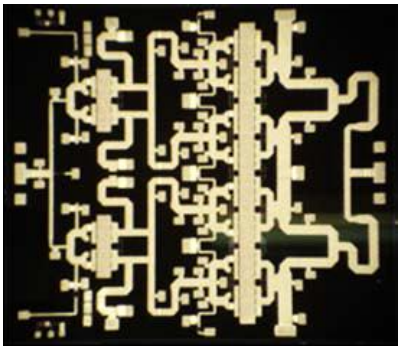
SDC2027

13-19GHz GaAs MMIC Power Amplifier



Key Features

- Ku/K Band 5W Power Amplifier
- 14 dB Large Signal Gain
- +37.0 dBm Saturated Output Power
- 35% Power Added Efficiency

Applications

- Point-to-Point Radio
- Communications

Product Description

The SANDRA-SEMI SDC2027 is a two stage 13.5-17.5 GHz GaAs MMIC power amplifier has a large signal gain of 14 dB with a 37.0 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		19	GHz
Input Return Loss	S11		-7		dB
Output Return Loss	S22		-10		dB
Large Signal Gain	A_v		17		dB
Saturated Output Power	P_{SAT}		37		dBm
Power Added Efficiency	PAE		35		%
Drain Bias Voltage	$V_{d1,2}$		8		V
Gate Bias Voltage	V_g	-0.85	-0.8	-0.75	V

Absolute Maximum Ratings

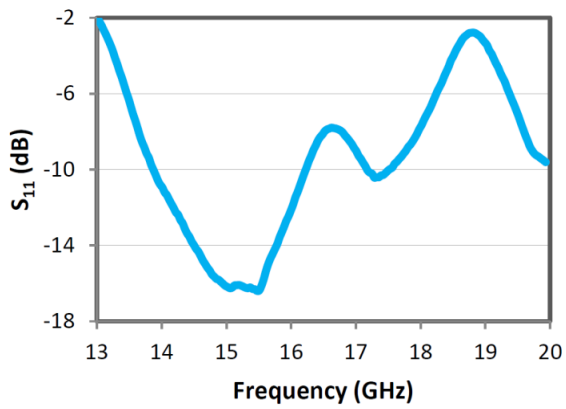
Parameter	Value
Drain Voltage	8
Gate Voltage 1, Vg1	-0.8
Gate Voltage 2, Vg2	-0.8
Drain Current, Id	2.4 A
Channel Temperature, Tch	175 ºC
Storage Temperature	-65 to +150 ºC

Recommended Operating Conditions

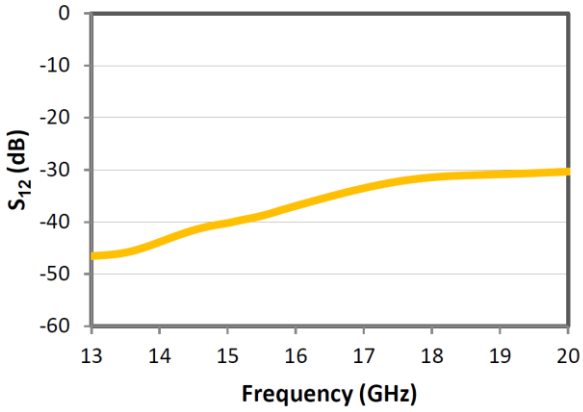
Parameter	Min	Typ	Max	Unit
Vd		8		V
Id	1.75	1.8	2.2	A
Vg1		-0.8		V
Vg2		-0.8		V

Small Signal Performance

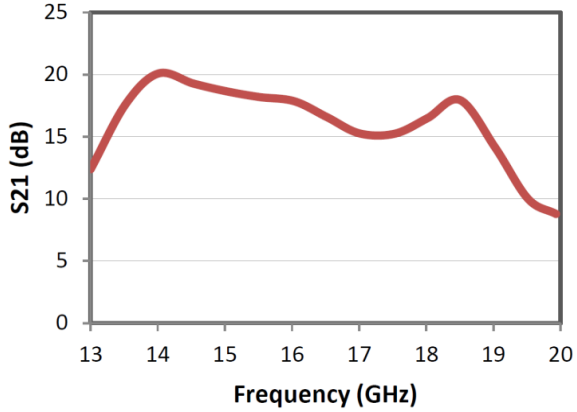
Input Return Loss (V_d=8V, V_{gg}=-0.8V)



