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(54) Title: STRESS MANAGEMENT FOR PRECISE SUBSTRATE-TO-SUBSTRATE BONDING

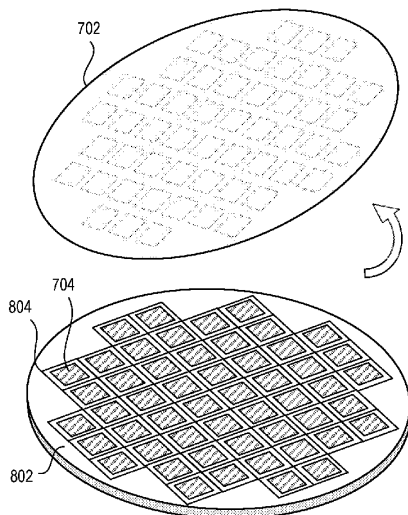


FIG. 9B

(57) Abstract: Disclosed systems and techniques are directed to mitigating stresses in substrate-to-substrate bonding processes. Disclosed techniques include obtaining a first substrate supporting transferred feature(s) (TFs) and transferring TFs from the first substrate to a second substrate, transferring TFs from the first substrate to the second substrate, and applying stress mitigation to a target substrate. The target substrate can be the first substrate, an auxiliary substrate supporting TFs prior to transferring TFs from the auxiliary substrate to the first substrate, or the second substrate. Applying stress mitigation to the target substrate includes obtaining an out-of-plane deformation (OPD) profile of the target substrate, causing a stress compensation layer (SCL) to be deposited on the target substrate, and exposing the SCL to a stress-mitigation beam. Settings of the SCL and/or the stress-mitigation beam are determined using the OPD profile of the target substrate.

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