



TC3977
PRE2_20050418

Preliminary

3 W Packaged Single-Bias PHEMT GaAs Power FETs

FEATURES

- 3W Typical Output Power
- 12dB Typical Linear Power Gain at 2.45GHz
- High Linearity: IP3 = 45 dBm Typical
- High Power Added Efficiency: Nominal PAE of 35%
- Breakdown Voltage: $BV_{DGO} \geq 18V$
- $W_g = 7.5 \text{ mm}$
- 100 % DC Tested
- Suitable for High Reliability Application

PHOTO ENLARGEMENT



DESCRIPTION

The TC3977 is a single-bias Cu-based ceramic packaged device with TC1706N PHEMT GaAs FETs, which is designed to provide the single power supply. The Cu-based ceramic package provides excellent thermal conductivity for the GaAs FET. The device is suitable for oscillator and power amplifiers in a wide range of commercial application. All devices are 100% DC tested to assure consistent quality.

ELECTRICAL SPECIFICATIONS (@ 2.45 GHz)

Symbol	CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Gain Compression Point $V_{DS} = 10 \text{ V}$	34.5	35.5		dBm
G_L	Linear Power Gain $V_{DS} = 10 \text{ V}$		12		dB
IP3	Intercept Point of the 3 rd -order Intermodulation $V_{DS} = 10 \text{ V}$, $*P_{SCL} = 24 \text{ dBm}$		45		dBm
PAE	Power Added Efficiency at 1dB Compression Power		35		%
I_{DS}	Drain-Source Current at $V_{DS} = 10 \text{ V}$		900		mA
BV_{DGO}	Drain-Gate Breakdown Voltage at $I_{DGO} = 3.75\text{mA}$	18	22		Volts
R_{th}	Thermal Resistance		5.3		°C/W

Note: $*P_{SCL}$: Output Power of Single Carrier Level.

