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Three-Dimensional CFD Simulation for 8 PLCC Packages Mounted Inline on a Printed Circuit Board

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ABSTRACT

Three-dimensional numerical analysis of heat and fluid flow through Plastic Leaded Chip Carrier (PLCC) packages in inline orientation, horizontally mounted on a printed circuit board, in a wind tunnel is carried out using a commercial Computational Fluid Dynamic (CFD) code, FLUENT™. The study was made for eight packages with different inlet velocities and package chip powers. The results are presented in term of junction temperature for each package under different conditions. It is observed that the junction temperature of the packages decreases with increase in inlet air velocity. Moreover, the chip temperatures are observed to be increased with the increase in number of packages as well as increase in chip power. The predicted results are in good agreement with previous works.

Keywords: *PLCC package, thermal management, numerical simulation, average junction temperature*