Embedded Components: Why Now?

Market, Applications, and Technologies

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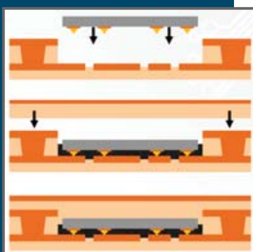

Almost every application space in the electronics industry has evolved around a single goal—increase functionality while improving cost/performance. Many strategies and technologies have been introduced, including embedded components. Active or passive components can be embedded inside a printed circuit board or IC package. Passives such as resistors and capacitors can be formed on a surface or layer to become part of the internal stack-up of a circuit board.

What's driving today's renewed interest for embedded active and passive functions? This report analyzes the expanding wide range of markets providing insight into the drivers, applications, and future growth. It looks at changes and advancements that have been made to deliver improved embedded solutions.

Both formed passive components, along with placed active and passive devices in IC packages, modules and printed circuit boards are addressed. Fan-out wafer level packages are included in the analysis. Major players in the infrastructure for the technology are described. A discussion of the challenges posed by embedded solutions and the potential impact of the technology on the supply chain is included. A full text report and a set of PowerPoint slides are provided.

Executive Summary

1 Introduction
- 1.1 Definitions

2 Placed Embedded Actives and Passives
- Advanced Engineering, Inc., ASE, Amkor Technology, AT&S, DNP, Deca Technologies, DYCONEX/MST, FCI/Fujikura, Freescale, Fuji Print, GE and Imbera, Ibiden, Infineon, Intel, J-Devices Corporation, Meiko Electronics, Murata, NANIUM, NTK, NXP, SEMCO, Schweizer Electronic, Shinko Electric Industries, SPIL, STATS ChipPAC, Taiyo Yuden, TDK-EPC, TI, TSMC, Unimicron, Wurth Elektronik, and YKC

3 Embedded Formed Passives
- 3.1 Formed Resistors
  - Asahi Chemical Research Lab, Embed Technology, Electra Polymers, Ohmega Technologies, and Ticer Technologies
- 3.2 Formed Capacitors
  - Oak Mitsui, 3M, DuPont, and Embed Technology
- 3.3 Resistor and Capacitor Materials

4 Infrastructure
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