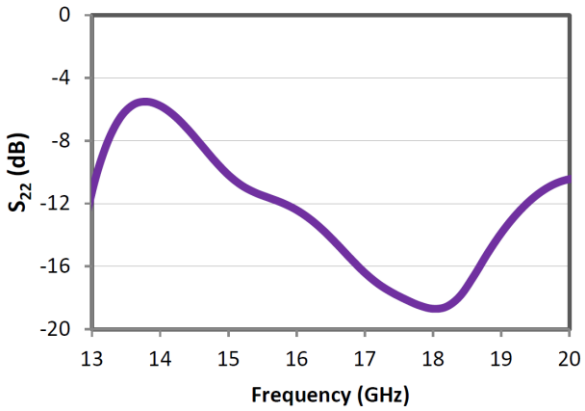
Reverse Isolation (V_d=8V, V_{gg}=-0.8V)



Small Signal Gain (V_d=8V, V_{gg}=-0.8V)

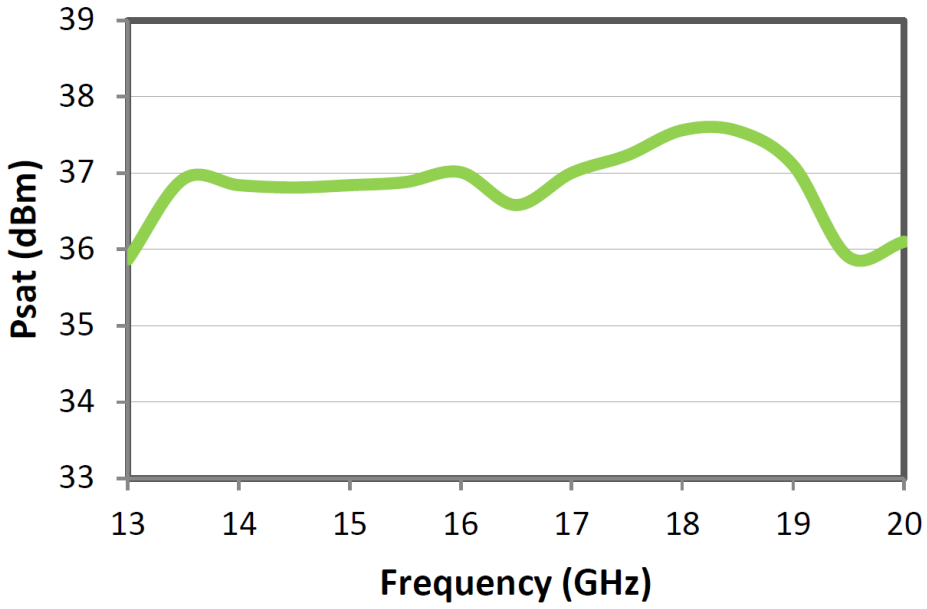


Output return loss (V_d=8V, V_{gg}=-0.8V)

