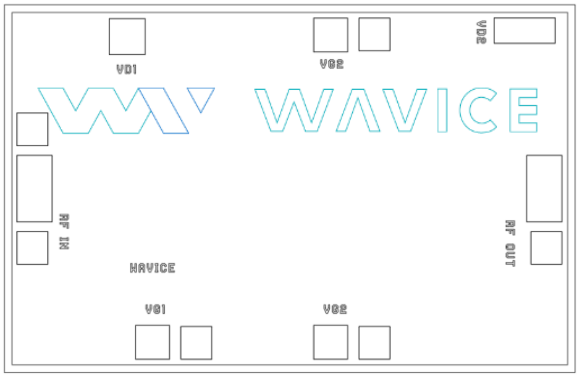
WVMP35030P50A

2.7 – 3.5GHz 35W GaN MMIC, Power Amplifier

Features

- Frequency Range : 2.7 – 3.5 GHz
- Psat : 45.5 dBm
- Power Gain : 27.5 dB @ Psat
- Small Signal Gain: 31 dB (Typ.)
- PAE: 50% @ Psat
- Bias : V_D = 50V, I_{DQ1} = 50mA, I_{DQ2} = 200mA, V_G = -2.5V (Typ.)
- Characterized at Pulse duty 10%, Pulse width 100us

Product Image



- MMIC Size : 3330 X 2130 um

Description

Wavice's WVMP35030P50A is a high power, S-Band amplifier fabricated on Wavice's Durable 0.3um GaN on SiC process. Covering the frequency range of 2.7 – 3.5 GHz, the WVMP35030P50A typically provides 45.5 dBm of saturated output power and 27.5 dB of power gain while achieving 50% Power Added efficiency.
The WVMP35030P50A is ideal for use in both commercial and military radar systems.

ROHS compliant.

Applications

- Military Radar
- Commercial Radar
- Infra Structure
- Small Cell

Ordering information

Part No.	Description
WVMP35030P50A	-
WVMP35030P50AEV	WVMP35030P50A Evaluation Board

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Absolute Maximum Ratings

Parameter	Symbol	Value / Range
Drain Source Voltage	V_{DS}	50 V
Gate Source Voltage	V_{GS}	-10 to +2 V
Maximum Forward Gate Current	I_{GMAX}	5 mA
Absolute Maximum Channel Temperature	T_{CH}	+250 ℃
Storage Temperature	T_{STG}	-65 ℃ to +150 ℃
Mounting Temperature		-

1) Case temperature T_C =25 ℃
2) Wavice does not recommend sustained operation above maximum operating conditions.
3) Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability.

Recommended Operating Conditions

Parameter	Symbol	Value / Range
Drain Source Voltage	V_{DS}	50 V
Drain Current	I_{DQ}	250 mA
Gate Source Voltage (Typical)	V_{GS}	-2.5 V
Case Operating Temperature		~40 ℃ to +85 ℃

1) Electrical specifications are measured at specified test conditions. Specifications are not guaranteed over all recommended operating conditions.
2) Proper ESD(electrostatic discharge) control techniques should be used when handling these devices.

Thermal Characteristics

Parameter	Symbol	Units	Value	Test Conditions
Thermal Resistance using Infrared Measurement of Die Surface Temperature	R_{θ}(IR)	℃/W	TBD	Tbase = 85°C, V_D = 50V, I_{DQ} = -mA, Freq = -
Peak IR Surface Temperature	T_{CH}	℃	TBD	

1) Thermal resistance determined to the case temperature (85 ℃)
2) Channel temperature indicated is an IR scan equivalent temperature, Thermal resistance is calculated using this value.

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Electrical Specifications

Parameter	Units	Min	Typ	Max
Saturated Output Power [1)]	dBm		45.5	
PAE @ Psat	%		50	
Power Gain @ Psat	dB		27.5	
Small Signal Gain	dB		31	
Input Return Loss	dB		-8	
Output Return Loss	dB		-20	

Test conditions, unless otherwise noted :

- TA = 25 °C, V_D = 50V, I_{DQ1} = 50mA, I_{DQ2} = 200mA V_G = -2.5V(Typ.)
- Test Frequency : 2.7 – 3.5GHz
- Measured in WVMP35030P50A Evaluation Board

