ROGERS CORPORATION
Elastomeric Material Solutions

APPLICATION SUCCESS STORY

ROGERS KEEPS ULTRA-THIN NOTEBOOK COOL TO THE TOUCH

Rogers' HeatSORB™ Phase Change Material Makes Overheating a Thing of the Past

CUSTOMER PROBLEM

With the continued demand for portable electronics devices to be slimmer and more powerful, heat management solutions have become more important and more challenging. Recently, a team of OEM designers encountered a host of such challenges during the design phase of a high-end notebook for the enterprise market. Their new fan-less design would help them realize an ultra-slim device profile, but thermal management had the potential to be a serious problem. The question was how to manage the heat generated by the high-performance components, like the CPU and ultra-thin display, without taking up valuable real estate inside the notebook. Poor heat management around these device components could lead to negative effects such as thermal throttling (CPU slow down) or device shutdown. From a user experience perspective, they were also concerned that users might feel excess heat or burn. With limited space to work with, finding a thin, robust heat management solution would be critical to user comfort and device performance.

THE ROGERS SOLUTION

Rogers' engineers recommended HeatSORB™ proprietary phase change material to address heat management issues within the ultra-thin notebook. A unique material, HeatSORB is capable of consistently absorbing large amounts of heat within a very specific temperature window. It would capture the heat, delaying CPU and overall device temperature ramp, resulting in improved user comfort and device efficiency. When the device was not in use, the HeatSORB material would release the thermal energy and regain its ability to absorb heat during the next cycle. As an added bonus, the proprietary formulation of the HeatSORB material is designed for reliability so the material remains effective throughout the life of the device.

RESULT

The design engineers chose Rogers' HeatSORB proprietary phase change material to ensure that their device would remain cool in the user's hands. Their smart design specified HeatSORB material in an ultra-thin thickness to act as buffer to delay the temperature rise. To ensure that any intermittent high heat spots would be spread and then absorbed by HeatSORB material, they combined it with a thermal interface material (thermal grease) and heat spreading solutions (graphite sheet and heat pipe). The advanced technology of Rogers' materials saved the day by ensuring this new, ultra-thin notebook would provide a cool and powerful user experience.

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