

GaAs monolithic integrated power amplifier O241

Features

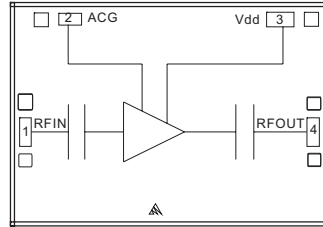
- Working frequency: 1.2 ~ 1.4GHz
- Saturated output power: 26dBm @ PIN = 5dBm
- Power added efficiency: 33% @ PIN = 5dBm
- Small signal gain: 26dB @ Vdd = + 5V
- Power gain: 21dB @ PIN = 5dBm
- Single Supply Operation: Vdd = + 5V, Idq = 240mA
- Input / output impedance: 50Ω
- Chip size: 2mmx1.425mmx0.1mm

typical application

- Radar and electronic warfare
- Military and aerospace
- RF / microwave circuit
- Test measurement
- Instrumentation

Electrical characteristics (TA = +25°C, 50Ωsystem, Vdd = +5V, Idq = 240mA)

Functional block diagram



Description

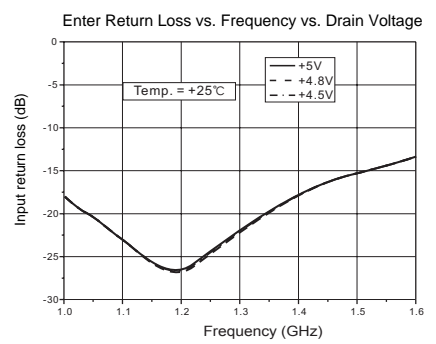
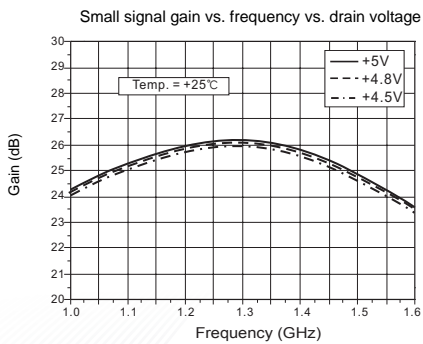
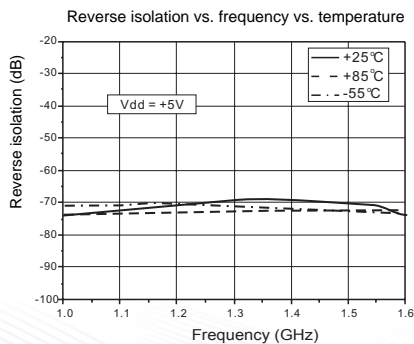
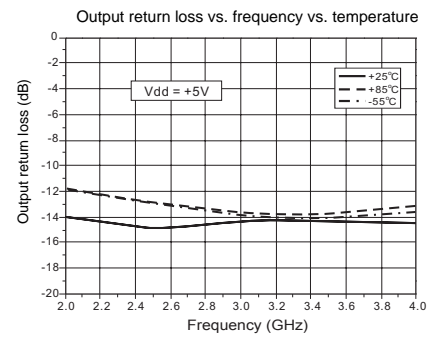
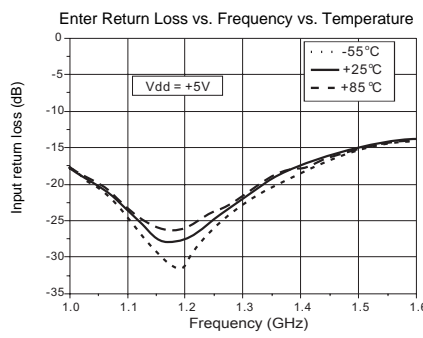
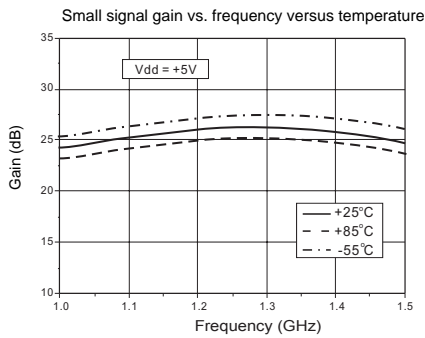
O241 is a 1.2 ~ 1.4GHz GaAs monolithic integrated power amplifier chip, which provides 21dB power gain and 26dBm saturated output power at + 5V operating voltage with power added efficiency of 33%.

