Significant Developments and Trends in 3D Packaging of Power Products

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Abstract: The packaged and modular power supply industry is constantly challenged by its customers to deliver more power in a smaller volume. This applies whether selling 1W modules or multi kW AC/DC product. The focus on footprint alone is no longer adequate. The efficient use of the z dimension to minimize the volume of the package is now in the forefront. Cost effective, volume efficient 3D packaging is rapidly being adopted by the power industry. The Packaging Committee of the Power Supply Manufactures Association (PSMA) has undertaken a study to obtain an overview of the technology and product trends that are evolving, what the drivers are and what the market opportunities will be over the coming years. This study provides valuable insights into state of the art products and technology roadmaps while identifying R&D and manufacturing challenges that need to be addressed. The study encompasses developments from chip level integration and silicon stacking to Hi- Power Modules (up to 10kW). The study also covers emerging technologies for additive manufacturing such as 3D printing and how it is being used in the power supply industry. The Plenary presentation would verbally and graphically present the results of this study, which includes the state of the industry with identification of key technology, manufacturing and market trends in 3D Power Packaging.