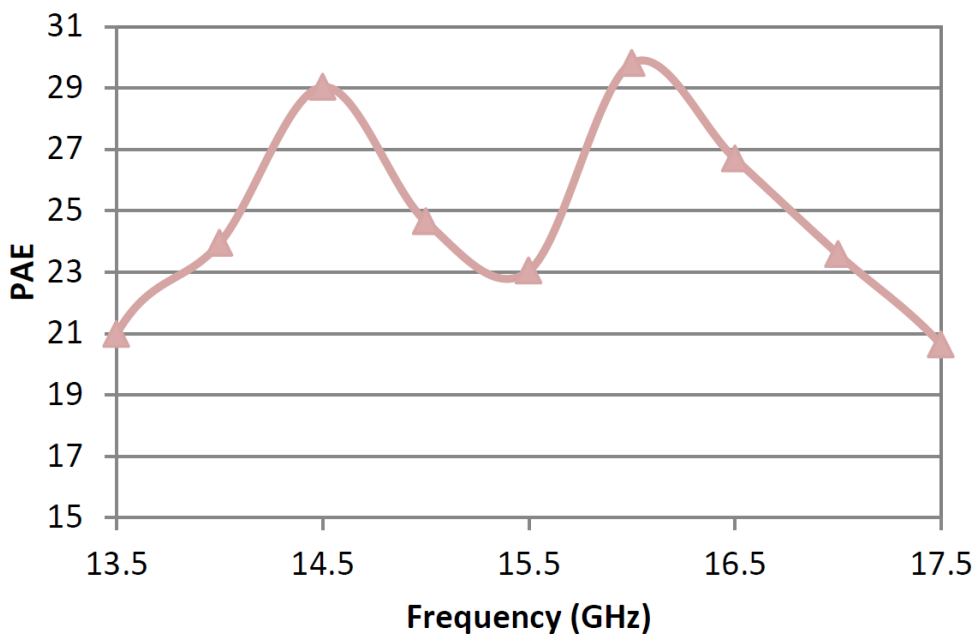
Small Signal Performance



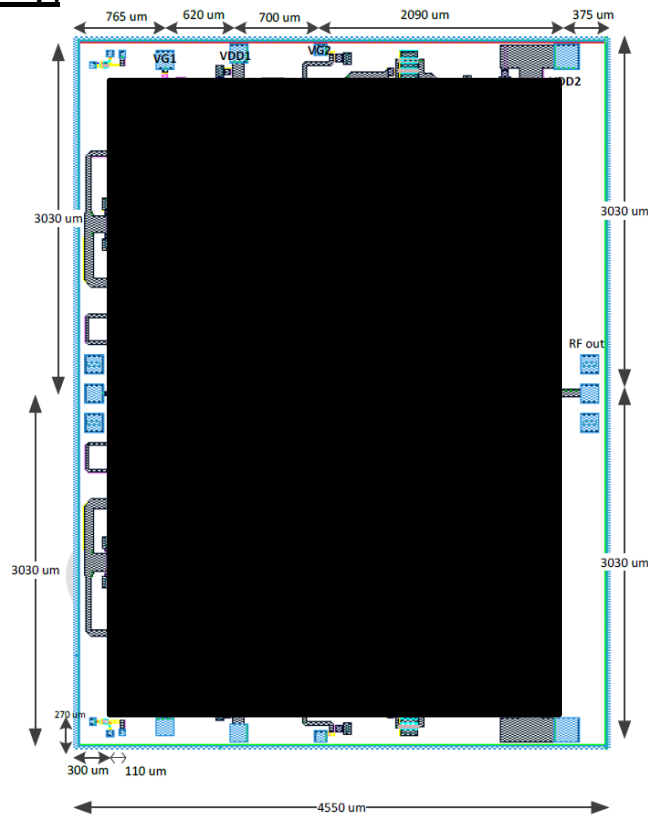
Large Signal Performance



PAE at Psat



Mechanical Drawing



Pin Description

Pad Name	DC Voltage	Description
VG1	-0.75 v	Gate bias of first stage
VDD1	8 v	Drain bias of first stage
VG2	-0.75 v	Gate bias of second stage
VDD2	8 v	Drain bias of second stage
RF in	-	Input signal
RF out	-	Output Signal