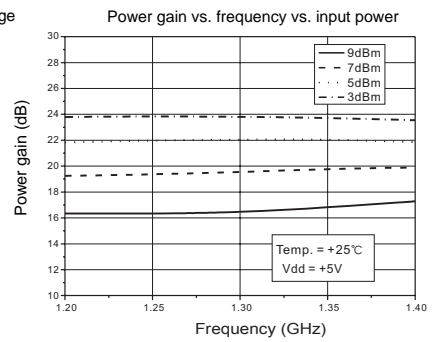
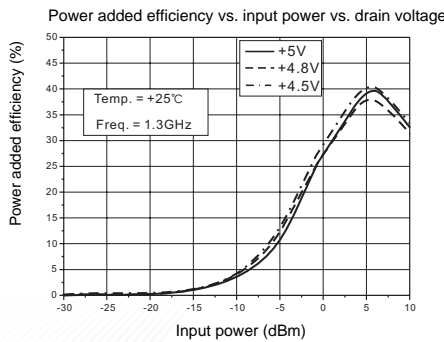
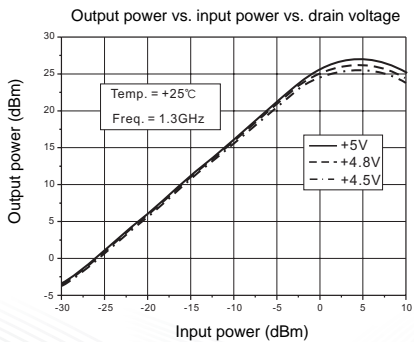
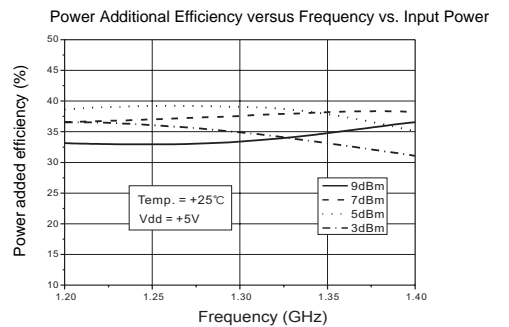
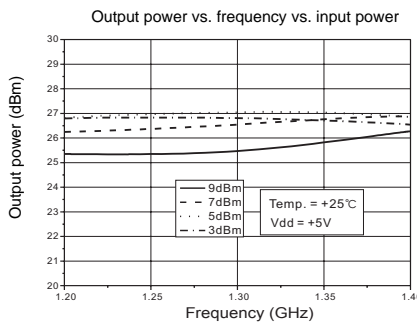
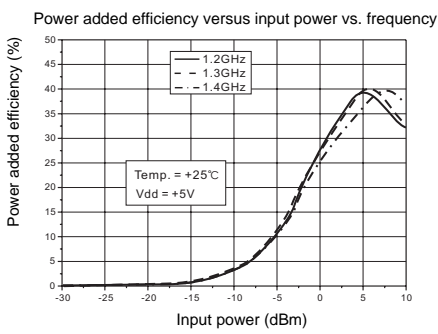
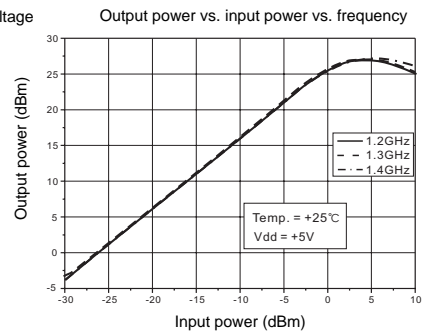
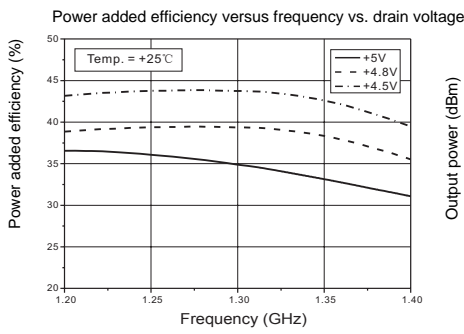
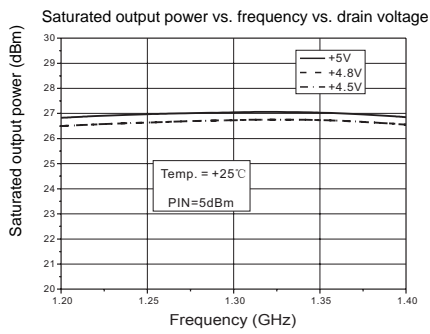
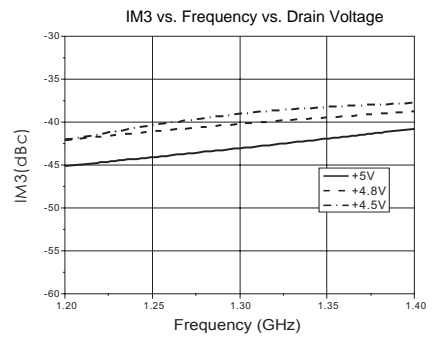
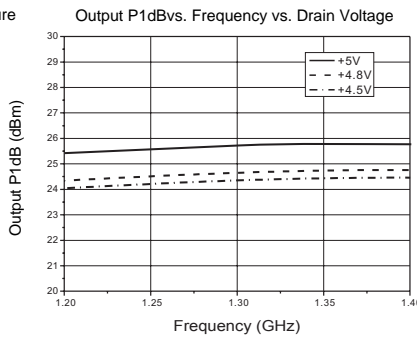
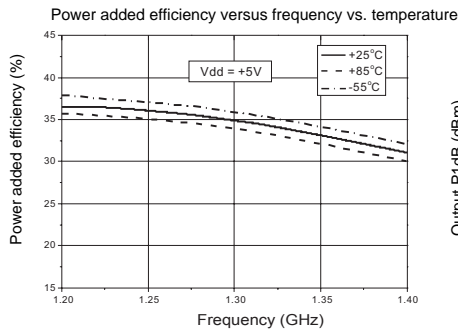
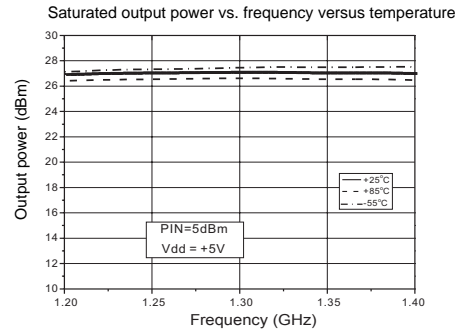
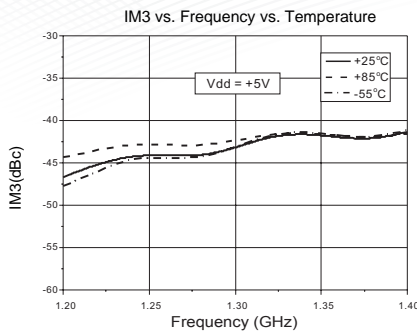
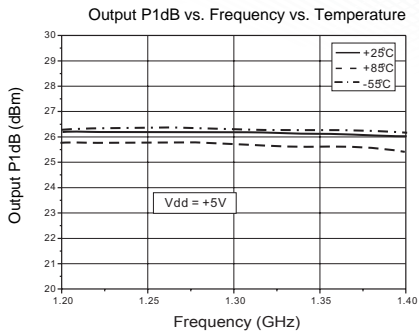
The power amplifier chip using on-chip through-hole metallization process to ensure a good grounding, no additional grounding measures, easy to use. The back of the chip is metallized for eutectic sintering.

