A B S T R A C T

A reliability evaluation test apparatus (10) of this invention includes a wafer storage section (12) which stores a wafer (W) in a state wherein the electrode pads of a number of devices formed on the wafer and the bumps of a contactor (11) are totally in electrical contact with each other. The wafer storage section (12) transmits/receives a test signal to/from a measurement section (15) and has a hermetic and heat insulating structure. The wafer storage section (12) has a pressure mechanism (13) which presses the contactor (11) and a heating mechanism (14) which directly heats the wafer (W) totally in contact with the contactor (11) to a predetermined high temperature. The reliability of an interconnection film and insulating film formed on the semiconductor wafer are evaluated under an accelerated condition.

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