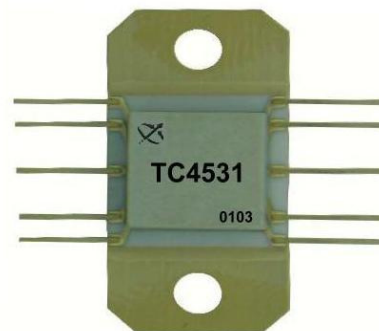


13.75 - 14.5 GHz 1 W MMIC

FEATURES

- P_{sat} : 30.5 dBm @ +5dBm Pin
- Small Signal Gain: 30dB
- Noise Figure: 7 dB
- Bias Condition: 750 mA @ 8V

PHOTO ENLARGEMENT



DESCRIPTION

The TC4531 is a four-stage PHEMT power amplifier MMIC that is designed for use as an output stage or a driver in VSAT ODU. The amplifier provides 30dB gain and delivers 1W output power from 13.75 to 14.5 GHz. The small package provides a simple and cost effective solution to customized designs. The base material is gold plated copper-tungsten for excellent thermal dissipation.

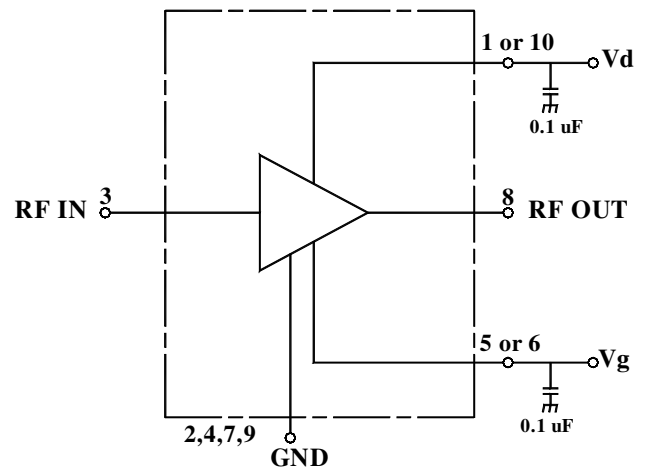
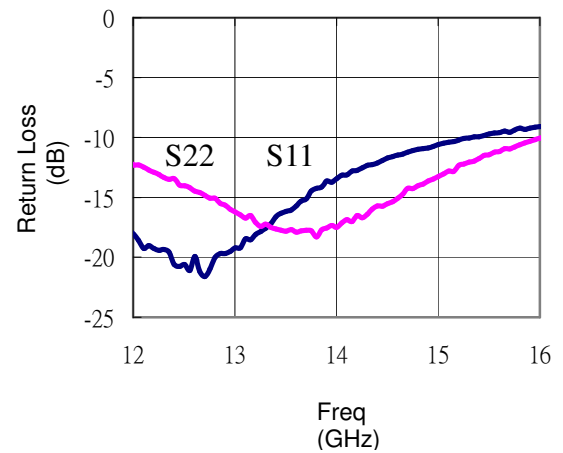
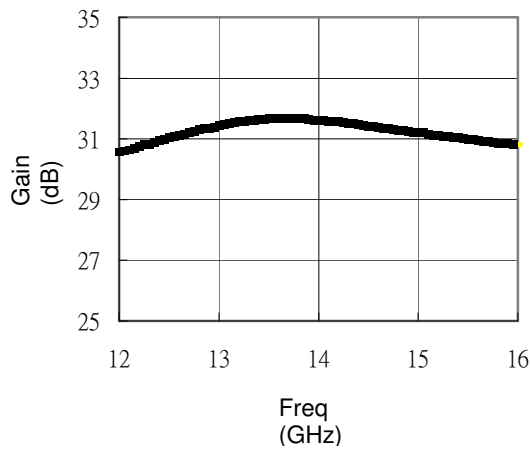
The MMIC is fabricated using Transcom's proprietary GaAs PHEMT process. The process features full passivation for increased performance and reliability. It is 100% RF tested to ensure compliance to performance specifications.

