



GaN integrated power amplifier O253SM7H

Features

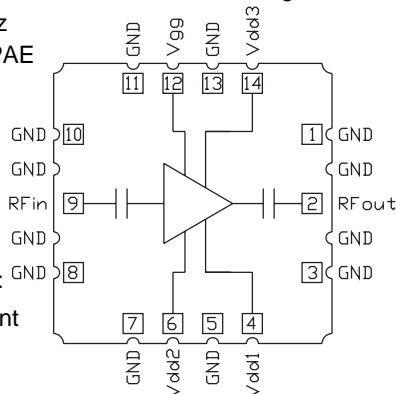
- Working frequency band: 8~12GHz
- Psat output power: 43dBm@38%PAE
- Power Gain: 22dB
- Surface Mount Leadless Ceramic Package
- Package Size: 7.0 x 7.0 x 1.0 mm

Application

Suitable for a variety of applications:

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

Functional block diagram



Overview

The O253SM7H is a GaN integrated power amplifier operating from 8 to 12 GHz. With a +28V operating voltage, it provides 22dB of power gain, 43dBm of saturated output power, and 38% power-added efficiency.

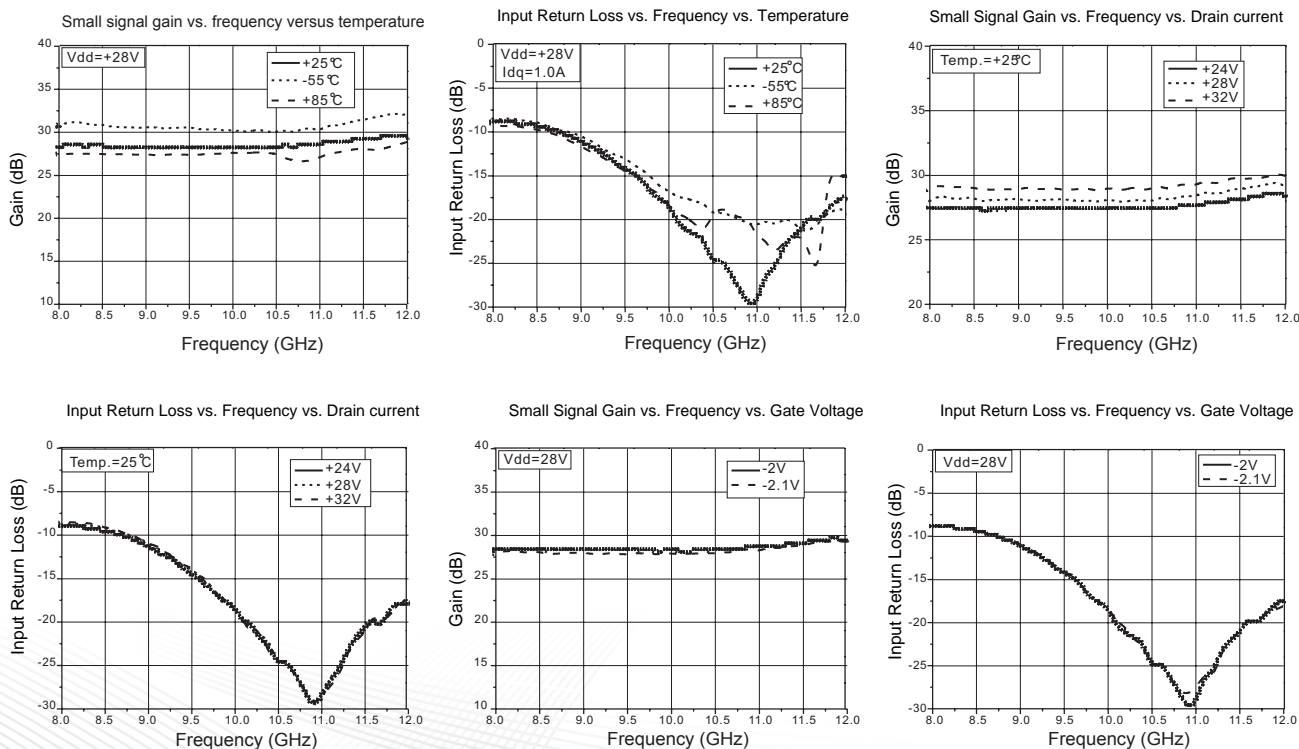
The amplifier adopts 7mmx7mm surface-mount non-leaded ceramic package, which can realize gas-tight encapsulation. The surface of the pin pad is processed by gold plating and is suitable for reflow soldering installation process.

