ABSTRACT

FLIP CHIP THERMALLY ENHANCED BALL GRID ARRAY

A new method is provided for the conduction of heat between a flip-chip and the motherboard and heatsink onto which the flip-chip is mounted. In a flip-chip package of the invention the heatsink is in direct contact with the flex circuit, the contact balls of the flip chip make contact with the flex circuit. The flip-chip is attached and reflow is performed thereby attaching the contact balls to the flex circuit. The flip chip is encased in a molding compound in a one step process procedure that is in accordance with Attorney Docket #STATS99-002, assigned to a common assignee. The flip-chip is now placed on the motherboard with the contact balls and the underfill facing upwards. The underfill provides direct contact between the flip-chip and the flex circuit/heatsink. This direct contact significantly increases the heat flow between the flip-chip and the heatsink. The top surface of the flip-chip rests, after the flip-chip has been mounted onto the motherboard, on the motherboard thereby providing maximum heat flow between the top of the flip-chip and the motherboard.

(FIGURE 1 IS SUGGESTED FOR PUBLICATION)