SEL EXHIBIT NO. 2021

INNOLUX CORP. v. PATENT OF SEMICONDUCTOR ENERGY LABORATORY CO., LTD.

IPR2013-00065

US006104042A

United States Patent [19]

Sah

[11] Patent Number: 6,104,042

[45] Date of Patent: Aug. 15, 2000

[54] **THIN FILM TRANSISTOR WITH A MULTI-METAL STRUCTURE A METHOD OF MANUFACTURING THE SAME**

[75] Inventor: **Wen-Jyh Sah**, Jen Te, Taiwan

[73] Assignee: **Chi Mei Optoelectronics Corp.**, Hsinchu, Taiwan

[21] Appl. No.: **09/328,580**

[22] Filed: **Jun. 10, 1999**

[51] **Int. Cl.**[7] **H01L 29/04**; H01L 31/036

[52] **U.S. Cl.** **257/59**; 257/66; 257/72

[58] **Field of Search** 257/59, 72, 66, 257/61, 57, 58, 60, 462, 459

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,362,660	11/1994	Kwasnick et al.	437/40
5,498,573	3/1996	Whetten	437/192
5,867,242	2/1999	Yao et al.	349/122
5,905,274	5/1999	Ahn et al.	257/59
5,920,082	7/1999	Kitazawa et al.	257/59
5,942,767	8/1999	Na et al.	257/59
5,976,902	11/1999	Shih	438/30
5,981,972	11/1999	Kawai et al.	257/59
6,011,274	1/2000	Gu et al.	257/59

FOREIGN PATENT DOCUMENTS

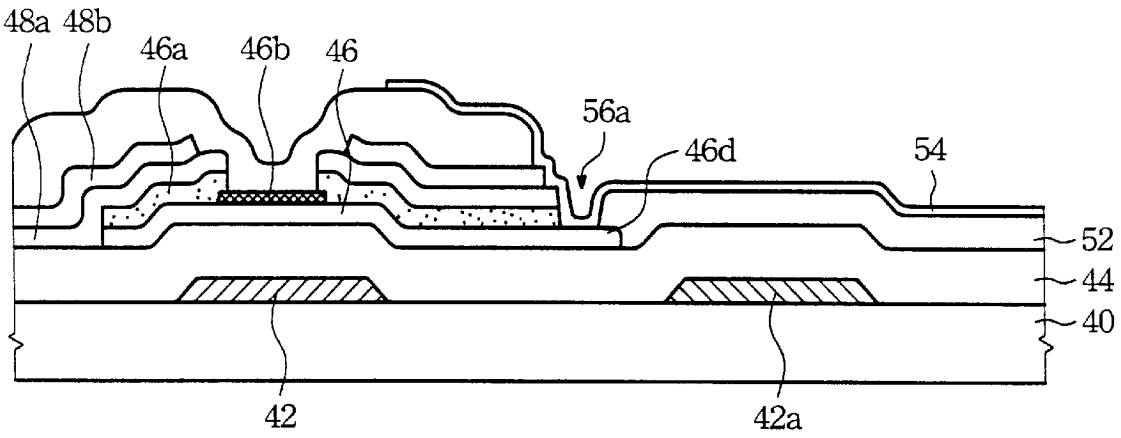
2-219275	8/1990	Japan	257/66
2-224275	9/1990	Japan	257/61
3-44968	2/1991	Japan	257/61
6-85255	3/1994	Japan	257/72

Primary Examiner—Donald L. Monin, Jr.

[57] **ABSTRACT**

The present invention includes forming a gate on a transparent substrate. A gate isolation layer is then formed on the gate. An amorphous silicon (a-Si) layer and n+ doped silicon layer are successively formed on the gate isolation layer. Then, the a-Si layer and the n+ doped silicon layer are patterned. A first, a second and a third metal layers are successively formed on the n+ doped silicon layer, thereby forming a multi-metal layer structure. Subsequently, a wet and a dry etching is utilized to etch the multi-metal layer, thereby defining the S/D electrodes. A passivation layer is deposited on the S/D structure.

