Abstracts

High Yield GaAs Flip-Chip MMICs Lead to Low Cost T/R Modules

L.M. Felton. "High Yield GaAs Flip-Chip MMICs Lead to Low Cost T/R Modules." 1994 MTT-S International Microwave Symposium Digest 94.3 (1994 Vol. III [MWSYM]): 1707-1710.

A flip-chip design and assembly technique has been developed for GaAs MMICs resulting in lower fabrication costs and improved module yields. Plated bumps on the face of the MMIC are used as a replacement for wirebonds to interconnect all DC and RF signals. Wafer thinning, backside via etch, and backside plating steps have been eliminated, resulting in both higher fabrication yields and improved assembly yields. Microstrip matching networks have been replaced with uniplanar transmission structures such as Coplanar Waveguide (CPW) and spiral inductors. RF data will be shown to validate the design and assembly methods. Results will be shown indicating that flipped high-power MMICS provide lower thermal resistances than their unflipped counterparts, resulting in lower junction temperatures and improved reliability.

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