

Market dynamics and technology trends for burn-in and test sockets

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It's a dynamic market

- Market Environment
- Technologies and Applications Driving Change
- Summary

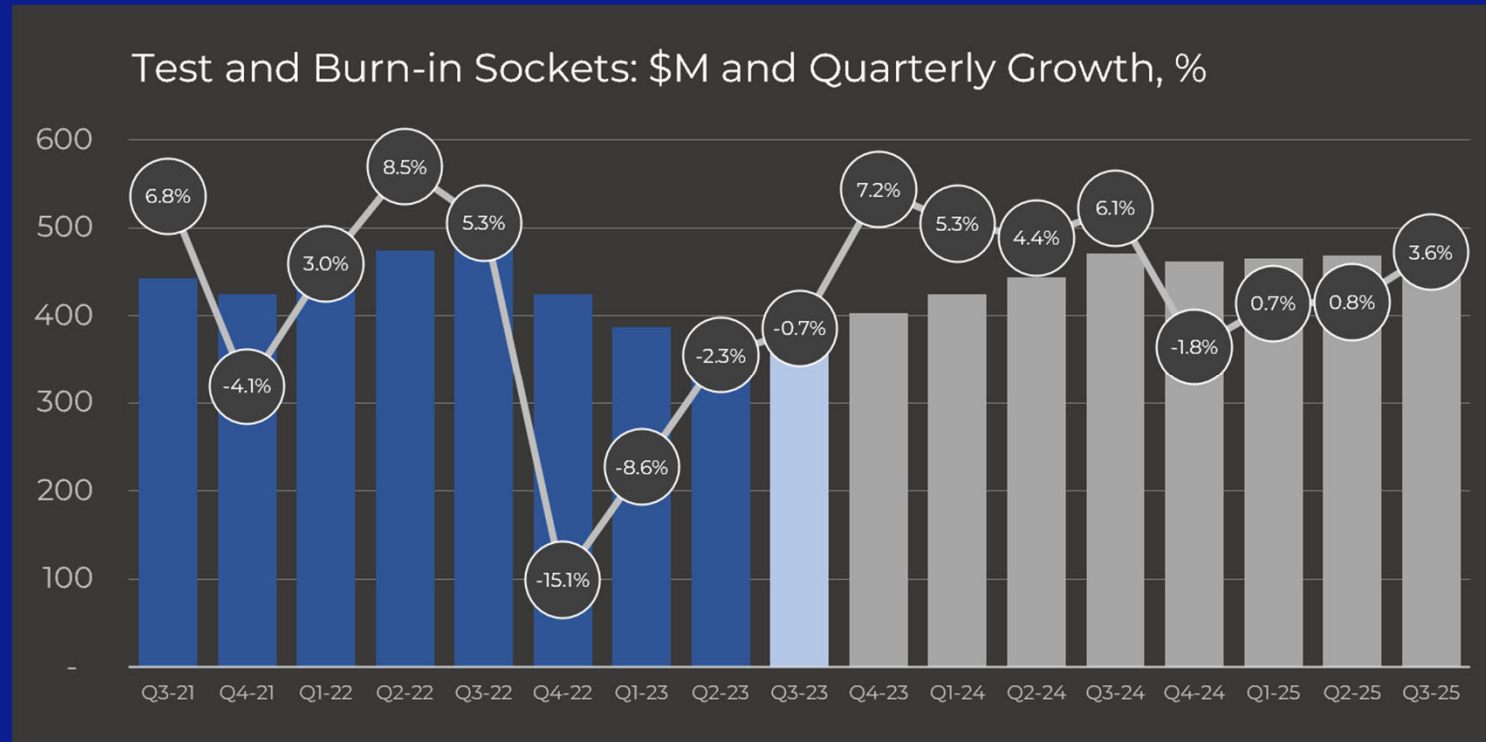


