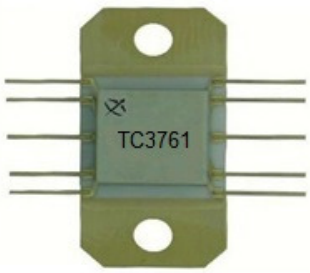
9.2 - 10 GHz 10W Power Amplifier

FEATURES

- P_{sat}: 40dBm
- Large Signal Gain: 15dB
- Bias Condition: 2.5A @ 8V

PHOTO ENLARGEMENT



DESCRIPTION

The TC3761 is a PHEMT power amplifier MMIC. The amplifier provides 15dB power gain and delivers 10 watt output power from 9.2 to 10.0 GHz. The small package provides a simple, 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 propriety matured GaAs PHEMT process. The process features full passivation for increased performance and reliability. It is 100% RF tested to ensure compliance to performance specifications.

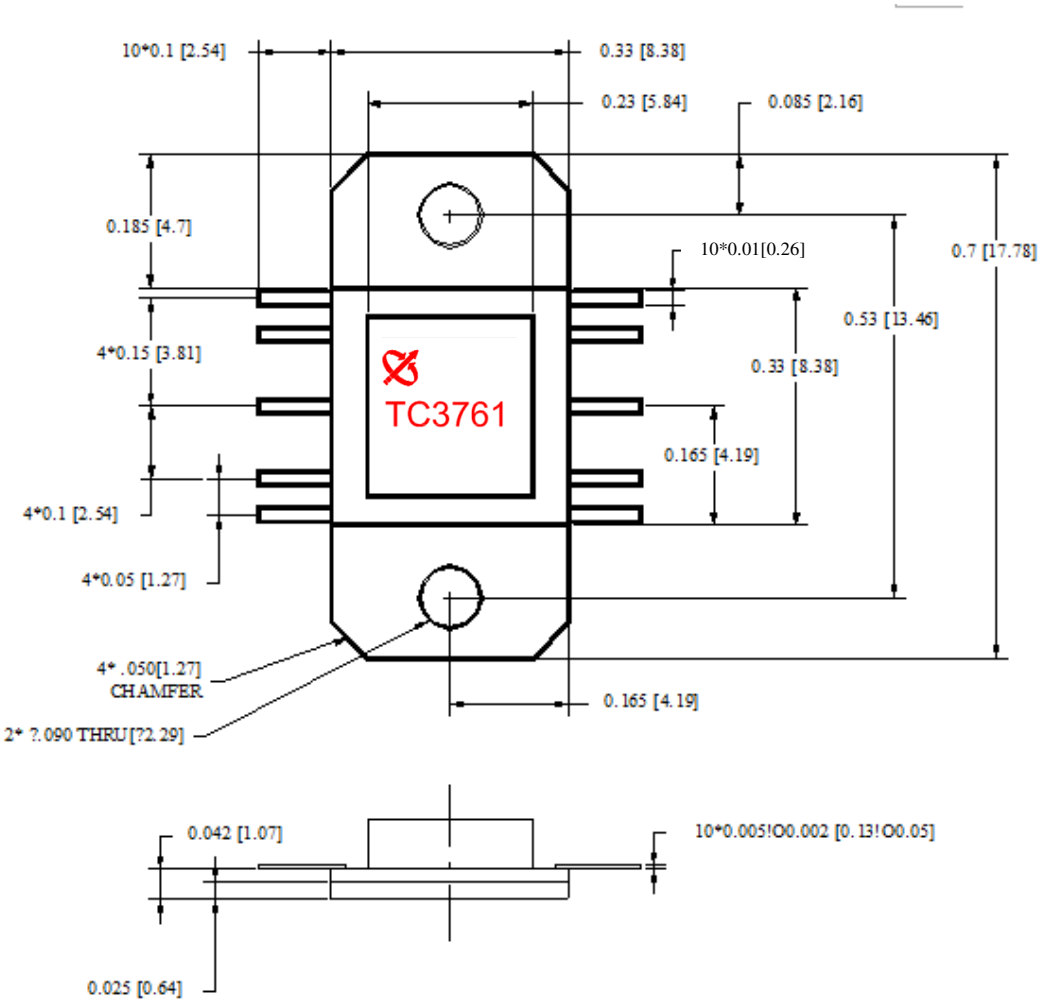
ELECTRICAL SPECIFICATIONS (@ Pulse Mode PRF10KHz, Duty Cycle 5%, Pin 25dBm, 25 °C)

