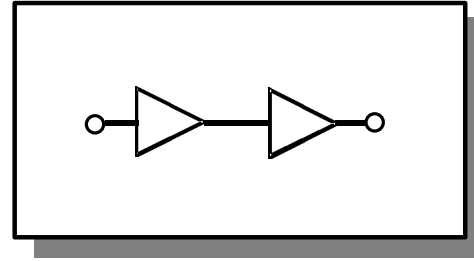


6W Power Amplifier Die (5.5 – 7.0 GHz) ITT8404D

ADVANCED INFORMATION

Features

- Broadband Performance
- 25% Typical Power Added Efficiency:
- 50 Ω Input/Output Impedance
- Self-Aligned MSAG® MESFET Process



Description

The ITT8404D is a two stage MMIC power amplifier fabricated using GaAsTEK's mature GaAs Self-Aligned MSAG® MESFET Process. This product is fully matched to 50 ohms on both the input and the output.

Maximum Ratings (T_A = 25 °C unless otherwise noted)

Rating	Symbol	Value	Unit
DC Drain Supply Voltage	V _{DD}	12	Vdc
DC Gate Supply Voltage	V _{GG}	-4	Vdc
Power Dissipation (T _{BASE} = 70 °C)	P _{DISS}	-	W
RF Input Power	P _{IN}	500	mW
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-40 to +85	°C

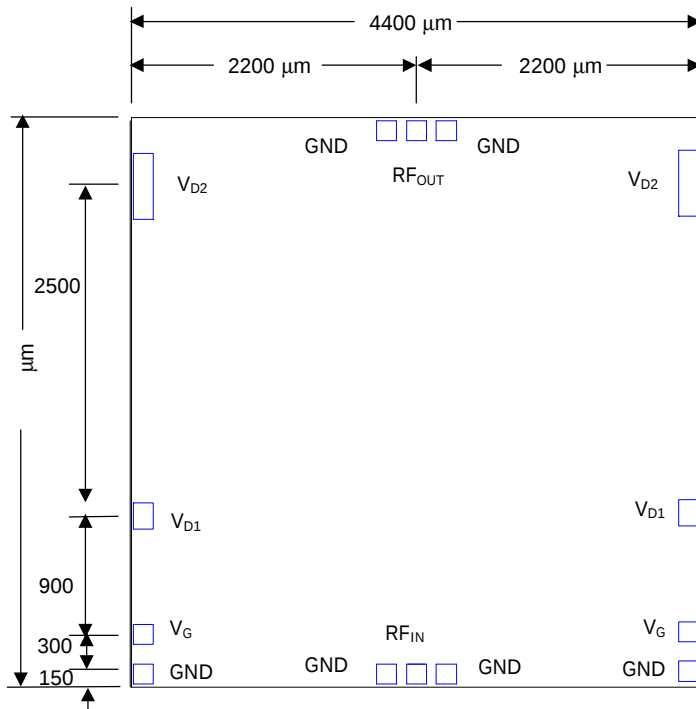
ELECTRICAL CHARACTERISTICS V_{DD}=9.0 V, V_{GG}=-1.8 V, T_A=25 °C

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency	<i>f</i>	5.5	—	7.0	GHz
Output Power, Saturated	P _{SAT}		38		dBm
Output Power, P _{1dB}	P _{1dB}		36		dBm
Power Gain (Linear)	G _P		18		dB
Gain Flatness Over Frequency	-		+/- 1.5		dB
Power Added Efficiency	η		25		%
Input VSWR	-		TBD		
Harmonics	Nf _o			-20	dBc
Spurious	-			-60	dBc
Third-Order Intercept Point	TOI		TBD		dBm

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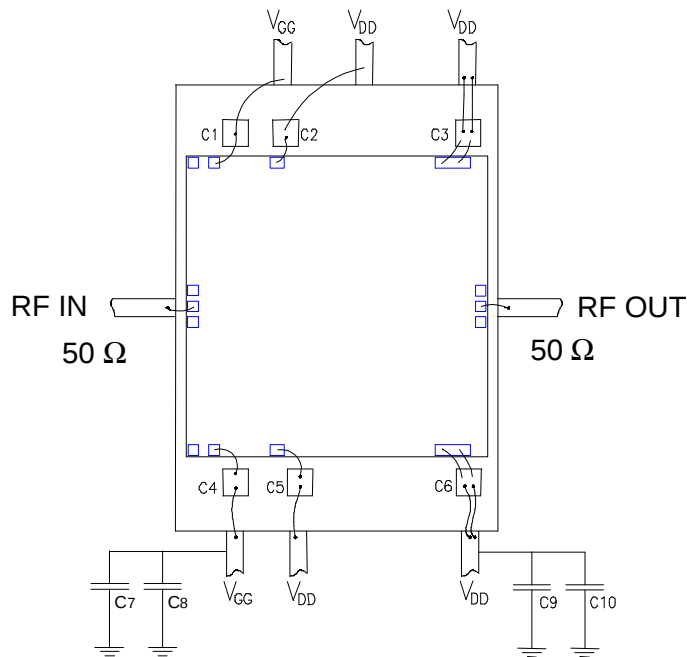
ADVANCED INFORMATION

LAYOUT AND BONDING DIAGRAMS



Pad Sizes:

50 X 150 microns for all except V_{D3} (150 X 300 microns).



List of components:

C1 thru C6 = 100pF single layer ceramic chip capacitor

C7 = C9 = 0.1 uF ceramic chip capacitor

C8 = C10 = 5000 pF capacitor

Assembly:

Chip dimensions: 4.4mm x 4.4mm, .003" thickness.

Die attach: Use AuSn (80/20) 1 mil. preform solder.

Limit time @ 300 °C to less than 5 minutes.

Wirebonding: Bond @ 160 °C using standard ball or thermal compression wedge bond techniques. For DC pad connections, use either ball or wedge bonds. For best RF performance, use wedge bonds of shortest length, although ball bonds are also acceptable.

Biasing:

1. User must apply negative bias to V_{GG} before applying positive bias to V_{DD} to prevent damage to amplifier.