Innovative Ceramic Sub-Mounts and Heat Spreaders

Chandra Gupta, PhD
Remtec Inc.
cgupta@remtec.com

High power components and systems such as amplifiers, dc to dc converters have the challenge of efficient removal of heat from the semiconductors. The high-power semiconductor devices and ICs can readily reach extremely high temperatures, leading to poor reliability and device failures without adequate thermal management. Careful and cost-effective heat removal techniques are needed, so that the semiconductor junction temperatures can be reduced to acceptable levels to meet and exceed the mission of MTBF (mean time before failure) targets. This presentation will detail the ceramic selection, designs of the sub-mounts, and the heat spreaders. The characteristics such as the CTE, thermal dissipation coefficients, thermal resistance, use of vias, and the installments will be covered.