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(54) **Method of fabricating a light emitting display device**

Verfahren zur Herstellung einer lichtemittierenden Anzeigevorrichtung

Procédé de fabrication d'un dispositif d'affichage électroluminescent

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Description

BACKGROUND

1. Technical Field

[0001] The present disclosure relates to a method of fabricating a light emitting display device including a seal.

2. Discussion of Related Art

[0002] FIG. 1 is a top view showing an organic light emitting display device 100. FIG. 2A is a cross-sectional view taken along section line I-I' of FIG. 1. FIG. 2B is a cross-sectional view taken along section line II-II' of FIG. 1.

[0003] Referring to FIGS. 1, 2A, and 2B, the organic light emitting display device 100 includes a first substrate 110 having an organic light emitting diode 120 and a pad portion 130 formed therein; a second substrate 160 for protecting the organic light emitting diode 120; and a seal 140 for coupling the second substrate 160 to the first substrate 110.

[0004] The organic light emitting diode 120 is formed on a pixel region of the first substrate 110, and the pad portion 130 is formed on a non-pixel region of the first substrate 110, surrounding the pixel region. Also, the second substrate 160 is disposed on the first substrate 110 to protect the organic light emitting diode 120 formed on a pixel region of the first substrate 110. The first substrate 110 and the second substrate 160 are coupled to each other by the seal 140 disposed around the organic light emitting diode 120.

[0005] At this time, the seal 140 is disposed between the first substrate 110 and the second substrate 160, both of which are disposed around the organic light emitting diode 120. Also, the seal 140 is disposed in an outer ring defined by a second side 122, third sides 123, and a first side 121. Except for the first side 121, the outer ring, that is the second side 122 and third sides 123, is disposed between the first substrate 110 and the second substrate 160, and spaced at a constant distance from a contour line 111. The first side 121 is disposed between the organic light emitting diode 120 and the pad portion 130. The second side 122 is opposite of facing the first side 121, and the third sides 123 are adjacent to and contact both ends of the first side 121 and the second side 122.

[0006] Also, the seal 140 disposed between the first substrate 110 and the second substrate 160 is spaced apart at a constant distance from the contour line 111 on the second 122 and third 123 sides, and therefore a space is formed in an outside of the seal 140 between the first substrate 110 and the second substrate 160.

[0007] FIGS. 3A to 3C are top process views showing a method of fabricating an organic light emitting display device. FIG. 4 is a cross-sectional view taken along line III-III' of FIG. 3B.

[0008] Referring to FIG. 3A, a plurality of organic light emitting diodes 120 and a pad portion 130 are formed on a first mother substrate 1000.

[0009] Referring to FIG. 3B, the seal 140 is applied onto a second mother substrate 1600 (FIG. 4) corresponding to the respective circumference of each organic light emitting diode 120, thereby coupling the second mother substrate 1600 (see FIG. 4) to the first mother substrate 1000.

[0010] Referring to FIG. 4, a scribing process is carried out on each of the first mother substrate 1000 and second mother substrate 1600 along a scribe line 150. The scribe line 150, which defines a plurality of display panel regions, comprises crossed lines between adjacent organic light emitting diodes 120.

[0011] Referring to FIG. 3C, after the scribing process is carried out, the coupled first mother substrate 1000 and second mother substrate 1600 are separated into respective unit display panels. Each of the separated display panels includes a first substrate 110, a second substrate 160, and a seal 140 disposed between the first substrate 110 and the second substrate 160.

[0012] Also, a portion of the second substrate 160 disposed on or over the pad portion 130 is cut away to expose the pad portion 130 to the external environment. A flexible printed circuit board for supplying a signal to the organic light emitting diode 120 may be coupled to the exposed pad portion 130.

[0013] However, the organic light emitting display device 100 formed as described above has problems, including that a forming time and/or a curing time of the seal 140 are extended since the seal 140 is applied around the organic light emitting diode 120, and a laser irradiation apparatus moves along a shape of the seal 140.

[0014] EP1662590 discloses a method for manufacturing electroluminescent display devices in which a plurality of devices are formed on a substrate, a sealing substrate is arranged above the substrate and an encapsulant is arranged in sealing regions between the substrate and the sealing substrate. The substrates are then diced along the sealing regions to form individual devices.

[0015] US 6,590,337 discloses a light emitting display device having sealing regions extending around a display area to the edges of the sealing substrate.