1) Pulse width 100usec, Pulse Duty 10%

Parameter	Units	Min	Typ	Max	Test Conditions
Gate Threshold Voltage	V	-3.4	-2.7	-2.0	V_{DS}= 10V, I_D= 5 mA
Drain-Source Breakdown Voltage	V	150			V_{GS}= -8V, I_D= 5 mA
Drain Current(I_{DMAX})[1)]	A	TBD	TBD		V_{DS}= 10V, V_{GS}= 2.0V
Gate Forward Voltage	V		2		I_{GS}= 5 mA

Test conditions, unless otherwise noted :

1) Scaled from PCM unit cell

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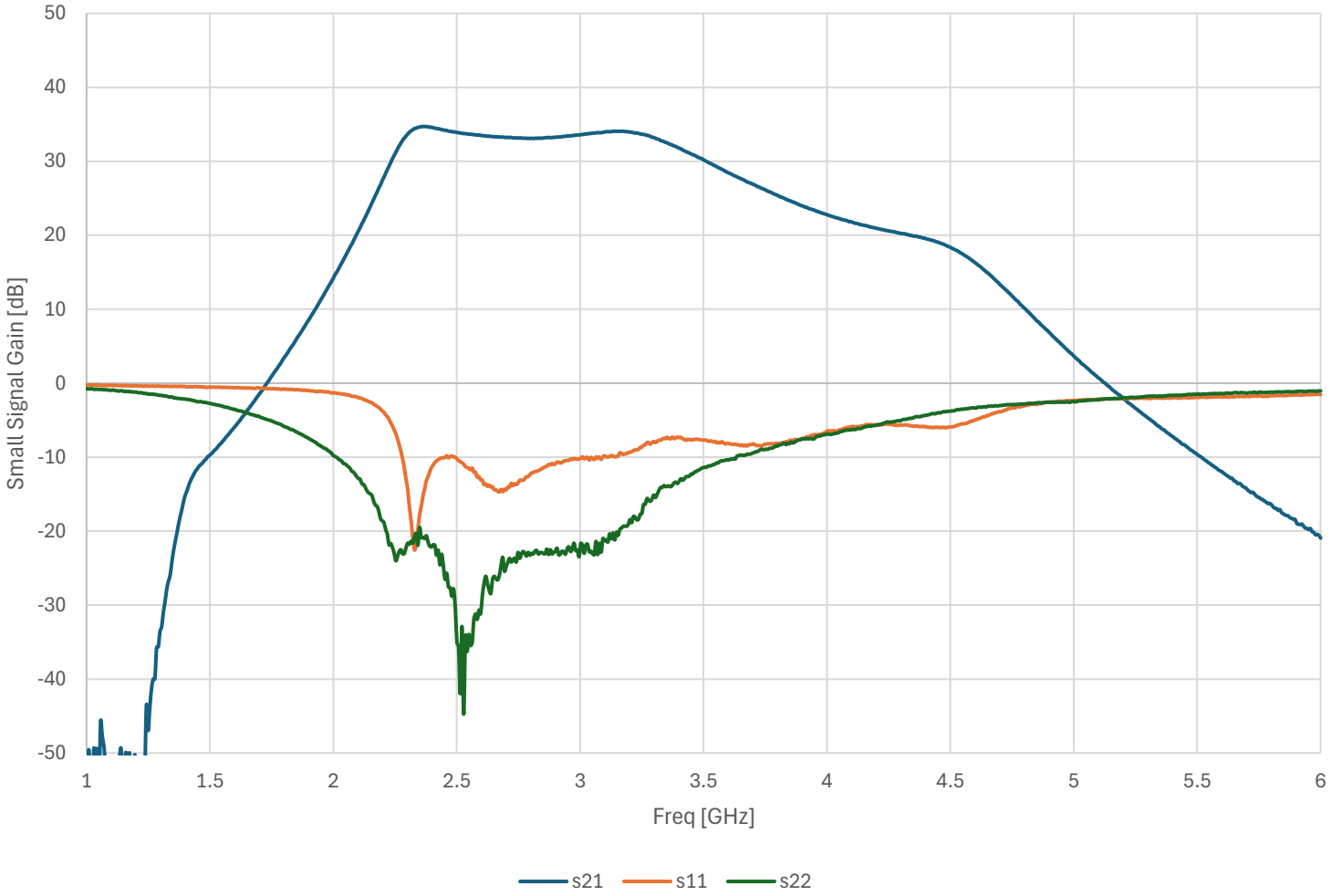
Performance Plots | S-Parameter

Test conditions, unless otherwise noted: T_c = +25 °C, V_D = 50 V, I_{DQ1} = 50 mA, I_{DQ2} = 200 mA