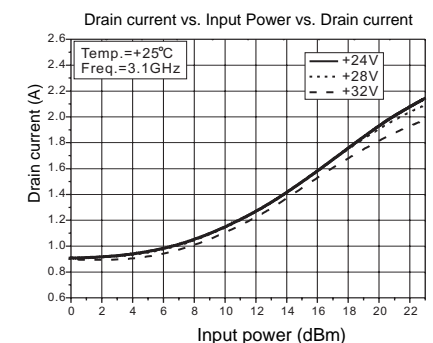
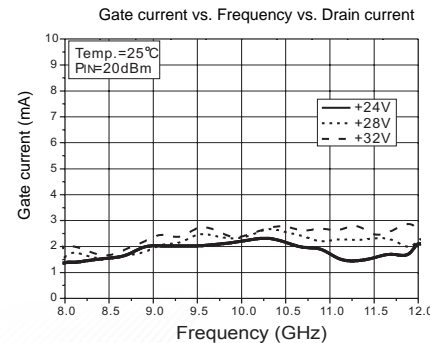
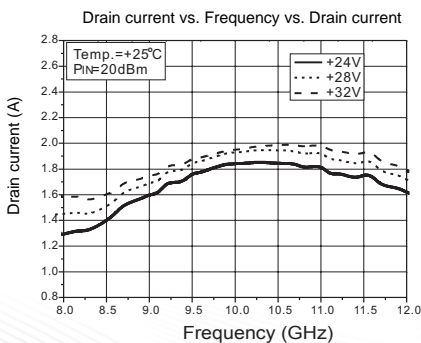
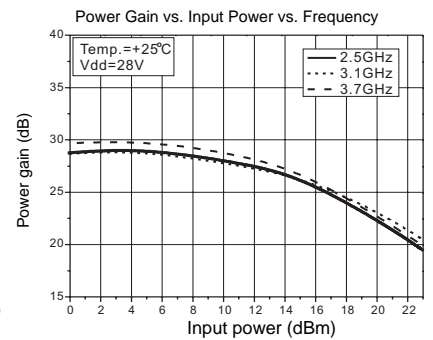
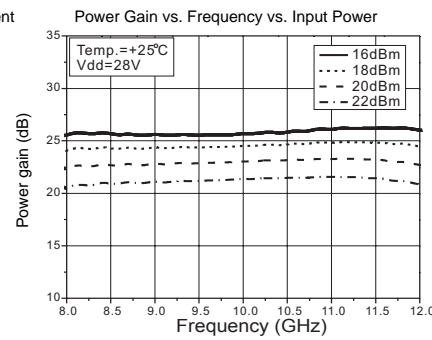
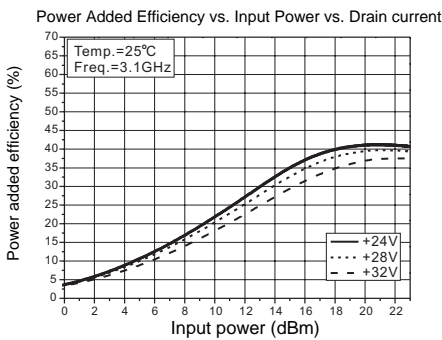
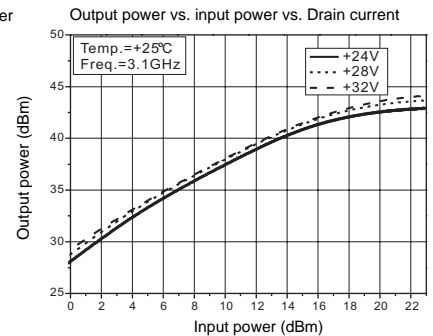
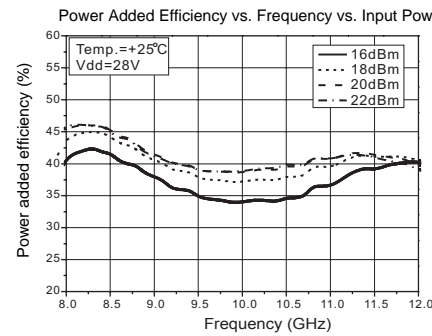
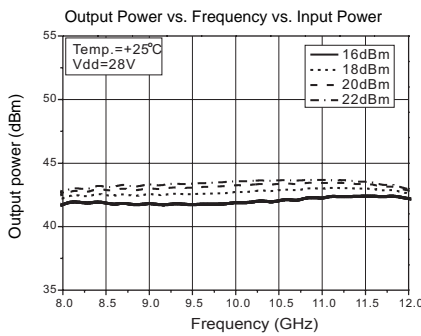
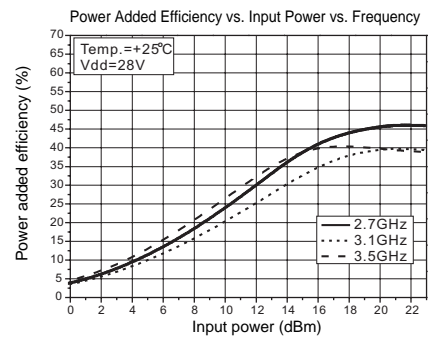
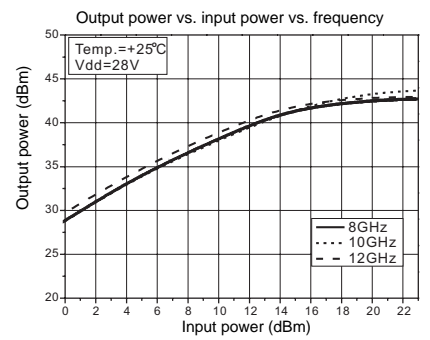
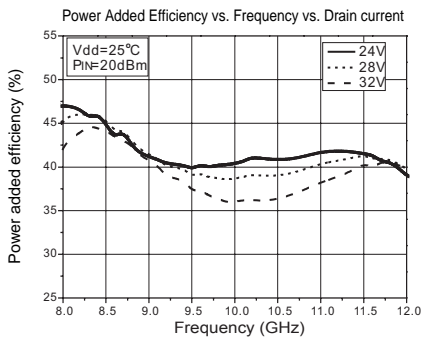
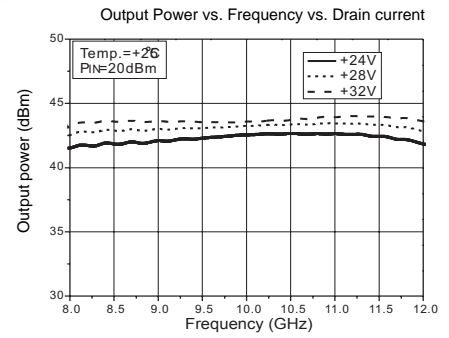
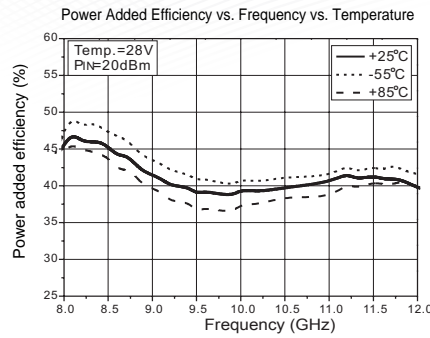
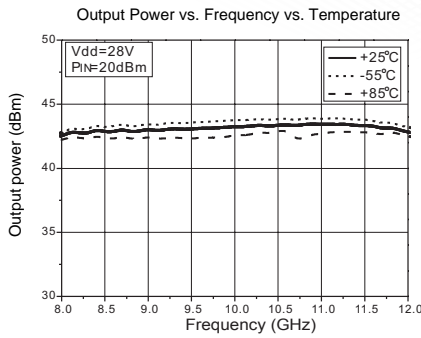
Electrical Characteristics

