

SAC5006

GaN MMIC Power Amplifier
2GHz~6GHz 47dBm

Rev 1.0

Features

- Frequency: 2GHz~6GHz
- Small Signal Gain: 35dB
- Output Power: 47dBm
- Power Gain: 25dB
- Die Size: 4.5mm×4.5mm×0.1mm
- Supply Voltage: +28V/-Vg
- Packaged: Bare Die

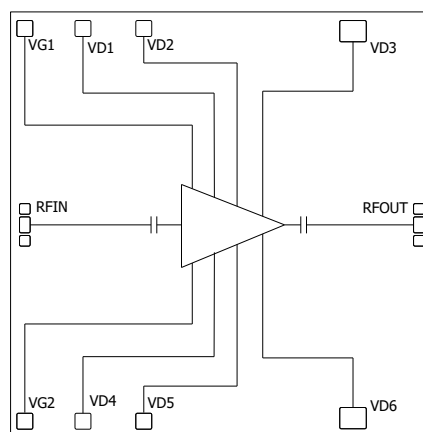
General Description

SAC5006 is a power amplifier delivering 47dBm with 30% power added efficiency from 2GHz to 6GHz. No external matching is required to achieve full-band operation.

Typical Applications

- Point-to-Point Radios

Functional Diagram



Electrical Performance

$T_A=25^{\circ}\text{C}$, $V_D=+28\text{V}$, $I_{DQ}=1.3\text{A}$, $Z_0=50\Omega$, CW

Parameter	Min.	Typ.	Max.	Units
Frequency	2	—	6	GHz
Small Signal Gain	—	35	—	dB
Small Signal Gain Flatness	—	± 3	—	dB
Power Gain**	—	25	—	dB
Reverse Isolation	—	-50	—	dB
RF input port VSWR	—	1.5	2.2	:1
Power-Added Efficiency	—	30	—	%
Output Power	—	47	—	dBm
Drain Voltage (V_D)	—	28	—	V
Gate Current	—	2	20	mA
Supply Current(I_D)**	—	—	8	A
Thermal Resistance	—	1.1	—	$^{\circ}\text{C}/\text{W}$

*Adjust the Vg voltage (- 2.3 ~ -2.0V) so that the I_{DQ} is about 1.3A, and the typical Vg voltage is -2.2V

**Pin=22dBm

Absolute Maximum Ratings

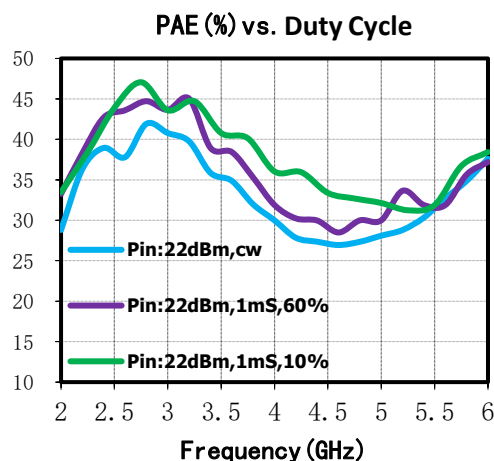
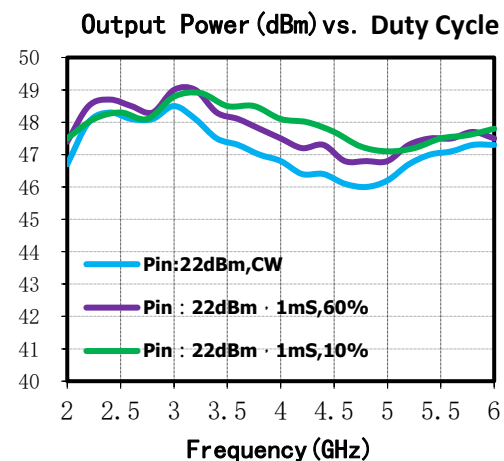
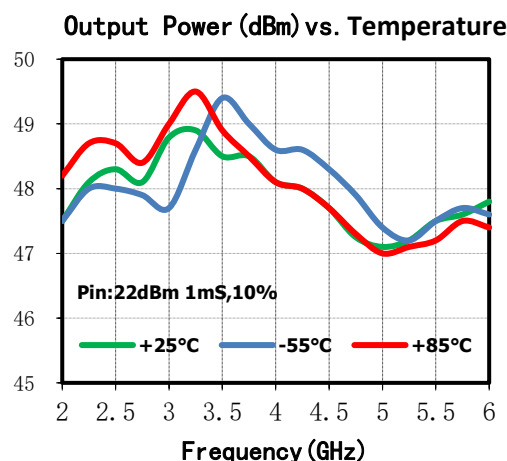
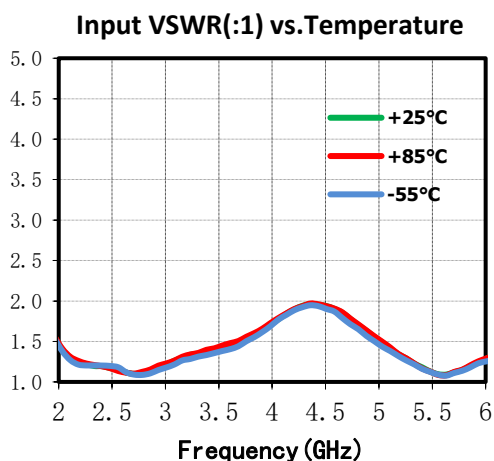
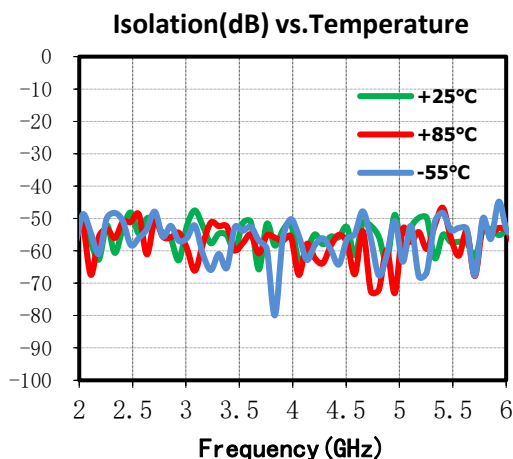
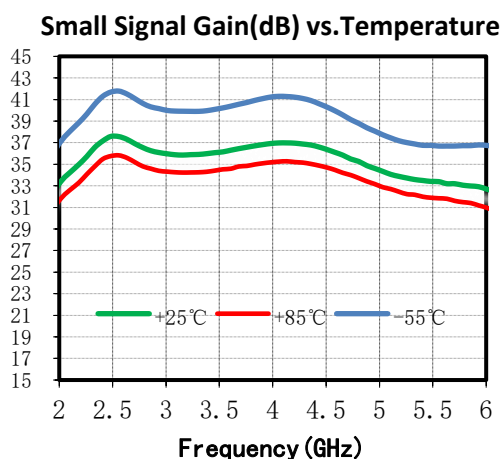
Maximum Input Power	+27dBm	Operating Temperature (Backside)	-55 $^{\circ}\text{C}$ ~+85 $^{\circ}\text{C}$
Channel Temperature	250 $^{\circ}\text{C}$	Storage Temperature	-55 $^{\circ}\text{C}$ ~+180 $^{\circ}\text{C}$
Maximum V_D Supply	+32V	V_G Range	-5V~-1.8V
Mounting Temperature (30 seconds)	320 $^{\circ}\text{C}$		