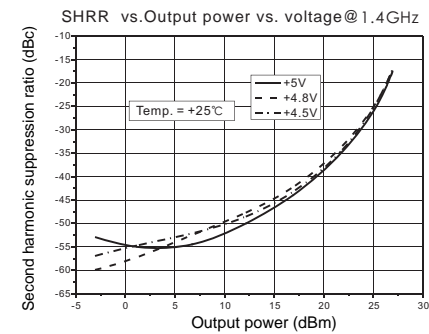
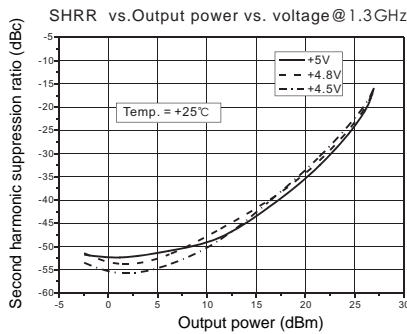
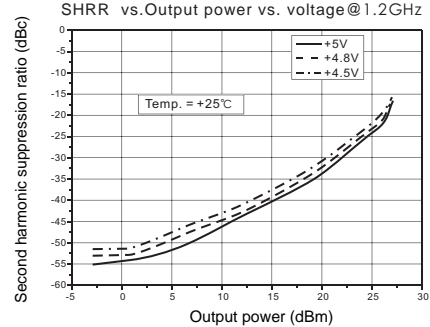
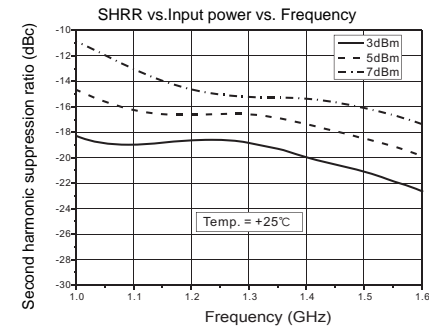
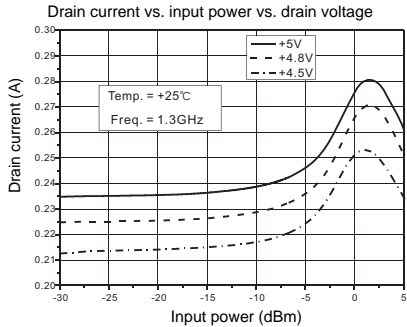
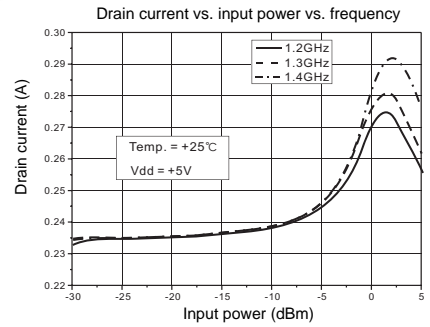
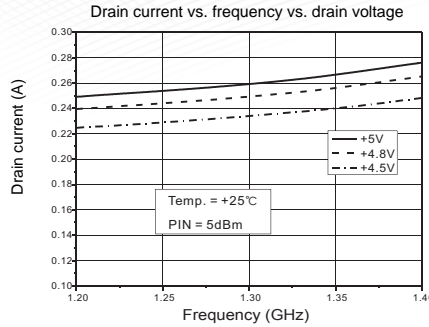
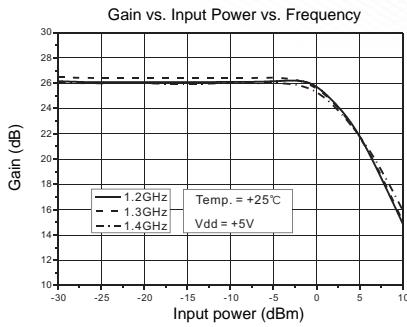
symbol	parameter	Minimum	Typical value	Maximum	unit
Frequency	working frequency	1.2	-	1.4	GHz
Gain	Small signal gain	-	26	-	dB
ΔG	Gain flatness		± 0.5		dB
Gp	Power gain (PIN = 5dBm)	-	22	-	dB
IRL	Enter the return loss	-	15	-	dB
ORL	Output return loss	-	13	-	dB
Pout	Output power (PIN = 5dBm)	-	26	-	dBm
PAE	Power added efficiency (PIN = 5dBm)	-	33	-	%
Idd	Working current (PIN = 5dBm)	-	290	-	mA

