

Press release for trade publications

Hanau, Shanghai, June 26, 2018

PCIM Asia: Heraeus introduces new Die Top System with power cycling capacity for e-mobility boosted by a factor of 60

Heraeus Electronics, a leading provider of materials solutions for the semiconductor and electronics industry, will present a new system for chip-top contacting in power electronics modules at the PCIM Asia conference in Shanghai from June 26 to 28, 2018. The Die Top System boosts the chip's current-carrying capacity by more than 50% and offers significantly greater reliability, which allows manufacturers of electric and hybrid cars to test the limits of power transmission in simulation tests – a crucial factor in the competition for China's e-mobility market.

China is setting the standard for the further development of electromobility. A significant driver in the Chinese market is the quota system for electric vehicles established by the Chinese government:

Automobile manufacturers are now required to produce a fixed quota of E-cars and plug-in hybrids. Starting in 2019, both domestic and foreign carmakers who fail to meet minimum targets for the proportion of alternative drives manufactured and sold will face sanctions.

Proof of high electrical and thermal reliability is possible

In light of this requirement, the topic of power electronics is becoming increasingly important for automobile manufacturers.

Heraeus Electronics is presenting the Die Top System at the PCIM Asia conference in Shanghai. Developed from Danfoss Bond Buffer® technology, the system offers new assembly and joining technology for silicon (Si) or wide-bandgap semiconductors.

"The Die Top System developed with Danfoss is particularly well suited for applications that demand high reliability," explains Dr. Klemens Brunner, head of the Heraeus Electronics global business unit. To enable the reliability of the Die Top System to be tested upfront, Heraeus Electronics is the only company in China to offer a new engineering service, the Power Cycling Test, from now onwards. This means that customers can see on site if the Die Top System meets their specific needs. "Manufacturers of electric and hybrid vehicles can benefit from these advantages, which allow them to test the reliability of the Die Top System for their purposes and to explore the limits of power transmission in a power cycling test on site in China," explains Klemens Brunner regarding the particular use of this new engineering service for users.

Greater current carrying capacity and power cycling capability

With its new design, the Die Top System not only increases the power module's current carrying capability, it also boosts its power cycling capability. This makes it possible to have junction temperatures of up to 200°C. A highly conductive copper foil is applied to the semiconductor chip using a sinter paste. This distributes the current evenly across the semiconductor chip, reducing heat and better avoiding hot spots in the semiconductor. The foil also strengthens the chip during production for the power module. As a result, more efficient copper bonding wires can be used in place of traditional aluminum bonding wires. This makes it possible to achieve more power with the same module size or equivalent power with smaller modules.

Visit us at our booth:

PCIM Asia

June 26 to June 28, 2018

Shanghai World Expo Exhibition & Convention Center

Hall 2, Booth C05.

Heraeus, the technology group headquartered in Hanau, Germany, is a leading international family-owned portfolio company. Founded in 1851, the company traces its roots back to a pharmacy operated by the family since 1660. Today Heraeus is made up of businesses that are active in the environmental, energy, health care, mobility and industrial applications sectors.

In fiscal year 2017, Heraeus earned total revenues of €21.8 billion. With approximately 13,000 employees in 40 countries, the FORTUNE Global 500-listed company occupies a leading position in its global markets. Heraeus is one of the top 10 family-owned companies in Germany.

With technical expertise, a commitment to excellence, a focus on innovation and an entrepreneurial leadership culture, we are constantly striving to improve our performance. We create high-quality solutions for our clients and strengthen their long-term competitiveness by combining unparalleled material expertise with leadership in technology.

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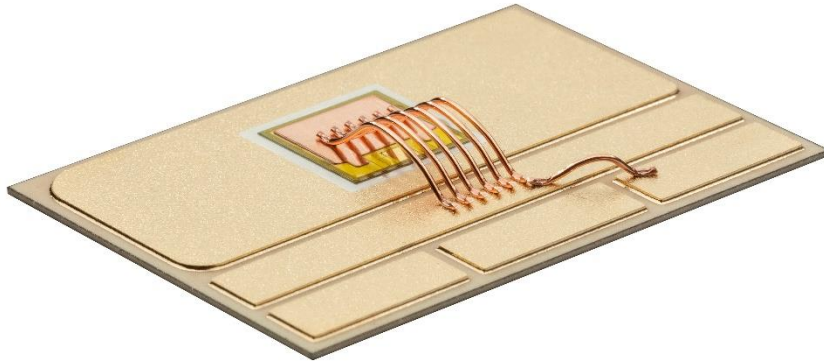
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Picture 1: Layout by courtesy of Fraunhofer IISB

Picture: Based on the Bond Buffer® technology from Danfoss, the Die Top System from Heraeus was developed for applications that demand high reliability.