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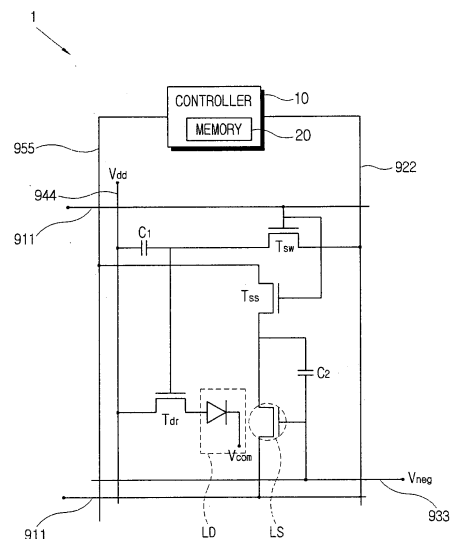
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(54) **Display device and manufacturing method of the same**

(57) A display device according to the present invention comprises an insulating substrate; a switching thin film transistor formed on the insulating substrate for receiving a data voltage has a first semiconductor layer comprising amorphous silicon; a driving thin film transistor formed on the insulating substrate, having a control terminal connected with an output terminal of the switching thin film transistor and includes a second semiconductor layer comprising poly silicon; a light sensor formed on the insulating substrate and comprises a third semiconductor layer and a sensor input terminal and a sensor output terminal electrically connected with the third semiconductor layer; an insulating layer formed on the light sensor; a first electrode formed on the insulating layer and electrically connected with an output terminal of the driving thin film transistor; an organic layer formed on the first electrode, and comprises a light emitting layer; a second electrode formed on the organic layer; and a controller which controls the data voltage based on an output of the light sensor.

FIG. 1



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PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of subsequent proceedings, as the European search report

EP 07 00 2281

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	EP 1 617 399 A2 (SANYO ELECTRIC CO [JP]) 18 January 2006 (2006-01-18) * paragraphs [0015], [0016], [0019] - [0027], [0032] - [0075]; figures 1-5 * -----	1-3	INV. H01L27/32 G09G3/32 H01L31/108
Y	US 2002/180672 A1 (YAMAZAKI SHUNPEI [JP] ET AL) 5 December 2002 (2002-12-05) * paragraphs [0004] - [0025], [0057] - [0077], [0115] - [0132], [0179], [0261] - [0293]; figures 10-13,16 * -----	1-3	
Y	WO 2005/059971 A2 (KONINKL PHILIPS ELECTRONICS NV [NL]; DEANE STEVEN C [GB]) 30 June 2005 (2005-06-30) * page 2, lines 25-29 * -----	2,3	
TECHNICAL FIELDS SEARCHED (IPC)			
H01L			
INCOMPLETE SEARCH			
The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.			
Claims searched completely :			
Claims searched incompletely :			
Claims not searched :			
Reason for the limitation of the search: see sheet C			
Place of search Munich		Date of completion of the search 5 April 2012	Examiner Boetticher, Harald
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPC FORM 1503 03.02 (P04E07)



**INCOMPLETE SEARCH
SHEET C**

Application Number
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Claim(s) completely searchable:
1-3

Claim(s) not searched:
4-17

Reason for the limitation of the search:

1 Claim 1 shows the feature "formed on the insulating substrate" with respect to the switching thin film transistor, the driving thin film transistor, and the light sensor.

2 In Figs. 6 to 8, a lowermost part of these transistors is formed on the insulating substrate 110, but the sensor is formed on the first insulating layer 510 (or, if the metal layer 410 is part of the sensor, this feature should have been claimed in claim 1); in Figs. 2 to 5, a lowermost part of the switching transistor is formed on the first insulating layer 510. Thus, claim 1 lacks support under Article 84 EPC.

3 On the other hand, there is a lack of unity:

3.1 The features of claim 1 are shown in EP 1 617 399, Figs. 1 to 5 and corresponding text, except for the feature of amorphous silicon for the switching TFT, see insulating substrate 10, switching TFT 4, driving TFT 6 with poly-silicon (cf. paragraph 38), light sensor 100, insulating layer 17, first electrode 71, organic light emitting layer 73, second electrode 75, controller 51.

3.2 According to US 2002/0180672, paragraph 179, for low off-current, it is better to use amorphous silicon for the active layer of a switching TFT (but the active layer of an EL driving TFT should be crystalline silicon, carrier mobility being low in an amorphous silicon film), so it is obvious to use amorphous silicon for the active layer of the switching TFT. The only remaining feature of claim 1 therefore lacks inventive step (Art. 56 EPC) and claim 1 can no longer link by a single general inventive concept under Article 82 EPC the features of claims 2, 9, 12, 13 dependent on claim 1.

3.3 However, asking for further search fees due to a lack of unity seems not expedient since claim 1 is to be amended so as to be supported; the present lack of unity objection would then have to be reconsidered with respect to such an amended claim 1.

4 Searching was therefore stopped, resulting in an incomplete search.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 00 2281

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

05-04-2012

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专利名称(译)	显示装置及其制造方法		
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其他公开文献	EP1816681A2		
外部链接	Espacenet		

摘要(译)

根据本发明的显示装置包括绝缘基板;形成在绝缘基板上用于接收数据电压的开关薄膜晶体管具有包括非晶硅的第一半导体层;形成在绝缘基板上的驱动薄膜晶体管,其控制端子与开关薄膜晶体管的输出端子连接,并包括包含多晶硅的第二半导体层;光传感器,形成在绝缘基板上,包括第三半导体层和传感器输入端子以及与第三半导体层电连接的传感器输出端子;形成在光传感器上的绝缘层;第一电极,形成在绝缘层上,并与驱动薄膜晶体管的输出端电连接;形成在第一电极上的有机层,包括发光层;形成在有机层上的第二电极;控制器,基于光传感器的输出控制数据电压。

FIG. 1

