

## Europäisches Patentamt

**European Patent Office** 

Office européen des brevets



EP 0 838 802 A3 (11)

(12)

## **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3: 29.07.1998 Bulletin 1998/31 (51) Int. Cl.6: G09G 3/36

(43) Date of publication A2: 29.04.1998 Bulletin 1998/18

(21) Application number: 97307638.3

(22) Date of filing: 29.09.1997

(84) Designated Contracting States:

AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC **NL PT SE** 

(30) Priority: 30.09.1996 GB 9620395

(71) Applicant:

SHARP KABUSHIKI KAISHA Osaka-shi, Osaka-fu 545 (JP)

(72) Inventors:

· Towler, Michael John **Botley, Oxford OX2 9AL (GB)** 

- Tagawa, Akira Kashiwa, Chiba 277 (JP)
- Bonnet, Paul Littlemore, Oxford OX4 4XX (GB)
- (74) Representative:

Robinson, John Stuart

Marks & Clerk

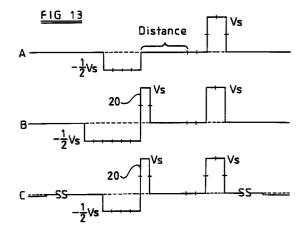
Nash Court

Oxford Business Park South

Oxford OX4 2RU (GB)

## (54)Method of and apparatus for addressing a ferroelectric liquid crystal device and a ferroelectric liquid crystal device

A ferroelectric liquid crystal device, such as a display panel, has a plurality of pixels arranged as rows and columns in a passive matrix arrangement. Each pixel has a plurality of switching thresholds, for instance by having different regions (7, 8) of different thicknesses, so as to provide a plurality of grey levels. A voltage waveform is applied to each pixel for switching it to a desired grey level. A blanking pulse of a first polarity is applied to reset the pixel to a reset grey level. This is followed by a compensating pulse (20) of polarity opposite the first polarity, after which a waveform for selecting the desired grey level is provided. The effect of the compensating pulse (20) is to reduce the effect of  $\tau$ min shift so as to provide a relatively wide driving window (13) to allow more reliable selection of an intermediate grey level.





## **EUROPEAN SEARCH REPORT**

Application Number

EP 97 30 7638

Category	Citation of document with indicati	ion, where appropriate,	Relevant	CLASSIFICATION OF THE
	of relevant passages		to claim	APPLICATION (Int.Ci.6)
X	GB 2 271 011 A (CENTRAI LABORATORIES LTD.) 30 !		1,2,4,6, 7,9,11, 12,14, 16,17, 19,21	G09G3/36
Y	* Abstract * * page 2, line 6 - line * page 5, line 3 - page 6 *	e 21; figure 2 * e 6, line 28; figure	5,8,10, 15,18,20	
D,Y	US 4 712 877 A (OKADA I 1987	ET AL.) 15 December	5,10,15, 20	
Α	* Abstract * * column 5, line 17 -	line 54; figures 1,2	1,2,6,9,	
Υ	US 5 469 281 A (KATAKUI November 1995	RA ET AL.) 21	8,18	
A	* Abstract * * column 7, line 16 - 6 figures 11-16 *	column 9, line 63;	3,13	TECHNICAL FIELDS
A	 EP 0 621 580 A (CANON K.K.) 26 October		1,2,6,7,	SEARCHED (Int.Cl.6)
	* Abstract *  * page 4, line 12 - line 4,5,9,11A-12 *  * page 7, line 37 - page 7		11,12,	
D,A	EP 0 710 945 A (SHARP K.K.) 8 May 1996		1-3,6,9, 11-13, 16,19	
	* Abstract *  * column 3, line 25 - 6  figures 2-4,11,12 *  * column 5, line 22 -			
	The present search report has been		-	
		Date of completion of the search 4 June 1998	Cor	Examiner S1, F
X : parl Y : parl doc	ATEGORY OF CITED DOCUMENTS  cicularly relevant if taken alone cicularly relevant if combined with another ument of the same category anological background	T: theory or principle E: earlier patent doc after the filing dat D: document cited in L: document cited for	e underlying the i cument, but publi te n the application or other reasons	invention shed on, or
O : nor	nological background n-written disclosure rmediate document	& : member of the sa document		