



Press Release

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Agreement Aims to Advance Pressureless Sintering Material Development for RF and Power Devices

Henkel and CITC Forge Partnership to Accelerate High-Thermal Die Attach Solutions

Irvine, CA and Nijmegen, the Netherlands – Henkel and Chip Integration Technology Center (CITC) announced today that the organizations have formalized an agreement to collaborate on the development of high-thermal die attach solutions for radio frequency (RF) and power electronics. Under the terms of the partnership, Henkel will supply commercialized and developmental pressureless sintering die attach formulations and CITC will provide testing and analysis of the materials within next-generation package designs.

CITC's thermal high-performance packaging program focuses on thermo-mechanical design strategies and device packaging platforms that integrate low-stress, high-reliability interconnect solutions. As die attach and molding materials are often limiting factors for the optimal operation of RF and power packages, Henkel is the ideal partner for innovation in this application area.

In addition to ongoing work in its state-of-the-art R&D centers, Henkel wants to accelerate time-to-market for its semiconductor packaging materials through strategic relationships across industry, government, and academia. CITC, which collaborates with leading power and RF device packaging companies, provides a unique opportunity to characterize and analyze Henkel's high-thermal die attach formulations as an enabler for leading-edge device designs.

"Henkel's pressureless sintering die attach materials are already proven in certain mobile applications," explained Ramachandran "Ram" Trichur, the company's Global Market Segment Head, Semiconductor Packaging Materials. "We want to extend that success to other sectors such as automotive, where large, high-power chips are the

norm. Our pressureless sintering solutions are unique because they deliver the simple, low-stress processability of conventional die attach adhesives and very high thermal conductivity capabilities. The work at CITC will augment our in-house projects, allowing additional performance and reliability validation.”

The new die attach technology has the potential to enable the replacement of lead within RF and power semiconductor devices that incorporate larger die on copper leadframes, allowing the introduction of high operating temperature gallium nitride and silicon carbide power die technologies. Many of CITC’s partners are actively integrating these new chip structures, making the cooperative project an excellent proving ground for Henkel’s pressureless sintering platform.

“In Henkel, we have found a material innovator that will enable the development of power and RF devices with a holistic approach that leverages the latest in die attach technology,” concluded CITC General Manager, Jeroen van den Brand. “With many major power device manufacturers based in Europe, and in Nijmegen in particular, we view this partnership as vital to satisfying the current and future demands within these important market sectors.”

For more information, visit www.henkel-adhesives.com/electronics and www.citc.org.

About Henkel

Henkel operates globally with a well-balanced and diversified portfolio. The company holds leading positions with its three business units in both industrial and consumer businesses thanks to strong brands, innovations and technologies. Henkel Adhesive Technologies is the global leader in the adhesives market – across all industry segments worldwide. In its Laundry & Home Care and Beauty Care businesses, Henkel holds leading positions in many markets and categories around the world. Founded in 1876, Henkel looks back on more than 140 years of success. In 2021, Henkel reported sales of more than 20 billion euros and adjusted operating profit of about 2.7 billion euros. Henkel employs about 53,000 people globally – a passionate and highly diverse team, united by a strong company culture, a common purpose to create sustainable value, and shared values. As a recognized leader in sustainability, Henkel holds top positions in many international indices and rankings. Henkel’s preferred shares are listed in the German stock index DAX. For more information, please visit www.henkel.com.

About CITC

Chip Integration Technology Center (CITC) is a non-profit joint innovation center specializing in heterogeneous integration and advanced chip packaging technology. CITC has created an effective ecosystem in which companies, research and educational institutes work on bridging the gap between academics and industry. CITC’s contribution to the ecosystem is to provide access to innovation, infrastructure and education.

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