



Innovative Fan Out Wafer Level Package Platform for Sensors







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Holistic description chip-pckg

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Demonstrator













Thermo-Mechanical Performance Characterization of RF laminate impact





Both compressive and tensile stress components are observed



Underfill distributes the stress over a larger area and thus reduces the strain level



→ To release thermo-

modes evolve during

(TCoB)





Thermo-Mechanical Performance Fatigue Modes for Wafer-Level Packages







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Thermo-Mechanical Performance **Ways to improve**...











Back to the scales...















Impact of the package on the propagation of the mm-wave must be considered!









2. Design



Dielectric environment

- Mold thickness ÷ .
- Chip thickness ÷ .
- RDL thickness

Conductor/metal layout

- Via size, pad openings
- Metal layer thickness
- Ball pitch/size







IPCEI What screws can the package designer adjust? Dielectric environment 2. Design Mold thickness х. Chip thickness RDL thickness Transmission Passives Vertical Interconnects Lines Filters Conductor/metal layout 00000 Via size, pad openings e, Metal layer thickness с. Ball pitch/size н. Additional features Antenna in Package Transmission Lines Ground Planes/Shieldings 00000 Integrated Passives (inductors, caps) Filters 3D-Structures (vert. interc.) ÷.

Antenna in Package ÷











- 14 mm x 14 mm eWLB package 4xRX patch antennas and 2xTX
- dipole antennas

Google Soli gesture sensor / Pixel 4





These





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