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2023

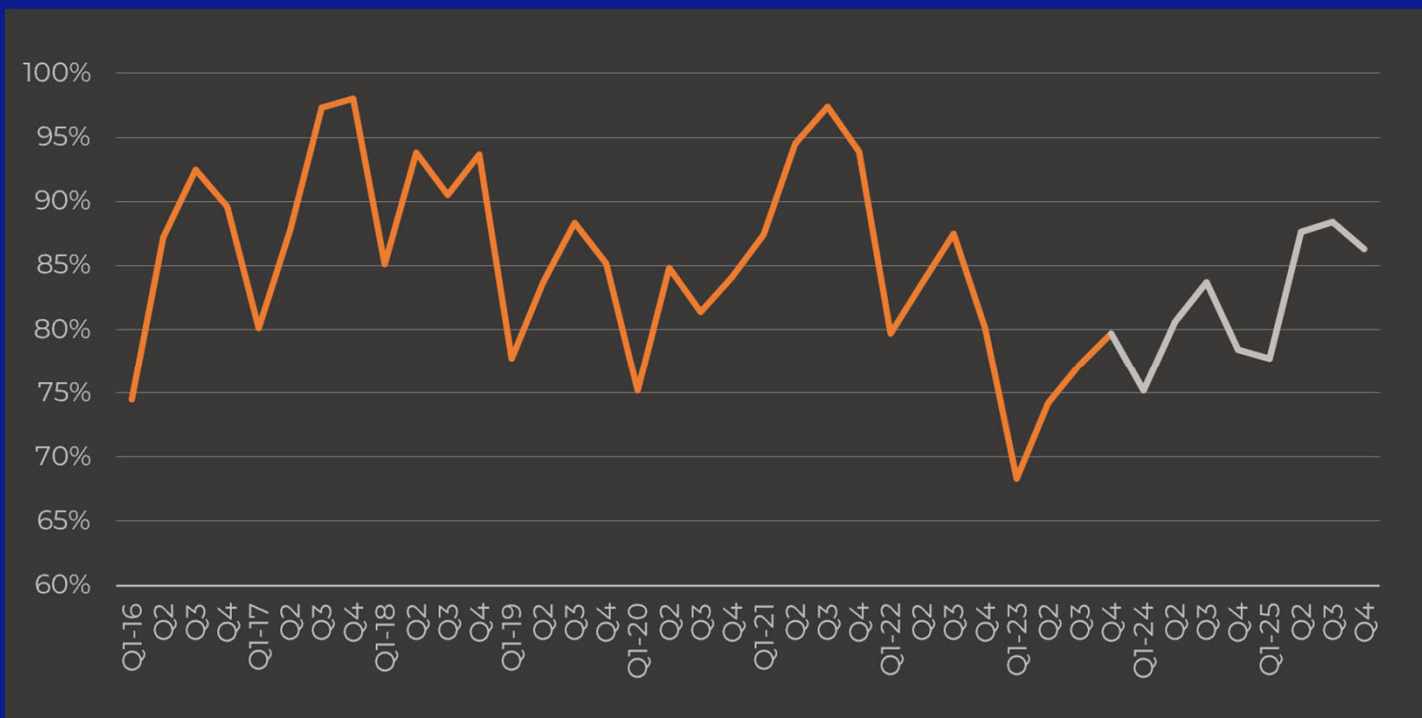
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The long, slow road to recovery



4 consecutive quarters of decline, followed by steady low to mid-single digit quarterly growth for next several quarters

