APECS

Coordinated by Fraunhofer

Implemented by Forschungsfabrik Mikroelektronik Deutschland

Joint Technology Development by CEA-Leti and Fraunhofer IZM

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Collaboration on high frequency glass wafer

Goals:
- Benchmarking of glass RF performances at f>100GHz
- Demonstration of antenna and RF components fabricated on glass substrates with a new integration scheme based on Fraunhofer Through Glass Vias

Key collaboration activities:
- Design of RF components based on IZM interposer technology for D band (110-170 GHz)
- Development of new antennas on glass substrate with and without metallized TGV

Method alignment on life cycle assessment and eco-innovation

Goals:
- Harmonization of methodologies with Front-End
- Shared inventory datasets & life cycle assessment (LCA) results
- Applicative LCA : RDL manufacturing & FOWLP integration

Key Collaboration Activities:
- Assessment of data exchange formats and conditions between partners.
- Initiation of LCA data and results for packaging processes, including FOWLP as a test case.

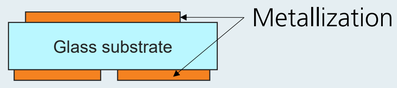
Collaboration on Fan-Out Wafer Level Packaging for high frequency applications

Goals:
- Benchmarking of EMC and Passivation materials for FOWLP integration above 150GHz.
- Definition of relevant test structure for material assessment above 150GHz
- RDL First process & high frequency characterization

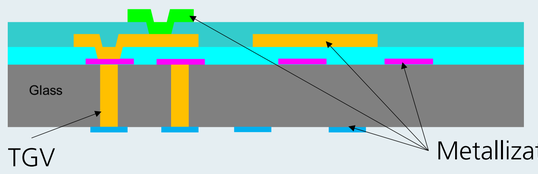
Key collaboration activities
- tailored test structures
- FOWLP fabrication (Chip 1st & RDL 1st)
- interconnect & material characterization

Collaboration between CEA-Leti and Fraunhofer for a new integration scheme

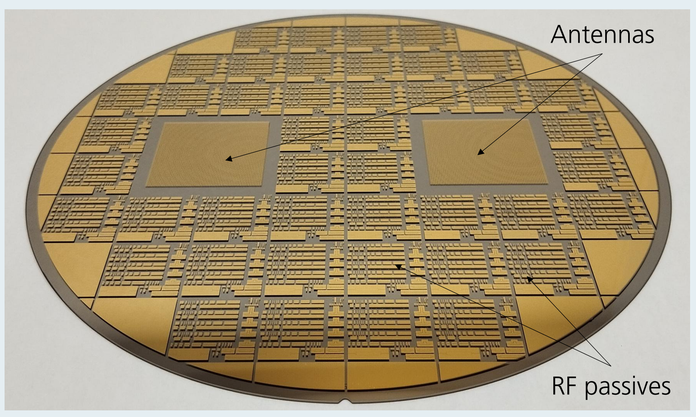
RF antennas on glass substrate



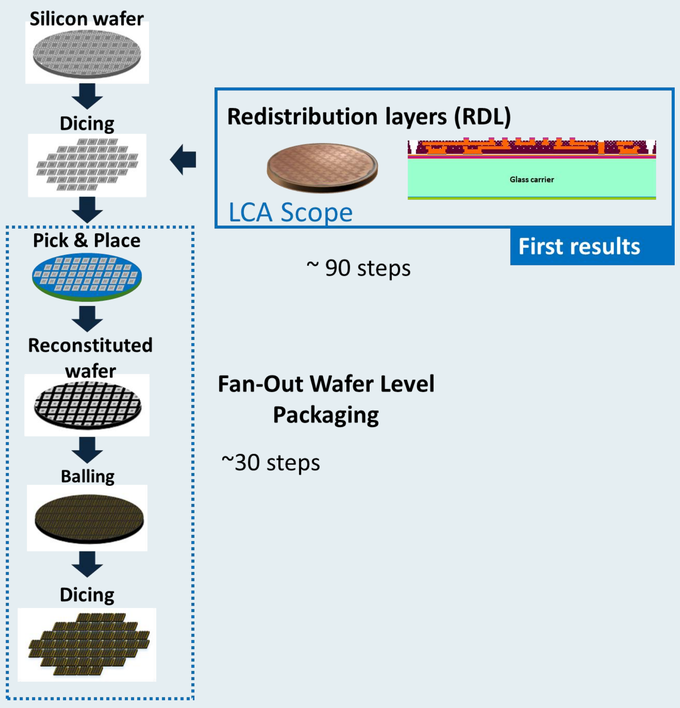
RF antennas and passive components with TGV



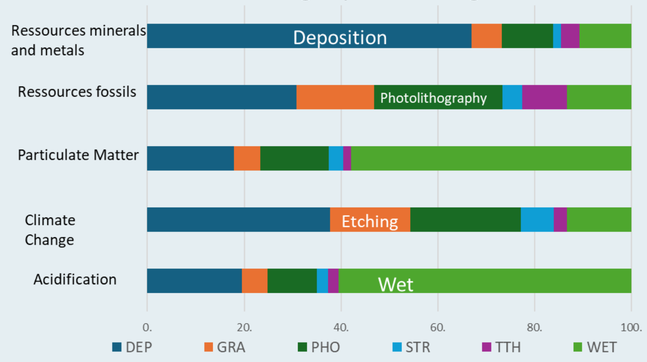
Fabricated 200 mm glass wafer with RF passives and antennas for glass benchmarking



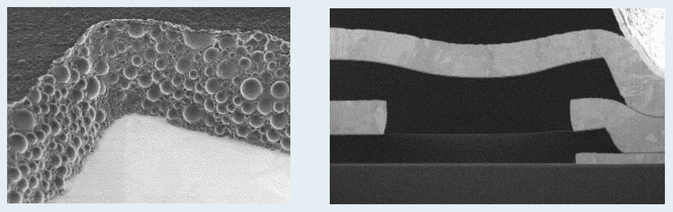
Scope of the LCA for the Fan-Out Wafer Level packaging: case study for methodology alignment



Exemple of LCA results on the RDL fabrication over 5 impact categories



Epoxy mold compound (left) and dielectric layer in RDL (right)



Joint Technology Development

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Additional information

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