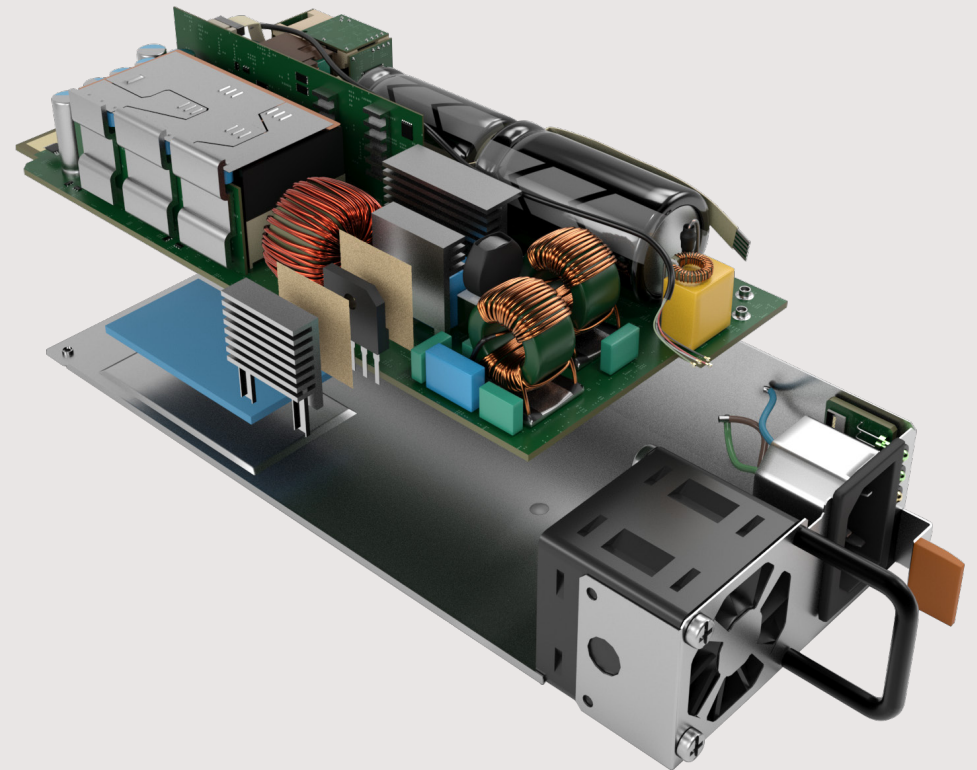




CASE STUDY

**BOND PLY Increases Production
Efficiency, Lowers Cost for High-
Power Industrial Application**





Customer Challenges

- The customer's new design for a power supply used in a high-power industrial application incorporates several discrete packages, making traditional mechanical attachment processes inefficient.
- In addition, the system's power levels, high breakdown voltage and heat generation suggested that use of conventional adhesives as a mechanical replacement could not deliver the thermal performance necessary.
- The customer aimed to reduce overall manufacturing costs, while improving production efficiency, performance and yield.

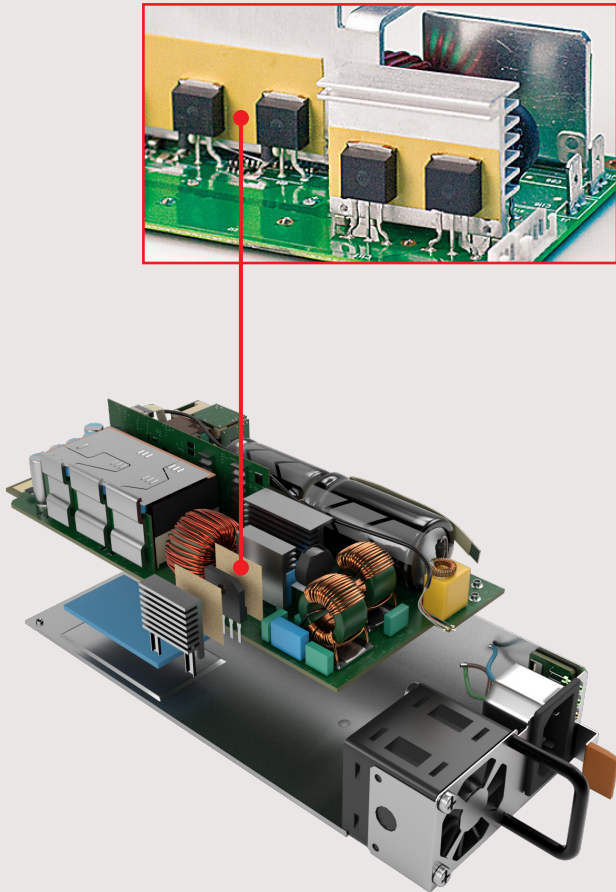


Customer Requirements

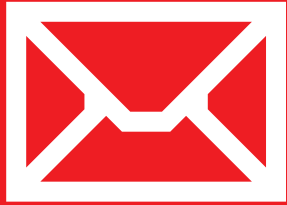
- **Process and Resource Efficiency:** Accelerate assembly through simplified attachment of discrete devices to the cooling plate without the use of screws.
- **High Throughput:** Fast and pressure-free curing during oven processing.
- **In-application Performance Reliability:** Effective heat dissipation and low thermal impedance with zero to minimal adhesion degradation over the life of the device (~25+ years).

Henkel Solution

- Henkel engaged with the customer in the product design phase to help engineer the most comprehensive solution. Ultimately, thermally-conductive, heat-curable laminate **BERGQUIST BOND PLY TBP 1400LMS-HD** was selected for the following reasons:
 - The material provides excellent dielectrics and strong dual-side adhesion for interface attachment to both the cooling plate and discrete devices, allowing the elimination of mechanical screws for a higher power density design with tight component placement.
 - Once adhered, no pressure is required for the curing process. BOND PLY thermal curing can take place in as little as six minutes without the use of clips.
 - The highly conformable, silicone-based BOND PLY material core alleviates mechanical stress, enabling continuous use from -60°C to 180°C and protecting against shock and vibration. Thermal conductivity of 1.4 W/m-K and low thermal impedance deliver thorough heat dissipation.
- With this single material solution, the customer has reduced parts complexity and cost, accelerated assembly processes and ensured necessary thermal management for optimal operation. Yield has been significantly improved, and the customer is successfully manufacturing over one million power supplies annually.



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