

Packaging services

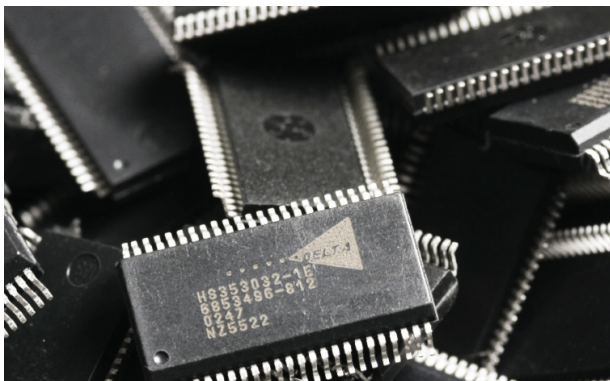
From package selection to mass production

Overview

As the market is constantly moving towards more sophisticated semiconductor applications, with more functions integrated into a single chip, packaging has become a key step in the manufacturing process. Requirements for thermal and electrical reliability are rising, and IC vendors must carefully explore advanced packaging methods to satisfy these requirements.

DELTA offers a broad range of innovative, top-quality packaging services to meet the diverse requirements of customers, such as electrical performance, heat dissipation, cost, and aggressive time-to-market.

Our packaging team can provide expert guidance for package characterisation and selection, assist with package design logistics and documentation, perform failure analysis to identify packaging-related yield issues, and drive post-packaging, final product qualification testing.



Package selection

DELTA's packaging team can act as an extension of your design team and assist with the characterisation and selection of package technology. Our team is adept at evaluating and consolidating the multiple parameters affecting package selection, such as electrical and thermal properties, power dissipation, pricing and manufacturability, environmental and reliability issues, production lead times and availability for future platforms – all in order to ensure the selected package meets your application requirements.

Our packaging experience spans the majority of requirements, and covers a broad range of packaging technologies including: wafer scale, QFN, BGA, RF/wireless, stacked ICs, high power dissipation, extremely large pin counts, multi-chip and integrated passive components.

Package design

Once the package type and vendor are selected, DELTA's packaging team checks that the bonding diagram and substrate design are created according to specification. Additionally, we will coordinate timely delivery of the tooling, prototype run and a smooth test program transfer to production.

Rapid prototyping

Using our packaging services, you can perform rapid prototyping following wafer fabrication. DELTA can produce packaged components within a day of receiving silicon, so that evaluation and trials can advance as quickly as possible.

Electrical characterisation

DELTA's laboratory provides IC package electrical characteristics design and analysis employing simulation and measurement techniques which include:

- R.L.C. for Critical Traces
- R.L.C. for Min/Max Traces
- IBIS Model
- SPICE Model
- Power Noise Analysis
- Ground Noise Analysis
- S-parameters Analysis
- Impedance Analysis
- Cross Talk Noise Analysis
- Noise Isolation Analysis
- Signal Integrity Analysis
- Customised Design Service



Thermal characterisation

Effective heat dissipation is a major challenge for ASIC engineers. DELTA provides services to conduct component-level and system-level thermal analyses, which include:

- θ_{JA} (junction-to-ambient)
- θ_{JC} (junction-to-case)
- θ_{JB} (junction-to-board)
- θ_{JT} (junction-to-top)
- Thermal optimal design
- Thermal optimal design for packages
- External heat sink effect evaluations
- Hot spot impact predictions
- Compact Thermal Models (CTMs) offering
- Transient analyses for power pulse impacts
- Simulations for burn-in/HTOL tests
- Assessments for impact of temperature-dependent leakage power

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