26 Claims, 9 Drawing Sheets



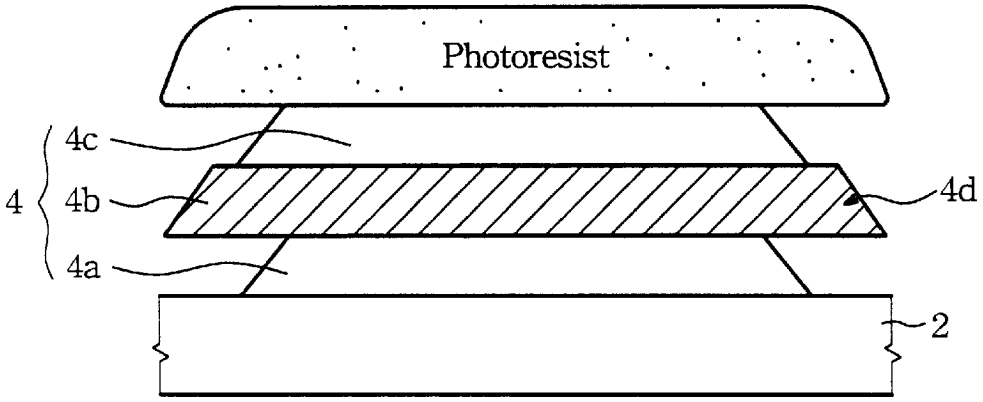


FIG.1
(Prior Art)

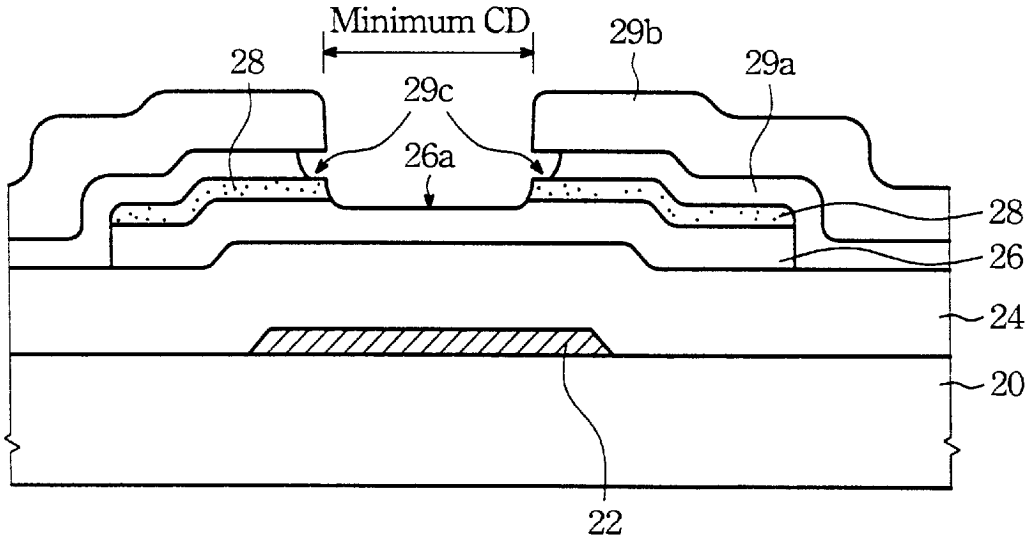


FIG.2
(Prior Art)

