

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:  $BV_{DGO} \geq 18V$
- $Wg = 7.5 \text{ mm}$
- 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 <sup>rd</sup> -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		$^{\circ}\text{C}/\text{W}$

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