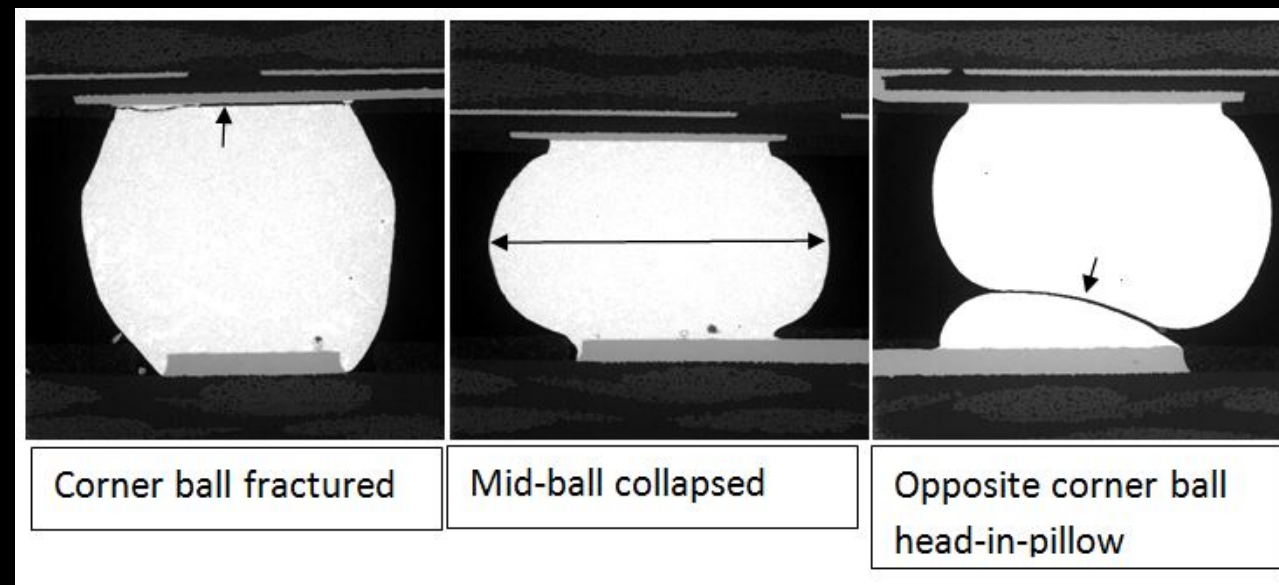
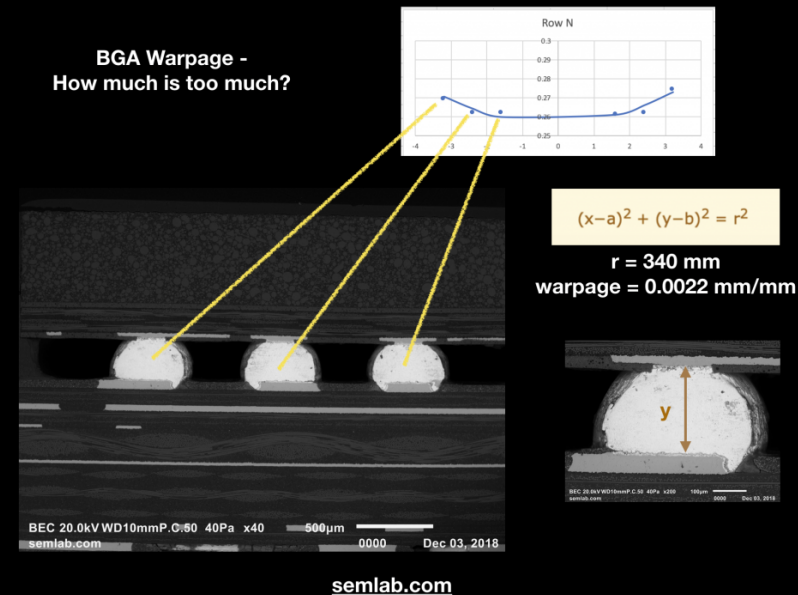
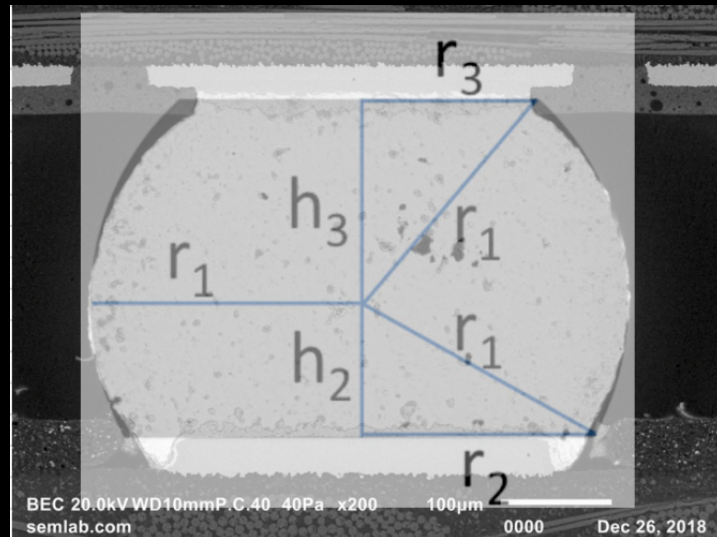


