Abstracts

A high power broadband monolithic power amplifier for Ka-band ground terminals

M.K. Siddiqui, A.K. Sharma, L.G. Callejo and R. Lai. "A high power broadband monolithic power amplifier for Ka-band ground terminals." 1999 MTT-S International Microwave Symposium Digest 99.3 (1999 Vol. III [MWSYM]): 951-954 vol.3.

A high power broadband monolithic power amplifier operating from 29 to 32 GHz is presented for Ka-band ground terminal applications. Using 0.15 /spl mu/m InGaAs/AlGaAs/GaAs pseudomorphic HEMT (PHEMT) devices, the two stage power amplifier on 4 mil GaAs substrate demonstrated greater than 16 dB small signal gain and 32 dBm (1.6 watts) power. The amplifier attained peak output power of 33 dBm (2 watts) and power added-efficiency of 27%. At this power level, the amplifier exhibited power densities in excess of 620 mW/mm. Performance capabilities of the HEMT power amplifiers at millimeter-wave frequencies is documented in terms of power densities at 1 dB compression and at saturation, as well as power-added efficiency.

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