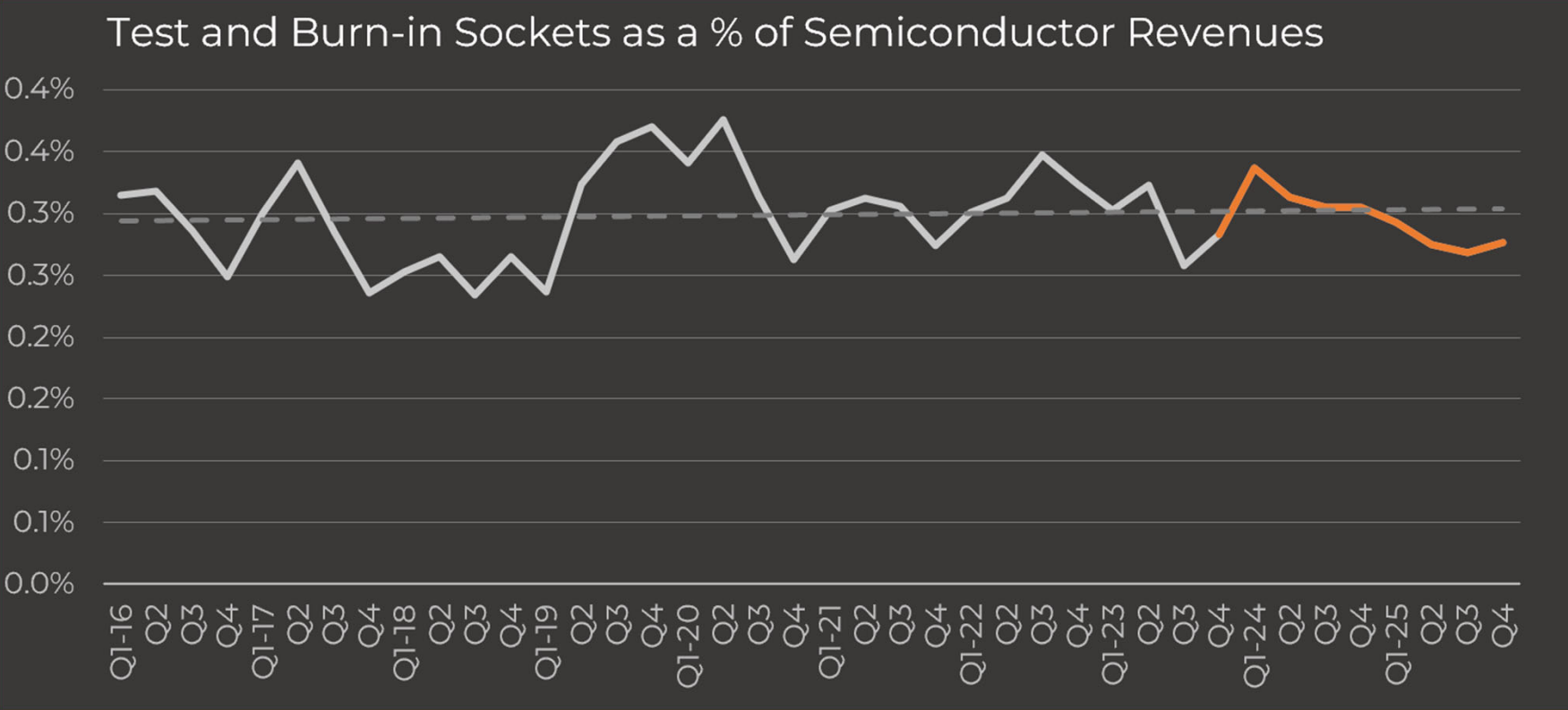
Test Equipment Utilization



Utilization rate is following seasonal patterns in 2023 but well below long-term average

Utilization rates expected to be persistently low for several quarters

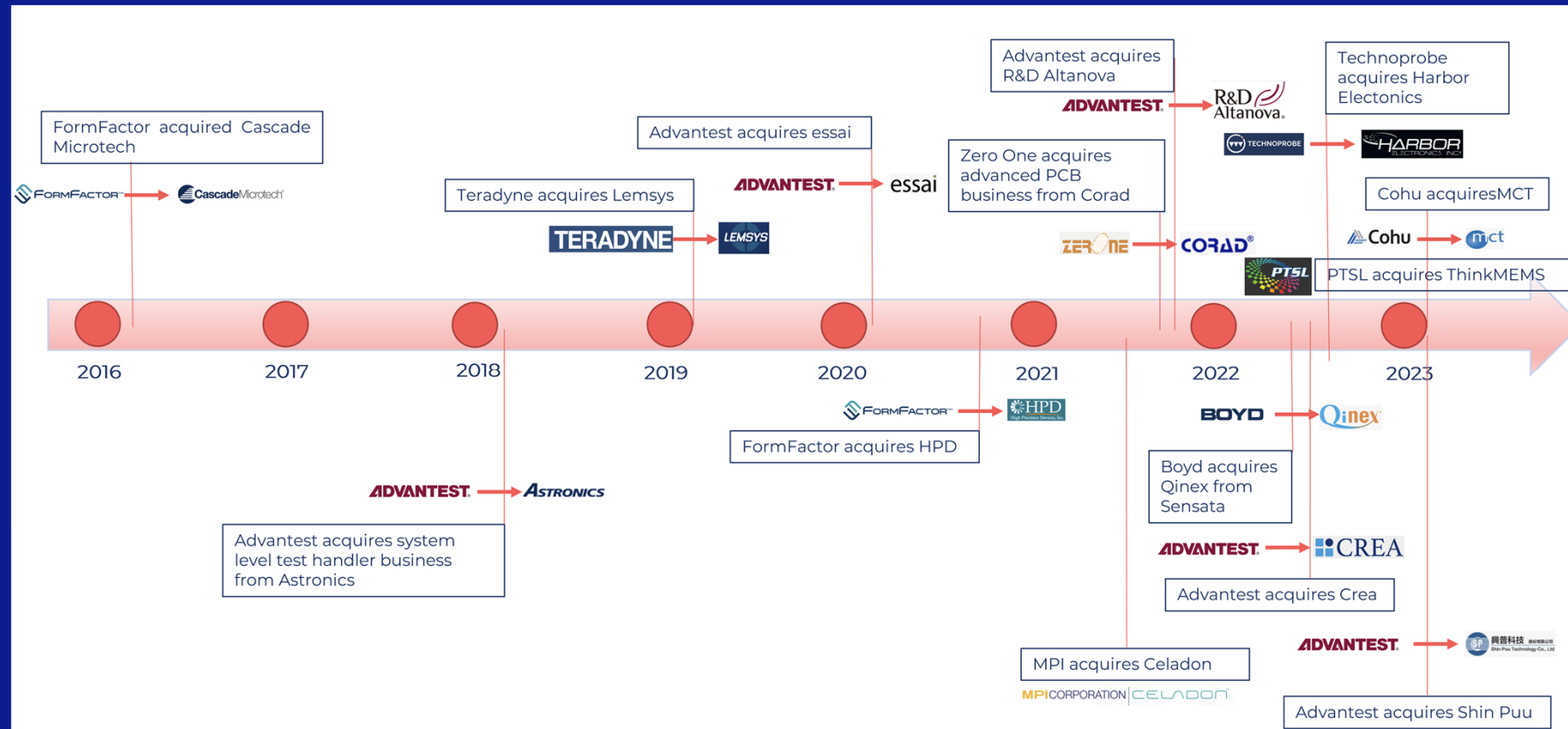
Cost of test
socket revenues tracking semiconductors



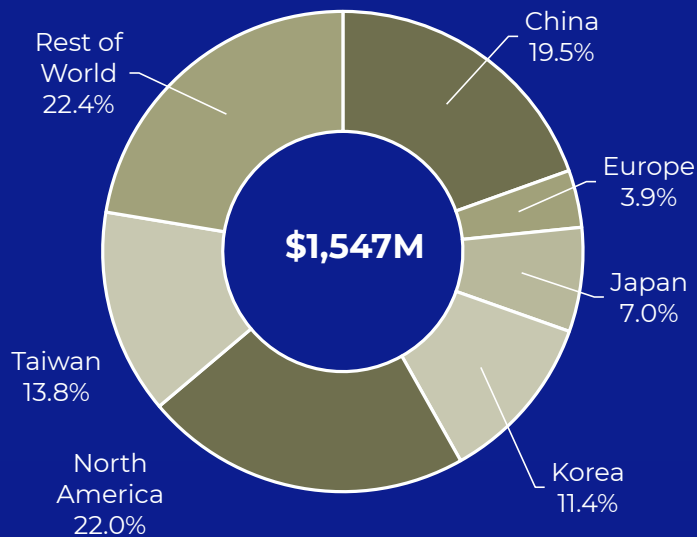
Socket suppliers still profitable.... ...for now



