Calibration Of Thermal Model To Simulate Laser Assisted Bonding Process

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Abstract

In this poster we present the results of the strategy for calibrating the COMSOL Multiphysics® model to simulate the laser bonding process (LADB) of Mems chips. A specific aspect of this work is to calibrate the COMSOL Multiphysics® heat model loss by measuring with a miniature thermocouple the side of the chip and very close to the laser spot. The power of the laser is also independently and accurately measured with a thermopile detector and included in the heat model. The simulation model is taking into account the thermal impact of the fixture for pressing and aligning the chips to be laser bonded. The calibrated COMSOL Multiphysics® heat model is then used to predict thermal impact on the chip by modifying the laser parameters to find an optimal bonding parameter space.