ELANTAS Technical Note

Connection Technologies

In the Field of Printed Electronics

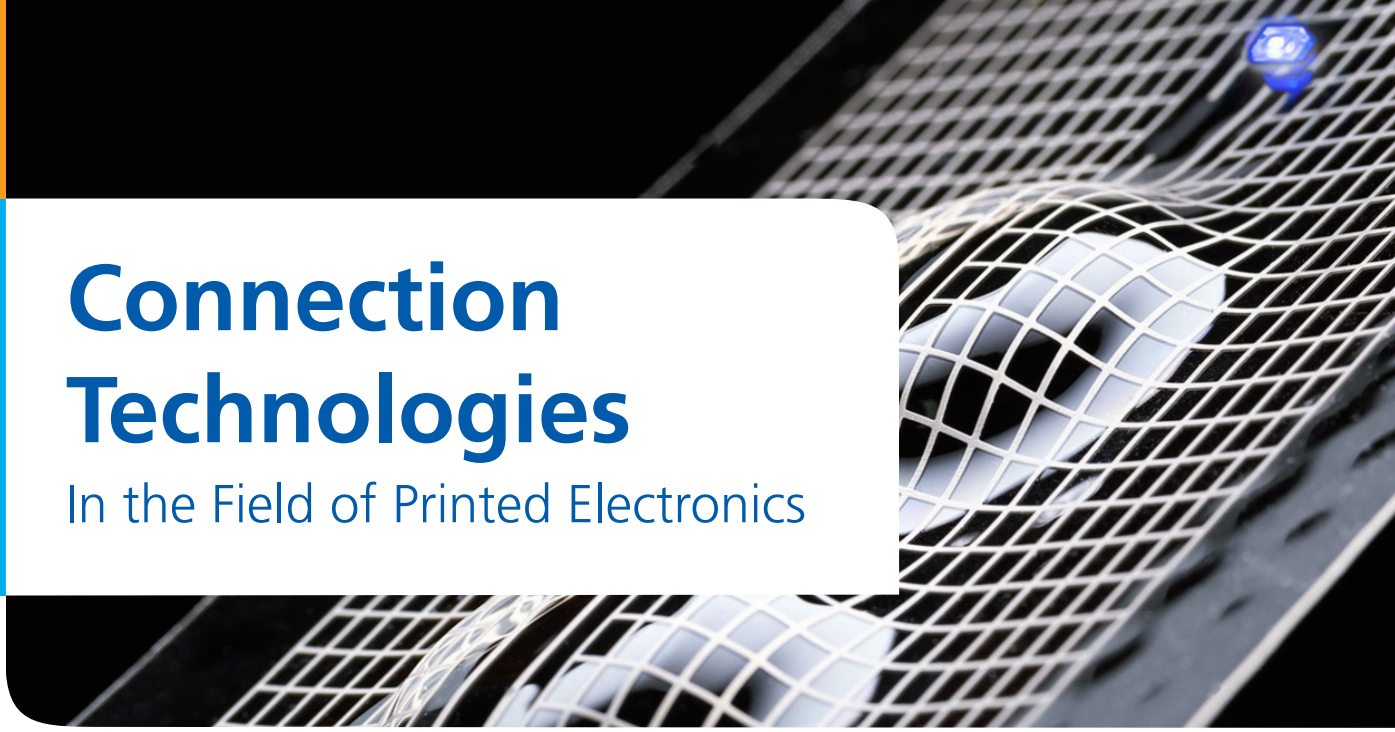

Figure caption: LED applied with the Bectron® CG 5660 conductive adhesive to the Bectron® CP 6680 silver screen-printing paste.

Printed electronics represents a useful extension of classical PCB technology able to meet the growing demand for smart electronics components with high functionality.

The printability onto different substrates broadens the possibilities for developing innovative components. At the same time, new requirements arise for connection technologies. Above all, the flexible substrates frequently employed cannot be equipped using the plugs with screw connections familiar from classical PCB technology. Here, crimp contacts or Zero Insertion Force (ZIF) plugs offer good possibilities for weight-saving and individual contacts. For hybrid electronics, additional electrical connections are required between the printed board and the electronic (SMD) components. With classical PCB technology, the solder connection proved to be a reliable method, with which FR4 substrates treated with etched copper conductive paths were common.The solder pastes employed usually have a melting point above 200 °C.

However, soldering to printed silver conductive paths poses new challenges for the user. In printed electronics, flexible substrates, such as PET films, which exhibit inadequate dimensional stability even at low temperatures, are frequently employed. Here, the use of special low-temperature solder pastes with a melting point of 138 °C – 14 °C prevents long-term damage to the substrate or to the printed conductive path. For a secure connection between the electrical components and the printed board, the chemical stability of the silver pastes in relation to the solder pastes used is essential for a secure connection between the electrical components and the printed board. The Printed Electronics team of ELANTAS Europe therefore recommends the following products:

Bectron® CP 6671
This UV-curable silver paste exhibits a particularly long screen open time and a minimum solvent content. It is characterized by high chemical stability in relation to different low-temperature solder pastes.

Bectron® CP 6690
This silver paste is characterized by good adherence to ELAN-Film™, Kapton®, glass, aluminum and many more substrates. It was specially developed for high-temperature applications up to 200 °C and is particularly well suited for hybrid mountings with soldered SMD components.

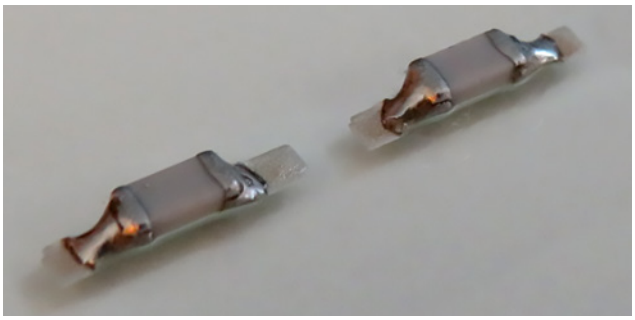

Figure caption: Soldered SMD components on Bectron® CP 6690, Substrate: glass

Alternatively to classical solder connections, conductive adhesives are increasingly employed for positioning SMD components. Here, ELANTAS Europe offers solutions for stable adhesive connections.

Bectron® CG 5660
This single-component, thermally hardenable adhesive is characterized not only by excellent adhesive bonding between SMD components and different substrates, but also ensures a stable electrical connection between the SMD components and the printed conductive paths.

Contact us, convince yourself and do not hesitate to ask for a sample. For questions about the choice of appropriate materials or application-specific topics, please feel free to contact us.

ELANTAS Europe is a leading manufacturer of insulating and protective materials for the electrical and electronics industry. The Product Line Printed Electronics offers a wide range of conductive, insulating and functional screen printing inks for applications such as membrane switches, touch surfaces, in-mold electronics, hybrid electronics, sensors, RFID antennas and electroluminescent lighting.

ELANTAS Europe GmbH
Grossmannstr. 105 · 20539 Hamburg, Germany
Tel. +49 40 789460
advancedPrinting@altana.com

www.elantas.com/europe

01/2023