# BGA Assembly Verification

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- BGAs are important but present assembly challenges
- Package warpage at peak reflow temperature causes Head-in/on-pillow defects
- As-soldered warpage can lead to solder joint interfacial failures and pad cratering

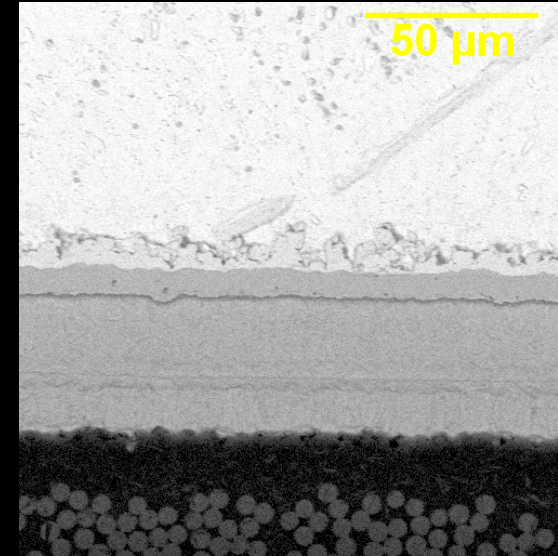
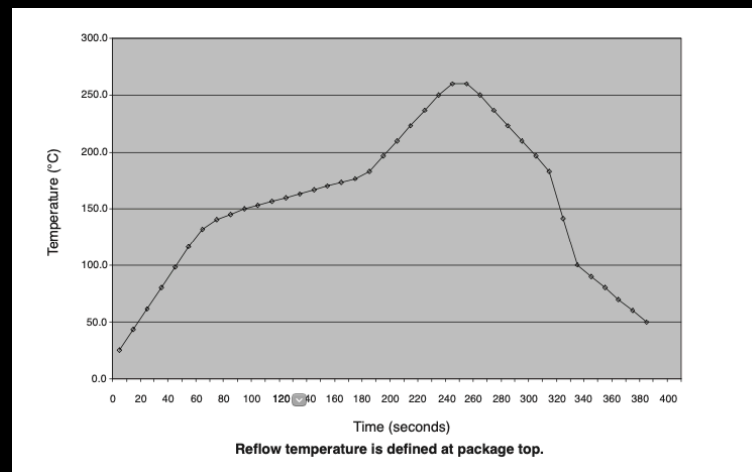




- Measurements of as-soldered warpage is a useful metric
- Warpage value can be used to calculate package warpage at peak reflow temperature
- Potential to calculate top side & bottom side temperature to mitigate warpage

## Inputs

- First run BGA assembly
- Reflow profile



## Outputs

- As-soldered warpage
- Peak reflow package warpage
- Microstructure analysis of solder joints

# Conclusion

**SEM Lab, Inc. supports comprehensive evaluation of BGA solder joints in support of assembly process qualification.**

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