SAC5026CR5

GaN MMIC Power Amplifier
0.9GHz~1.5GHz 47dBm

Rev 1.0

Features

- Frequency: 0.9GHz~1.5GHz
- Small Signal Gain: 40dB
- Output Power: 47dBm
- Power Gain:30dB
- Supply Voltage: +28V/-Vg
- Packaged: Metal-Ceramic-Package (CR5)

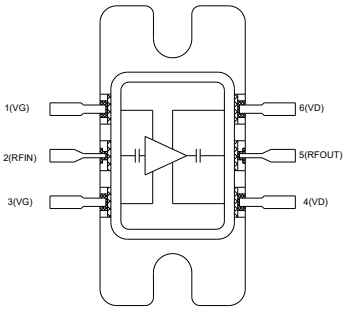
General Description

SAC5026CR5 is a power amplifier delivering 47dBm with 40% power added efficiency from 0.9GHz to 1.5GHz.

Typical Applications

- Point-to-Point Radios

Functional Diagram



Electrical Performance

T_A=25℃, V_D=+28V, I_{DQ}=1.1A, Z_0=50Ω, CW

Parameter	Min.	Typ.	Max.	Units
Frequency	0.9	—	1.5	GHz
Small Signal Gain	—	40	—	dB
Small Signal Gain Flatness	—	±5	—	dB
Power Gain**	—	30	—	dB
Reverse Isolation	—	-50	—	dB
RF input port VSWR	—	1.8	3.0	:1
Power-Added Efficiency	—	40	—	%
Output Power	—	47	—	dBm
Drain Voltage (V_D)	—	28	—	V
Gate Current	—	2	20	mA
Supply Current (I_D)**	—	—	5	A

*Adjust the Vg voltage (- 2.3 ~ -2.0V) so that the I_{DQ} is about 1.1A, and the typical Vg voltage is -2.2V
**Pin=17dBm

Absolute Maximum Ratings

Maximum Input Power	+29dBm	Operating Temperature (Backside)	-55℃~+85℃
Channel Temperature	250℃	Storage Temperature	-55℃~+180℃
Maximum V_D Supply	+32V	V_G Range	-5V~-1.8V
Mounting Temperature	320℃,30s		

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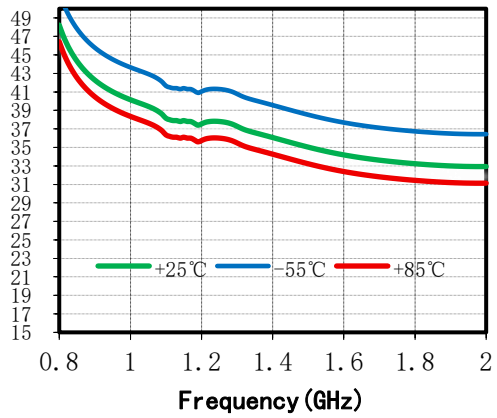
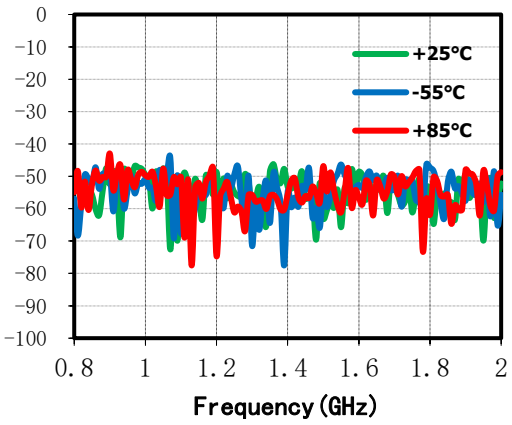
Typical Performance Curve

The following data are obtained by SAC5026CR5 evaluation board test, V_D = + 28V, I_{DQ} = 1.1A, T_A = + 25℃

