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4 Watt Ka-Band MMIC Fits Applications from 25 to 31 GHz

This new Ka-band module offers high gain, high power output and "drop-in" design convenience for emerging low cost applications at 25-31 GHz

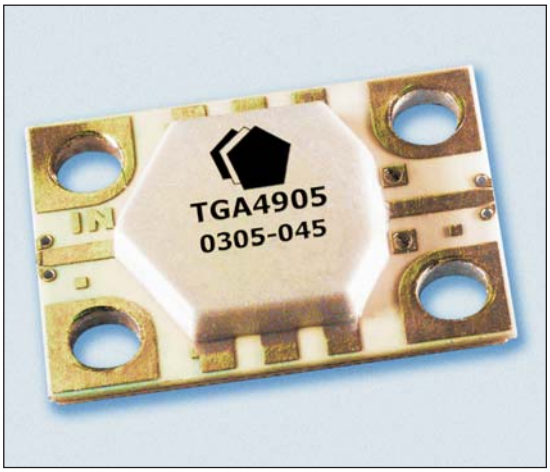
A new power amplifier module for Ka-band wireless communications applications has been introduced by TriQuint Semiconductor. Model TGA4905 covers 25 to 31 GHz with 4 watts power output (saturated) in a matched module that can be easily designed into base station equipment for satellite ground terminals, point-to-point radio and LMDS.

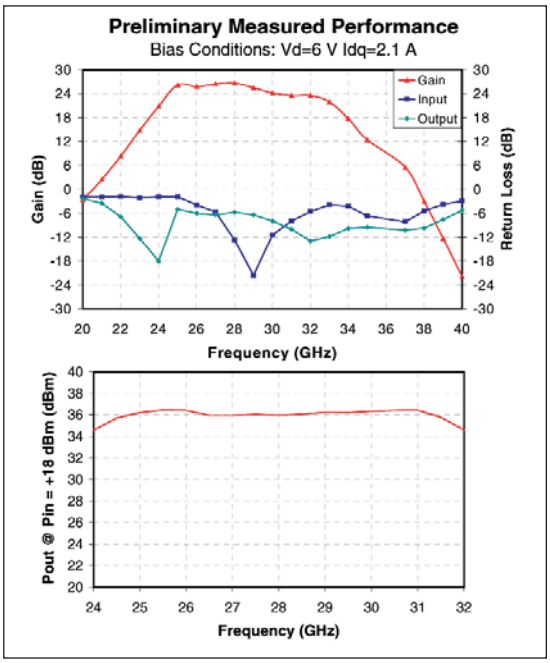
The module achieves 22 dB gain and +36 dBm output power using 0.25 µm pHEMT GaAs FET MMIC technology. Device specifications are: 36 dBm P_{sat} (midband), 22 dB gain, 10 dB typical input return loss, 8 dB typical output return loss and quiescent bias of 6 volts and 2.1 amps.

In addition to these key specifications listed below, maximum ratings include 8 V drain voltage, –5 to 0 V gate voltage, 3.0 A drain current, 62 mA gate current and 24 dBm input power. Power dissipation capability is 16.8 watts for a channel temperature of 150ºC at a base plate temperature of 70ºC. Thermal resistance from channel to the package backside is 4.63ºC/W (6 V, 2.1 A bias).

The module may be mounted with screws, soldered to a heat sink, or attached with conductive epoxy. RF connections may be bond wires or gold ribbon, and should be as short as possible for proper operation.

TriQuint Semiconductor
Tel: 972-994-8465
Fax: 972-994-8504
E-mail: info-mmw@tqs.com
www.triquint.com
HFeLink 301





Plots of the TGA4905 gain and input/output return loss data (top); and power output over the band at +18 dBm input (bottom).