

5.8 GHz 35.5 dBm Prematched FETs

FEATURES

- 35.5 dBm Typical Power at 5.8 GHz
- High Associated Gain:
Ga = 8 dB Typical at 5.8 GHz
- High Linearity:
IP3 = 46 dBm Typical at 5.8 GHz
- High Power Added Efficiency:
PAE ≥ 28 % for Class A Operation
- Suitable for High Reliability Application
- Lg = 0.6 μm, Wg = 12 mm
- 100 % DC and RF Tested
- Flange Ceramic Package

PHOTO ENLARGEMENT



DESCRIPTION

The TC3989 is a 35.5 dBm partially prematched power FET assembled in a flange ceramic package. It requires simple matching networks to achieve high gain and high linearity for 5.8 GHz applications. All devices are 100 % DC and RF tested to assure consistent quality.

ELECTRICAL SPECIFICATIONS

V_D=10 V, I_D=1100 mA, f=5.8 GHz

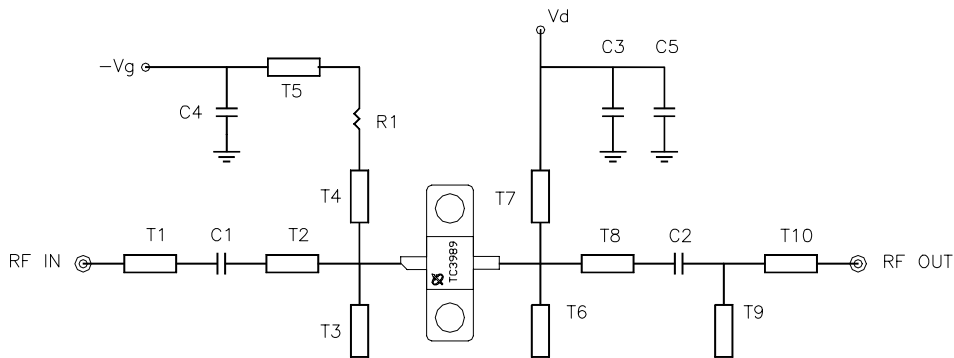
PARAMETERS	CONDITIONS	MIN	TYP	MAX	UNIT
P ₋₁ *		35	35.5		dBm
Ga*		7	8		dB
IP3	P _{out} =23 dBm		46		dBm
PAE	@ P ₋₁		28		%
I _{DSS}	V _{DS} =2 V, V _{GS} =0 V		3		A
g _m	V _{DS} =2 V, V _{GS} =0 V		2000		mS
V _P	V _{DS} =2 V, I _D =24 mA		-1.7		Volts
BV _{DGO}	I _{DGO} =6 mA	18	22		Volts
R _{th}			3.5		°C/W

* FET TO BE TESTED IN TRANSCOM FIXTURE

ABSOLUTE MAXIMUM RATINGS at 25 °C

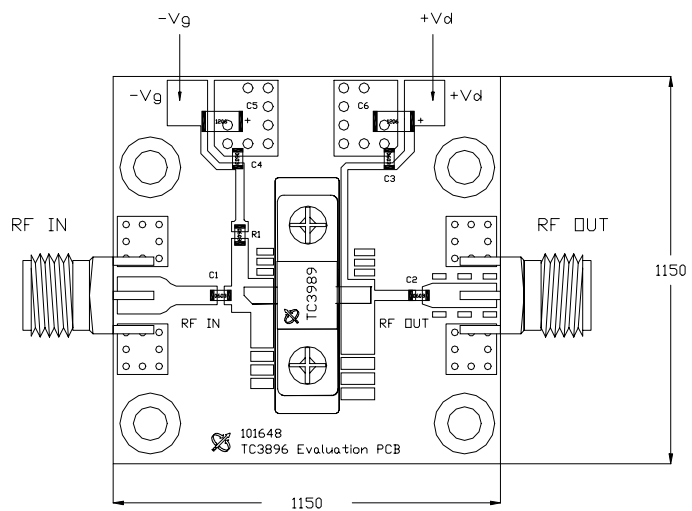
Symbol	Parameter	Rating
V _{DS}	Drain-Source Voltage	12 V
V _{GS}	Gate-Source Voltage	-5 V
I _D	Drain Current	3 A
P _T	Continuous Dissipation	22 W
P _{in}	Input Power, CW	33 dBm
T _{CH}	Channel Temperature	175 °C
T _{STG}	Storage Temperature	- 65 °C to +175 °C

TEST CIRCUITS

 Evaluation Board Schematic ($V_D = 10\text{ V}$, $I_D = 1100\text{ mA}$)

EVALUATION BOARD

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

PCB Material: FR4
 ER = 4.6
 Thickness = 31 mil
 Unit: mil



Evaluation Board Parts List

Part Type	Reference Designator	Description	Manufacturer	Part Number
Capacitor	C1,C2	3.5 pF (0603)	Murata	GRM39C0G3R5C50V
Capacitor	C3,C4	1000 pF (0603)	Murata	GRM39C0G102J50V
Capacitor	C5,C6	10 uF (B CASE)	HITACHI	
Resistor	R1	10 ohm (0603)		

FLANGE PACKAGE OUTLINE (in mm)