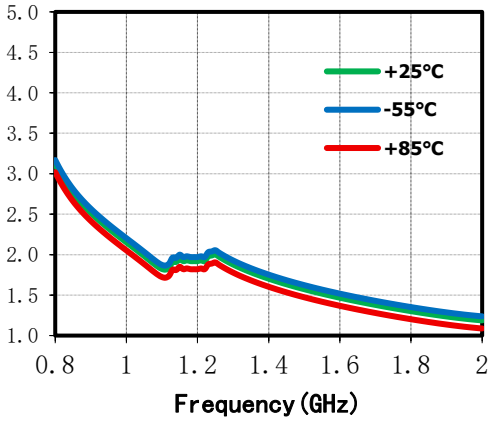
Small Signal Gain(dB) vs.Temperature



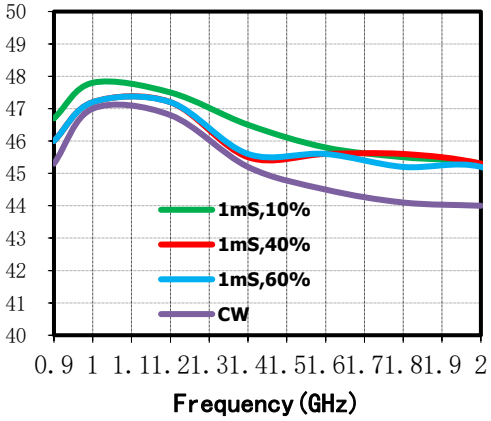
Isolation(dB) vs.Temperature



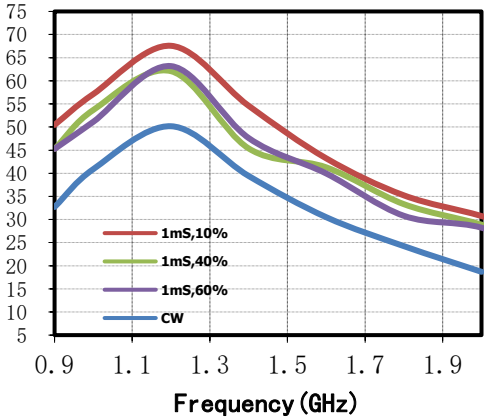
Input VSWR(:1) vs.Temperature



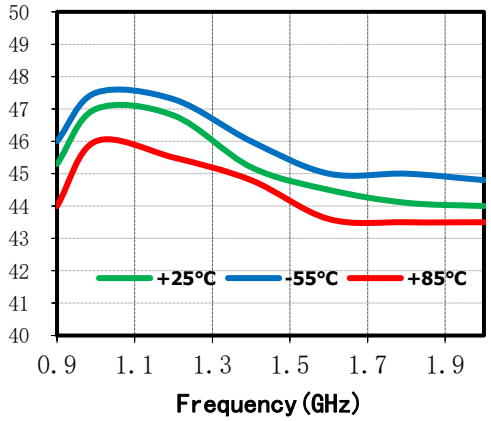
Output Power(dBm)vs.Duty Cycle



PAE (%) vs. Duty Cycle

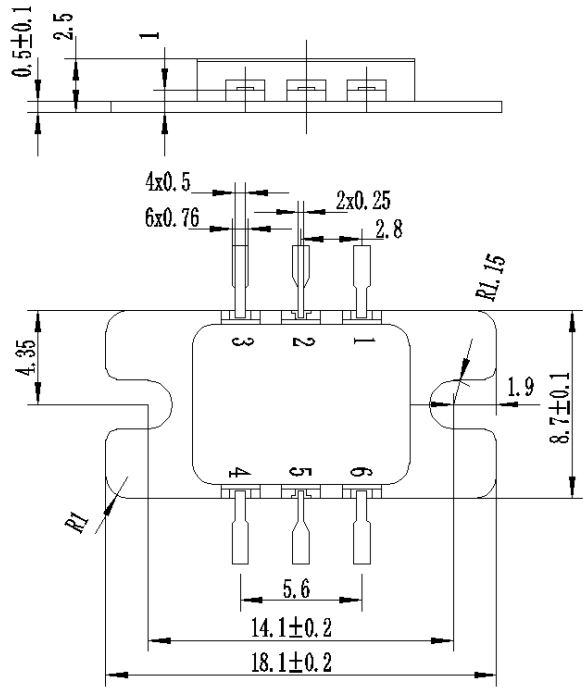


Output Power (dBm) vs. Temperature



Outline Drawing

(All dimensions in mm)



Pin Descriptions

Pin No.	Function	Pin No.	Function
1	Gate	4	Drain
2	RF input, AC Coupled	5	RF Output, AC Coupled
3	Gate	6	Drain

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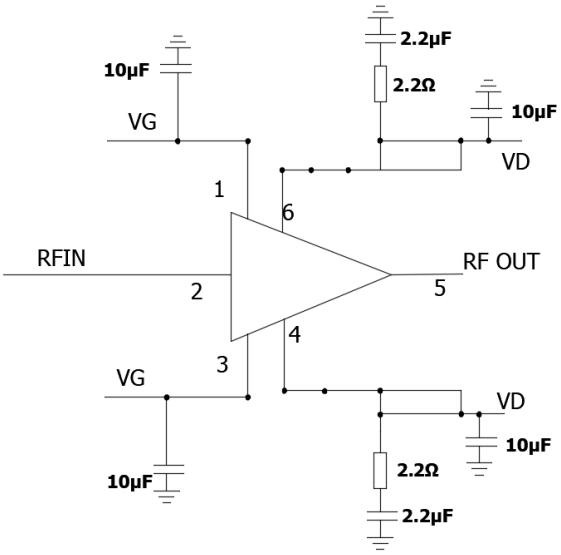
Application Circuit



Notes

1. SAC5026CR5 requires VDx and VGx bias.
   Turn-on: Apply VGx, Apply VDx, Apply RFIN signal.
   Turn-off: Remove RFIN signal, Decrease VG to -5V(pinch-off), Decrease VD to 0 V;
2. The flange of package may be attached using screws, recommended torque for screw mounting is 10N-cm;
3. The surface finish of the heat sink should be better than 0.8μm, and the surface flatness must be better than 10 μm;
4. Silicon based heat sink compounds should not be used for the thermal conductive grease. They cause poor grounding of the source flange. contamination and long-term degradation of thermal resistance between the FET package and heat sink;
5. The chip is an Electrostatic Sensitive Device;
6. The maximum soldering temperature for device pins is 400 ℃/3s.

Revision History

Revision	Date	Comment
1.0	Aug. 29, 2025	First Release

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