

TSV / TGV Materials and Process Recipe for 3D-IC Fabrication

ASTRI employs a streamlined R&D strategy that integrates materials, process, and module development. Its self-developed electroplating additives empower superior control over chemistry and process parameters for copper electroplating – solving the industry's long-standing challenge of void-free filling in high-aspect-ratio vias, paving the way for more sophisticated microelectronics.

Industry Challenges

- High aspect ratio filling challenges
- High manufacturing cost and capacity bottlenecks
- High design complexity and insufficient EDA tools
- Yield and defect control

Major Benefits

- **Self-developed electroplating additives:** mastery of core materials and chemistry
- **Integrated R&D strategy:** unified development from materials to modules
- **Autonomy in process recipes:** offering unique, in-house process solutions
- **Customisation for specific applications:** tailored to power electronics and RF needs
- **Proven industry collaboration:** extensive experience in technology transfer

Application Areas

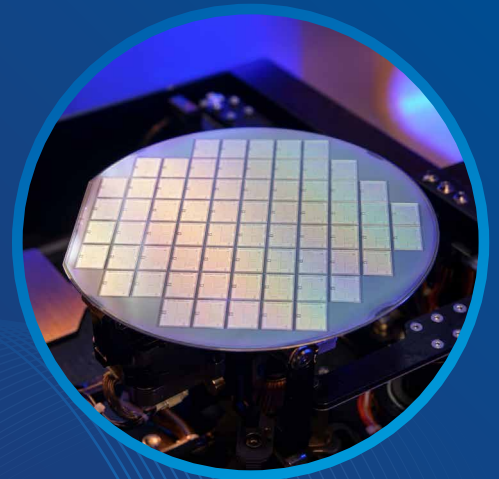
- Power electronics
- High-frequency RF communication
- Advanced 3D integrated circuits for next-generation devices

Collaborator(s)

Semiconductor and microelectronics manufacturers

Award(s)

State Scientific and Technological Progress Award



ASTRI's TSV and TGV technology advantages include proprietary electroplating additives and process control, delivering customised, localised solutions for power electronics and high-frequency applications with void-free filling