SuperApex, LLC

1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com

Typical Performance Curve

The following data are obtained by SAC5006 evaluation board test, $V_D = +28V$, $I_{DQ} = 1.3A$, $T_A = +25^\circ C$



SAC5006

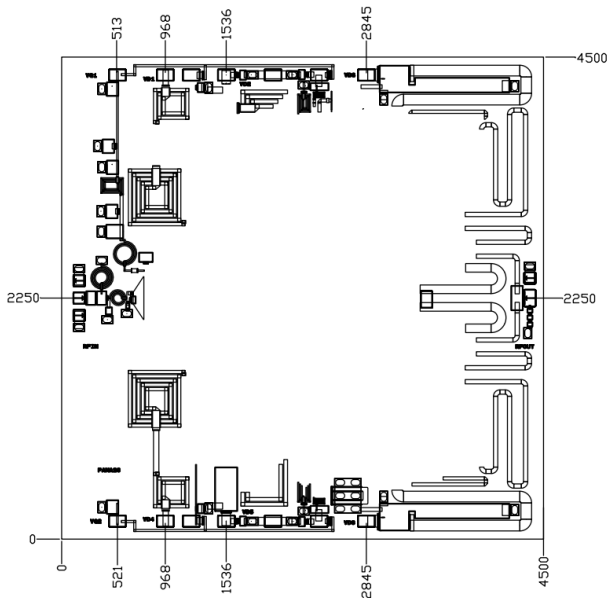


GaN MMIC Power Amplifier
2GHz~6GHz 47dBm

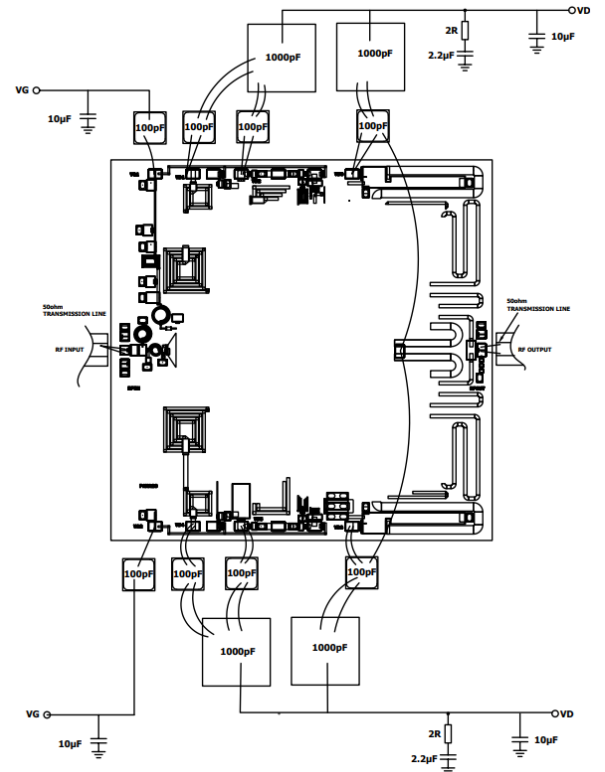
Rev 1.0

Bare Die Outline

(all dimensions in μm)



Assembly Diagram



Revision History

Revision	Date	Comment
1.0	APR 24, 2024	First Release

SuperApex, LLC

1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com