

Preliminary

### 3W Packaged Self-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 self-bias Cu-based ceramic packaged device with TC1706N PHEMT GaAs FETs, which is designed to provide the single power supply application. The Cu-based ceramic package provides excellent thermal conductivity for the GaAs FET. The devices only need to provide the positive voltage to drain and ground the source, which is suitable for oscillator, power amplifier application 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		°C/W

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