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Efficiently Connecting Battery Cells

To meet society's increasing need for mobility and energy, new battery cell concepts and designs are constantly being developed. These stretch from large battery systems for e-mobility applications right down to small designs for mobile end devices of all types. For all types and applications, a reliable integrated circuit assembly and packaging technology, already provided today by Eutect, is necessary.

Due to the wide range of applications, new technological concepts are necessary. The Swabian soldering specialist Eutect also faces this development. According to the management, inquiries from the battery production sector are constantly increasing. Based on the modular design systems from Eutect, the company has developed, in cooperation with its customers, specific soldering solutions that are tailored to the individual specifications of the battery production. These solutions must be reproducible and withstand high economic conditions in a subsequent series production.



During evaluations, Eutect solutions are tailored step by step to the customer's end product. In the process, adapted mini-wave solutions are often used. For example, specifically developed mini wave solder nozzles with an inert gas configuration or heat insulating solder mask can meet the requirements of an economical and faultless battery processing specification. Using the example of a packetized lithium battery block, this thermally gentle Eutect process control has been able to demonstrate electrically high-quality and economical production reliability. The associated assembly and packaging analytics showed a reproducible intermetallic phase formation between the battery cells and the plus and minus connections.

In principle, Eutect solutions are based on the solid assembly and connection technology developed in-house, which generates a solution for the battery connection technologies adapted to the end product. The aim is to transfer the high-current connection technology from the molten solder directly, over a large area and electrically isolated into a reliable connection. Standard welding and soldering processes are used. Here, the demands on the assembly and packaging are high. The connections made should be free of short circuits between the plus-minus poles, blowholes, hotspots, impurities and temperature damage. This can be achieved by means of one of the key assembly and packaging strategies in which the quick, reliable transfer of the solder is guaranteed. The aim here is to avoid the impermissible and pre-damaging mechanisms and to carry out the processing of the battery cells without side effects. In the process, the environment around the solder points is and can also be protected. Here, Eutect relies on its well-founded modular design system that provides the appropriate solution based on the application.