

ABSTRACT

ROOM TEMPERATURE GLASS-TO-GLASS, GLASS-TO-PLASTIC AND GLASS-TO-CERAMIC/SEMICONDUCTOR BONDING

A process for room temperature substrate bonding employs a first substrate substantially transparent to a laser wavelength is selected. A second substrate for mating at an interface with the first substrate is then selected. A transmissivity change at the interface is created and the first and second substrates are mated at the interface. The first substrate is then irradiated with a laser of the transparency wavelength substantially focused at the interface and a localized high temperature at the interface from energy supplied by the laser is created. The first and second substrates immediately adjacent the interface are softened with diffusion across the interface to fuse the substrates.

[Figure 1]