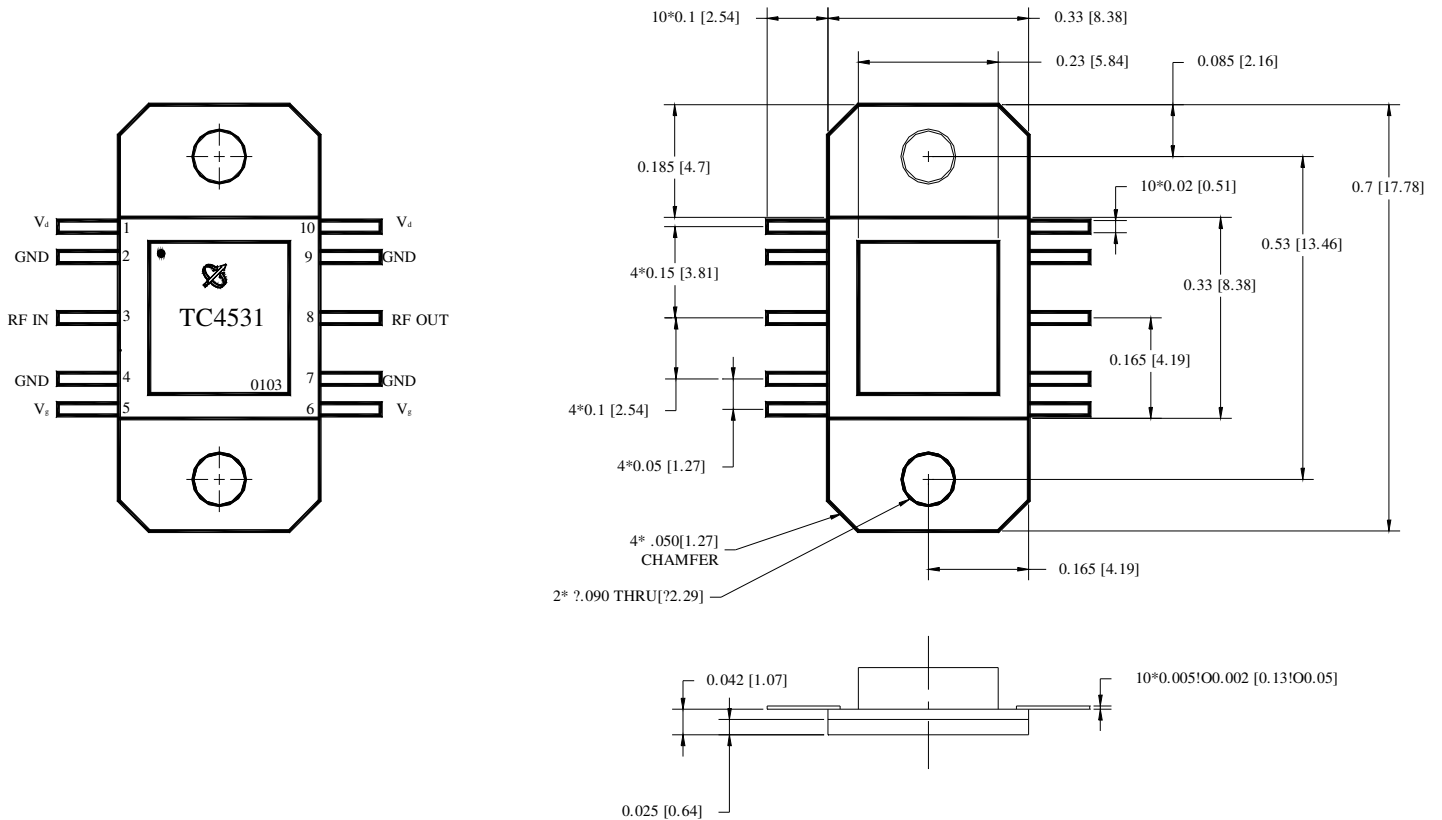
ELECTRICAL SPECIFICATIONS ($T_a = 25\text{ }^\circ\text{C}$)

SYMBOL	DESCRIPTION	MIN	TYP	MAX	UNITS
FREQ	Frequency Range	13.75		14.5	GHz
SSG	Small Signal Gain		30		dB
Psat	Saturation Output Power at +5dBm Pin	29.5	30.5		dBm
VSWR, IN	Input VSWR		2:1		
VSWR, OUT	Output VSWR		2.5:1		
VDD	Supply Voltage		8		Volt
Vg	Gate Voltage	-0.5	-1.0	-1.5	Volt
IDD	Current Supply Without RF		750		mA
IDP_{sat}	Current Supply @ Psat		750		mA
NF	Noise Figure		7		dB
η_a	Power Added Efficiency		15		%

ABSOLUTE MAXIMUM RATINGS at 25 °C

Symbol	Parameter	Rating
V_{DS}	Drain-Source Voltage	10 V
V_{GS}	Gate-Source Voltage	-5 V
I_D	Drain Current	1600 mA
P_T	Continuous Dissipation	12 W
P_{in}	Input Power, CW	10 dBm
T_{CH}	Channel Temperature	175 °C
T_{STG}	Storage Temperature	- 65 °C to +175 °C

TYPICAL BIAS CONFIGURATION

TYPICAL PERFORMANCE


DIMENSION DRAWING [in inch (mm)]


Pin No.	Pin Name	Description
1, 10	VDD	Drain Supply
2, 4, 7, 9	GND	Ground
3	RF IN	RF Input
8	RF OUT	RF Output
5, 6	VGG	Gate Supply