



TC3539

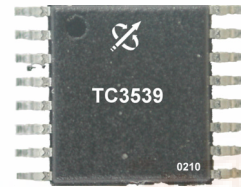
REV.3_04/18/2005

4.8 - 6 GHz 29dBm Self-Bias MMIC

FEATURES

- P₁ dB: 29 dBm
- Small Signal Gain: 19 dB
- Power Added Efficiency: 25 %
- IP3: 40 dBm
- Matched to 50 Ω operation
- Bias condition: 400 mA @ 8 V

PHOTO ENLARGEMENT



DESCRIPTION

The TC3539 is a 2-stage PHEMT MMIC power amplifier. It requires only a single positive supply. It is designed for use in low cost, high volume, 4.8 - 6 GHz band applications. The MMIC is matched to 50Ω operation. It provides a typical gain of 19 dB and P1dB power of more than 29 dBm. Typical bias condition is 8V at 400 mA. The MMIC is packaged in a low-cost surface-mountable plastic package.

APPLICATIONS

- Wireless Internet Access

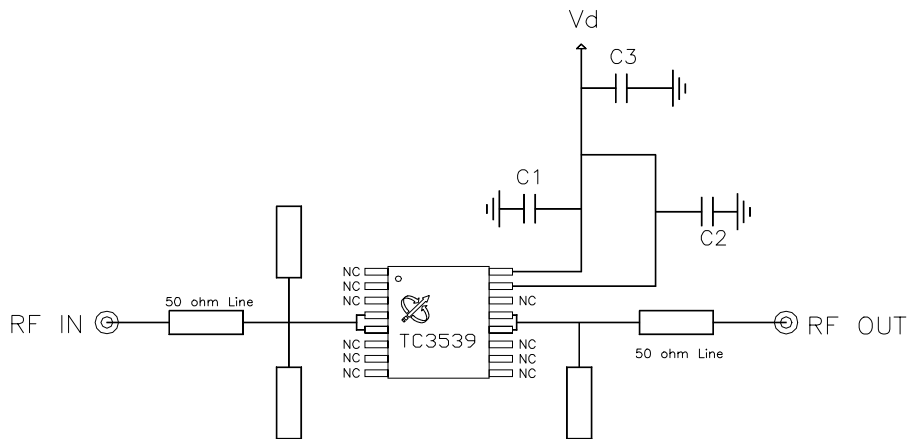
ELECTRICAL SPECIFICATIONS (Ta = 25 °C)

SYMBOL	DESCRIPTION	MIN	TYP	MAX	UNITS
FREQ	Frequency Range	4.8		6	GHz
SSG	Small Signal Gain	17	19		dB
GOF	Small Signal Gain Flatness		± 0.5		
P ₁ dB	Output Power at 1 dB Gain Compression	28	29		dBm
P ₃ dB	Output Power at 3 dB Gain Compression	29	30		dBm
IP3	Third Order Intercept Point	38	40		dBm
VSWR, IN	Input VSWR		2:1		
VDD	Supply Voltage		8		Volt
IDD	Current Supply Without RF		400		mA
IDP ₁	Current Supply @ Pout=P ₁ dB		420		mA
η _a	Power Added Efficiency		25		%



TEST CIRCUITS

Evaluation Board Schematic


EVALUATION BOARD

DXF file of the PCB can be downloaded from our web-site at www.transcominc.com.tw

PCB Material: RO4003

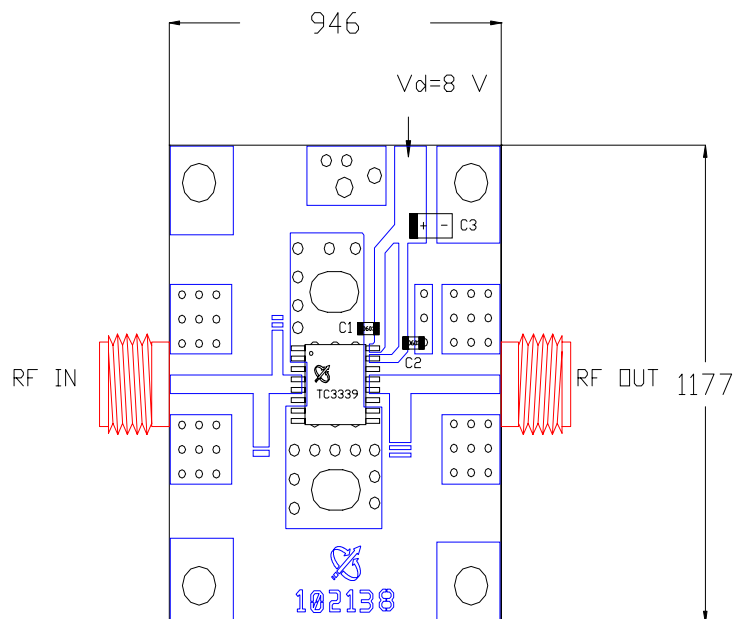
ER = 3.38

Thickness = 20 mil

Unit: mil

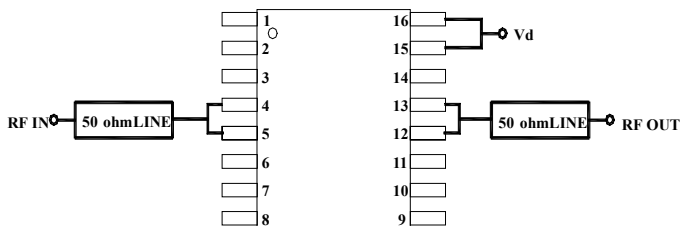
Application Notes:

For better heat sinking and grounding, it's recommended to have the via holes beneath TC3539 filled with solder and have two screws besides TC3539 installed on the PCB area.

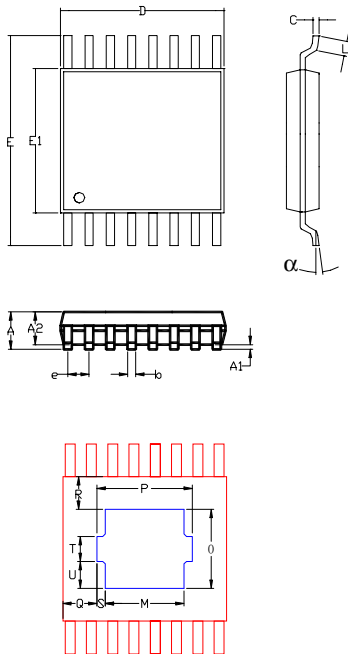


Evaluation Board Parts List

Part Type	Reference Designator	Description	Manufacturer	Part Number
Capacitor	C1, C2	1000pF 0603	Murata	GRM39C0G102J50V
Capacitor	C3	4.7uF Tantalum Cap.		

CONNECTION DIAGRAM AND PIN DESCRIPTIONS


Pin #	Name	Description
4, 5	RF IN	RF input
15, 16	V _d	MMIC drain bias
12, 13	RF OUT	RF output (internally DC blocked)
Others	NC	No Connection

PHYSICAL DIMENSIONS (Unit: inches)


DIMENSION	MINIMUM	NOMINAL	MAXIMUM
A			0.045
A1	0.000		0.004
A2	0.031	0.039	0.041
b	0.007		0.012
C	0.004		0.008
D	0.193	0.197	0.201
E		0.252	
E1	0.169	0.173	0.177
e		0.026	
L	0.018	0.024	0.030
M		0.095	
O		0.095	
P		0.115	
Q		0.041	
R		0.039	
S		0.010	
T		0.030	
U		0.033	
Y			0.004
α	0°		8°

Dimensions in inches