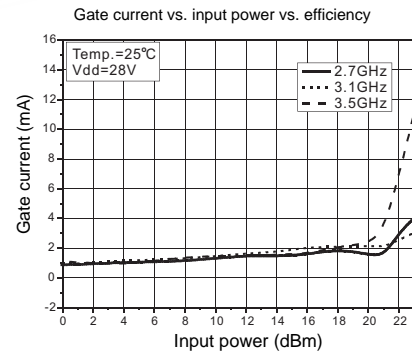
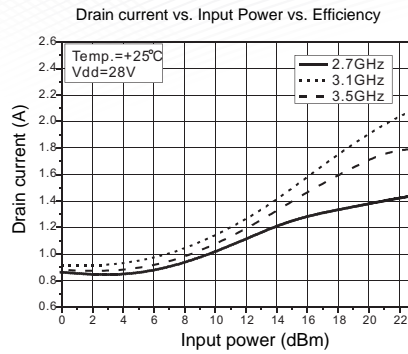
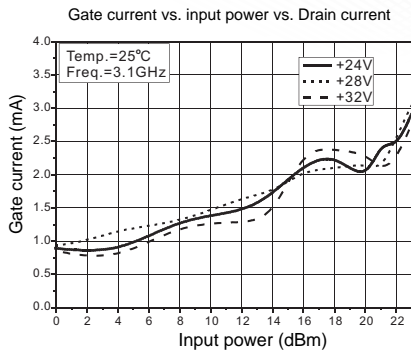
(TA = +25 °C, Vdd=+28V, Vgg=-1.8V, Idq=0.6A, 50Ω system, pulse width modulation PW = 100us, duty cycle DC = 10%)

