

# WCSP Removal

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# Agenda

- What a WCSP package is
- What can happen if a WCSP package is mishandled
- Proper removal method of WCSP
- Proper way of packing WCSP after removal
- Incorrect ways to pack/ship a WCSP that should always be avoided

# What is WCSP?

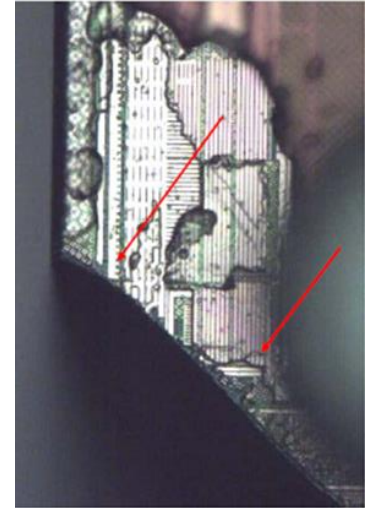
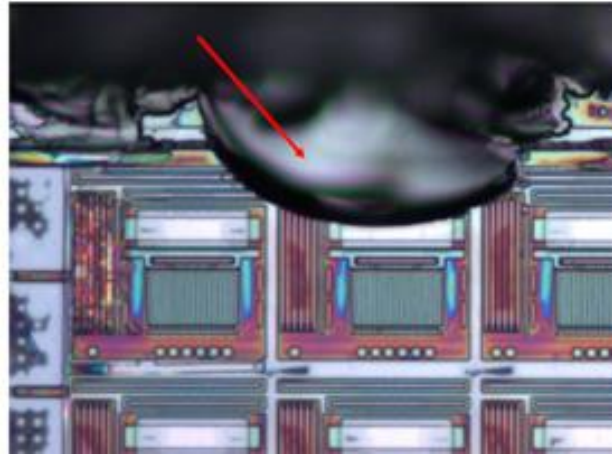
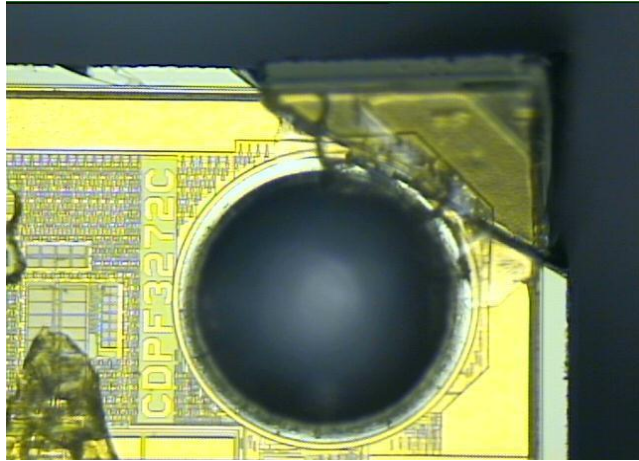
## Wafer-level Chip-Scale Package

- Package size is equal to die size
- Smallest footprint per I/O count
- WCSP does not have a protective mold compound



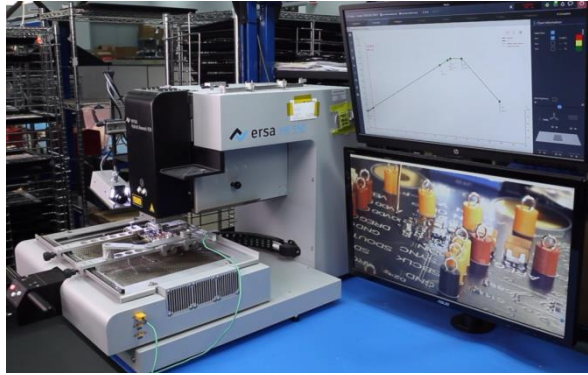
# What can happen if a WCSP is mishandled

- Improper removal of a wafer chip scale package from a circuit board may result in damage to the device and therefore Failure Analysis may no longer be possible.