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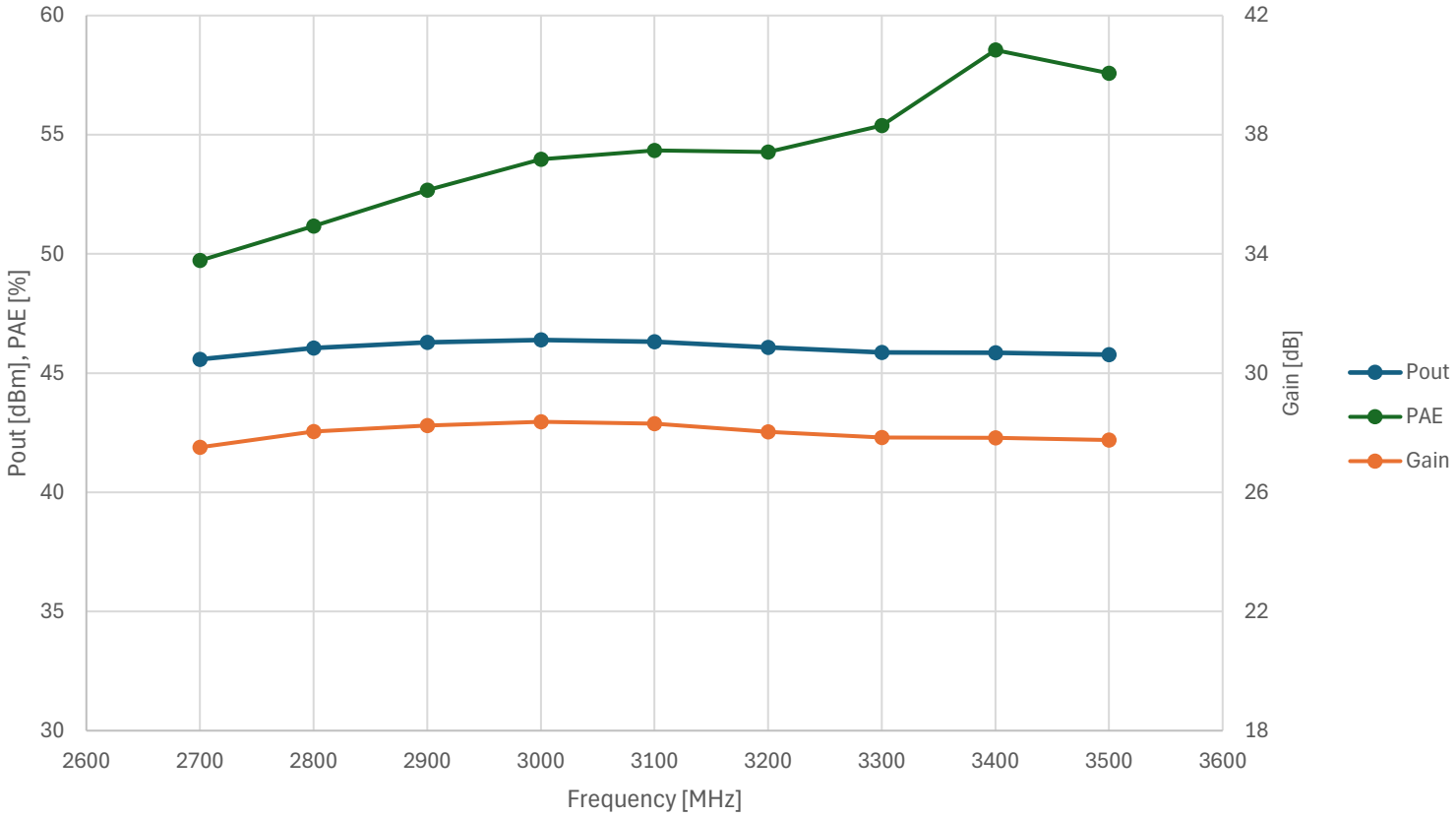
Performance Plots | Pout, Gain, PAE vs Frequency

Test conditions, unless otherwise noted: T = +25 °C, V_D = 50 V, I_{DQ1} = 50 mA, I_{DQ2} = 200 mA, Pin = 18 dBm
Pulse Width =100usec, Duty Cycle = 10%