symbol	Parameter	Min.	Typ.	Max.	Unit
Frequency	working frequency		8-12		GHz
Gain	Small signal gain	-	28	-	dB
Gp	Power gain (PIN=20dBm)	-	22	-	dB
IRL	Input return loss	-	10	-	dB
Pout	Output power (PIN=20dBm)		43		dBm
PAE	Power added efficiency (PIN=20dBm)		38		%
Idd	Working current (PIN=20dBm)	-	1.9	-	A

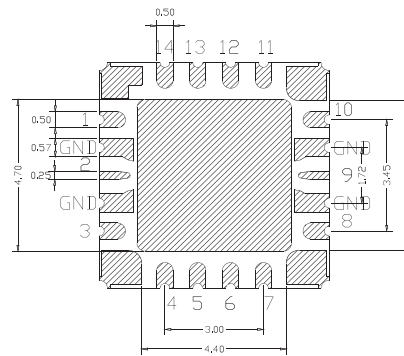
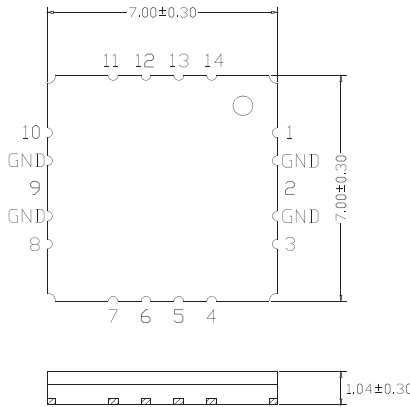
Test (Pulse operating conditions, drain modulation PW = 100us, duty cycle DC = 10%)







Dimensions



Description:

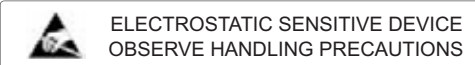
- 1, Unit: mm
- 2, shell material: alumina ceramic
- 3, pin surface plating: nickel gold
- 4, the shell surface warping: less than 0.05mm
- 5, all ground pins please connect RF ground
- 6, The shell is suitable for reflow installation process

Limit parameter

Supply voltage (VDEVICE)	+33 V
RF input power	+27dBm
Storage temperature	-55~+125°C
Operating temperature	-55~+85°C

Pin definition

Pin.NO	Pin Name	Description
9	RF in	RF input, external 50Ω system, no need for DC blocking capacitors
2	RF out	RF output, external 50Ω system, no need for DC blocking capacitors
4, 6, 14	V _{dd}	Amplifier drain bias
12	V _{gg}	Amplifier gate bias requires external 1000pF and 1uF capacitors
other	GND	The ground pin and the bottom of the shell need a large area to ground



Application Information

