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

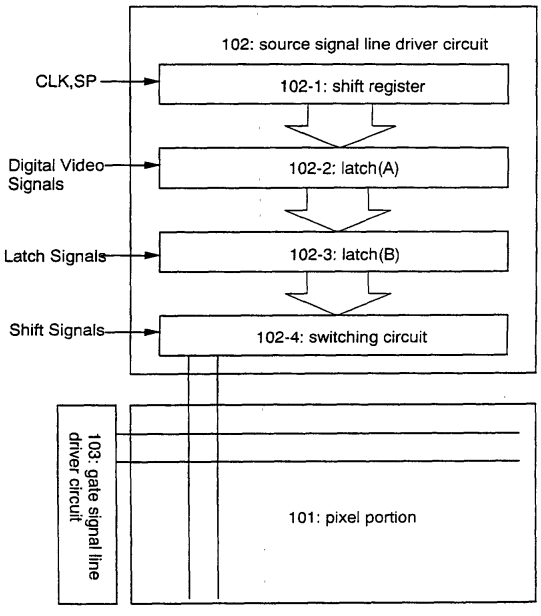
(72) Inventors:
- **Yamazaki, Shunpei**
  Atsugi-shi,
  Kanagawa-ken 243-0036 (JP)
- **Koyama, Jun**
  Atsugi-shi,
  Kanagawa-ken 243-0036 (JP)
- **Osame, Mitsuaki**
  Atsugi-shi,
  Kanagawa-ken 243-0036 (JP)
- **Osada, Mai**
  Atsugi-shi,
  Kanagawa-ken 243-0036 (JP)

(74) Representative: **Grünecker, Kinkeldey,**
Stockmair & Schwanhäusser
Anwaltssozietät
Leopoldstrasse 4
80802 München (DE)

(54) Organic electroluminescent display device

(57) The present invention is intended to suppress power consumption of an EL display. In accordance with the brightness of an image to be displayed in a pixel portion, the contrast of the image is determined whether to be inverted or not, and the number of bits of the digital video signal to be input into the pixel portion is reduced, and the magnitude of a current to flow through the EL element is allowed to be maintained at a constant level even when a temperature of an EL layer changes by providing the EL display with another EL element to be used for monitoring a temperature.

Fig. 1



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EUROPEAN SEARCH REPORT

Application Number
EP 01 10 9581

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	EP 0 707 301 A (TEXAS INSTRUMENTS INC [US]) 17 April 1996 (1996-04-17) * abstract * * column 7, line 51 - column 8, line 19 *	1-3	INV. G09G3/32
X	EP 0 372 364 A (SHARP KK [JP]) 13 June 1990 (1990-06-13) * column 8, line 16 - line 41; figure 3 *	4-18	
X A	WO 90/07768 A (HONEYWELL INC [US]) 12 July 1990 (1990-07-12) * page 16, line 5 - page 17, line 13; figure 10 *	4-8 9-18	
A	EP 0 391 655 A (SHARP KK [JP]) 10 October 1990 (1990-10-10)		
			TECHNICAL FIELDS SEARCHED (IPC)
			G09G

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
Munich	7 April 2009	Farricella, Luigi

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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Application Number
EP 01 10 9581

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:

1-18

☐ 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).

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 01 10 9581

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: 1-18

   A display device in which data are inverted in order to save power when the image to be displayed is mainly white.

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2. claims: 19-21

   A display device in which the number of bits of data to be applied to the pixels is reduced by applying only the most significant bits.

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3. claims: 22-36

   A display device in which power is saved by stopping the clock or other driving signals in order to reduce the amount of data to be transferred.

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4. claims: 37-45

   A display device in which display parameters are adjusted by monitoring one light emitting elements of the display.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 01 10 9581

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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07-04-2009

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	有机电致发光显示装置		
公开(公告)号	EP1148466A3	公开(公告)日	2009-10-14
申请号	EP2001109581	申请日	2001-04-18
[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)	半导体能源研究所有限公司.		
当前申请(专利权)人(译)	半导体能源研究所有限公司.		
[标]发明人	YAMAZAKI SHUNPEI KOYAMA JUN OSAME MITSUAKI OSADA MAI		
发明人	YAMAZAKI, SHUNPEI KOYAMA, JUN OSAME, MITSUAKI OSADA, MAI		
IPC分类号	G09G3/32 G09G3/30 G03B19/02 G09F3/00 G09F9/30 G09G3/10 G09G3/20 G09G5/00 H04B1/00 H04M1/00 H04N5/225 H05B33/00 H05B33/14		
CPC分类号	G09G3/2022 G09G3/3258 G09G3/3266 G09G3/3291 G09G2300/0842 G09G2300/0866 G09G2310/0251 G09G2310/0262 G09G2310/027 G09G2310/0281 G09G2320/029 G09G2320/041 G09G2320/043 G09G2330/021 G09G2330/028 H01L27/32 H01L27/3244		
优先权	2000117045 2000-04-18 JP 2001059511 2001-03-05 JP		
其他公开文献	EP1148466A2		
外部链接	Espacenet		

摘要(译)

本发明旨在抑制EL显示器的功耗。根据要在像素部分中显示的图像的亮度，确定图像的对比度是否被反转，并且减少要输入到像素部分的数字视频信号的比特数，即使当EL层的温度通过为EL显示器提供另一个用于监测温度的EL元件而改变EL层的温度时，也允许流过EL元件的电流的大小保持在恒定的水平。

Fig. 1