[0016] JP 2006150642 discloses a method for manufacturing devices on a mother substrate in which the seal members of the cells adjacent to each other are provided in common, and the devices are divided by cutting the substrate in a region above the seal member.

[0017] US 2006/0270304 discloses a light emitting display device having a sealing region surrounding a display area and extending on either side of a pad region. JP 2006330185 discloses a similar arrangement.

SUMMARY OF THE INVENTION

[0018] Accordingly, some embodiments described

herein are designed to solve such drawbacks, and therefore one object is to provide a method of manufacturing a light emitting display device capable of reducing a forming time and a curing time of a seal by forming common seal lines between adjacent light emitting diodes when a plurality of the light emitting diodes are manufactured on a mother substrate.

[0019] The present invention provides a method according to claim 1.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] These and/or other embodiments and features will become apparent and more readily appreciated from the following description of certain exemplary embodiments, taken in conjunction with the accompanying drawings of which:

FIG. 1 is a top view showing an organic light emitting display device.

FIG. 2A is a cross-sectional view taken along section line I-I' of FIG. 1.

FIG. 2B is a cross-sectional view taken along section line II-II' of FIG. 1.

FIGS. 3A to 3C are top process views showing a method of fabricating an organic light emitting display device.

FIG. 4 is a cross-sectional view taken along section line III-III' of FIG. 3B.

FIG. 5 is a top view showing an organic light emitting display device.

FIG. 6A is a cross-sectional view taken along section line IV-IV' of FIG. 5.

FIG. 6B is a cross-sectional view taken along section line V-V' of FIG. 5.

FIGS. 7A to 7D are top process views showing a method of fabricating an organic light emitting display device according to the first embodiment.

FIG. 8 is a cross-sectional view taken along section line VI-VI' of FIG. 7B.

FIG. 9 is a top view showing an organic light emitting display device according to a second embodiment.

FIG. 10A is a cross-sectional view taken along section line VII-VII' of FIG. 9.

FIG. 10B is a cross-sectional view taken along section line VIII-VIII' of FIG. 9.

FIG. 11 is a top view showing an organic light emitting display device according to a third embodiment.

FIG. 12A is a cross-sectional view taken along section line XI-XI' of FIG. 11.

FIG. 12B is a cross-sectional view taken along 1 section ine X-X' of FIG. 11.

DETAILED DESCRIPTION

[0021] In the following detailed description, only certain embodiments are shown and described, simply by way of illustration. As those skilled in the art would realize, the described embodiments may be modified in various different ways, all without departing from the spirit or scope thereof. Accordingly, the drawings and description are to be regarded as illustrative in nature and not restrictive. In addition, when an element is referred to as being "on" another element, it can be directly on the element or be indirectly on the element with one or more intervening elements interposed therebetween. Also, when an element is referred to as being "coupled to" another element, it can be directly connected to the element or be indirectly connected to the element with one or more intervening elements interposed therebetween. Hereinafter, like reference numerals refer to like elements.

[0022] FIG. 5 is a top view showing an organic light emitting display device 200. FIG. 6A is a cross-sectional view taken along section line IV-IV' of FIG. 5. FIG. 6B is a cross-sectional view taken along section line V-V' of FIG. 5.

[0023] Referring to FIGS. 5, 6A and 6B, the organic light emitting display device 200 includes a first substrate 210 having an organic light emitting diode 220 and a pad portion 230 formed thereon; a second substrate 260 protecting the organic light emitting diode 220; and a seal 240 coupling the second substrate 260 to the first substrate 210.

[0024] The organic light emitting diode 220 is disposed on a pixel region of the first substrate 210, and the pad portion 230 is disposed on a non-pixel region surrounding the pixel region of the first substrate 210. Also, the second substrate 260 is disposed on the first substrate 210 in order to protect the organic light emitting diode 220 formed on the pixel region. If the organic light emitting display device 200 has a top emission structure, a transparent substrate such as glass may be used as the second substrate 260. An opaque substrate may be used as the second substrate 260 if the display device 200 has a bottom emission structure.

[0025] Also, the seal 240 is applied onto the second substrate 260 in a region corresponding to the circumference of the organic light emitting diode 220 to couple the second substrate 260 to the first substrate 210.

