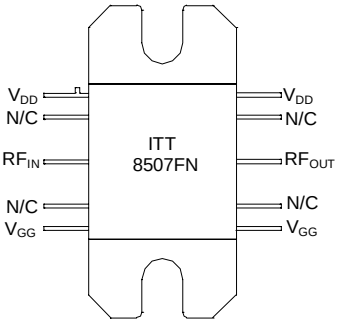
4W Power Amplifier (12.5 – 14.5 GHz)
ITT8507

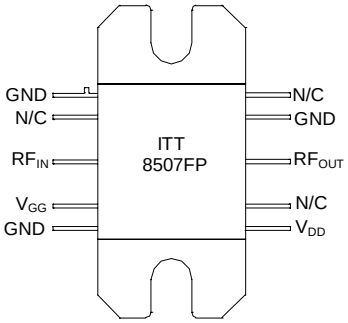
ADVANCED INFORMATION

FEATURES

- 20% Typical Power Added Efficiency
- High Linear Gain: 17 dB typical
- 50 Ω Input/Output Impedance
- Self-Aligned MSAG® MESFET Process



FN Package
Pin Configuration



FP Package
Pin Configuration

DESCRIPTION

The ITT8507 is a three 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} = 8.0 V, I_{DQ} = 2.1 A, T_A=25 °C

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency	f	12.5	—	14.5	GHz
Output Power, Saturated (P_{IN} = 23 dBm)	P_{SAT}	—	36.8	—	dBm
Gain at P_{SAT} (P_{IN} = 23 dBm)	G_{SAT}	–	13.8	–	dB
Power Added Efficiency at P_{SAT} (P_{IN} = 23 dBm)	η_{SAT}	–	21	–	%
Drain Current at P_{SAT}	$I_{DS,\ SAT}$	–	2.6	–	A
Output Power, P_{1dB}	P_{1dB}	—	36.0	—	dBm
Power Gain, P_{1dB}	G_{1dB}	—	15.5	—	dB
Gain Flatness Over Frequency	-	—	+/- 0.5	—	dB
Power Added Efficiency, P_{1dB}	η		19		%
Drain Current at P_{1dB}	$I_{DS,\ 1dB}$	–	2.5	–	A
Third-Order Intercept Point	IP_3	–	43	–	dBm
Harmonics (f_o=14.0 GHz, P_{OUT}=20 dBm)	$2f_o$	–	-63	–	dBc
Gate Bias Voltage (No RF Input)	V_{GG}	–	-1.9	–	V
Gate Current (P_{IN} = 23 dBm)	I_{GG}	–	–	5	mA
Stability	All non-harmonically related outputs less than -50 dBc				

GaAsTEK
A UNIT OF ITT INDUSTRIES
GaAsTEK
5310 Valley Park Drive
Roanoke, VA 24019 USA
www.gaastek.com
Tel: 1-540-563-3949
1-888-563-3949 (USA)
Fax: 1-540-563-8616