# Automated, Hardware-Free Power Semiconductor Attachment

Chomerics, a division of Parker Hannifin Corporation, introduces PowerSite&#153 automated power semiconductor attachment technology. The PowerSite process enables direct mounting of power semiconductors onto heat sinks without mechanical fasteners. Chomerics' automated PowerSite process selectively bonds insulated copper pads onto aluminum heat sinks, allowing TO-220 ot TO-247 power devices to be solder mounted.

PowerSite technology utilizes a high temperature adhesive coated on both sides of a 1 mil Kapton&#153 MT film to laminate 1 oz. copper foil pads to aluminum heat sinks. Most common stamped or extruded heat sinks are readily integrated into PowerSite assembly equipment. Each copper pad or &quotPowerSite&quot provides an interface with thermal impedance as low as 0.1 &#176 C-in$^2$/W (0.65 &#176 C-cm$^2$/W) as compared to a common elastomeric pad with thermal impedance al high as 0.4 &#176 C-in$^2$/W (2.6 &#176 C-cm$^2$/W).

OEM designers can use the improved thermal performance to lower device junction temperatures, reduce heat sink size, elevate power capacity, or increase the ambient temperature rating. Valuable package space and material costs for device attachment is minimized as thermal pads, screws, clips, clamping brackets, and other hardware is eliminated. The automated PowerSite system lowers assembly labor expenses and ensures part-to-part consistency. By eliminating the pressure dependency associated with mounting hardware and the variability of manual installation, the PowerSite process also improves reliability. Electrical insulation is ensured with a durable Kapton MT film layer, achieving a voltage breakdown of 5000 V AC.

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