

# Abstracts

## Ka-Band Power PHEMT On-Wafer Characterization Using Prematched Structures

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*"Ka-Band Power PHEMT On-Wafer Characterization Using Prematched Structures."* 1993 MTT-S International Microwave Symposium Digest 93.3 (1993 Vol. III [MWSYM]): 1343-1346.

High power Ka-band power amplifiers have been developed using monolithic prematched structures utilizing power InGaAs pseudomorphic HEMT (PHEMT) devices. On-wafer load-pull impedance data on the structures containing  $0.15 \mu\text{m} \times 400 \mu\text{m}$ ,  $0.15 \mu\text{m} \times 800 \mu\text{m}$  and  $0.15 \mu\text{m} \times 1600 \mu\text{m}$  devices were obtained. Based on the above information, a two stage MIC amplifier consisting of a single  $1600 \mu\text{m}$  monolithic prematched structure driving four  $1600 \mu\text{m}$  monolithic prematched structures was realized. The amplifier achieved an output power of 1.6 watts (32.2 dBm) with 8.1 dB gain at 35 GHz.

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