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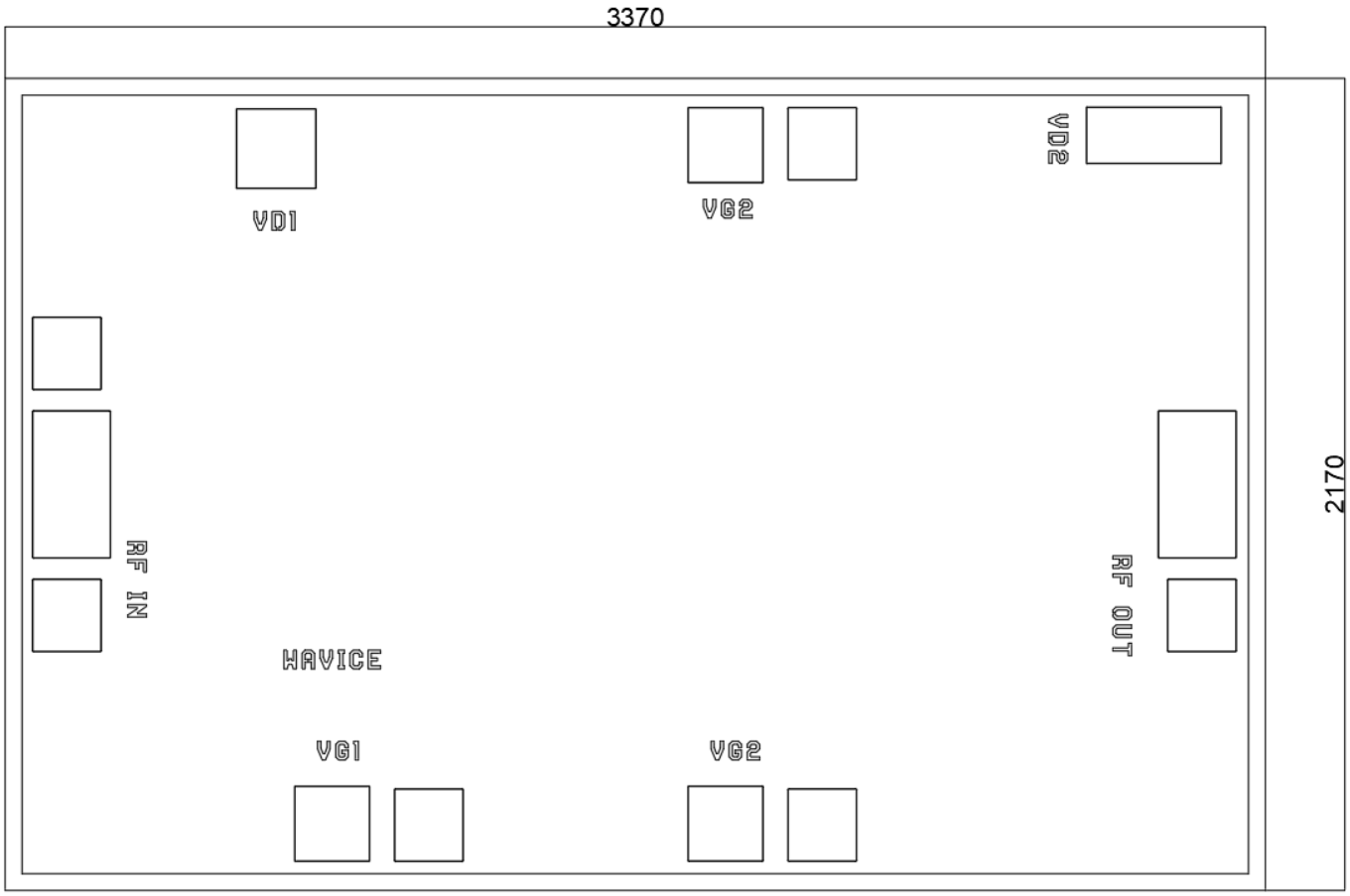
MMIC Dimensions

Notes:

1. All dimensions are in millimeters.



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Handling Precautions

Parameter	Class	Test Methodology
ESD – Human Body Model (HBM)	Class 1B	JEDEC JESD22 A114-D
ESD – Charged Device Model (CDM)	Class IV	JEDEC JESD22 C101-C
MSL – Moisture Sensitivity Level	N/A	IPC/JEDEC Standard J-STD-020

Solderability

The component leads should be manually soldered, and the package cannot be subjected to conventional reflow processes. The use of no-clean solder to avoid washing after soldering is recommended.

Contact Information

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Notes & Disclaimer

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