

2.5-2.7GHz 20W Packaged GaAs Power FETs

FEATURES

- 20 W Typical Power
- 10.5 dB Typical Linear Power Gain
- High Linearity:
IP3 = 52 dBm Typical
- High Power Added Efficiency:
Nominal PAE of 37 %
- 100 % DC and RF Tested

DESCRIPTION

The TC2998E is a packaged Pseudomorphic High Electron Mobility Transistor (PHEMT) power transistor. The 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 amplifier for military or commercial applications.

ELECTRICAL SPECIFICATIONS

Symbol	CONDITIONS	MIN	TYP	MAX	UNIT
FREQ	Operating Frequency	2.5		2.7	GHz
P_{1dB}	Output Power at 1dB Gain Compression Point, $V_d = 10V, I_d = 4.5A, f = 2.5 - 2.7GHz$	42	43		dBm
G_L	Linear Power Gain $V_d = 10V, I_d = 4.5A, f = 2.5 - 2.7GHz$	9.5	10.5		dB
IP3	Intercept Point of the 3 rd -order Intermodulation, $V_d = 10V, I_d = 4.5A, f = 2.5 - 2.7GHz$, * $P_{SCL} = 31$ dBm		52		dBm
PAE	Power Added Efficiency at 1dB Compression Power		37		%
I_{DSS}	Saturated Drain-Source Current at $V_{DS} = 2$ V, $V_{GS} = 0$ V		18.75		A
g_m	Transconductance at $V_{DS} = 2$ V, $V_{GS} = 0$ V		13500		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		0.6		°C/W

* P_{SCL} : Output Power of Single Carrier Level, delta frequency=5MHz.

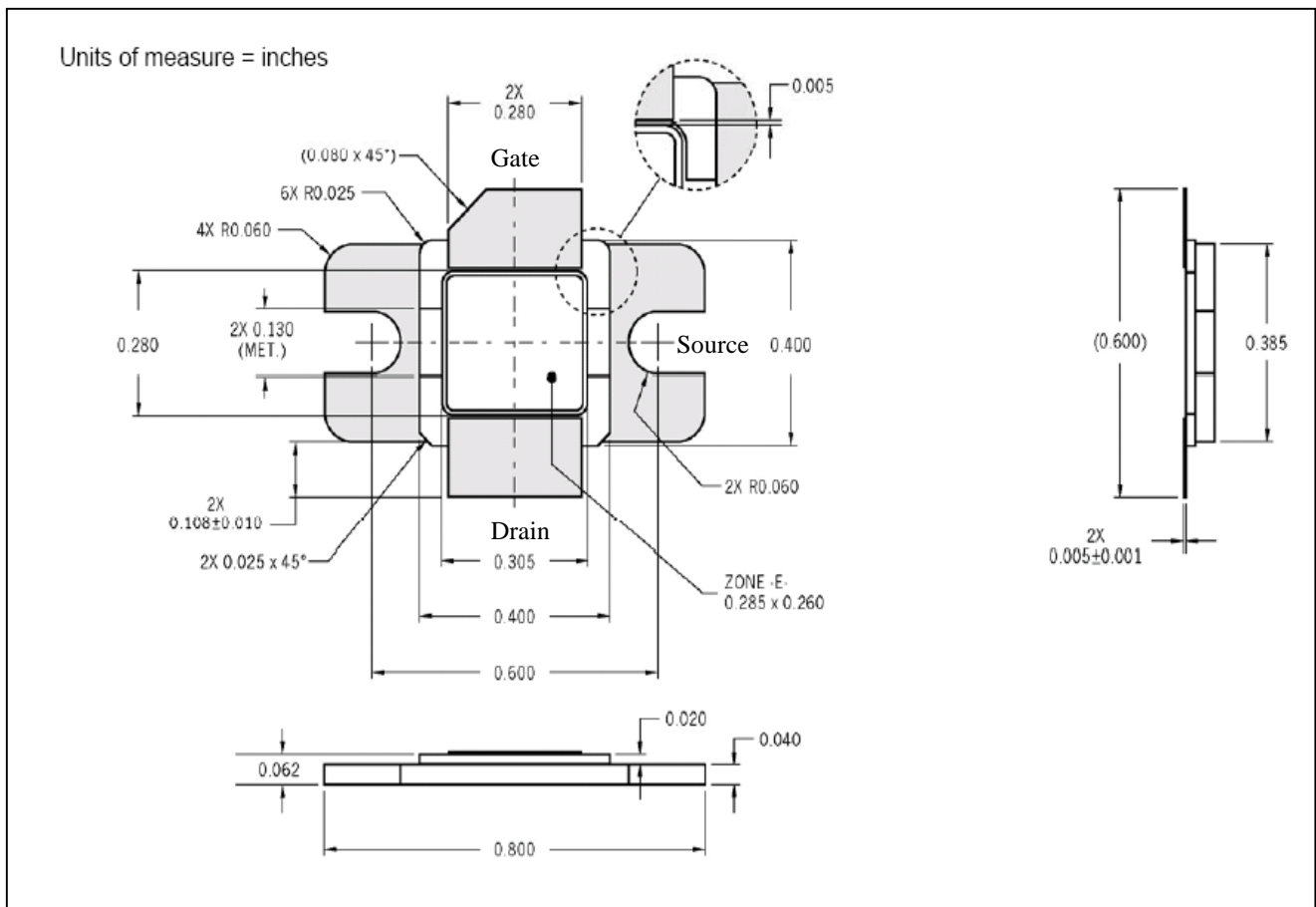
ABSOLUTE MAXIMUM RATINGS at 25 °C

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	37dBm
P _T	Continuous Dissipation	150 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

MECHANICAL OUTLINE



Note – Mechanical outline might be adjusted upon actual design..