



US006888161B2

(12) **United States Patent**
Shih

(10) **Patent No.:** **US 6,888,161 B2**
(45) **Date of Patent:** **May 3, 2005**

(54) **STRUCTURE OF TFT PLANAR DISPLAY PANEL**

- (75) Inventor: **An Shih**, Changhua (TW)
- (73) Assignee: **Toppoly Optoelectronics Corp.**, Miao-Li (TW)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/321,306**

(22) Filed: **Dec. 17, 2002**

(65) **Prior Publication Data**

US 2003/0230748 A1 Dec. 18, 2003

(30) **Foreign Application Priority Data**

May 29, 2002 (TW) 91111422 A

(51) **Int. Cl.**⁷ **H01L 29/04**; H01L 31/036; H01L 31/0376; H01L 31/20

(52) **U.S. Cl.** **257/59**; 257/66; 257/72; 257/347

(58) **Field of Search** 257/59, 66, 72, 257/347; 348/43, 44

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,259,117 B1	7/2001	Takemura et al.	
6,285,041 B1	9/2001	Noguchi	
6,297,518 B1	10/2001	Zhang	
6,297,862 B1 *	10/2001	Murade	349/44
6,307,233 B1	10/2001	Awaka et al.	
6,740,938 B2 *	5/2004	Tsunoda et al.	257/365

* cited by examiner

Primary Examiner—Thien F Tran

(74) *Attorney, Agent, or Firm*—Volpe and Koenig, P.C.

(57) **ABSTRACT**

A structure of a thin film transistor (TFT) planar display panel is disclosed. The structure includes a light-transmissible substrate, a buffer layer formed on the light-transmissible substrate, a top-gate TFT structure formed on the buffer layer and including a channel region, and a light-shielding structure formed between a back light source and the top-gate TFT structure, and substantially aligned with the channel region for protecting the channel region from illumination of the back light source. The process for manufacturing a TFT planar display panel is also disclosed.

16 Claims, 8 Drawing Sheets

