TRANSCOM

TC3339

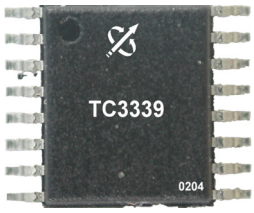
REV.3_04/18/2005

2.9 - 3.7 GHz 1W MMIC

FEATURES

- P_{-1} dB: 30 dBm
- Small Signal Gain: 26 dB
- Power Added Efficiency: 25 %
- IP3: 39 dBm
- Matched to 50 Ω operation
- Bias condition: 650 mA @ 7 V

PHOTO ENLARGEMENT



DESCRIPTION

The TC3339 is a 2-stage PHEMT MMIC power amplifier. It is designed for use in low cost, high volume, 2.9 -3.7 GHz band applications. The MMIC is matched to 50Ω operation. It provides a typical gain of 26 dB and P1dB power of more than 30 dBm. Typical bias condition is 7V at 650 mA. The MMIC is packaged in a low-cost surface-mountable plastic package.

APPLICATIONS

- Wireless Internet Access
- Wireless Local Loop
- Two way radio

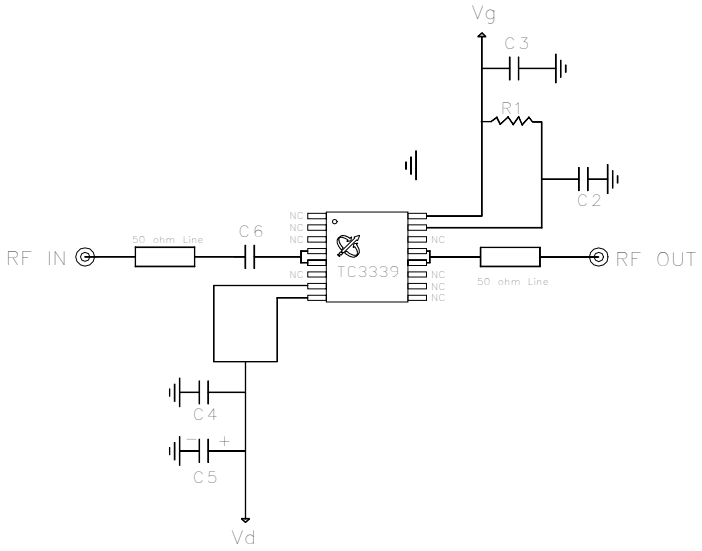
ELECTRICAL SPECIFICATIONS (Ta = 25 °C)

SYMBOL	DESCRIPTION	MIN	TYP	MAX	UNITS
FREQ	Frequency Range	2.9		3.7	GHz
SSG	Small Signal Gain	25	26		dB
GOF	Small Signal Gain Flatness		±0.5		
P_{-1} dB	Output Power at 1 dB Gain Compression	29	30		dBm
P_{-3} dB	Output Power at 3 dB Gain Compression	30	31		dBm
IP3	Third Order Intercept Point	37	39		dBm
VSWR, IN	Input VSWR		2:1		
VDD	Supply Voltage		7		Volt
Vg	Gate Voltage	-0.6	-1.0	-1.5	Volt
IDD	Current Supply Without RF		650		mA
IDP_{-1}	Current Supply @ Pout=P_{-1} dB		650		mA
ηa	Power Added Efficiency		25		%

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TEST CIRCUITS

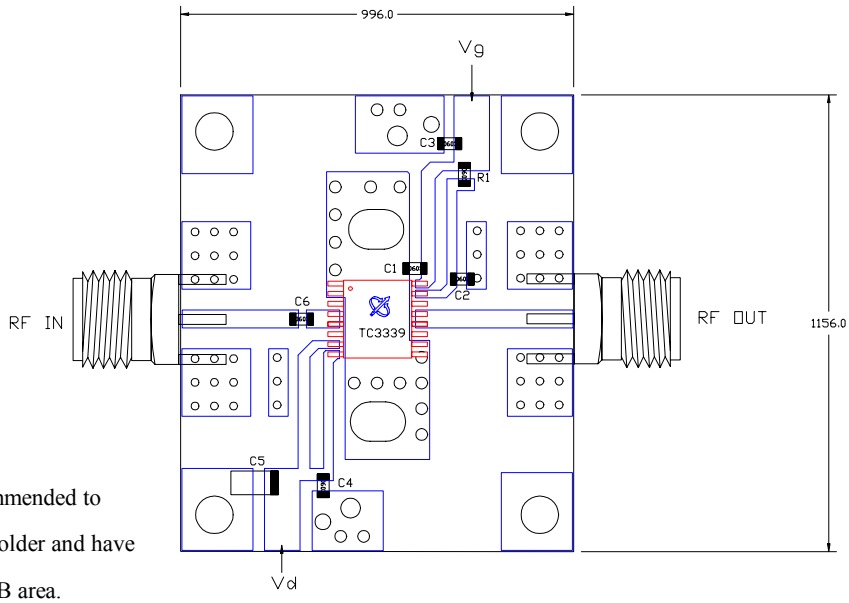
Evaluation Board Schematic



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



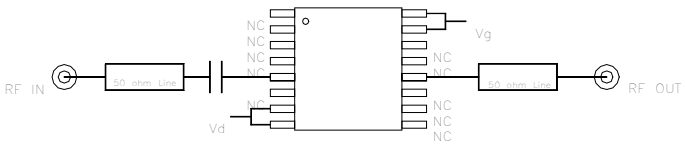
Application Notes:

For better heat sinking and grounding, it's recommended to have the via holes beneath TC3339 filled with solder and have two screws besides TC3339 installed on the PCB area.

Evaluation Board Parts List

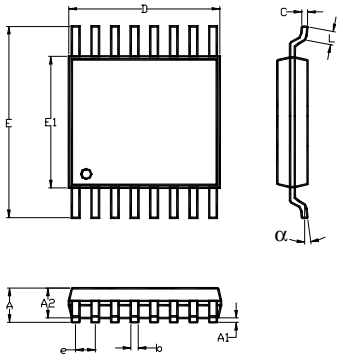
Part Type	Reference Designator	Description	Manufacturer	Part Number
Capacitor	C1, C2	1000pF 0603	Murata	GRM39C0G102J50V
Capacitor	C3, C4	0.1 uF 0603	Murata	GRM39Y5V104Z25V
Capacitor	C5	4.7uF Tantalum Cap.		
Capacitor	C6	1.8pF	Murata	GRM39C0G1R8C50V
Resistor	R1	200 ohm 0603		

CONNECTION DIAGRAM AND PIN DESCRIPTIONS



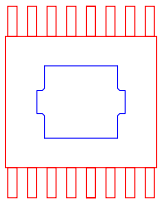
Pin #	Name	Description
4, 5	RF IN	RF input (internally DC blocked)
7, 8	V_d	MMIC drain bias
15, 16	Vg	MMIC gate bias
12, 13	RF OUT	RF output (internally DC blocked)
Others	NC	No Connection

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
y			0.004
α	0°		8°

Dimensions in inches



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