

GaAs integrated power amplifier

O222SM5

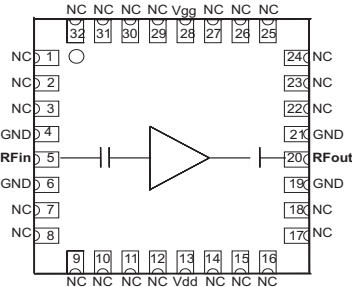
Features

- Working frequency band: 8~12GHz
- Surface Mount Leadless Ceramic Package
- Saturation output power: +29 dBm@28% PAE
- Gain: 20dB
- DC power supply: +8V@210mA
- Input/Output Impedance: 50 Ohm
- Package size: 5.0x5.0x1.1 mm

Application

- Microwave radio
- Military and aerospace
- Test and measurement
- Instruments apparatuses
- RF/Microwave circuit

Functional block diagram



Overview

The O222SM5 is a GaAs pHEMT monolithic integrated power amplifier with an operating frequency of 8-12 GHz. Under the +8V operating voltage, 20% 0dB gain, +29dBm saturated output power and 28% power additional efficiency can be provided.

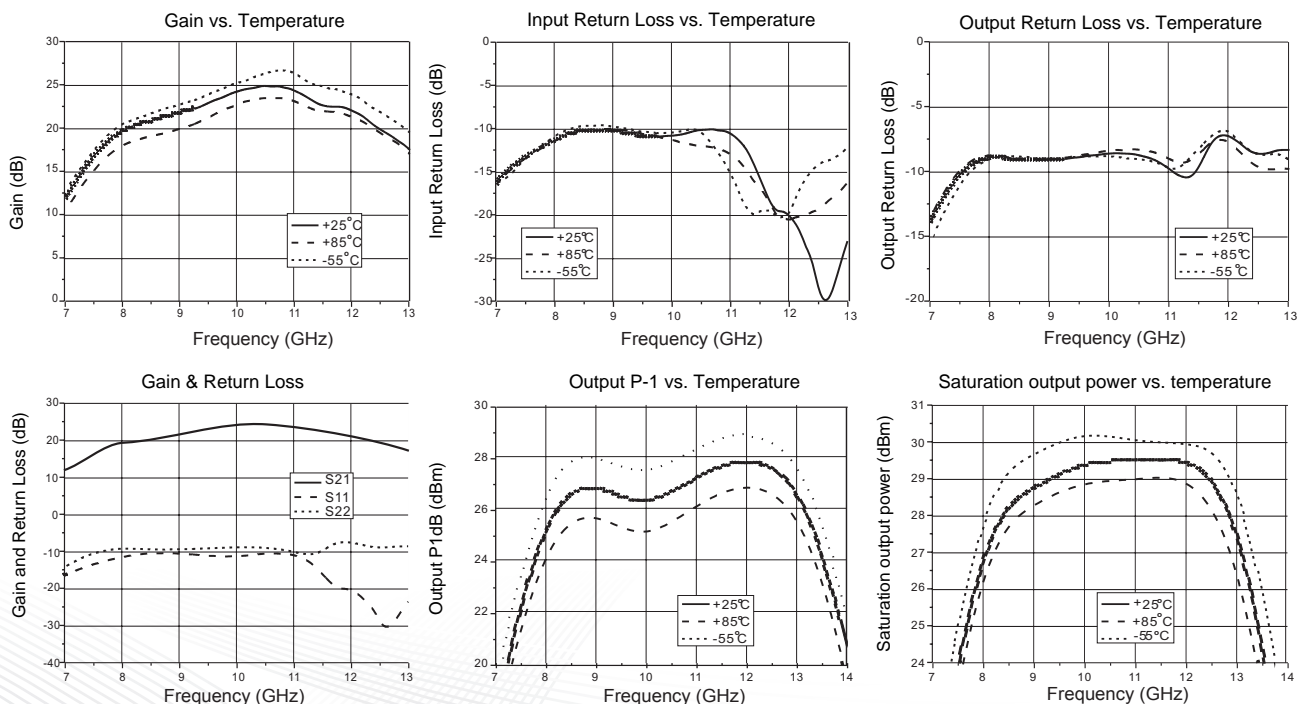
The amplifier uses a 5x5mm surface mount leadless ceramic package for hermetic encapsulation. The pin pad surface is gold plated and suitable for reflow soldering processes.

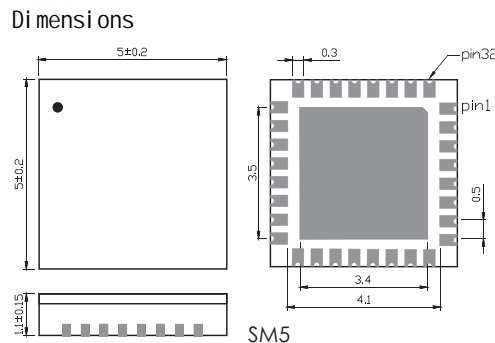
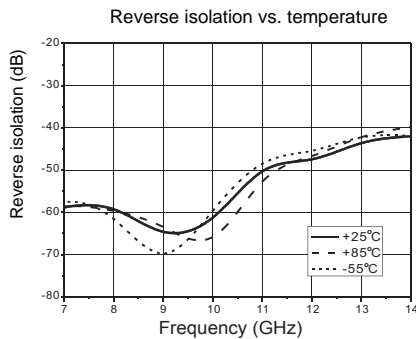
Electrical Characteristics($T_A = +25^\circ\text{C}$, $V_{dd} = 8\text{V}$, $I_{dd} = 210\text{mA}$ [1], 50 Ω system)

Parameter	Min.	Typ.	Max.	Unit
Frequency band		8-12		GHz
Gain	17	20	—	dB
Input return loss	—	10	—	dB
Output return loss	—	8	—	dB
Output P-1	—	27	—	dBm
Saturation output power	—	29	—	dBm
Power added efficiency	—	28	—	%
Saturation current	—	400	—	mA

Remarks: [1] Adjust Vgg between -2V and 0V to make $I_{dd} = 210\text{mA}$

Test

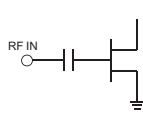
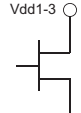
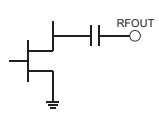
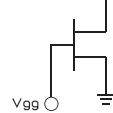





Description:

1. Unit: mm
2. Shell Material: Alumina Ceramics
- 3 pin surface plating: nickel gold
4. Shell surface warpage: less than 0.05mm
5. Connect all ground pins to RF ground
6. This tube is suitable for reflow mounting process

Pin definition

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

Limit parameter

Supply voltage (Vdd)	+10V
Gate bias (Vgg)	-3V
RF input power (dBm)	+15dBm
Storage temperature (°C)	-55~+125°C
Working temperature (°C)	-55~+85°C



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Application Information

