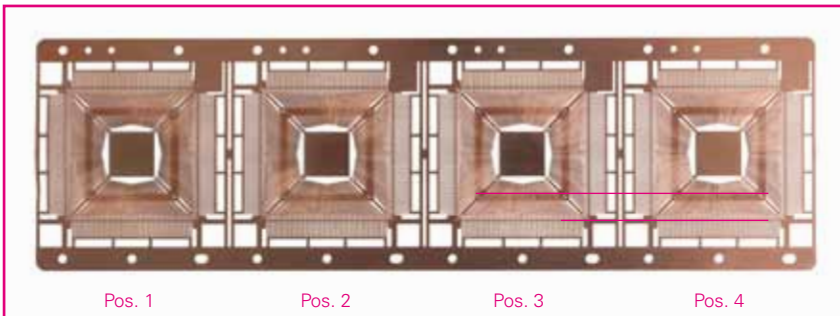
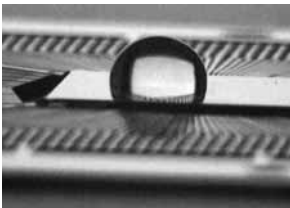


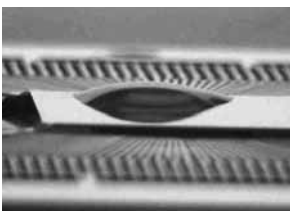
Leadframe treatment Plasma cleaning of leadframes



Cleaning in low-pressure plasma significantly improves the contact angle and hence adhesion quality at the four sample points of the leadframe.



Before cleaning, the contact angle is over 90°, as organic contamination acts like a hydrophobic coating.



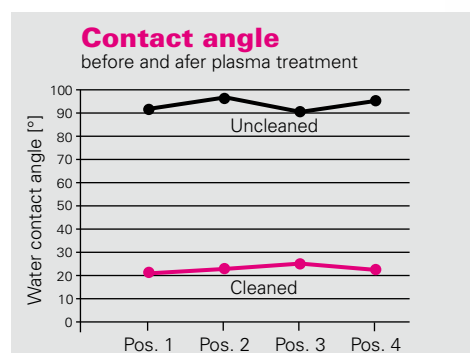
After cleaning, the water droplet spreads considerably, i.e. the contact angle has been markedly reduced.

Application

For sufficient adhesion of the bond wires and chips to leadframes, the surface has to be as clean as possible. Adhesion is dramatically reduced by organic contamination and often prevents achievement of the desired adhesion quality. Because of the uneven contamination, leadframes have to be cleaned in their entirety. The process of low-pressure plasma cleaning is particularly suited to this, as fully loaded leadframe magazines can be cleaned without difficulty thanks to plasma's high mobility.

Plasma process

During surface cleaning in low-pressure plasma, organic impurities are broken down into simple low-molecular gaseous compounds. The plasma's cleaning effect can be clearly illustrated with reference to the measured contact angle (see diagram and photographs).



Since cleaning with this process takes place in reductive conditions, no disruptive oxide film with its impairment of subsequent bonding forms on the surface.

Equipment

For the cleaning of leadframes, a unit with two excitation frequencies is employed. This ensures effective cleaning with minimal effect on the substrate.

Depending on magazine size and throughput, one or more magazines can be processed at the same time in a unit like the V55-GKM shown below. Complete automation of the unit and integration in a production line are no problem.



The V55-GKM unit is suitable for the plasma cleaning of leadframes.

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