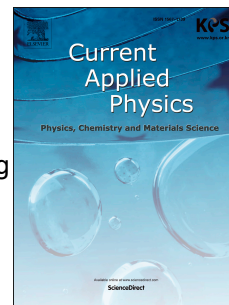


Accepted Manuscript

Simple active-layer patterning of solution-processed a-IGZO thin-film transistors using selective wetting method

Seungwoon Lee, Jaewook Jeong



PII: S1567-1739(17)30267-5

DOI: [10.1016/j.cap.2017.09.016](https://doi.org/10.1016/j.cap.2017.09.016)

Reference: CAP 4594

To appear in: *Current Applied Physics*

Received Date: 11 July 2017

Revised Date: 26 September 2017

Accepted Date: 27 September 2017

Please cite this article as: S. Lee, J. Jeong, Simple active-layer patterning of solution-processed a-IGZO thin-film transistors using selective wetting method, *Current Applied Physics* (2017), doi: 10.1016/j.cap.2017.09.016.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Simple active-layer patterning of solution-processed a-IGZO thin-film transistors using selective wetting method

Seungwoon Lee and Jaewook Jeong*

School of Information and Communication Engineering, Chungbuk National University, 1 chungdae-ro, Seowon-gu, Cheongju, Chungbuk, Korea

*Corresponding author: jjeong@cbnu.ac.kr

Abstract

In this paper, we report a selective-patterning method of active layers for the fabrication of solution-based amorphous indium-gallium-zinc-oxide thin-film transistors (a-IGZO TFTs). Using simple stamping of a reusable poly(dimethylsiloxane) (PDMS) substrate onto a SiO_x/Si substrate, the surface of SiO_x/Si was easily changed to the hydrophobic state because the PDMS substrate contains a large amount of methyl ligands. By combining oxygen plasma treatments through a shadow mask, the active layer was self-defined by selective coating of the a-IGZO solution owing to the difference of the wetting properties. The electrical performance of the resulting TFTs was comparable with that of TFTs fabricated with the conventional method. Because the proposed method is very simple and the PDMS substrate is reusable compared to other selective-wetting methods that use self-aligned monolayers, it is expected to be applicable to the fabrication of low-cost and large-area electronic applications.

Download English Version:

<https://daneshyari.com/en/article/5488730>

Download Persian Version:

<https://daneshyari.com/article/5488730>

[Daneshyari.com](https://daneshyari.com)