

TEA TTC's Used in Research at Georgia Tech for Advanced Packaging

At the 2023 IEEE 73rd Electronic Components and Technology Conference (ECTC) in Orlando, FL, researchers from Georgia Tech and Penn State University presented a paper entitled “Bottom Side Cooling for Glass Interposer with Chip Embedding using Double-sided Release Process for 6G Wireless Applications”.

In this research project, Thermal Test Chips (TTC) from Thermal Engineering Associates (TEA) were used for the development of a die-embedded glass interposer process. In the glass interposer, through cavities are prepared in the glass substrate, and the TTC is embedded into the through cavity and connected via redistribution layers (RDL) in the topside. A copper heat spreader is attached to the exposed TTC backside using thermal-interface material (TIM) for thermal management. The embedded TTC power density is tested to see the cooling capacity with various heat transfer coefficients ranging between 28.8~261.3 W/m²K. This work provides a solution for CTE mismatch during the die embedding glass interposer process with minimum warpage.

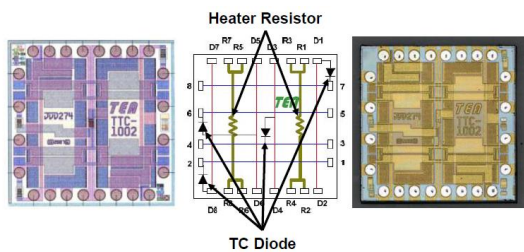


Fig. 5. TEA thermal test chip TTC-1002

The TEA thermal test chip TTC-1002 is shown in Fig. 5.

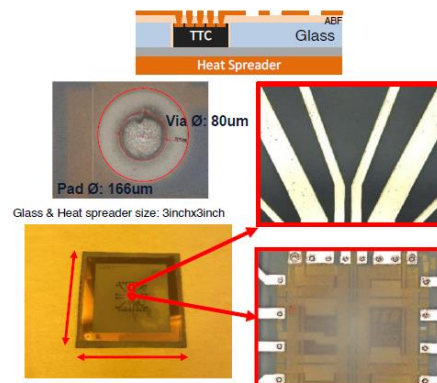


Fig. 7. RDL fabrication.

More information can be found in the paper <https://ieeexplore.ieee.org/abstract/document/10195678>.