[0026] The seal 240 is disposed in an outer ring defined by a first side 221 disposed between the organic light emitting diode 220 and the pad portion 230, a second side 222 facing the first side 221, and third sides 223 contacting both ends of the first side 221 and the second side 222. The seal disposed at the third sides 223 extends to the edges or contour lines 211 of the first substrate 210 and the second substrate 260, as shown in FIG. 6B. That is to say, the seals 240 at the outer ring on the first 221, second 222, and third 223 sides have different widths in the illustrated embodiment. Here, the first side 221 is disposed between the organic light emitting diode 220 and the pad portion 230, the second side 222 faces the first side 221, and the third sides 223 are adjacent to and contact both sides of the first side 221 and the second side 222. The contour line 211 is defined by the edges of the first substrate 210 and the second substrate 260.

[0027] The seal 240 comprises at least one polymeric compounds, epoxy, acrylic, radiation curing resin, thermosetting resin, and polyimide, and inorganic materials such as frit.

[0028] FIGS. 7A to 7D are top process views showing a method of fabricating an organic light emitting display device according to the present invention. FIG. 8 is a cross-sectional view taken along section line VI-VI' of FIG. 7B.

[0029] Referring to FIG. 7A, a plurality of organic light emitting diodes 220 and pad portions 230 are formed on a first mother substrate 2000.

[0030] Referring to FIG. 7B, in order to couple a second mother substrate 2600 (FIG. 8) to the first mother substrate 2000, a seal 240 is applied to the second mother substrate 2600 corresponding to the outer rings of the first side 221 and the second side 222 that are disposed between the organic light emitting diode 220 and the pad portion 230. Also, the seal 240 is also applied onto the outer rings of the third sides 223 adjacent to and contacting both ends of the first side 221 and the second side 222. At this time, the seal 240 applied onto the outer ring of the third sides 223 on both sides of the first scribe line 251. Therefore, the seal 240 applied to the outer ring of the third sides 223 forms a common seal line between the adjacent organic light emitting diodes 220.

[0031] As described herein, the scribe lines 250 are lines formed on the coupled first mother substrate 2000 and second mother substrate 2600 to separate the first mother substrate 2000 and the second mother substrate 2600 into unit display panels, wherein the first scribe line 251 comprises a line formed between homogeneous regions, and the second scribe line 252 comprises a line formed between heterogeneous regions. That is to say, the first scribe line 251 comprises a line formed between adjacent organic light emitting diodes 220 of adjacent displays, and the second scribe line 252 comprises a line formed between the pad portion 230 and the organic light emitting diode 220 of adjacent displays.

[0032] Then, the seal 240 couples the second mother substrate 2600 to the first mother substrate 2000. In coupling the second mother substrate 2600 to the first mother substrate 2000, the seal 240 is cured using a laser and/or infrared radiation. At this time, the seal 240 applied onto the outer ring of the sides 224 of the pad portion 230 is not irradiated with a laser and/or infrared radiation. In order not to cure the seal 240 applied onto the outer ring of the sides 224 of the pad portion 230, a mask is applied thereover during irradiation with laser and/or infrared radiation, or a power of a laser irradiation apparatus is turned off.

[0033] Referring to FIG. 7C, a scribing process is carried out along the scribe lines 250 formed in the first mother substrate 2000 and the second mother substrate 2600. The scribing is a part of a process for separating the coupled first mother substrate 2000 and second mother substrate 2600 into a plurality of display panels using a scriber or a laser for the scribe line 250.

[0034] The first mother substrate 2000 and the second mother substrate 2600, which are coupled through the sealing process, are separated into a plurality of separate display panels. At this time, an external pressure is applied to the first scribe line 251 over the seal 240, and the second scribe line 252 during the cutting process, and then their central region is cut.

[0035] Also, the cutting processes are different when the seal 240 comprises polymeric compounds such as epoxy, than when the seal 240 comprises inorganic materials such as frit.

[0036] For example, if the seal 240 comprises inorganic materials, cracks are formed in the scribe line 250 using a scriber, and then an external pressure is applied to the scribe line 250 to separate the coupled first mother substrate 2000 and the second mother substrate 2600 into a plurality of display panels, whereas the scribe line 250 is irradiated with a laser to cut the first mother substrate 2000 and the second mother substrate 2600 if the seal 240 comprises polymeric compounds.