# Tools needed for proper removal of WCSP

- Hot air rework machine

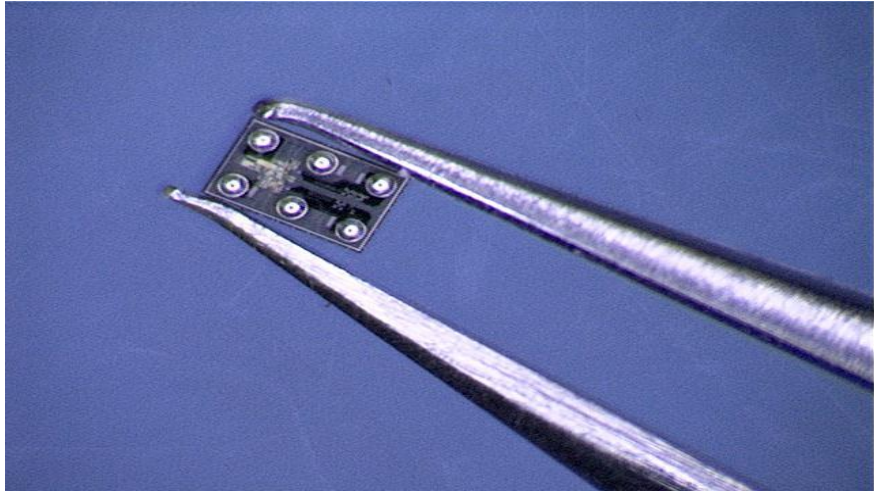


- ESD safe vacuum pencil

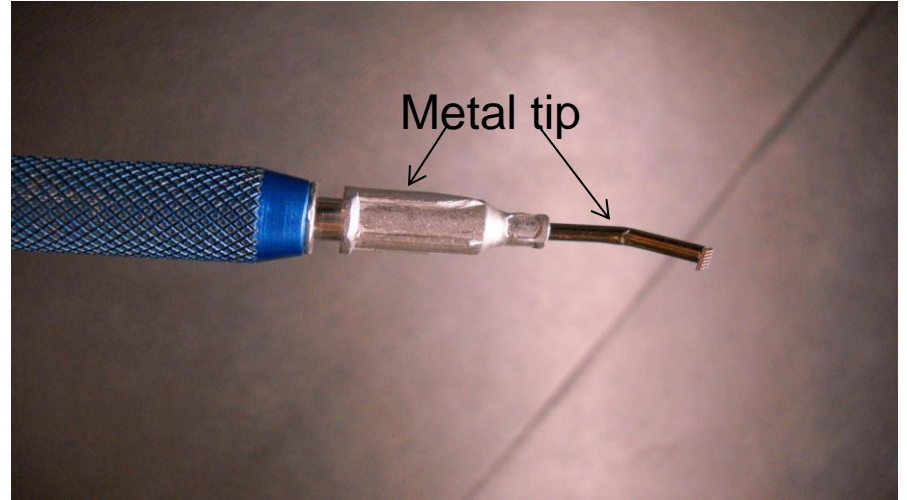




# Proper WCSP Handling



**Wrong** handling method  
Using tweezers.



**Correct** handling method  
with vacuum pen.

# Pb-Free Ball WCSP Board Removal Process

1. Select the appropriate IC profile according to the device that is being de-soldered. The device's datasheet includes the needed specs.
2. Protect the temperature sensitive components, specifically plastic and remove any batteries from the board; aluminum foil can be used for shielding
3. Place flux around the IC on the board; ensure the flux is coated all around the IC so that the flux can flow under the IC
4. Place the PCB on the machine plate
5. Ensure the thermal coupler is as close as possible to the IC to get correct temperature readings
6. Align the nozzle with direction of the laser to the center of the IC
7. Place start on the software

# Proper way of packing WCSP after removal

- Foam Pack
  - Foam packs support one unit/pack to avoid units encountering physical contact during transport.
- Waffle Pack is required to transport WCSP (bare die).
  - Waffle packs must be sized correctly (length/width/depth) to prevent damage during shipping.
- WCSP on cut boards should also be transported in foam packs.





# Incorrect ways to Ship a WCSP

- Do not use tape and stick the device to paper or post-it note.
- Do not put loose devices in an ESD bag – place in the recommended carrier foam pack or waffle pack.