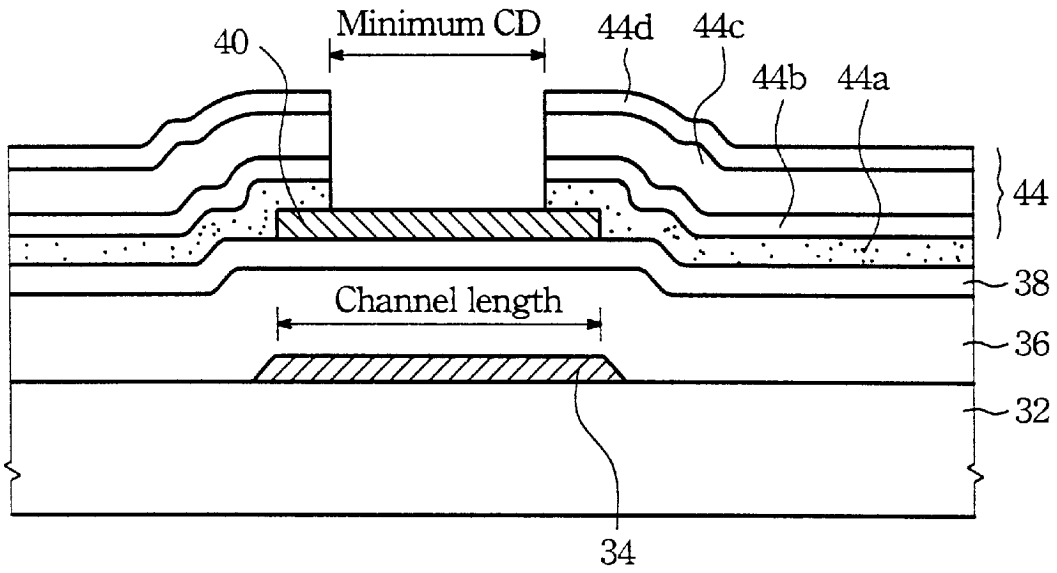


FIG.3
(Prior Art)

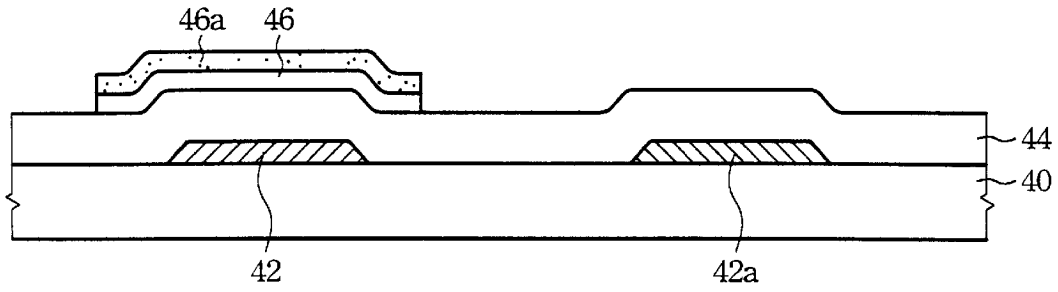


FIG.4

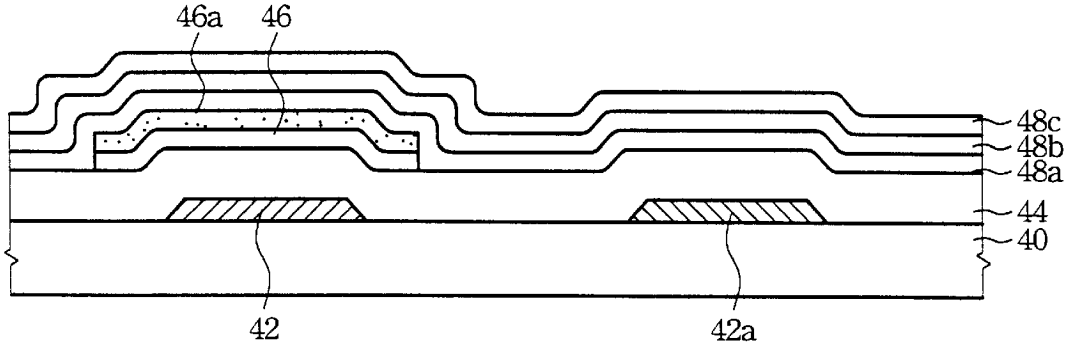


FIG.5

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