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Toyota Prius 4 PCU Power Modules

Toyota Prius 4 PCU modules integrate IGBT and freewheeling diodes onto innovative double side cooling packaging for hybrid electric vehicles, allowing better thermal dissipation, modularity and scalability of the system.



For its latest Prius 4 Toyota has designed a new power control unit (PCU). The PCU has two types of power module, one for the motor inverter and the other for the boost converter and generator inverter.

The module integrates Toyota's latest power card packaging, with double side cooling. It allows the modularity and scalability of the PCU's inverters to be optimized and also enables better thermal dissipation thanks to the use of copper heatsinks and spacers. The power cards can be placed in parallel to have a single thermal dissipation circuit in a limited space.

This package includes two pairs of wire bonded IGBTs and freewheeling diodes and is plastic molded.

This report offers a deep technical analysis of the module structure, packaging, and of the IGBT and diode die.

Based on a complete teardown analysis, the report also provides an estimation of the production cost of the package, IGBT and diode.

Moreover, the report compares the Prius 4 PCU with the Chevrolet Volt power module, analyzing the technical choices of the packaging and the die. This comparison highlights the huge differences in design and manufacturing process and their impact on device size and production cost.

Title: Toyota Prius Power Modules

Pages: 135

Date: September 2016

Format: PDF & Excel file

Price: Full report: EUR 3,490

COMPLETE TEARDOWN WITH:

- Detailed photos
- Precise measurements
- Material analysis
- Manufacturing process flow
- Supply chain evaluation
- Manufacturing cost analysis
- Selling price estimate
- Chevrolet Volt comparison

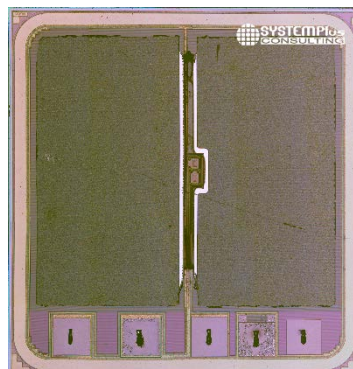
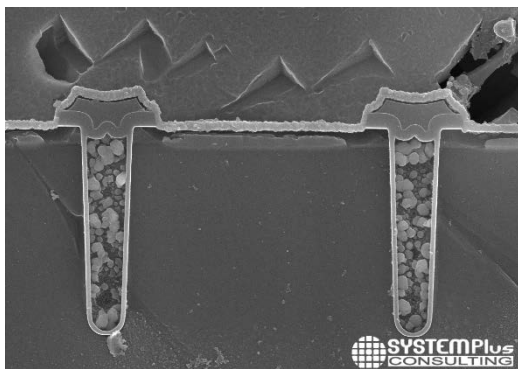


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Toyota Prius vs Chevrolet Volt Power Module



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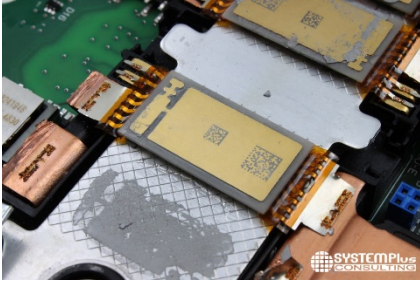
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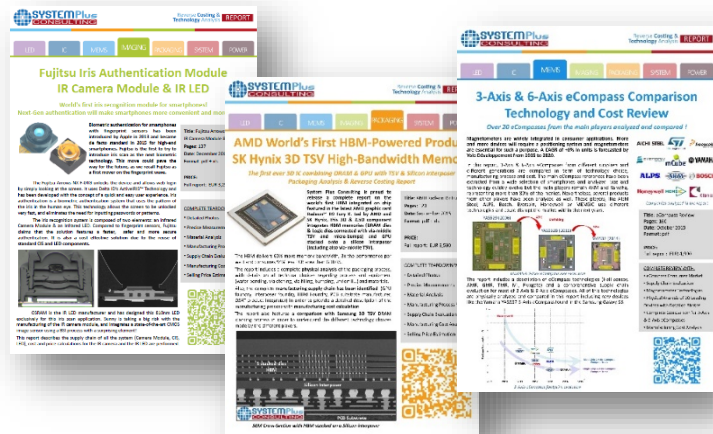
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