[0037] Because the hardness of the inorganic materials is similar to the hardness of the first mother substrate 2000 and the second mother substrate 2600 in some embodiments in which the seal 240 comprises an inorganic material, cracks generated in the scribe lines 250 are easily spread through the seal 240 when external pressure is applied to the scribe lines 250. Cracks are not spread in the seal 240 in some embodiments in which the seal 240 comprises a polymeric compound due to the physical properties such as ductility and viscosity even when an external pressure is applied to the first mother substrate 2000 and the second mother substrate 2600. Therefore, if the seal 240 comprises polymeric compounds, the scribing process uses a laser to fully cut the first mother substrate 2000 and the second mother substrate 2100.

[0038] Also, a forming time and a curing time of the seal 240 may be reduced by forming a common seal 240 between the adjacently disposed organic light emitting diodes 220.

[0039] That is to say, for this embodiment, a line shape of the seal 240 is applied to a first scribe line 251, a first side 221 between the organic light emitting diode 220 and the pad portion 230, and a second side 222 facing the first side 221, which leads to a decreased forming time of the seal 240. In order to cure the seal 140 as shown in FIG. 2, a laser irradiation apparatus also moves along the rectangular shape of the seal 140, but the curing time of the seal 240 may be reduced by allowing the laser irradiation apparatus to move straight from one side to the other side along the line shape of the seal 240 in the first embodiment.

[0040] In order to expose the pad portion 230, the second substrate 260 formed on the pad portion 230 is then cut. At this time, portions of the seal 240 disposed in the outer ring of the side surface 224 of the pad portion 230, and the first 210 and second substrates 260 do not adhere since the seal 240 disposed on the outer ring of the

side surface 224 of the pad portion 230 is not cured. Therefore, the seal 240 disposed on the outer ring of the side surface 224 of the pad portion 230 may be detached from the first substrate 210 together with the second substrate 260 when the second substrate 260 corresponding to the pad portion 230 is cut.

[0041] Referring to FIG. 7D, a flexible printed circuit board supplying a signal to the organic light emitting diode 220, etc. may be connected to the exposed pad portion 230. Also, the signal supplied through the flexible printed circuit board (FPCB) is applied to a scan driver and a data driver of the pixel region, which drive the organic light emitting diode 220.

[0042] FIG. 9 is a top view showing an organic light emitting display device 300. FIG. 10A is a cross-sectional view taken along section line VII-VII' of FIG. 9. FIG. 10B is a cross-sectional view taken along section line VIII-VIII' of FIG. 9.

[0043] Referring to FIGS. 9, 10A and 10B, the organic light emitting display device 300 further includes a seal 340 disposed in an outer ring of the side surface 224 of the pad portion 230.

[0044] Unlike the present invention illustrated in FIG. 7B, the entire seal 340 is cured by irradiating with a laser and/or infrared radiation. Therefore, the seal 340 disposed in the outer ring of the side surface 224 of the pad portion 230 couples the second substrate 360 to the first substrate 210.

[0045] A portion of the second substrate 360 corresponding to the pad portion 230 is cut away, thereby facilitating the coupling of a flexible printed circuit board (FPCB) to the pad portion 230. Therefore, the second substrate 360 has an opening 361 corresponding to the pad portion 230.

[0046] Also, apparatus reliability of the side surface 224 of the pad portion 230 may be improved since the seal 340 is further disposed on the side surface 224 of the pad portion 230.

[0047] FIG. 11 is a top view showing an organic light emitting display device 400. FIG. 12A is a cross-sectional view taken along section line XI-XI' of FIG. 11. FIG. 12B is a cross-sectional view taken along section line X-X' of FIG. 11.

[0048] Referring to FIG. 11, 12A and 12B, the organic light emitting display device 400 is generally similar to that of FIGS. 9, 10A and 10B, but the seal 440 has a substantially constant width. That is to say, the seals 440, disposed in the outer rings of the first side 221, the second side 222, the third side 223 and the side surface 224 of the pad portion 230, all have substantially the same width. Also, the seals 440, disposed on the outer rings of the second side 222, the third side 223 and the side surface 224 of the pad portion 230, are filled up to the edges or contour lines 211 of the first substrate 210 and the second substrate 360. As described above, a space between the first substrate 210 and the second substrate 360 is filled with the seals 440 disposed in the outer rings of the second side 222, the third side 223 and the side surface 224 of the pad portion 230, which leads to the improved apparatus reliability of the organic light emitting display device 400.

