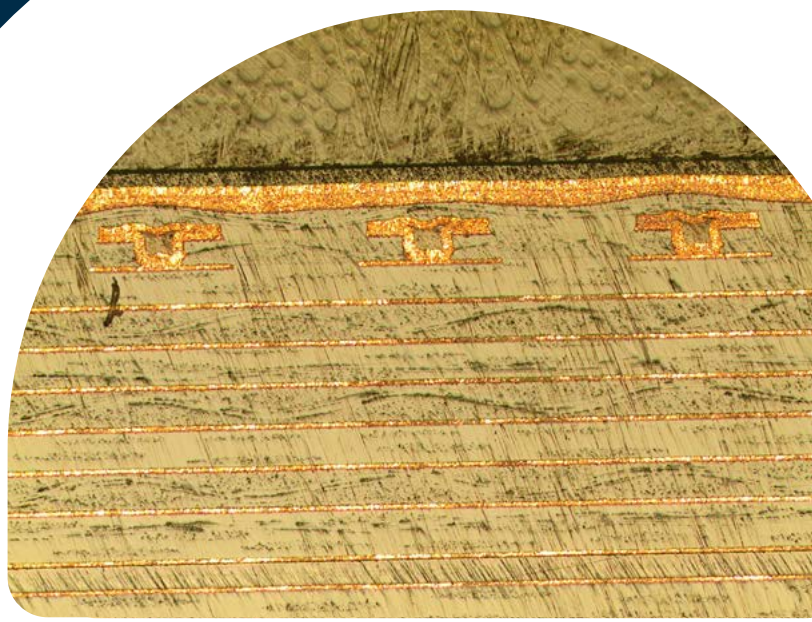
PCB TECHNOLOGIES
leading the way

Embedded and Buried Component PCBs



In an embedded printed circuit board (PCB), components such as capacitors and resistors are either buried within the board itself or embedded in cavities. This increases the integrity of the PCB by reducing the amount of connection points, external pads and through-holes required.

Embedding or burying components is a key factor in the miniaturization of PCBs while ensuring high performance, efficiency and reliability. This is because components can be added within the internal layers of the PCB which increases functionality in the footprint.

The process of embedding components also shrinks the interconnection paths between components and reduces transmission losses.

There are two main methods of embedded PCB assembly – solder pad mounting or the use of micro-via IC's holes. Our experts will help identify the best active method for your specific requirements.

Embedded and Buried Component Case Study

The Challenge

As a technology innovation partner for the electronics sector, Neways was looking for a PCB solution that supported the shift towards miniaturization, as well as the introduction of new functionality such as wireless connectivity. The high level of requirements meant that it took two years to get certified by the client.

The Solution

We developed a PCB solution that embedded components inside the internal PCB layers instead of placing them on the surface. This enabled us to add more functionality within a smaller PCB footprint.

It also reduced the cost of production as the components are buried within the circuit as it is printed. This also presents the opportunity to calibrate the components during the manufacturing process itself. The final PCB solution was highly accurate, stable and reliable.

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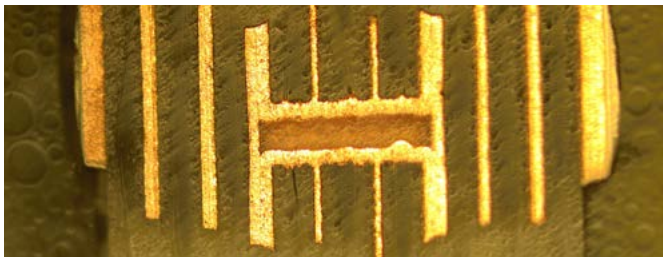
The PCB Technologies Way

PCB Technologies' long experience in embedded PCB technology has enabled us to provide PCBs with embedded or buried components to the military, aviation, medical, communication, and commercial industries.

This includes supporting leading defense technology companies in the development of new cutting edge defense systems. For example, we used embedded PCB technology to create a miniaturized, high-density solution for the I-Dome, the all-in-one mobile version of the innovative Iron Dome air defense system. Reliability and accuracy were key requirements of the final embedded PCB solution.

We have also developed embedded component PCBs for a technology innovation partner in the electronics sector. Miniaturization is often a key factor, alongside the introduction of new functionality, such as wireless connectivity.

As such, we use buried and embedded components to maximize the PCB footprint, while meeting high efficiency and reliability requirements.



Technical Specifications

PCB in array	18.00 inch	**Paste fill type**	Through	**Raw material**	Polyamid, Kapton
Rejects in array	24.00 inch	**Finish**	CS, PS, Selective plating CS, Selective plating PS	**DS min. drill diameter**	0.300mm
Inner layer num. (include ext.)	7	**Raw material**	DUPONT APR7463E	**DS min. drill cop-per space**	10.000mil
Inner layer cores num.	2	**Panel width-X**	18.00 inch / 457.20mm	**Paste fill type**	Laser + Through
External layer min. space CS.	3.50mil	**Panel length-Y**	24.00 inch / 609.6mm	**Back drill - Paste fill type**	false
External layer min. space PS.	3.50mil	**External layer min. space PS.**	3.50mil		