

Abstracts

Disclosed in the invention is a thin film deposition a device, comprising: a processing chamber; a gas supply assembly, which is arranged on the top wall of the processing chamber; a heating tray, which is arranged below the gas supply assembly for bearing and heating the substrate; a radio frequency source; and a rotating mechanism configured to control the rotation of the substrate, or the rotation of the heating tray, or control the synchronous rotation of the substrate and the heating tray, wherein the rotation shaft for rotation is perpendicular to and passing through the substrate. The radio frequency source is kept in an on state during rotation. According to the method, non-uniformity of the thickness of the thin film deposited on the substrate is compensated, and the uniformity and stability of deposition of the thin film of the PECVD layer stack structure are achieved, and the phenomenon that etching through holes of the thin film deposited on the substrate deviate from the vertical direction in the subsequent etching process is avoided. Therefore, the stability of the performance of a semiconductor device is further guaranteed