West Conshohocken, Pa., March 13, 2015

Heraeus to Showcase Durability-Tested Thick Print Copper Paste at APEC 2015

Thermal Shock Testing Demonstrates Superior Thermo-Mechanical Performance of Thick Print Copper Paste on Aluminum Nitride

Heraeus, a world leader in industrial precious and specialty metals, announced today it will demonstrate the robust durability of its Thick Print Copper Paste System, along with its full line of materials for power circuits, at the Applied Power Electronics Conference (APEC) March 15-19 in Charlotte, North Carolina.

The thermal cycling testing done on Heraeus’ Thick Print Copper Paste determined superior thermo-mechanical performance for demanding power applications with excellent adhesion and stress matching of the copper to the underlying substrate. The material continues to maintain dependability after 1800 cycles on aluminum nitride and 2000 cycles on alumina at a temperature range -40°C to 150°C, proving reliability while competitive technologies like DBC undergoing the same testing failed at less than 100 cycles.

“APEC is the ideal setting to showcase the robust durability of our Thick Print Copper Paste,” said David Malanga, Vice President, Marketing and Sales Manager at Heraeus Electronics. “Additionally, our printed system offers versatility, allowing for printing in varied thicknesses on the same substrate. We look forward to discussing how these features can help industry leaders further improve the manufacturing of power electronics.”

Attractive alternative to DBC and DPC products

Heraeus’ Thick Print Copper System can be used to create copper circuits from 20 to 350 microns thick on both alumina (\(\text{Al}_2\text{O}_3\)) and aluminum nitride (AlN) substrates. The system has been optimized for greater than 50 micron fired film thickness with one process cycle. The products, all applied by printing, dried in air and fired in nitrogen atmosphere, include:

- C7403 – Bonding layer for alumina & aluminum nitride substrates
- C7404 – Plateable top layer for aluminum nitride & alumina substrates
- C7720 – Solderable top layer for aluminum nitride substrates
- C7440 – Designed for fine line printing (4 mil lines and spaces) on conventional alumina substrates.
- C7463 – Copper plug hole paste designed for alumina and aluminum nitride substrates.

As an attractive alternative to direct bonded copper (DBC) and direct plated copper (DPC) products, Heraeus thick print copper is electroless nickel (Ni), immersion gold (Au) (ENIG) plateable for both soldering and wire-bonding assembly processes. The system has proven superior thermal cycling performance over DBC by passing 1,800 cycles without failure, a significant improvement over typical DBC thermal cycle performance. Heraeus thick print copper uses an additive process that can create
multiple copper trace thicknesses on one single substrate, thereby allowing both standard circuit control components and power components to be assembled onto a single design. It also has the ability to handle multiple circuits on one panel and singulate afterwards making this a cost effective approach to power electronics and LED’s.

APEC 2015, the premier event in Applied Power Electronics™, focuses on the practical and applied aspects of the power electronics business. The event caters to equipment OEMs, designers of power electronic circuits and equipment, manufacturers and suppliers of components and assemblies used in power electronics, quality and test engineers, and compliance engineers.

Heraeus, the technology group headquartered in Hanau, Germany, is a leading international family-owned company formed in 1851. We create high-value solutions for our customers, strengthening their competitiveness for the long term. Our activities focus on a number of markets: chemical and metals, energy and the environment, communications and electronics, health, mobility, and industrial applications. In fiscal year 2013, Heraeus achieved product revenue of €3.6 billion and precious metals trading revenue of €13.5 billion. With some 12,500 employees in over 110 subsidiaries worldwide, Heraeus holds a leading position in its global markets.

For additional technical information, please contact:

Yin Yin
Marketing Specialist
Heraeus Precious Metals North America Conshohocken LLC
24 Union Hill Road
W. Conshohocken, PA 19428
Phone: +1-610-825-6050 Ext. 246
Email: yin.yin@heraeus.com

Trade Press Contact:

Guido Matthes
Manager Public Relations
Heraeus Holding
Corporate Communications
Heraeusstraße 12-14
63450 Hanau, Germany
Phone: +49 (0) 6181.35-4583
Fax: +49 (0) 6181.35-3131
E-Mail: guided.matthes@heraeus.com
www.heraeus.com