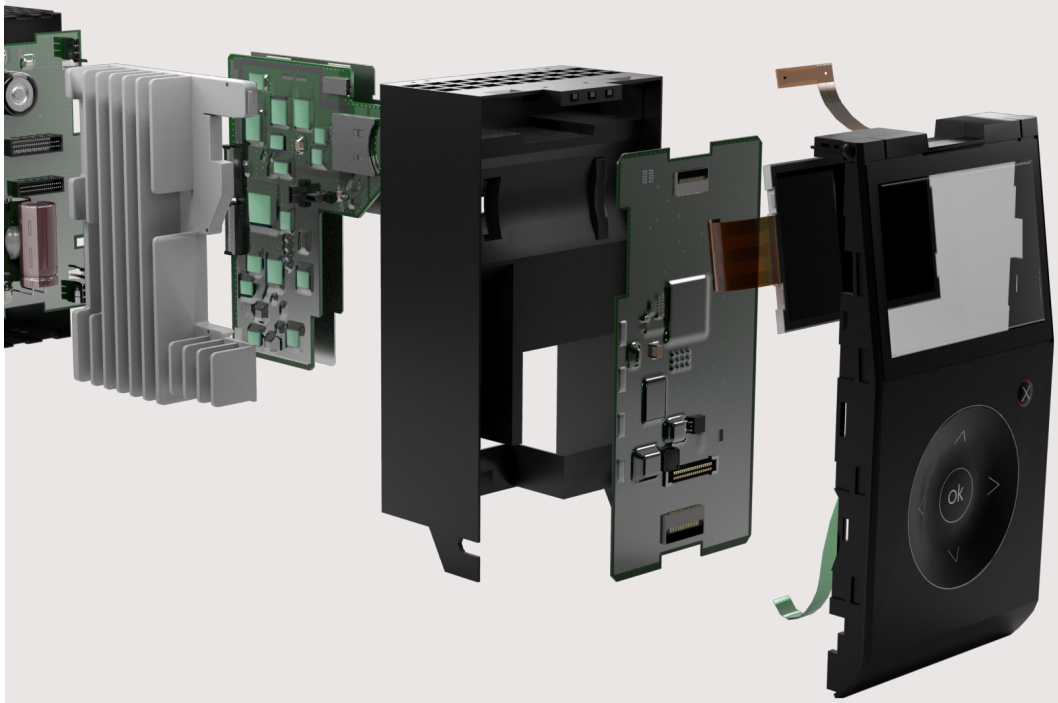
Henkel

BERGQUIST®

CASE STUDY

BERGQUIST GAP PAD TGP 2200SF Delivers Silicone-free Thermal Management for Sensitive Environments

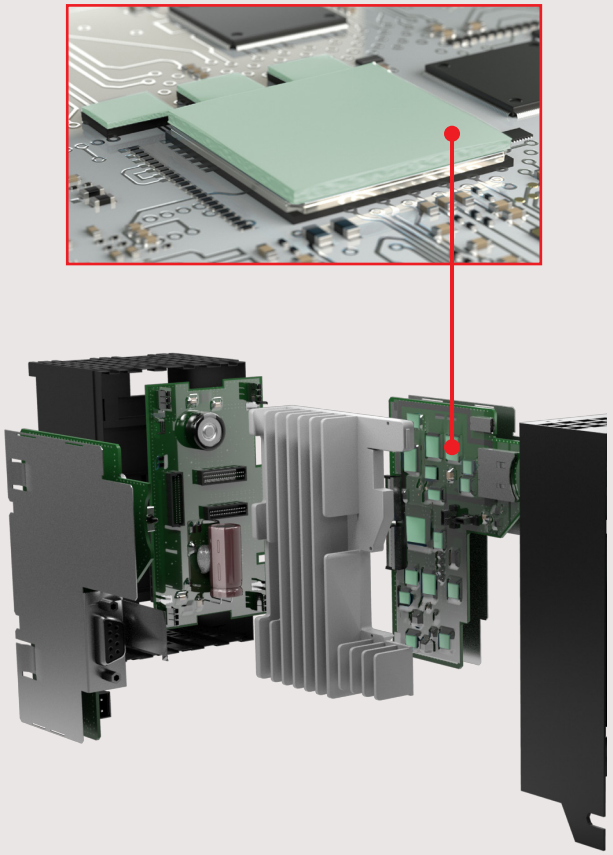


Customer Challenges

- A new Programmable Logic Controller (PLC) design required a robust thermal management solution with no outgassing risk.
- As the system can be used in a variety of machines and production environments, the thermal materials must be conducive to many conditions.
- The customer requested the use of a silicone-free thermal solution to avoid silicone contamination, but wanted to maintain the stress control and heat benefits generally consistent with silicone-based thermal interface materials (TIMs).

Customer Requirements

- It was critical that the TIM selected have a high stack-up tolerance with reasonable softness, as the varying thermal influences from the stack layers are complex.
- The ability to maintain good thermal performance in high (up to 125°C) sustained operational temperatures is important, as many of the machines run in 24/7 environments.
- For this application, the required TIM formulation must be free of silicone to ensure no risk of contamination on electronic contacts, optical components or in automotive manufacturing environments where silicone residues present performance issues.
- Because of the long device lifetime expectation (~25+ years), high in-application reliability, effective heat dissipation and low thermal impedance are essential.



Henkel Solution

- Understanding the multiple requirements for the application and engaging with the customer from the design phase, Henkel recommended ***BERGQUIST GAP PAD TGP 2200SF***, which was ultimately selected as the TIM solution for the new control unit.
- Excellent elasticity (Young's Modulus) and softness of the GAP PAD are forgiving and accommodate the high stack-up tolerance required.
- Thermal conductivity of 2.2 W/m-K and low thermal impedance deliver excellent inapplication thermal control, while enabling continuous operation at temperatures as high as 125°C with no degradation in performance or silicone outgassing concerns.
- The customer is now successfully producing up to 50,000 control units annually.

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