[0049] As described above, a forming time and a curing time of the seal may be reduced by forming common seal lines between the adjacently disposed light emitting diodes when a plurality of the light emitting diodes are manufactured on a mother substrate.

[0050] Some embodiments of the organic light emitting display device (OLED) are described in detail herein, but it is evident to those skilled in the art that a liquid crystal display (LCD), a field emission display (FED), a plasma display panel (PDP), an electroluminescent display (ELD), and a vacuum fluorescent display (VFD) may be used herein.

[0051] Although exemplary embodiments have been shown and described, it would be appreciated by those skilled in the art that changes might be made in these embodiments without departing from the principles thereof, the scope of which is defined in the claims.

Claims

1. A method of fabricating a light emitting display device comprising:

providing a first mother substrate (2000) comprising a plurality of unit display panels disposed thereon, first scribe lines (251) disposed between homogeneous regions of adjacent display panels, and second scribe lines (252) disposed between heterogeneous regions of adjacent display panels, wherein each unit display panel comprises a pixel region comprising a plurality of light emitting diodes (220) formed therein and a non-pixel region surrounding the pixel region comprising a pad portion (230) formed therein;

applying a seal (240) around a circumference of the pixel region and over the first scribe lines;

disposing a second mother substrate (2600) on the first mother substrate, wherein the second mother substrate comprises first scribe lines (251) and second scribe lines (252) corresponding to the first scribe lines and second scribe lines of the first mother substrate;

curing the seal to couple the second mother substrate (2600) to the first mother substrate (2000); and

cutting the coupled first mother substrate and second mother substrate along the first and second scribe lines to separate the first mother substrate and the second mother substrate into individual unit display panels;

wherein the homogeneous regions are between adjacent organic light emitting diodes (220) of adjacent displays, and the heterogeneous re-

gions are between the pad portion (230) and the organic light emitting diode (220) of adjacent displays; **characterised in that** portions of the seal extend along sides (224) of the pad portion (230), wherein curing the seal comprises disposing a mask on the pad portion;
and **in that** the method further comprises:

cutting and removing a portion of the second substrate disposed on the pad portion (230), thereby exposing the pad portion (230) of the unit display panel after separating the coupled first mother substrate (2000) and second mother substrate (2600) into individual unit display panels; and removing the seal (240) from the non-pixel region of the pad portion.

Patentansprüche

1. Verfahren zur Herstellung einer lichtemittierenden Anzeigevorrichtung, umfassend:

Bereitstellen eines ersten Muttersubstrats (2000), umfassend mehrere darauf angeordnete Anzeigetafeleinheiten, erste Anreißlinien (251), die zwischen homogenen Bereichen benachbarter Anzeigetafeln angeordnet sind, und zweite Anreißlinien (252), die zwischen heterogenen Bereichen benachbarter Anzeigetafeln angeordnet sind, wobei jede Anzeigetafeleinheit einen Pixelbereich umfasst, der mehrere darin ausgebildete Leuchtdioden (220) umfasst, und einen den Pixelbereich umgebenden Nicht-Pixelbereich, der einen darin ausgebildeten Pad-Abschnitt (230) umfasst;
Aufbringen einer Abdichtung (240) um einen Umfang des Pixelbereichs und über den ersten Anreißlinien;
Anordnen eines zweiten Muttersubstrats (2600) auf dem ersten Muttersubstrat, wobei das zweite Muttersubstrat erste Anreißlinien (251) und zweite Anreißlinien (252) in Entsprechung zu den ersten Anreißlinien und den zweiten Anreißlinien des ersten Muttersubstrats umfasst;
Aushärten der Abdichtung, um das zweite Muttersubstrat (2600) an das erste Muttersubstrat (2000) zu koppeln; und
Schneiden des gekoppelten ersten Muttersubstrats und zweiten Muttersubstrats entlang den ersten und den zweiten Anreißlinien, um das erste Muttersubstrat und das zweite Muttersubstrat in individuelle Anzeigetafeleinheiten zu trennen;
wobei die homogenen Bereiche zwischen benachbarten organischen Leuchtdioden (220) benachbarter Anzeigen liegen, und die heterogenen Bereiche zwischen dem Pad-Abschnitt (230) und der organischen Leuchtdiode (220) benachbarter Anzeigen liegen;
dadurch gekennzeichnet, dass sich Abschnitte der Abdichtung entlang Seiten (224) des Pad-Abschnitts (230) erstrecken, wobei Aushärten der Abdichtung Anordnen einer Maske auf dem Pad-Abschnitt umfasst;
und dass das Verfahren weiterhin umfasst:

Schneiden und Entfernen eines auf dem Pad-Abschnitt (230) angeordneten Abschnitts des zweiten Substrats, wodurch der Pad-Abschnitt (230) der Anzeigetafeleinheit freigelegt wird, nach Trennen des gekoppelten ersten Muttersubstrats (2000) und zweiten Muttersubstrats (2600) in individuelle Anzeigetafeleinheiten; und Entfernen der Abdichtung (240) vom Nicht-Pixelbereich des Pad-Abschnitts.

Revendications

1. Procédé de fabrication d'un dispositif d'affichage électroluminescent comprenant :

La préparation d'un premier substrat mère (2000) comprenant une pluralité d'écrans d'affichage unitaires disposés sur celui-ci, des premières lignes de traçage (251) disposées entre des zones homogènes d'écrans d'affichage adjacents, et des secondes lignes de traçage (252) disposées entre des zones hétérogènes d'écrans d'affichage adjacents, chaque écran d'affichage unitaire comprenant une zone de pixels comprenant une pluralité de diodes électroluminescentes (220) constituées dans celle-ci et une zone exempte de pixels entourant la zone de pixels comprenant une partie de plage d'accueil (230) constituée dans celle-ci ;
l'application d'un joint (240) sur le pourtour de la zone de pixels et par-dessus les premières lignes de traçage ;
le dépôt d'un second substrat mère (2600) sur le premier substrat mère, le second substrat mère comprenant des premières lignes de traçage (251) et des secondes lignes de traçage (252) correspondant aux premières lignes de traçage et secondes lignes de traçage du premier substrat mère ;
le durcissement du joint afin de coupler le second substrat mère (2600) au premier substrat mère (2000) ; et
la découpe des premier substrat mère et second substrat mère couplés, le long des premières et des secondes lignes de traçage, afin de séparer

le premier substrat mère et le second substrat mère en des écrans d'affichage unitaires individuels ;
dans lequel les zones homogènes sont situées entre des diodes électroluminescentes organiques (220) adjacentes d'écrans d'affichage adjacents, et les zones hétérogènes sont situées entre la partie de plage d'accueil (230) et la diode électroluminescente organique (220) d'écrans d'affichage adjacents ;
caractérisé en ce que des parties du joint longent des bords (224) de la partie de plage d'accueil (230), le durcissement du joint comprenant la mise en place d'un masque sur la partie de plage d'accueil ;
et **en ce que** le procédé comprend en outre :

la découpe et le retrait d'une partie du second substrat disposé sur la partie de plage d'accueil (230), exposant ainsi la partie de plage d'accueil (230) de l'écran d'affichage unitaire après la séparation des premier substrat mère (2000) et second substrat mère (2600) couplés en des écrans d'affichage unitaires individuels ; et le retrait du joint (240) hors de la zone exempte de pixels de la partie de plage d'accueil.