SYMBOL	DESCRIPTION	MIN	TYP	MAX	UNITS
FREQ	Frequency Range	9.2		10	GHz
G	Large Signal Gain		15		dB
GOF	Small Signal Gain Flatness		± 0.4		dB
Psat	Saturation Output Power		+40		dBm
PAE	Power Added Efficiency		35		%
VD	Supply Drain Voltage		+8	+9	Volt
VG	Supply Gate Voltage		-1.0		Volt
ID	Supply Drain Current, without RF, average		2.5	3.0	A
	Supply Drain Current, without RF, 5% duty cycle		125		mA

ABSOLUTE MAXIMUM RATINGS

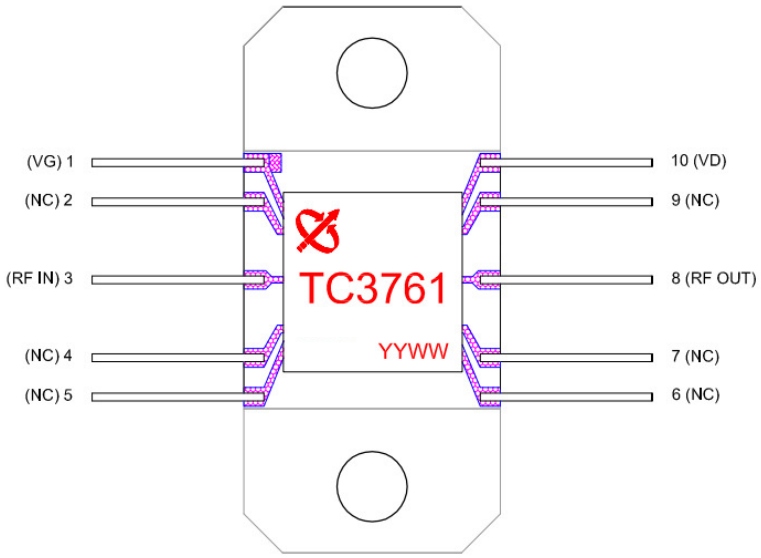
Symbol	Parameter	Rating
V_{DS}	Drain-Source Voltage	+9V
V_{GS}	Gate-Source Voltage	0 V
P_{in}	Input Power, CW	30dBm
T_{CH}	Channel Temperature	175 °C
T_{STG}	Storage Temperature	- 65 °C to +175 °C

DIMENSION DRAWING [in inch (mm)]



PIN ASSIGNMENT

Pin #	Symbol	Description
10	VD	Drain Supply Voltage
1	VG	Gate Supply Voltage
3	RF IN	RF Input Connection
8	RF OUT	RF Output Connection
2/4/5/6/7/9	NC	Not Connection



APPLICATION NOTE

A. turn-on sequence of this power amplifier –

1. Apply -1.0 V to VG, typical
2. Apply +8.0 V to VD
3. Adjust VG in order to achieve suggested or required drain current(ID)
4. Apply RF input power
5. If required, re-adjust VG for keeping the suggested or required ID.

B. (IMPORTANT) VG shall be always applied before VD been applied.

C. (CAUTION) This power amplifier is sensitive with electric static. The ESD protection shall be applied before handing this power amplifier.

POWER AMPLIFIER PERFORMANCE

(@ Pulse Mode PRF10KHz, Duty Cycle 5%, Pin 25dBm, 25 °C)