



GaAs integrated power amplifier

O222GSM5

Features

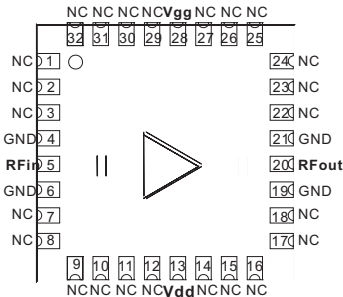
- Working frequency band: 8~12GHz
- Saturation output power: 29dBm
- Gain: 24dB
- DC power supply: +8V@180mA
- Input/Output Impedance: 50 Ohm
- Package Size: 5.0 x 5.0 x 1.1 mm
- Working environment: ground equipment

Application

Suitable for a variety of applications:

- Microwave radio
- Test measurement
- Military and Aerospace
- Instrumentation
- RF/microwave circuit

Functional block diagram



Overview

The O222GSM5 is a GaAs integrated power amplifier operating from 8 to 12 GHz. It provides 24dB of gain, 29dBm of saturated output power, and 35% power-added efficiency at a +8V operating voltage.

The amplifier uses a 5x5mm surface mount leadless ceramic package for hermetic encapsulation. The pin pad surface is gold plated and suitable for reflow soldering processes.

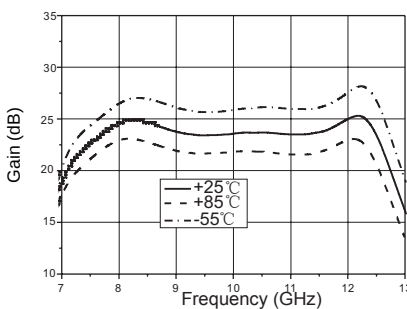
Electrical Characteristics (TA = +25°C, Vdd = +8V, Idd = 180mA[1])

Parameter	Min.	Typ.	Max.	Unit
Frequency band		8-12		GHz
Gain	21	24		dB
Input return loss		15	—	dB
Output return loss	—	8		dB
Output P-1		27		dBm
Saturation output power	26	28		dBm
Power added efficiency		35	—	%
Saturation current			350	mA

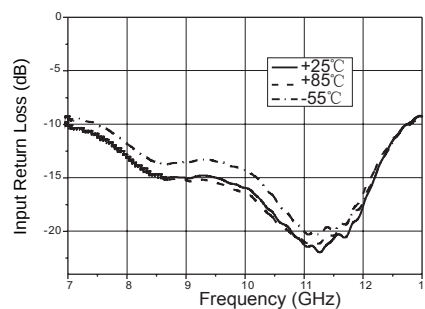
Remarks: [1] Adjust Vgg from -2V to 0V to make Idd=180 mA test curve

Test

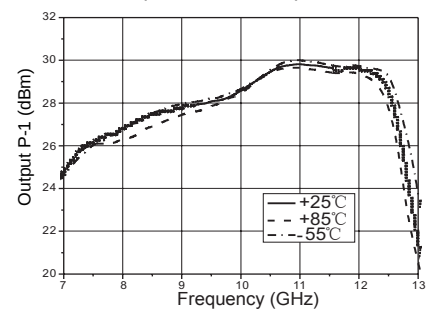
Gain vs. Temperature



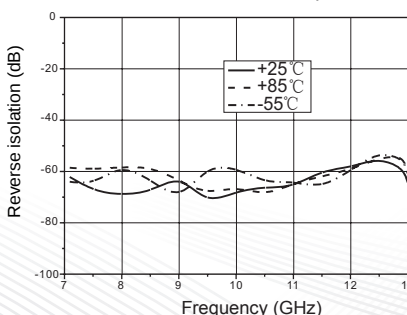
Input Return Loss vs. Temperature



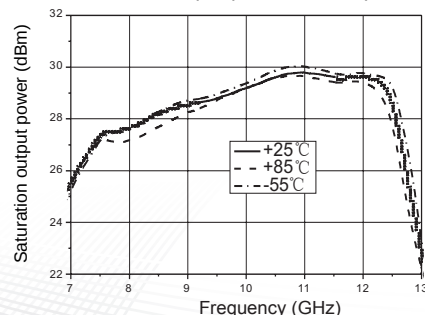
Output P-1 vs. Temperature



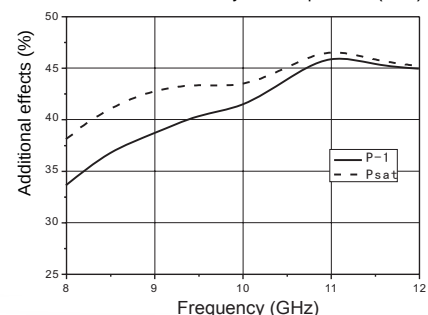
Reverse isolation vs. temperature



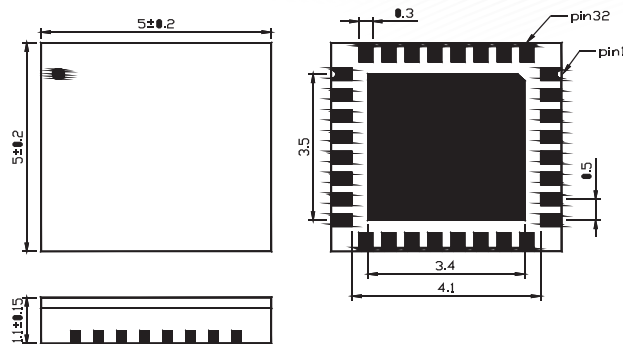
Saturation output power vs. temperature



Power Added Efficiency vs. Temperature (Psat)



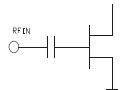
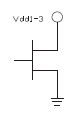
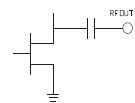
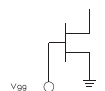
Dimensions



Description:

- 1, Unit: mm
- 2, shell material: alumina ceramic
- 3, pin surface plating: nickel gold
- 4, the shell surface warpage: less than 0.1mm
- 5, all ground pins please connect RF ground
- 6, The shell is suitable for reflow installation process

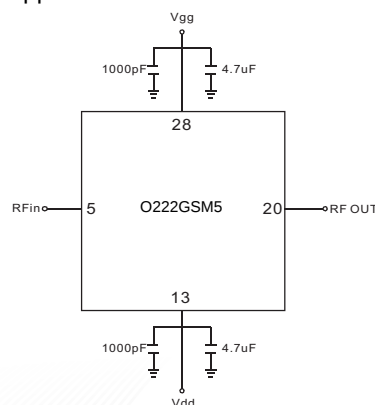
Definition of bonding pressure point

Pin.NO	Pin Name	Description	Equivalent Circuit
5	RFIN	RF signal input, external 50 ohm system, no need for DC blocking capacitors	
13	Vdd	Amplifier drain bias requires external 1000pF and 4.7uF capacitors	
20	RFOUT	RF signal output, external 50 ohm system, no need for DC blocking capacitors	
28	Vgg	Amplifier gate bias requires external 1000pF and 4.7uF capacitors	
4,6,19,21	GND	The bottom of the tube needs a large area to ground to ensure good heat dissipation	
other	GND	Large area grounding	

Limit parameter

Supply voltage (Vdd)	+10 V
Gate bias (Vgg)	-3V
RF input power	+20dBm
Storage temperature	-55~+85°C
Working temperature	-55~+125°C

Application Information



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS