

## 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



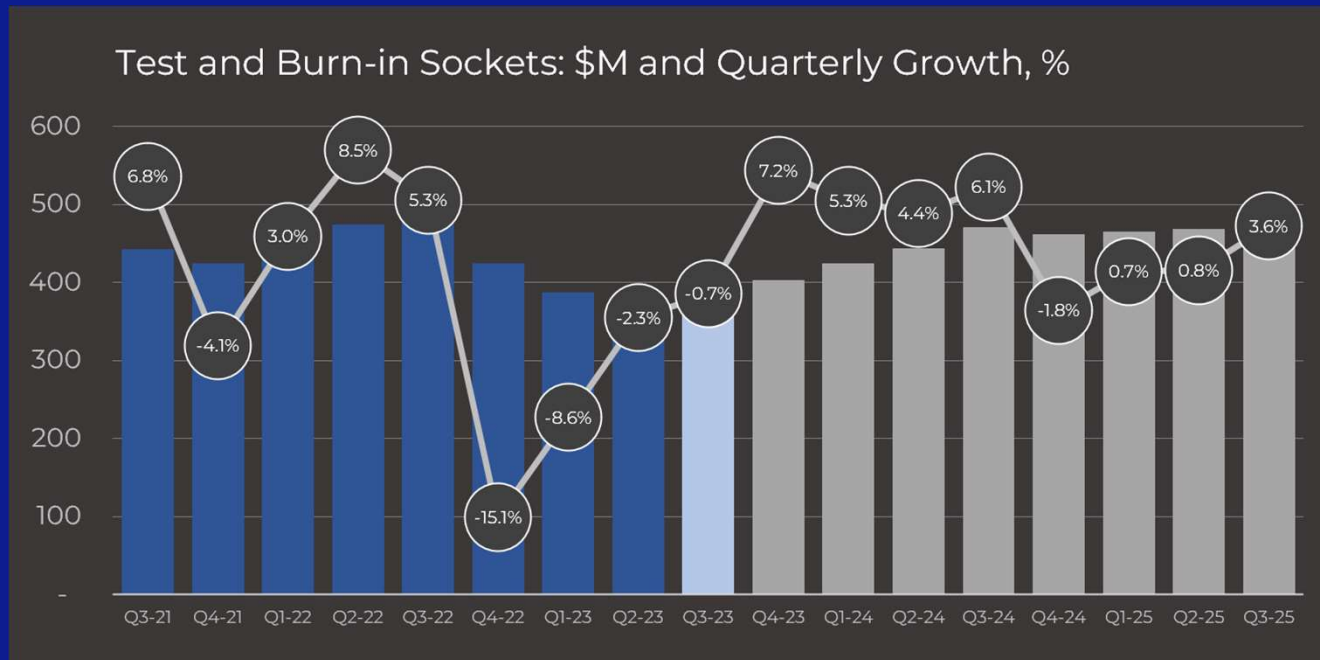
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**2023**

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## The long, slow road to recovery



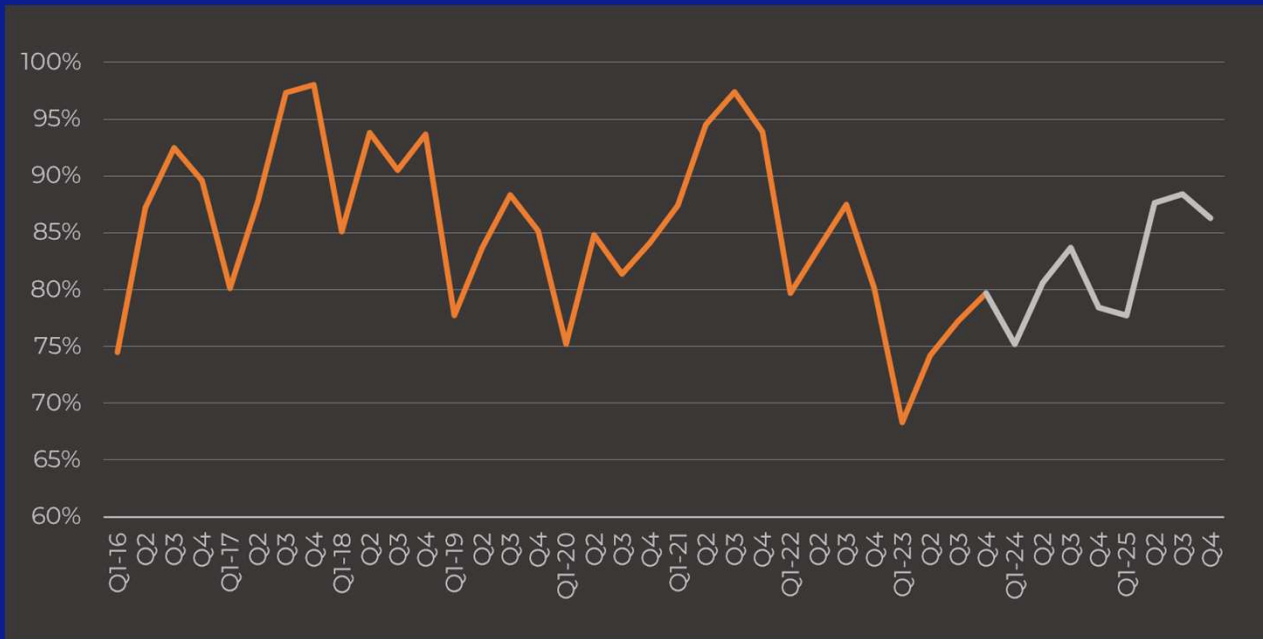
4 consecutive quarters of decline, followed by steady low to mid-single digit quarterly growth for next several quarters



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## Test Equipment Utilization



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

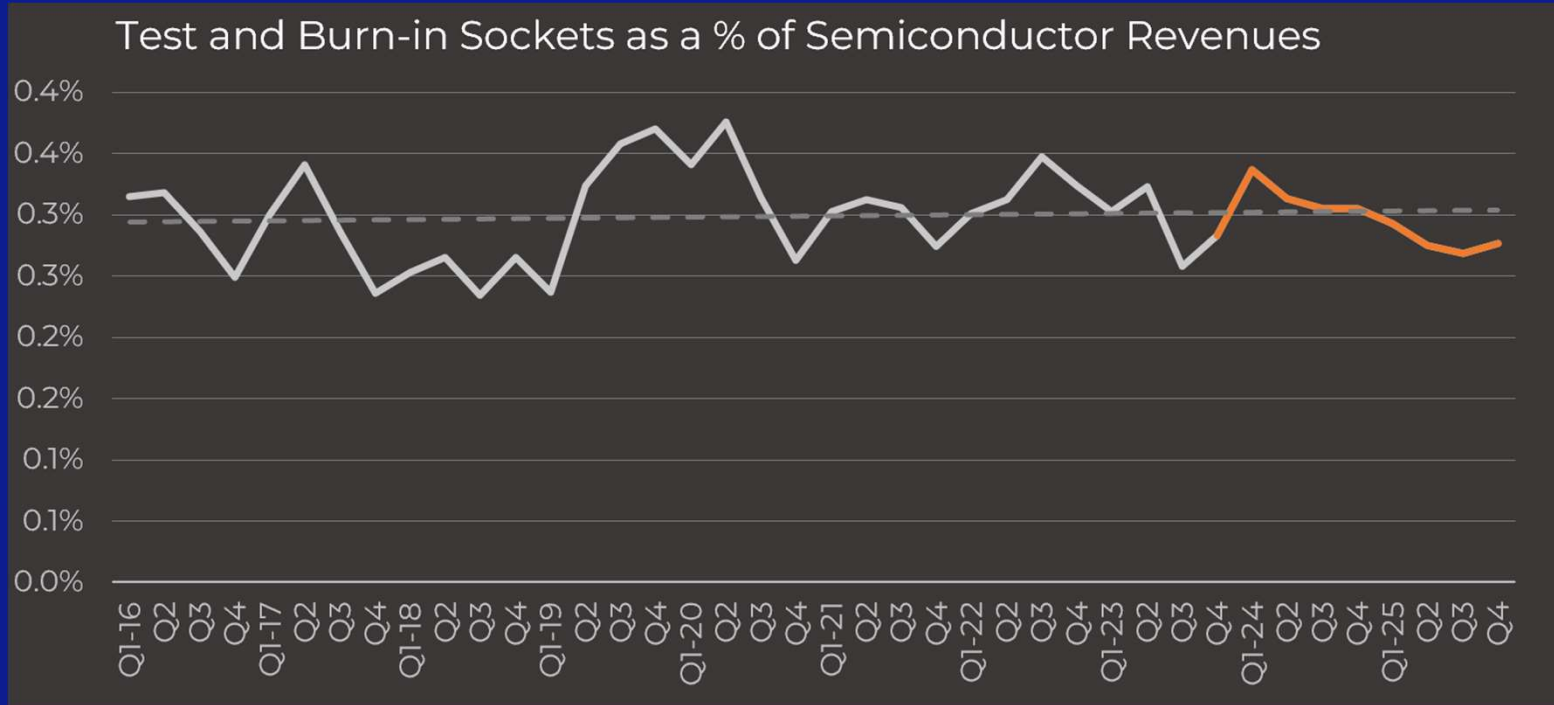
Utilization rates expected to be persistently low for several quarters



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## Cost of test socket revenues tracking semiconductors



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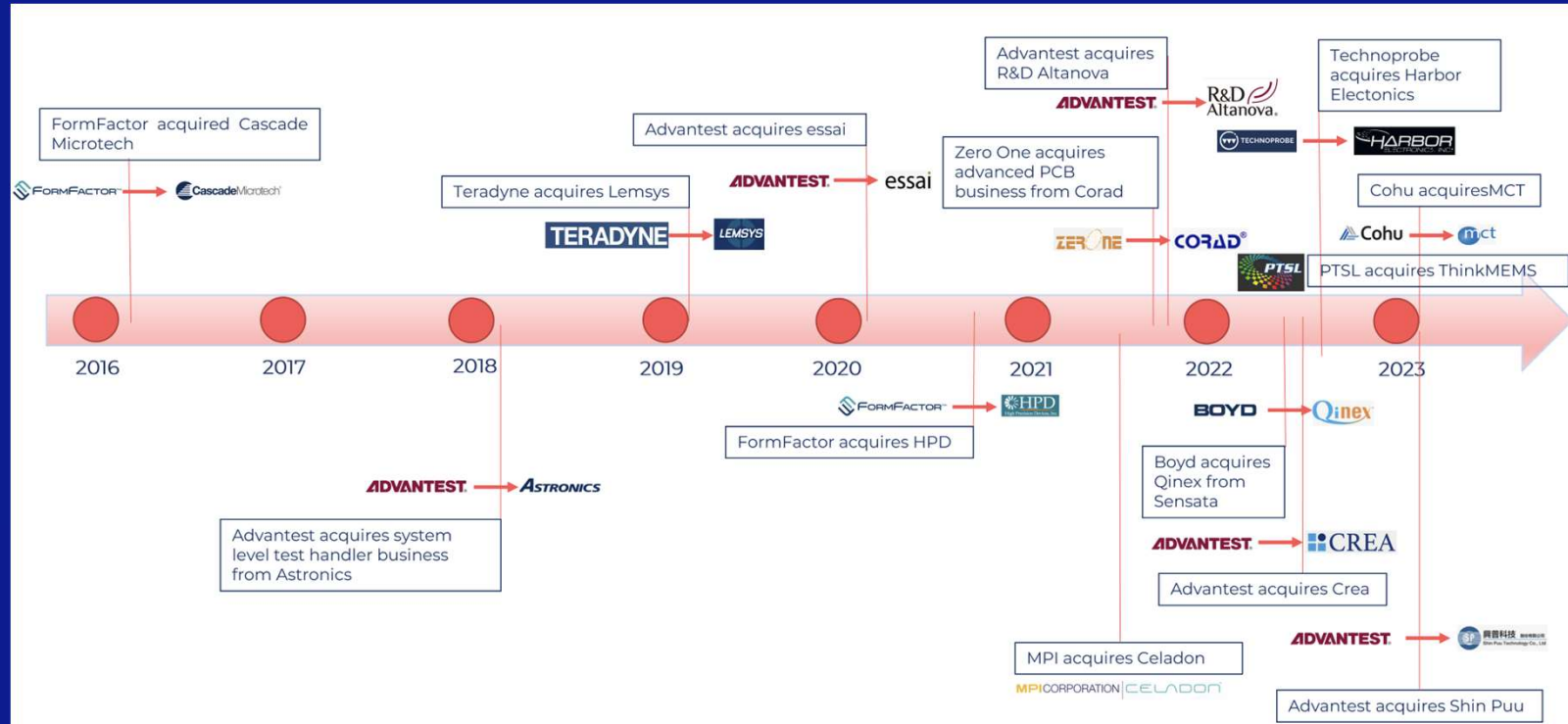
## Socket suppliers still profitable.... ...for now



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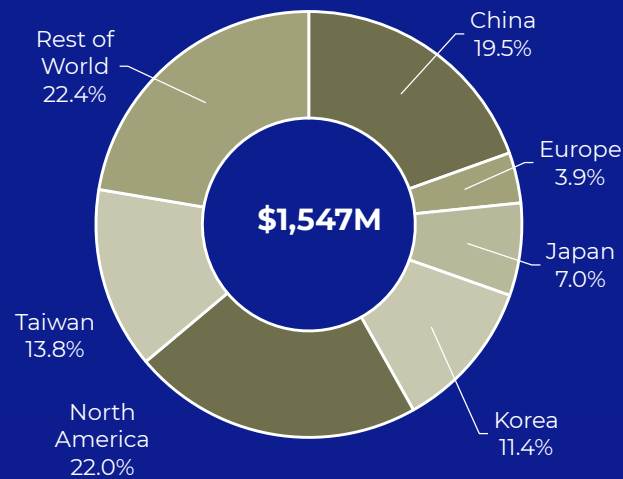
## Mergers & Acquisitions



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## Regional Distribution of Socket Revenues, 2023



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



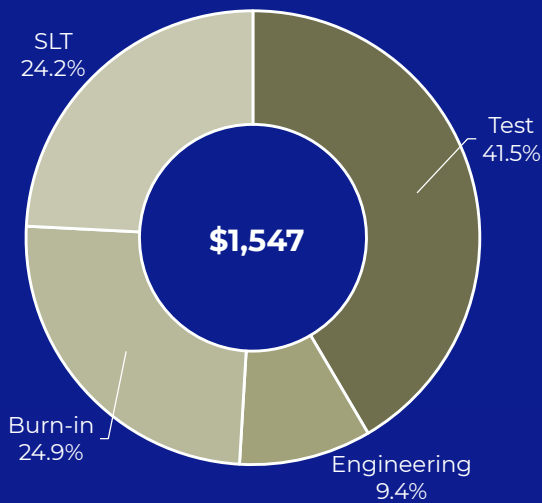
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# 2023

