

Title (en)

Liquid crystal display device.

Title (de)

Flüssigkristallanzeigeeinrichtung.

Title (fr)

Système d'affichage à cristaux liquides.

Publication

EP 0549337 A1 19930630 (EN)

Application

EP 92311745 A 19921223

Priority

JP 34481991 A 19911226

Abstract (en)

A liquid crystal display device is provided to realize a tone display. The liquid crystal display is arranged to have a display panel (1) having a plurality of pixels ranged in a matrix manner. Those pixels are formed of a pair of transparent electrodes (5,6) and a liquid crystal layer (4) filled therebetween. A scan voltage (VS) is applied to one transparent electrode (5) for specifying a pixel row. A signal voltage (VD) is applied to the other transparent electrode (6) for defining luminous or non-luminous sections of each pixel. A bias electrode (7) is provided on at least one side of each pixel. Further, a bias voltage (Vb) applying unit is also provided to apply a bias voltage (Vb) for a tone display for adjusting an electric-field gradient along the pixel width onto the bias electrode (7) in synchronous with the application of the signal voltage (VD) onto the other transparent electrode.

<IMAGE>

IPC 1-7

G09G 3/36

IPC 8 full level

G02F 1/133 (2006.01); **G09G 3/36** (2006.01); **G09G 3/20** (2006.01)

CPC (source: EP)

G09G 3/3637 (2013.01); **G09G 3/2011** (2013.01); **G09G 3/207** (2013.01)

Citation (search report)

[A] DE 3711823 A1 19871015 - CANON KK [JP]

Cited by

GB2329035B; US6630919B1; WO2004017295A1; WO2004017299A1

Designated contracting state (EPC)

DE GB NL

DOCDB simple family (publication)

EP 0549337 A1 19930630; JP 2882925 B2 19990419; JP H05173511 A 19930713

DOCDB simple family (application)

EP 92311745 A 19921223; JP 34481991 A 19911226