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## News Release from DKN Research, Haverhill, Massachusetts

### **"DKN Research Provides Manual Type Fine Silver Conductor Trial Kit Down to 50 micron."**

DKN Research, a leading engineering firm specializing in micro electronics and packaging technology, is now offering a Fine Silver Conductor Trial Kit (capable of producing fine lines down to 50 microns) to companies interested in producing high density thick film circuits. The Trial Kit provides a low cost practical solution for companies to experiment and overcome challenges with fine polymer thick film circuits and functional printable & flexible electronics without expensive screen-printing equipment. DKN Research successfully developed a broad range of technologies linked to advanced thick film circuits to target printable and flexible electronics. DKN Research can package a specific program that includes materials and equipment for all your application needs.

Polymer thick film circuits were always considered an economical solution, but performance levels from the printed circuit technology were sub par due to poor resolution and electrical conductivity. Traditional thick film circuits were intended for typical low end items such as keyboard membrane switches and touch panels on microwaves. Technical advances with ink materials and printing equipment over the last few years has trickled down, and the wiring capabilities from the new thick film circuits are closer to traditional etched copper circuits.

DKN Research is developing a series of "Advanced Screen-Printing Technologies" capable of building functional thick film circuits by partnering with equipment and material manufacturers. DKN's Advanced Screen-Printing Technologies can produce fine silver traces down to 30 microns lines and spaces for double and multilayer circuits with 80 micron via holes. The conductivity of the new silver traces is one order higher compared to traditional thick film circuits. Surprisingly, the conductor traces are available for soldering, unlike traditional polymer thick film circuits where soldering is impossible. Additionally, the new Advanced Screen-Printing Technology makes it possible to build embedded passive components and EL based optical components on flexible substrates. The Advanced Screen-Printing Technology is valuable in building new electronic devices such as high-density touch panel switches, functional sensor modules, large size signboards, flexible displays and more. The technology is also beneficial to build additional fine conductive traces on other circuit devices including multi-layer rigid boards, flexible circuits, ceramic circuits and monolithic IC chips.

The Advanced Screen-Printing Technology does not require a large investment in manufacturing equipment, and provides incredible capabilities for traditional printed circuit board manufacturers or screen-printing shops. A few industry experts are skeptical with these capabilities, so DKN Research has co-developed a Fine Silver Trace Trial Kit for companies interested in expanding their business into fine thick film circuits and printable electronics with Mana Screen, a material supplier of screen-printing in Japan. The ability to understand the capabilities is at your fingertips from simple trials. The trial kit includes a screen mask with standard fine patterns, a printing table, one bottle of special silver ink, flexible substrates, a squeegee and all other materials necessary for screen-printing. It is possible to generate 50 microns (2 mils) fine silver conductor traces on flexible substrates; no experience of screen-printing or PWB manufacturing is required for the trial. If process conditions are optimized, the trial can produce 50 microns traces using the materials of the trial kit. Only a working table and a thermal oven are required to

generate fine thick film traces other than the trial kit. The thermal oven is common equipment used in the printed circuit board manufacturing process or chemical laboratory. You could surprise about your new capabilities by yourself. The fine line capabilities and your processing capabilities can be verified with the trial kit. If you are not successful to make fine lines, DKN Research will help to analyze the problems.

The trial kit includes 50 grams of special silver ink, flexible film substrates with special treatments, a processing manual and MSDS (material safety data sheet). The cost of the kit is only 1,990.00 U.S. dollars; a small investment to generate fine line capabilities from advanced thick film circuit technologies. You will be able to generate your own fine thick film using the other patterns of screen masks, the other ink materials and substrates. DKN Research provides supplemental technical information and materials such as screen masks with fine patterns per customer requests. DKN Research provides individual materials for further trials of the challengers. We are very happy to make quotations for the additional materials.

Once the tests from the kit tests are successful, future initiatives to consider are ultra fine circuits, double side circuits with micro via holes, embedded components, printed displays and more. They are little bit challenging for the beginners, however, DKN Research provides technical support, materials, and equipment needs throughout your development to sustain momentum. DKN Research inventories a broad range of materials, and can supply appropriate materials according 0 to the application, and can conduct prototype and mid volume fine line thick film circuit production as part of its engineering service with cooperating partner companies.

DKN Research welcomes all inquiries relative to learning the process and executing technical applications using their Advanced Screen-Printing Technology to create your own circuit devices. Please click on our link for more information [www.dknresearch.com](http://www.dknresearch.com), or contact us at [sales@dknresearch.com](mailto:sales@dknresearch.com) for detailed technical information and circuit samples.

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