Groundbreaking Conductive Die Attach Film Now Offers Even More Versatility with Pre-Cut Version

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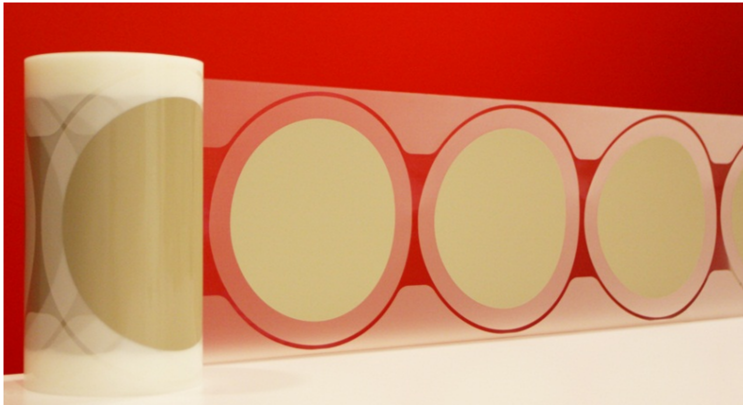
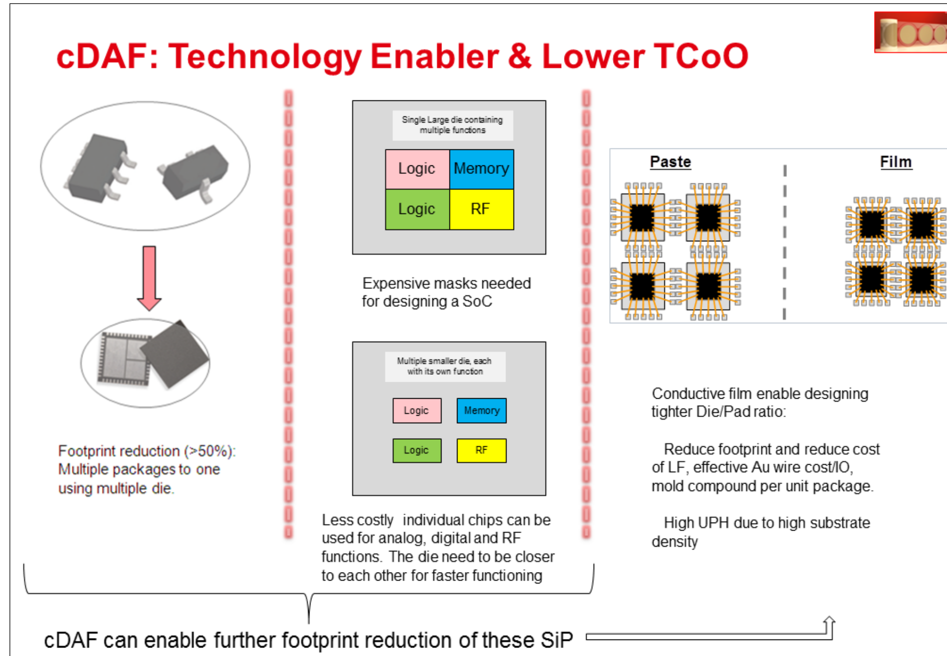
Semiconductor packages continue to add even more functionality to ever-thinner devices and meeting these demands requires solutions that allow for robust processing of thinner, smaller, higher density packages. Central to progressing device miniaturization are the materials used to build today's ultra-small semiconductor devices. This goes not only for laminate-based (non-conductive) devices, but for leadframe (conductive) applications as well – the miniaturization trend extends to multiple package types. Manufacturers of laminate-based packages have long relied on die attach film technology to enable incorporation of much thinner die and to ensure consistent, uniform bondlines with no die tilt. But, this same technology has been unavailable for conductive applications until recently.

When Henkel introduced the first-ever conductive die attach film materials two years ago it was, indeed, welcome news for the semiconductor packaging market. LOCTITE ABLESTIK C100 debuted to widespread validation, with major semiconductor device manufacturers publicly stating the advantages of the material's ability to enable package scalability. With a viable alternative to traditional paste-based die attach materials, leadframe device specialists could now capitalize on the inherent benefits of film-based mediums – namely, the ability to incorporate thinner wafers, realize uniform bondlines and integrate more die per package due to the tighter die to pad clearance afforded by film. Originally available in roll format, where both the die attach film and dicing tape are laminated onto the wafer in two separate lamination processes, Henkel has now extended the portfolio to also include a pre-cut version of the breakthrough conductive film technology.



Soon to be commercially available, LOCTITE ABLESTIK CDF 200P is the latest innovation from Henkel's expert materials development team. A two-in-one, pre-cut conductive die attach film, LOCTITE ABLESTIK CDF 200P combines dicing tape and die attach material into single, pre-cut 6" or 8" wafer-sized film formats for easy application. Compatible with lamination equipment commonly used in the field, LOCTITE ABLESTIK CDF 200P requires no capital equipment investment, as it has been specifically designed for equipment adaptability. With a lamination temperature requirement of 65°C, Henkel's conductive film complies with most existing equipment and processes for both lamination and backgrinding. (For manufacturers that may need to invest in lamination equipment for pre-cut films, there are multiple pre-cut lamination platforms from which to select.) Because of its unique two-in-one format, LOCTITE ABLESTIK CDF 200P streamlines manufacturing by facilitating an in-line process (backgrinding and lamination) for thin wafers and also allows for a single lamination process in one, combined step.

Not only is the new material process-friendly, but LOCTITE ABLESTIK CDF 200P also offers all of the advantages of film technology. It provides greater design leverage by allowing tighter clearance between the die and the die pad due to the elimination of the fillet. This means that packaging designers can incorporate more die and/or more functionality into a single package. With no fillet and higher density chip designs, packaging specialist can also lower costs because the amount of gold wire, substrate and mold compound required per unit package is significantly reduced. As compared to alternative materials, LOCTITE ABLESTIK CDF 200P's total cost of ownership (TCoO) is measurably lower.



Flexibility is at the heart of Henkel's latest conductive die attach film. Proven effective on a wide range of die sizes (from 0.22 mm x 0.22mm to 5.0mm x 5.0mm), a variety of wafer metallizations including bare silicon, TiNiAg and Au, and multiple leadframe metallizations such as Cu, Ag or Au, LOCTITE ABLESTIK CDF 200P offers superior process adaptability. High reliability is also part of the material's offer, having been MSL-1-qualified with several package designs including SO (SOT, SOD), QFN (DFN) and even smaller die QFP devices. With excellent electrical conductivity and very low RDSon shift (<10%), LOCTITE ABLESTIK CDF 200P's performance is superb.

Henkel's portfolio of conductive die attach films – both LOCTITE ABLESTIK C100 in roll format and LOCTITE ABLESTIK CDF 200P in pre-cut, two-in-one format – are set to accelerate effective implementation of highly miniaturized, multi-die device designs which are simply unachievable with paste- or liquid-based mediums.

To find out more about Henkel's line of conductive die attach film materials, log onto www.henkel.com/electronics, e-mail electronics@henkel.com or call 1-888-943-6535 in the Americas, +44 1442 278 000 in Europe and +86 21 3898 4800 in Asia.