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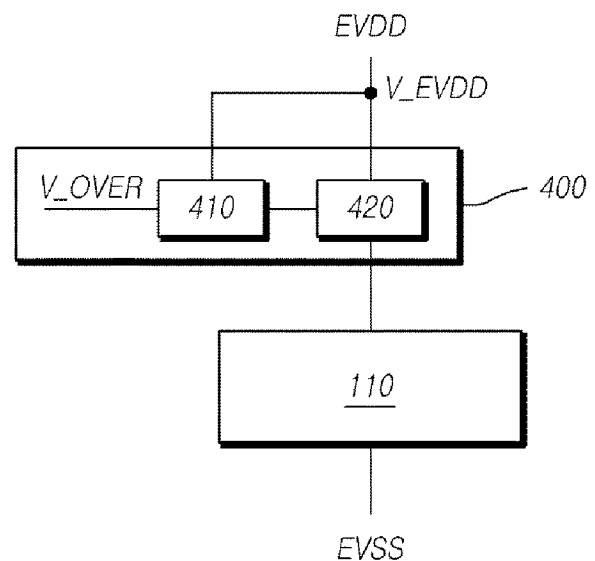
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(54) **OVER-CURRENT CONTROL DEVICE AND ORGANIC LIGHT EMITTING DISPLAY DEVICE ADOPTING THE SAME**

(57) The present invention relates to an over current control device and an organic light emitting display device adopting a function of interrupting an over-current. To provide a over current control device and a OLED device using the same, which allow a fast and reliable detection of an over current, an over current control device for detecting an over current provided to an OLED is provided, comprising: an over-current identification unit (410) adapted to compare a driving voltage (EVDD) on a supply line for driving the OLED with a reference voltage (V_{over}) on a reference voltage line for identifying the over-current; an interruption unit (420) connected between the supply line supplying the driving voltage (EVDD) and the pixel including the OLED for interrupting the power supply if the over-current identification unit (410) recognizes an over-current flowing through the supply line.

FIG. 4



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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2012/256897 A1 (SEO JEONG-MIN [KR] ET AL) 11 October 2012 (2012-10-11)	1-4,9,10,15	INV. G09G3/00 G01R31/02 G09G3/32 H05B33/08
Y	* paragraph [0015] - paragraph [0046]; figures 1-4 *	5-7,11-14	
Y	US 2014/084792 A1 (OH DONGKYOUNG [KR] ET AL) 27 March 2014 (2014-03-27) * paragraph [0048] - paragraph [0118]; figures 1-24 *	5,6,13,14	
Y	US 2012/293562 A1 (PARK SUNG-CHEON [KR]) 22 November 2012 (2012-11-22) * paragraph [0051] - paragraph [0115]; figures 1-13 *	7	
X	US 2013/328854 A1 (RUAN CHENJIE [CN] ET AL) 12 December 2013 (2013-12-12) * paragraph [0013] - paragraph [0031]; figures 1-5 *	1,8	
Y	US 2014/176622 A1 (JUNG JAE HOON [KR] ET AL) 26 June 2014 (2014-06-26) * paragraph [0045] - paragraph [0114]; figures 1-13 *	11,12	TECHNICAL FIELDS SEARCHED (IPC) G09G G01R H05B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 23 August 2016	Examiner Gartlan, Michael
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			



Application Number

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



LACK OF UNITY OF INVENTION
SHEET B

Application Number

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4, 9, 10, 15

the comparator is realized as operational amplifier, solving the problem of how to implement the voltage comparison.

2. claims: 5, 6, 13, 14

the over current control device is located on a control board connected via a connection line or flexible board to a display panel comprising the OLED, wherein the control board is separated from the display panel, solving the problem of increasing fabrication flexibility

3. claim: 7

a reference voltage increasing/decreasing unit for adopting the reference voltage, solving the problem of enabling the system to be calibrated

4. claim: 8

the interruption unit is realized as PMOS or NMOS transistor, solving the problem of implementing a reliable blocking of the power supplies.

5. claims: 11, 12

the sub-pixel includes a driving transistor, an organic light emitting diode, a switching transistor, a storage capacitor and a sensing transistor, the driving transistor is connected between the supply line and the OLED and is controlled by a data voltage supplied to the gate of the driving transistor via the data line, wherein the sensing transistor is controlled by a sense signal to connect a reference voltage line with a node between the driving transistor and the OLED used for sensing a characteristic of the driving transistor, solving the problem of counteracting changes in the pixel characteristics.

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

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5 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
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23-08-2016

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专利名称(译)	过电流控制装置和有机发光显示装置也是相同的		
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申请号	EP2015199085	申请日	2015-12-10
[标]申请(专利权)人(译)	乐金显示有限公司		
申请(专利权)人(译)	LG DISPLAY CO. , LTD.		
当前申请(专利权)人(译)	LG DISPLAY CO. , LTD.		
[标]发明人	LEE JUSEOK		
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IPC分类号	G09G3/00 G01R31/02 G09G3/32 H05B33/08		
CPC分类号	G01R19/0092 G01R31/2635 G09G3/006 G09G3/3225 G09G2330/025 G09G2330/028 G09G2330/045 G09G2330/12 H02H3/087 H01L27/32 H01L27/3202 H01L51/56 G09G3/2092 G09G3/3208 G09G2330/04 H05B45/50		
审查员(译)	GARTLAN , MICHAEL		
优先权	1020140188105 2014-12-24 KR		
其他公开文献	EP3038079B1 EP3038079A2		
外部链接	Espacenet		

摘要(译)

过电流控制装置和有机发光显示装置技术领域本发明涉及一种过电流控制装置和采用了中断过电流的功能的有机发光显示装置。为了提供过电流控制装置和使用该过电流控制装置的OLED装置，其允许快速且可靠地检测过电流，提供了一种用于检测提供给OLED的过电流的过电流控制装置，包括：过电流识别单元（410），适于将用于驱动OLED的电源线上的驱动电压（EVDD）与用于识别过电流的参考电压线上的参考电压（V_{over}）进行比较；中断单元（420），连接在提供驱动电压（EVDD）的电源线和包括OLED的像素之间，用于如果过电流识别单元（410）识别流过电源线的过电流，则中断电源。

FIG. 4

