

Preliminary **1.6 GHz 20 W Flange Ceramic Packaged GaAs Power FETs**
FEATURES

- 20 W Typical Power at 1.6 GHz
- 13 dB Typical Linear Power Gain at 1.6 GHz
- High Linearity: IP3 = 52 dBm Typical
- High Power Added Efficiency: Nominal PAE of 40 %
- Suitable for High Reliability Application
- Wg = 50 mm
- 100 % DC and RF Tested
- Flange Ceramic Package

PHOTO ENLARGEMENT

DESCRIPTION

The TC2997A is a packaged Pseudomorphic High Electron Mobility Transistor (PHEMT) power transistor with input prematched circuits. The flange ceramic package provides the best thermal conductivity for the GaAs FET. All devices are 100% DC and RF tested to assure consistent quality. Typical applications include high dynamic range power amplifiers for commercial applications.

ELECTRICAL SPECIFICATIONS ($V_{DS} = 10.5$, $I_{DS} = 5A$ @ 1.6GHz)

Symbol	CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Gain Compression Point	42	43		dBm
G_L	Linear Power Gain	12	13		dB
IP3	Intercept Point of the 3 rd -order Intermodulation* $P_{SCL} = 32$ dBm		52		dBm
PAE	Power Added Efficiency at 1dB Compression Power		40		%
I_{DSS}	Saturated Drain-Source Current at $V_{DS} = 2$ V, $V_{GS} = 0$ V		12.5		A
g_m	Transconductance at $V_{DS} = 2$ V, $V_{GS} = 0$ V		9000		mS
V_P	Pinch-off Voltage at $V_{DS} = 2$ V, $I_D = 60$ mA		-1.7		Volts
BV_{DGO}	Drain-Gate Breakdown Voltage at $I_{DGO} = 15$ mA	20	22		Volts
R_{th}	Thermal Resistance		0.9		°C/W

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

ABSOLUTE MAXIMUM RATINGS at 25 °C

Symbol	Parameter	Rating
V_{DS}	Drain-Source Voltage	12 V
V_{GS}	Gate-Source Voltage	-5 V
I_{DS}	Drain Current	I_{DSS}
P_{in}	RF Input Power, CW	37 dBm
P_T	Continuous Dissipation	100 W
T_{CH}	Channel Temperature	175 °C
T_{STG}	Storage Temperature	- 65 °C to +175 °C

HANDLING PRECAUTIONS:

The user must operate in a clean, dry environment. Electrostatic Discharge (ESD) precautions should be observed at all stages of storage, handling, assembly, and testing. The static discharge must be less than 300V.

FLANGE PACKAGE OUTLINE (in mm)
