Abstracts

Thermal Management for High-Power Active Amplifier Arrays (Short Papers)

N.J. Kolias and R.C. Compton. "Thermal Management for High-Power Active Amplifier Arrays (Short Papers)." 1996 Transactions on Microwave Theory and Techniques 44.6 (Jun. 1996 [T-MTT]): 963-966.

Much of the active array work reported to date has been directed toward the demonstration of prototypes at low-power levels. Analysis results presented here show that overheating failures will occur as these arrays are scaled to reasonable output powers. Large air-cooled heat sinks attached to the backside of a thinned array can be used for single-sided designs such as oscillator arrays, but heat sinking becomes substantially more difficult for two-sided transmission-type arrays. For these designs, a possible solution is described which uses an aluminum-nitride dielectric layer to facilitate conduction to heat sinks on the array's perimeter.

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