

Condura® Metal Ceramic Substrates with Pre-applied Solder

Pre-application of flux-free solder pads on Condura® DCB substrates is one of the processing features under Condura®+. As a result, the die soldering process is dramatically simplified, since solder paste printing and flux residues cleaning are not needed anymore.

Pre-applied DCBs allow for significant cost reduction for die attachment and open ways to an improved overall process yield.

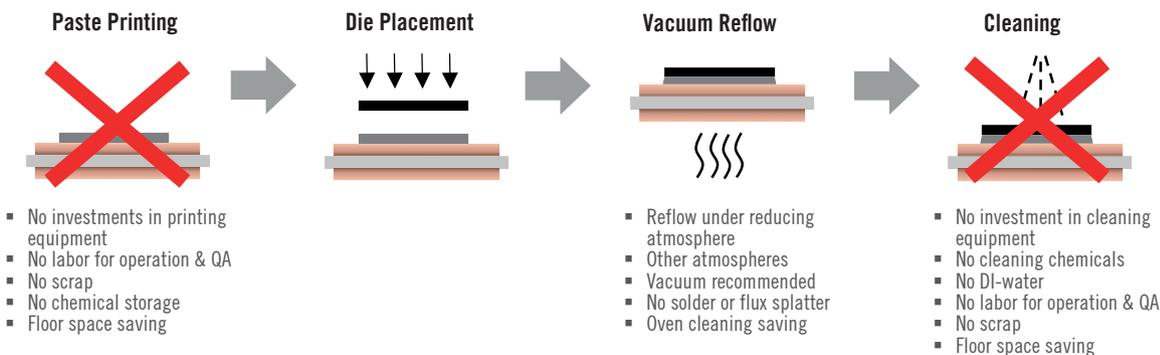
The solder material is perfectly matched to the DCB substrate, which is applied in right volume and at right position and form.

Fixation dots deposited on the solder pads ensure that the dies do not move once placed. Upon reflow, the fixation material vaporizes without leaving any residue. The dimples and solder stop in the previous designs can be removed enabling higher packaging density and improved reliability.

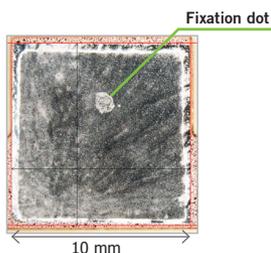
Key Features

- 50% fewer process steps for die soldering
- No cleaning steps required
- Lower investment
- No solder or flux splatters
- No need of solder stop (e.g. dimples) on DCB
- Improved yield
- Lower production risks
- Production cost savings

The die attachment process is dramatically simplified

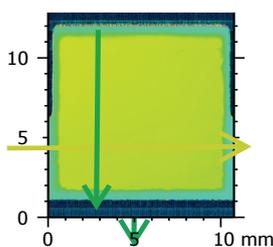


Die attachment process using DCBs with pre-applied solder



Pre-applied solder pad

- Flux-free solder is brought onto the DCB surface
- A fixation dot applied on top of the pad will ensure that the placed dies remain in place when transferred to the reflow oven



Levelness

- The process is done in a way that ensures a flat solder pad



Die attachment

- The die is simply placed on top of the pre-applied solder pad
- The reflow is done under formic acid; vacuum is recommended
- No splatter visible

The fixation dot

	Without fixation dot	With fixation dot
Solder layer X-ray after die attach		
Auger investigations after die attach	No contamination related to the fixation dots could be detected on top of or besides the die or on the bonding pads	
Bonding wire pull & shear tests after die attach	Results are comparable to those obtained with a solder paste based process	

Heraeus Electronics
 Heraeus Deutschland GmbH & Co. KG
 Heraeusstraße 12-14
 63450 Hanau, Germany
 www.heraeus-electronics.com

Americas
 Phone +1 610 825 6050
 electronics.americas@heraeus.com

China
 Phone +86 21 3357 5457
 electronics.china@heraeus.com

Asia Pacific
 Phone +65 6571 7677
 electronics.apac@heraeus.com

Europe, Middle East and Africa
 Phone +49 6181 35 3069
 +49 6181 35 3627
 electronics.emea@heraeus.com

The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for particular application. Except as otherwise noted, all trademarks in this document are trademarks of legal entities of the Heraeus Group. Conduira® is a trademark registered in Europe.