Mergers & Acquisitions



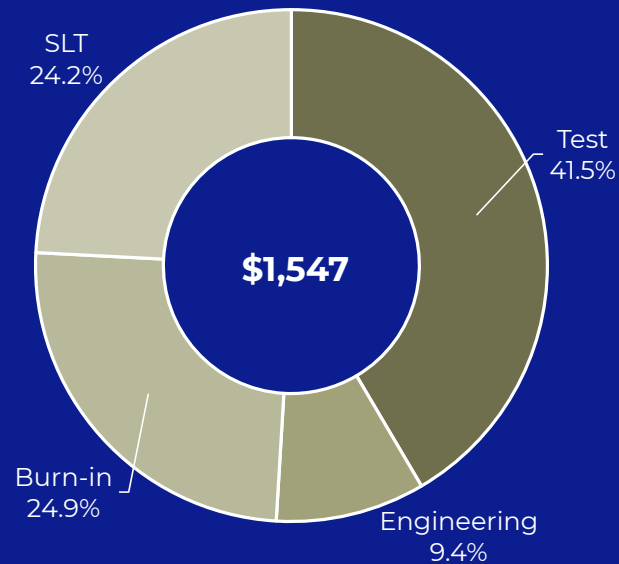
Regional Distribution of Socket Revenues, 2023



Trend

No big changes in regional distribution of sales predicted over next few years despite heavy investment in test capacity in China

Sockets by Type, 2023

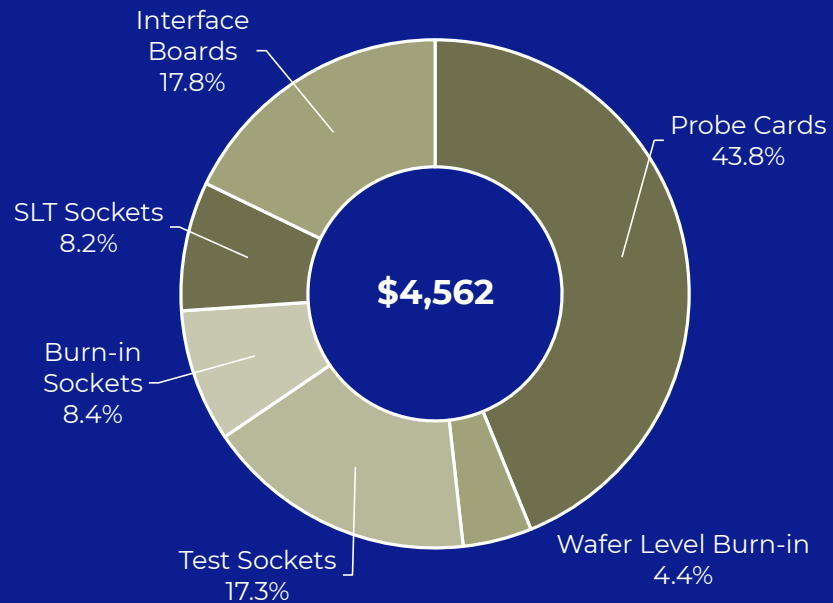


Trend

System Level Test (SLT) sockets expected to grow at the expense of Test Sockets over the next 5 years