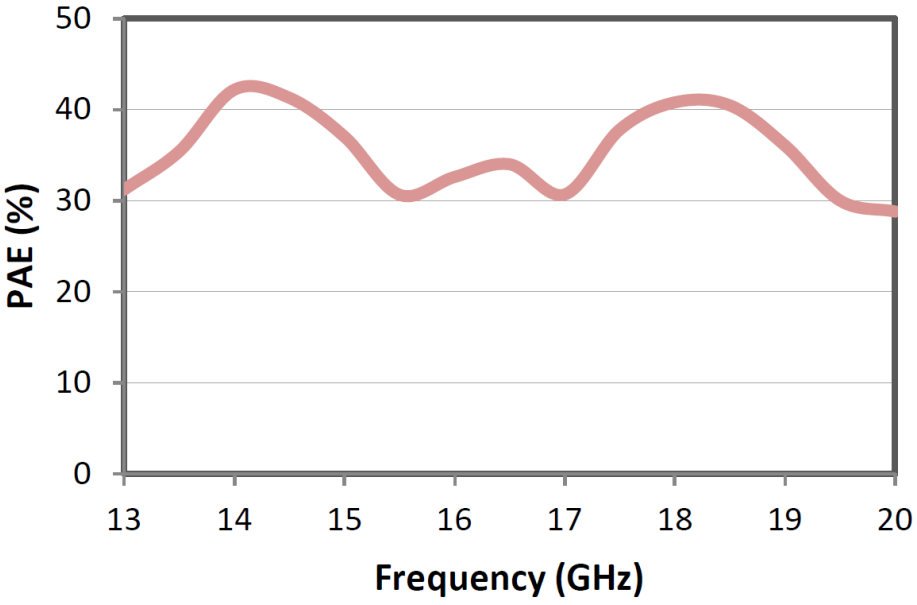


Large Signal Performance

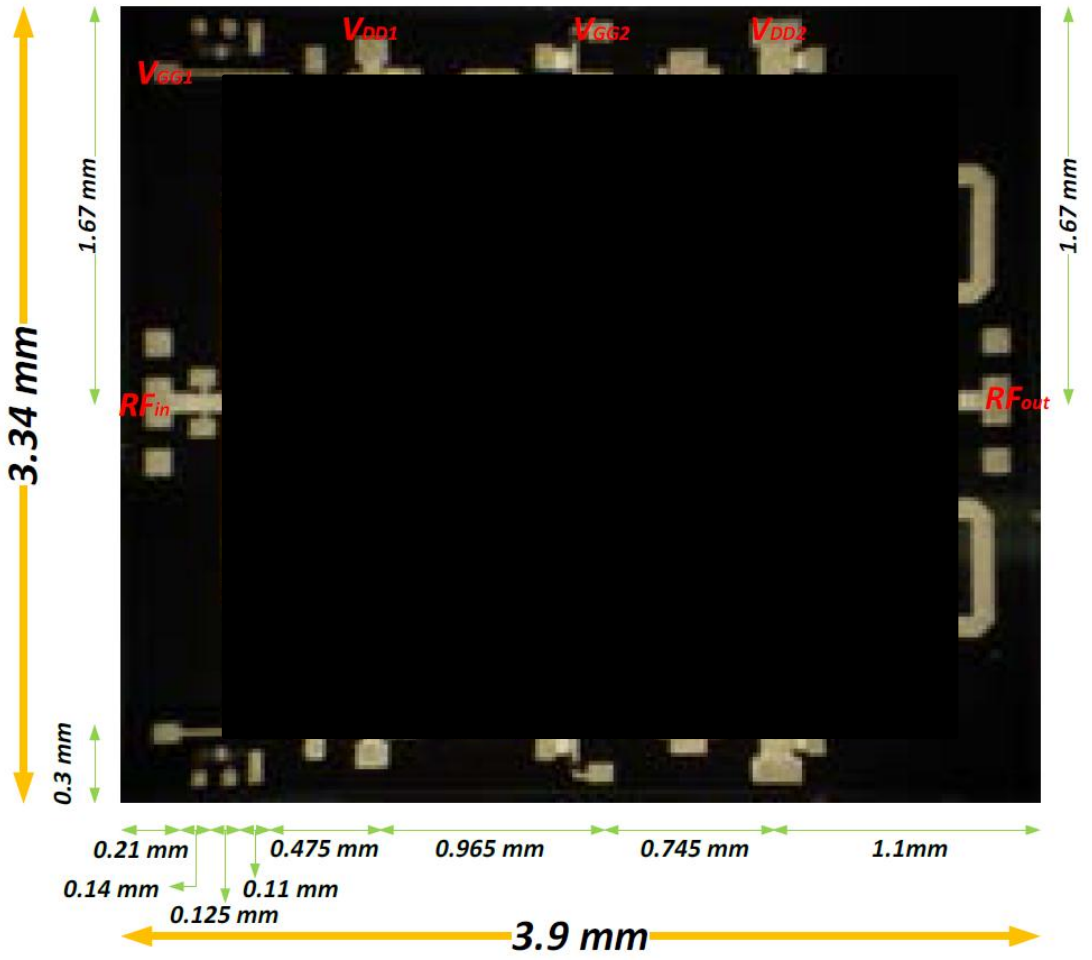
Saturated Power (Vd=8V, Vgg=-0.8V)



PAE (V_d=8V, V_{gg}=-0.8V)



Mechanical Drawing



Pin Description

Pad Name	DC Voltage	Description
VGG1	-0.75 v	Gate bias of first stage
VDD1	8 v	Drain bias of first stage
VGG2	-0.75 v	Gate bias of second stage
VDD2	8 v	Drain bias of second stage
RFin	-	Input signal
RFout	-	Output Signal