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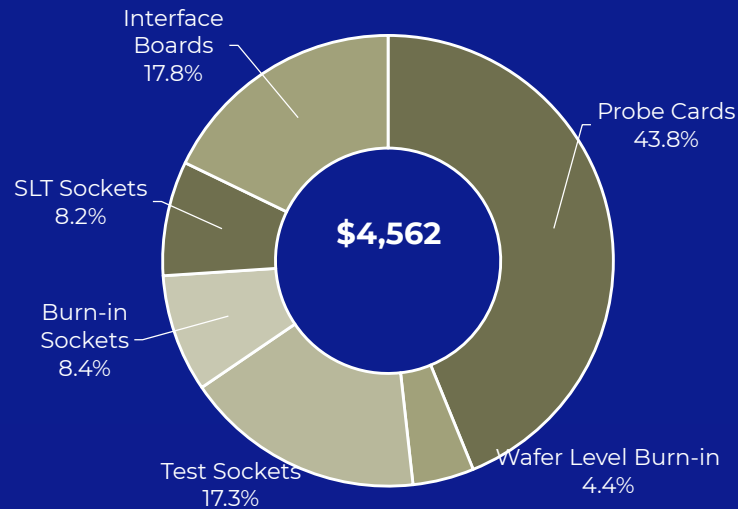
## Sockets by Type, 2023



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

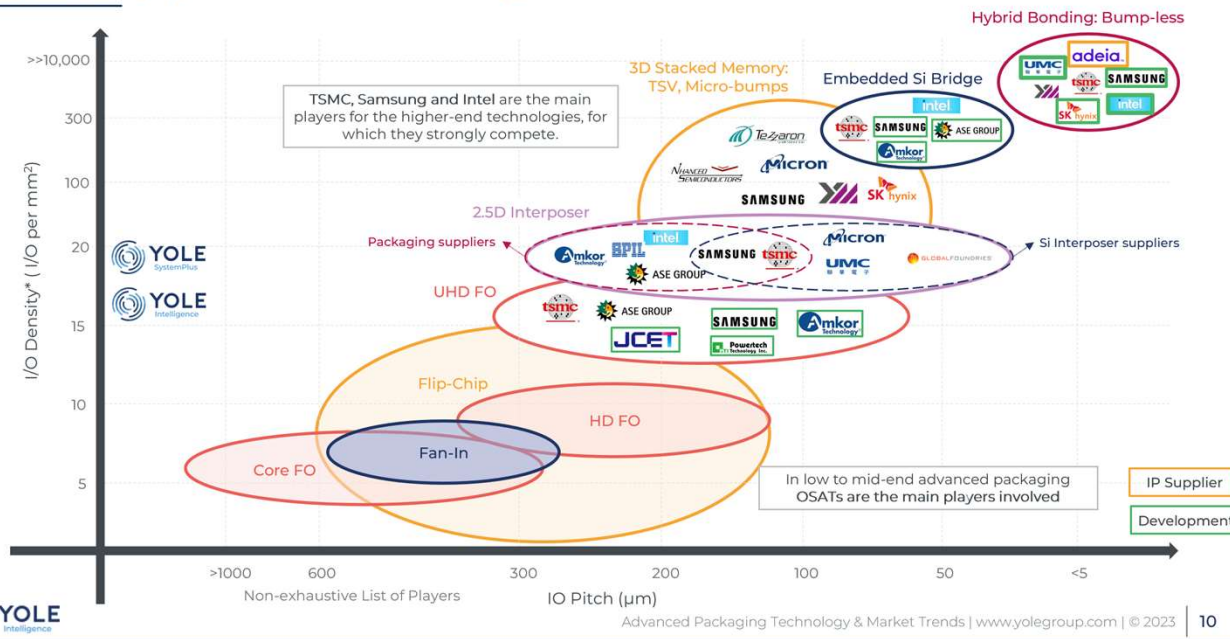


Test strategies are evolving, driven by cost management and device complexity.