Burn-in and engineering sockets to retain shares

Test Consumable Pie, 2023



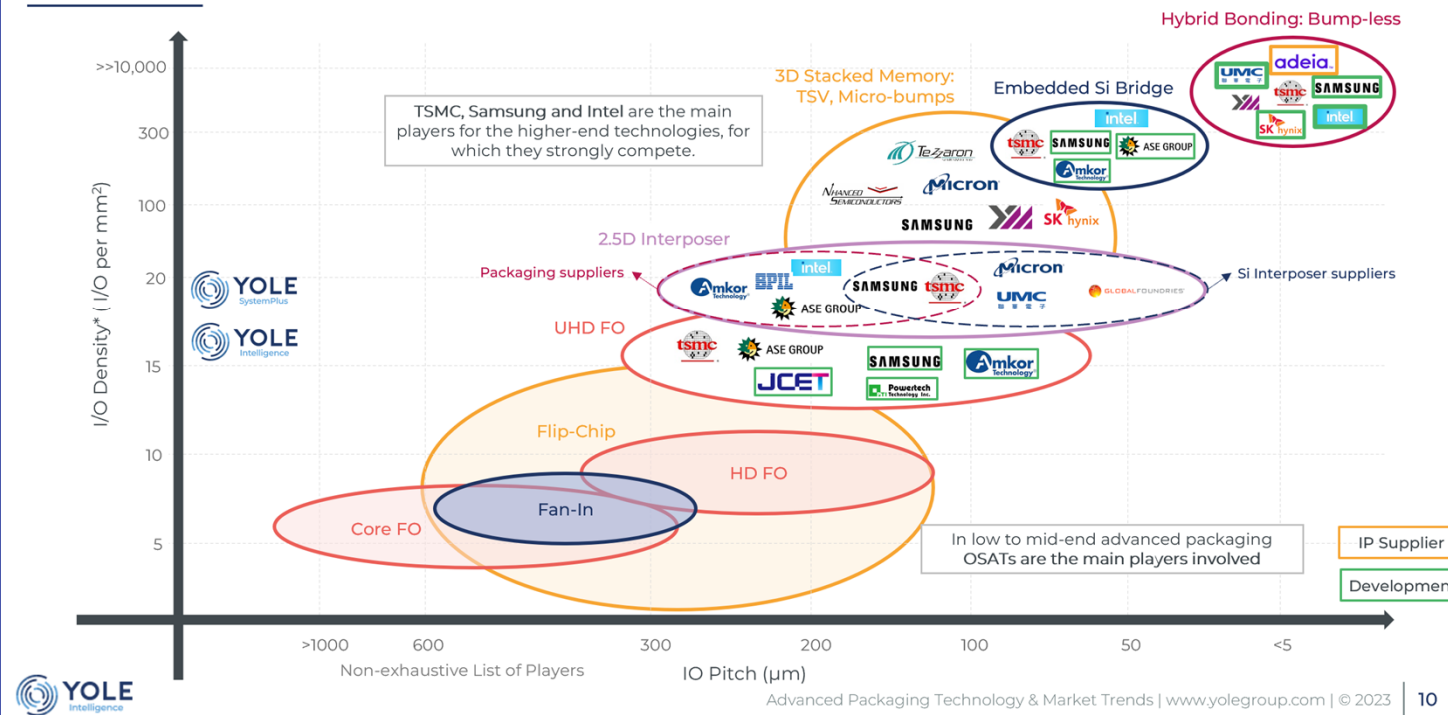
Trend

Test strategies are evolving, driven by cost management and device complexity.

The share of the consumables pie will change: SLT and Wafer Level Burn-in will increase share

Advanced Packaging – Driving Change

FOCUS ON HIGH-END PACKAGING
Mapping of players based on technology

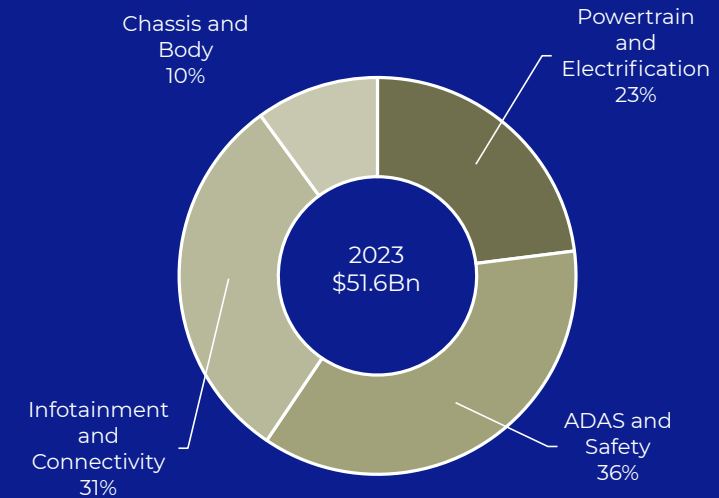
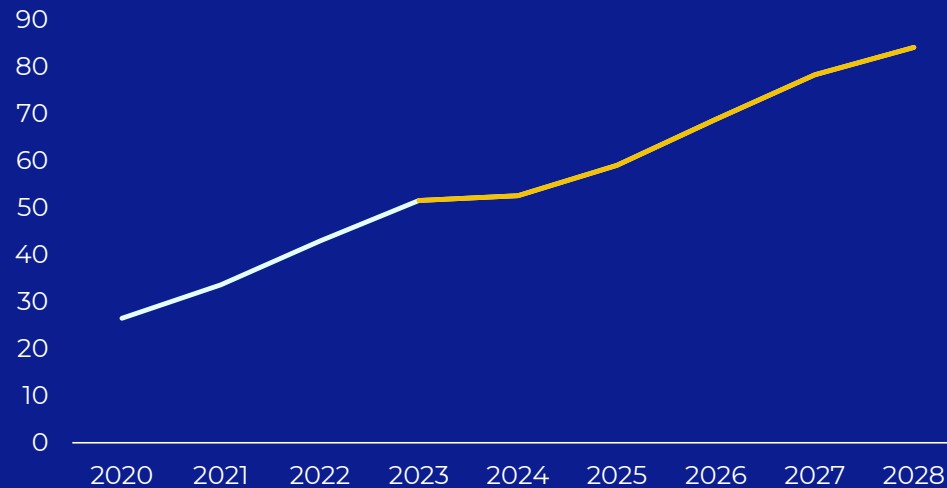


