

# The study of opto-electronic characteristics for transparent semiconductor thin film grown by RTCVD

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## ABSTRACT

We investigated the ZnO thin film which were deposited on corning glass substrates at different chamber temperature by Rapid-Thermal chemical vapor Deposition (RTCVD). The chamber pressure was set at 1.5Torr. The crystal structure and surface morphologies of ZnO thin films were analyzed by XRD, AFM and FESEM. In the optical measurement, the ultra violet region have strong absorption. As a result, we achieve a lowest resistivity with value of 0.1  $\Omega$  cm, The average optical transmittance within the visible spectra is more than 75%. The optimum conditions for the growth of 350oC. For the thermally stimulated current measurement, the activation energy of the ZnO thin film is suggested that the exciton binding energy dominates the thermal activation process.

Keywords : ZnO、RTCVD、 Transparent thin film semiconductor

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