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

## Advanced Packaging – Driving Change

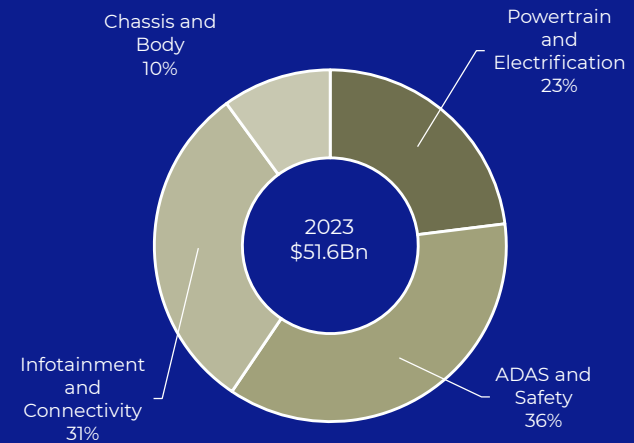
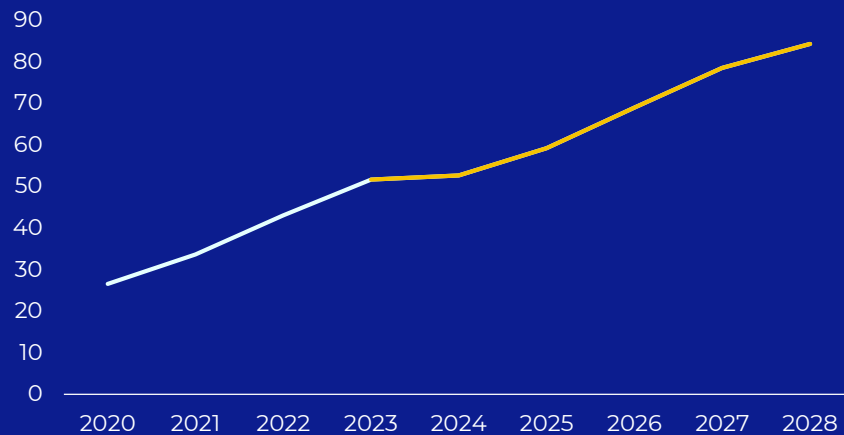
FOCUS ON HIGH-END PACKAGING  
Mapping of players based on technology



- 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



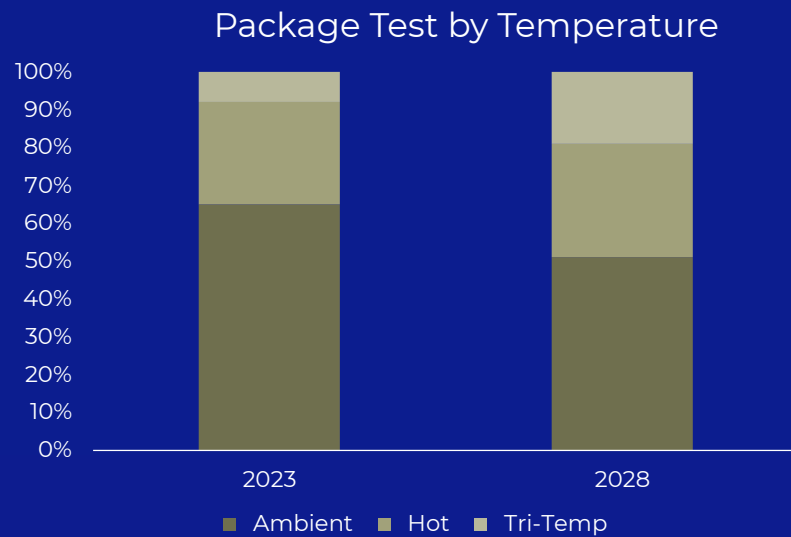
10% CAGR 2023 to 2028 – Outgrowing Overall Semiconductors  
Powertrain and Electrification Driving Power on SiC



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## 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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