Trend

- Higher pin counts
- Larger packages
- Higher test speeds
- Longer test times
- Thermal Management
- Fewer OSATs playing at the leading edge

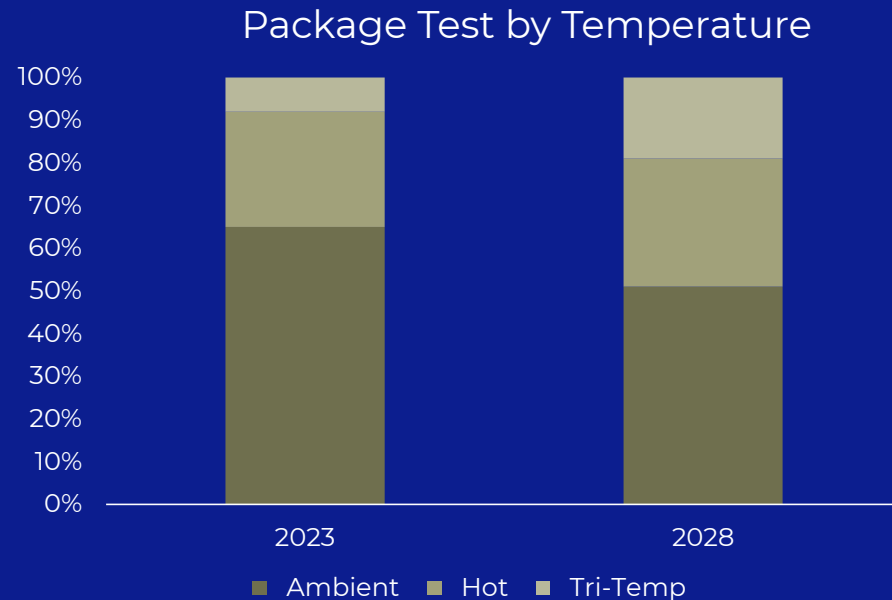
Automotive – Driving Change

Semiconductors for Automotive, \$Bn



10% CAGR 2023 to 2028 – Outgrowing Overall Semiconductors
Powertrain and Electrification Driving Power on SiC

Growing Thermal Challenges



Devices for high performance computing and automotive are driving up thermal challenges

Data Analytics

ATE and EDA vendors actively engaged in adding value to semiconductor test

What we know so far...

- Significant revenues are being generated from data analytics services

- Measurable improvements in test results achieved

- Vendors competing against customers

- Business models not clearly defined

Future impact on socket demand unknown

Watch this space...



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Summary

Market Environment

2023 has been, and continues, to be a difficult year
Socket market on long road to recovery from Q4 2023 onwards
Growing in-line with semiconductor demand as test equipment utilization improves
Socket suppliers are still profitable

Technologies and Applications Driving Change

Advanced Packaging
Automotive
Thermal Management
Data Analytics



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