



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
23.01.2002 Bulletin 2002/04

(51) Int Cl.⁷: **H05B 33/04, H01L 51/20**

(43) Date of publication A2:
04.04.2001 Bulletin 2001/14

(21) Application number: **00121499.8**

(22) Date of filing: **29.09.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventors:
• Yamazaki, Shunpei,
**Semiconductor Energy Laboratory
Atsugi-shi, Kanagawa-ken 243-0036 (JP)**
• Arai, Yasuyuki,
**Semiconductor Energy Laboratory
Atsugi-shi, Kanagawa-ken 243-0036 (JP)**

(30) Priority: **30.09.1999 JP 27987099**

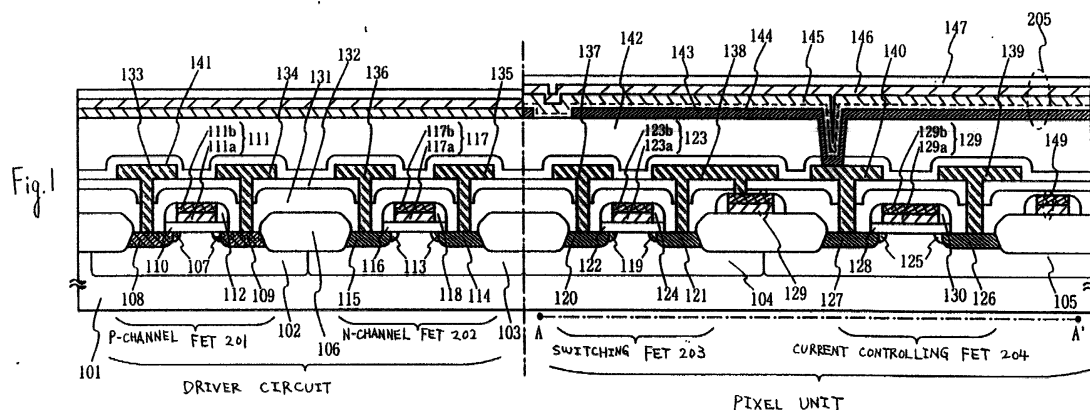
(71) Applicant: **SEL SEMICONDUCTOR ENERGY
LABORATORY CO., LTD.**
Atsugi-shi, Kanagawa-ken 243-0036 (JP)

(74) Representative:
**Grünecker, Kinkeldey, Stockmair &
Schwanhäusser Anwaltssozietät
Maximilianstrasse 58
80538 München (DE)**

(54) **Organic electroluminescent display device**

(57) An organic EL display device of active matrix type wherein insulated-gate field effect transistors formed on a single-crystal semiconductor substrate are overlaid with an organic EL layer; characterized in that the single-crystal semiconductor substrate (413 in Fig. 4) is held in a vacant space (414) which is defined by a

bed plate (401) and a cover plate (405) formed of an insulating material, and a packing material (404) for bonding the bed and cover plates; and that the vacant space (414) is filled with an inert gas and a drying agent, whereby the organic EL layer is prevented from oxidizing.





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 12 1499

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	EP 0 886 329 A (CANON KK) 23 December 1998 (1998-12-23) * page 13, line 8-15; claims 1-81 *	1-12	H05B33/04 H01L51/20
A	EP 0 350 907 A (SHARP KK) 17 January 1990 (1990-01-17) * the whole document *	1-12	
A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 05, 31 May 1999 (1999-05-31) & JP 11 040347 A (FUTABA CORP), 12 February 1999 (1999-02-12) * abstract *	1-12	
A,P	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 04, 31 August 2000 (2000-08-31) & JP 2000 030871 A (FUTABA CORP), 28 January 2000 (2000-01-28) * abstract *	1-12	
A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 05, 31 May 1999 (1999-05-31) & JP 11 054285 A (IDEMITSU KOSAN CO LTD), 26 February 1999 (1999-02-26) * abstract *	1-12	H05B H01L
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 4 December 2001	Examiner Drouot-Onillon, M-C
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	

EPO FORM 1503 03 82 (P04C01)

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

EP 00 12 1499

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.

04-12-2001

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0886329	A	23-12-1998	JP 11008065 A	12-01-1999
			JP 11016677 A	22-01-1999
			EP 0886329 A2	23-12-1998
			US 6215244 B1	10-04-2001
EP 0350907	A	17-01-1990	JP 2024992 A	26-01-1990
			JP 2742057 B2	22-04-1998
			DE 68926365 D1	05-06-1996
			DE 68926365 T2	28-11-1996
			EP 0350907 A2	17-01-1990
			FI 893396 A , B,	15-01-1990
			US 5124204 A	23-06-1992
JP 11040347	A	12-02-1999	NONE	
JP 2000030871	A	28-01-2000	NONE	
JP 11054285 1	A		NONE	

专利名称(译)	有机电致发光显示装置		
公开(公告)号	EP1089595A3	公开(公告)日	2002-01-23
申请号	EP2000121499	申请日	2000-09-29
[标]申请(专利权)人(译)	株式会社半导体能源研究所		
申请(专利权)人(译)	SEL半导体能源研究所有限公司.		
当前申请(专利权)人(译)	SEL半导体能源研究所有限公司.		
[标]发明人	YAMAZAKI SHUNPEI SEMICON ENERGY LAB ARAI YASUYUKI SEMICON ENERGY LAB		
发明人	YAMAZAKI, SHUNPEI, SEMICONDUCTOR ENERGY LABORATORY ARAI, YASUYUKI, SEMICONDUCTOR ENERGY LABORATORY		
IPC分类号	H05B33/00 H01L27/32 H01L51/52 H05B33/04 H01L51/20		
CPC分类号	H01L51/5237 H01L27/3244 H01L51/524 H01L51/5259 H01L51/5275 H01L51/5281 H01L2251/5315 H05B33/04		
优先权	1999279870 1999-09-30 JP		
其他公开文献	EP1089595A2 EP1089595B1		
外部链接	Espacenet		

摘要(译)

一种有源矩阵型有机EL显示装置，其中在单晶半导体衬底上形成的绝缘栅场效应晶体管覆盖有机EL层;其特征在于，单晶半导体衬底（图4中的413）被保持在由床板（401）和由绝缘材料形成的盖板（405）限定的空余空间（414）中，并且用于粘合床和盖板的包装材料（404）;并且空余空间（414）填充有惰性气体和干燥剂，从而防止有机EL层氧化。

