



(1) Publication number:

0 420 129 A3

## **EUROPEAN PATENT APPLICATION**

(21) Application number: 90118351.7

(51) Int. Cl.5: G09G 3/36

② Date of filing: 24.09.90

Priority: 25.09.89 JP 248731/89

Date of publication of application:03.04.91 Bulletin 91/14

Designated Contracting States:
DE FR GB

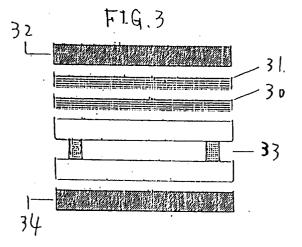
Bate of deferred publication of the search report: 22.04.92 Bulletin 92/17

Applicant: SEMICONDUCTOR ENERGY LABORATORY CO., LTD. 398 Hase Atsugi-shi Kanagawa-ken, 243(JP)

Inventor: Fukui, Takashi 1394-10, Hase Atsugi-shi, Kanagawa-ken 243(JP) Inventor: Watanabe, Toshio Coop Kawaguchi 202, 358-1, Tsumada Atsugi-shi, Kanagawa-ken 243(JP)

Representative: Patentanwälte Grünecker, Kinkeldey, Stockmair & Partner Maximilianstrasse 58 W-8000 München 22(DE)

- [54] Liquid crystal electro-optical device and method for driving the same.
- (b) A liquid crystal electro-optical device and a method for driving the same are disclosed. The liquid crystal electro-optical device comprises a pair of substrates and nematic liquid crystals disposed between said pair of substrates in a helical structure. In the present invention the liquid crystal electro-optical device having a duty number of 200 or more is driven at a frame frequency of 200 to 280Hz, and thereby high contrast can be obtained.





## **EUROPEAN SEARCH REPORT**

EP 90 11 8351

ategory	Citation of document with in of relevant pa	ndication, where appropriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
•	HITACHI REVIEW.  vol. 38, no. 2, April 1989, TOKYO JP  pages 103 - 108;  K.KINUGAMA ET AL.: 'High Resolution  Super-Twisted Nematic Liquid Crystal Displays'  * page 104, right column, line 1 - page 105,  right column, line 29; figures 1,3; table 3 *		1,6	G09G3/36 G02F1/137
	IEE PROCEEDINGS I. SOLID- STATE & ELECTRON DEVICES. vol. 133, no. 4, August 1986, STEVENAGE GB pages 145 - 151; J.R.HUGHES ET AL.: 'Contrast variations in high-level multiplexed twisted nematic liquid crystal displays' * page 150, left column, line 4 - line 6 *		1,6	
•	TRANSACTIONS OF THE INSINFORMATION & COMMUNICA vol. E71, no. 11, Novem pages 1063 - 1069; E.KANEKO: 'Directly Ad Crystal Display Panels Content' * page 1066, left colum left column, line 38; i	TION ENGINEERING when 1988, TOKYO JP  dressed Matrix Liquid with High Information  nn, line 9 - page 1067,	1-6	TECHNICAL FIELDS SEARCHED (Int. Cl.5)  G09G G02F
···-	The present search report has i	ocen drawn up for all claims  Date of completion of the search	<del>-                                    </del>	Prominer
	THE HAGUE	21 FEBRUARY 1992	COR	SI F.
Y: par do A: tec O: no	CATEGORY OF CITED DOCUME rticularly relevant if taken alone rticularly relevant if combined with an cument of the same category chnological background n-written disclosure ermediate document	E : earlier patent after the filin tother D : document cite L : document cite	ciple underlying the document, but put g date and in the application of for other reasons are patent families.	alished on, or