[1]The chips are subjected to 100% DC and RF testing on the chip.

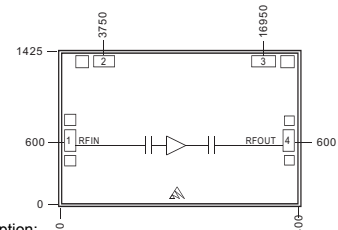
Test







Di m ensi ons



Description:

1. Unit: μm
2. Gold on the back of the chip
3. Ground on the back of the chip
4. Gold on the bonding pads, pressure point size: 2 : $170\mu\text{m} \times 100\mu\text{m}$, 1, 3, 4: $200\mu\text{m} \times 100\mu\text{m}$
5. Can not be bonded through the through holes
6. Dimensions Tolerance : $\pm 50 \mu\text{m}$

Limit parameters

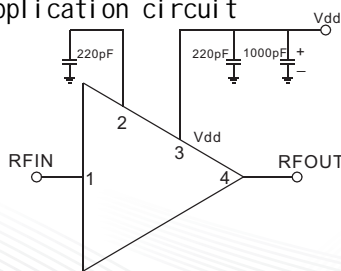
Parameter	Value
Input power P_{IN} , 50 Ω	+15dBm
Drain voltage Vdd	+5.5V
Thermal resistance (Rth)	25 $^{\circ}\text{C}/\text{W}$
Channel temperature (Tch)	175 $^{\circ}\text{C}$
Storage temperature	-55 ~ +150 $^{\circ}\text{C}$
Working temperature	-55 ~ +85 $^{\circ}\text{C}$



Definition of bonding pressure point

Pin.NO	Pin Name	Description	Equivalent Circuit
1	RF IN	RF signal input, external 50 ohm system	RF IN \rightarrow [Circuit]
2	ACG	Amplifier drain, need external 220pF bypass capacitor	[Circuit]
3	Vdd	Amplifier drain bias requires external 220pF bypass capacitor with 1000pF	Vdd [Circuit]
4	RF OUT	RF signal output, external 50-ohm system, without blocking capacitors	[Circuit] RF OUT
Back	GND	The bottom of the chip requires good contact with RF and DC	GND [Circuit]

Applicati on circuit



Assembly di agram

