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THIN-FILM SEMICONDUCTOR DEVICE, METHOD OF FABRICATING THIN-FILM SEMICONDUCTOR DEVICE, AND DISPLAY SYSTEM USING THE SAME

Abstract

An objective of the present invention is to provide a high-performance thin-film semiconductor device and a simple fabrication method therefor. After a silicon film is deposited at 580°C or less and at a deposition rate of 6 Å/minute or more, thermal oxidation is performed. This ensures an easy and simple fabrication of a high-performance thin-film semiconductor device. A further objective of the present invention is to implement a thin-film semiconductor device capable of low-voltage, high-speed drive. The short-channel type of TFT circuit with an LDD structure can reduce a voltage, increase speed and restrain the power consumption, enabling a higher breakdown voltage. Speeds can be further accelerated by optimizing the maximum impurity concentration of an LDD portion, that of source and drain portions, the LDD length, and the channel length. A display device or display system using these TFTs can be configured such that drive signals are at or below the TTL level.

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