



Ultra-Thin Printed Copper-Clad Polyimide using Photonic Sintering for HDI Applications

May 8, 2017: Rochester, NY: Intrinsiq Materials, Rochester, NY. has partnered with Austin-based NovaCentrix to create a high-performance, low cost, copper-clad polyimide achieved without the use of adhesives or time-consuming sputtering. These thin layers cannot be produced by traditional lamination processes. The new copper-polyimide is fabricated by directly slot die coating Intrinsiq Material's CI - Ultra Thin Film (UTF) copper based conductive ink onto polyimide. The film is then post-processed using state-of-the-art NovaCentrix PulseForge® photonic curing tools. The coated copper layer is a fraction of a micron thick or more and can be subsequently plated and etched. These printed electronic thin film substrates can be used to create fine lines for High Density Interconnects (HDI). Furthermore, the process is the basis to produce trace profiles with very straight side walls facilitating high speed signal integrity. This roll-to-roll process can be configured to manufacture very wide-area web widths for large flexible patterned circuit applications.

The CI-UTF ink is formulated with Intrinsiq Material's own proprietary coated copper nanoparticles to provide excellent stability, and is designed for strong adhesion. Large-area processing capabilities are enabled exclusively by the PulseForge photonic tools from NovaCentrix. The PulseForge tools complete the high-temperature CI-UTF copper ink sintering in milliseconds, with no damage to the low-temperature flexible substrates. Contact Intrinsiq Materials or NovaCentrix for more information, and for film or ink purchasing.

Don Novotny, Vice President of Business Development at Intrinsiq Materials states, "The compatibility of our CI-UTF copper ink to work with a roll-to-roll process is the direct result of our team's formulation and process design expertise to create substrates for fine line, high density circuitry. The partnership with NovaCentrix moves us closer to offering this HDI technology to the global manufacturing industry. Flexible circuit applications that are looking to decrease interconnect real-estate or increase signal fidelity will benefit from this technology."

Stan Farnsworth, Chief Marketing Officer at NovaCentrix adds, "We are excited that the unique capabilities of the PulseForge photonic curing tools and our applications engineering team can support this new high-performance flexible circuit manufacturing capability. The processing uniformity and ability to finely optimize the process settings, in conjunction with the quality of the CI-UTF ink from Intrinsiq Materials, will expand applications for economical copper performance on thin flexible substrates. We look forward to continuing the collaboration."



About Intrinsiq Materials

Intrinsiq Materials is a recognized leader in making nanomaterials and creating inks and pastes, primarily for electronic applications. Intrinsiq's expertise includes material formulation and process development (dispensing, drying, sintering, and other post processes) related to Copper Inks and Pastes, as well as other materials such as Si and Ni Inks and Nickel Silicide. Current other work includes dispensing process development on low temperature substrates and thermoplastics, creating conductive microvias in glass and plastics, and development of printed thermoelectrics. Markets being addressed include applications in microelectronics, solar, mobile devices, automotive, semiconductor, medical, aerospace and consumer electronics.

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About NovaCentrix

NovaCentrix offers industry leading photonic curing tools, conductive inks, material and expertise enabling development and production of next generation printed electronic devices – some already on the market. PulseForge® tools utilize photonic curing which is a cutting edge technology that dries, sinters, and anneals functional inks in milliseconds on low-temperature, flexible substrates such as paper and plastic. PulseForge tools can save time and money, and enable new types of products in applications like solar, RFID, display, packaging, and circuit. Our Metalon® conductive inks capitalize on advanced materials and formulation to provide conductivity options for additive manufacturing of printed electronics with stretchable, solderable, resistive, and magnetic qualities.

NovaCentrix partners with you to take ideas from inception to full production. Our PulseForge tools continue to revolutionize the printed electronics industry through photonic curing, enabling product innovators and manufacturers the option of flexible, low cost substrates and functionality not possible with conventional ovens and lasers.

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