FIG. 1

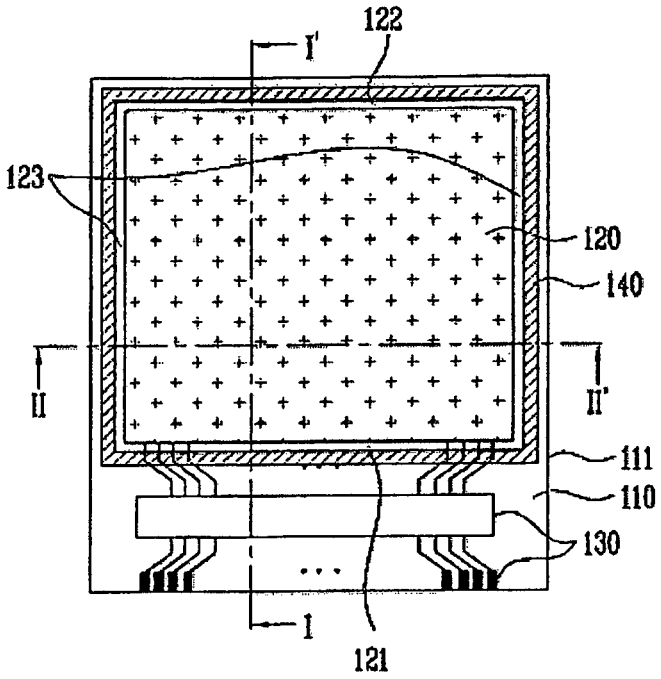


FIG. 2A

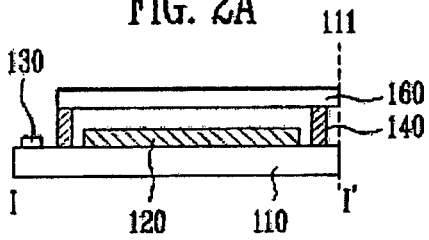


FIG. 2B

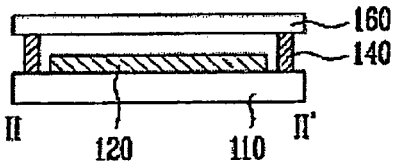


FIG. 3A

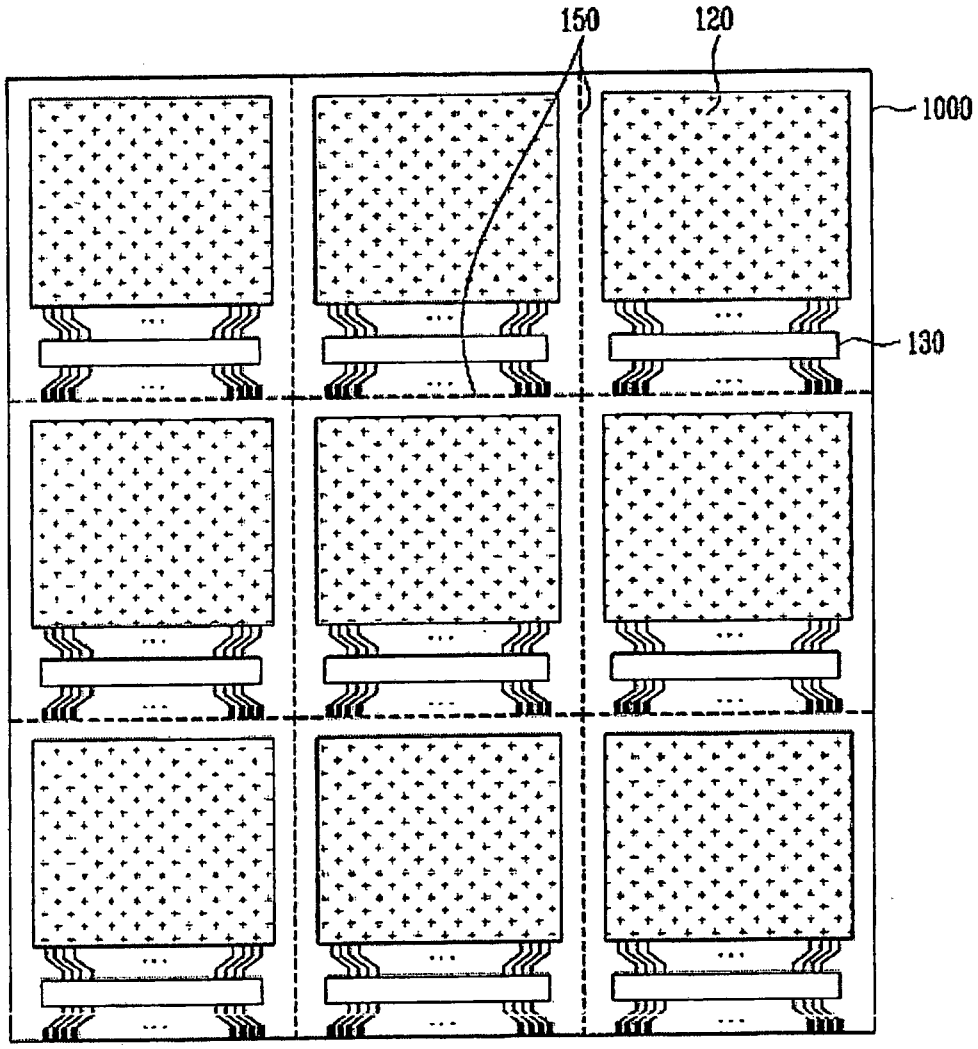


FIG. 3B

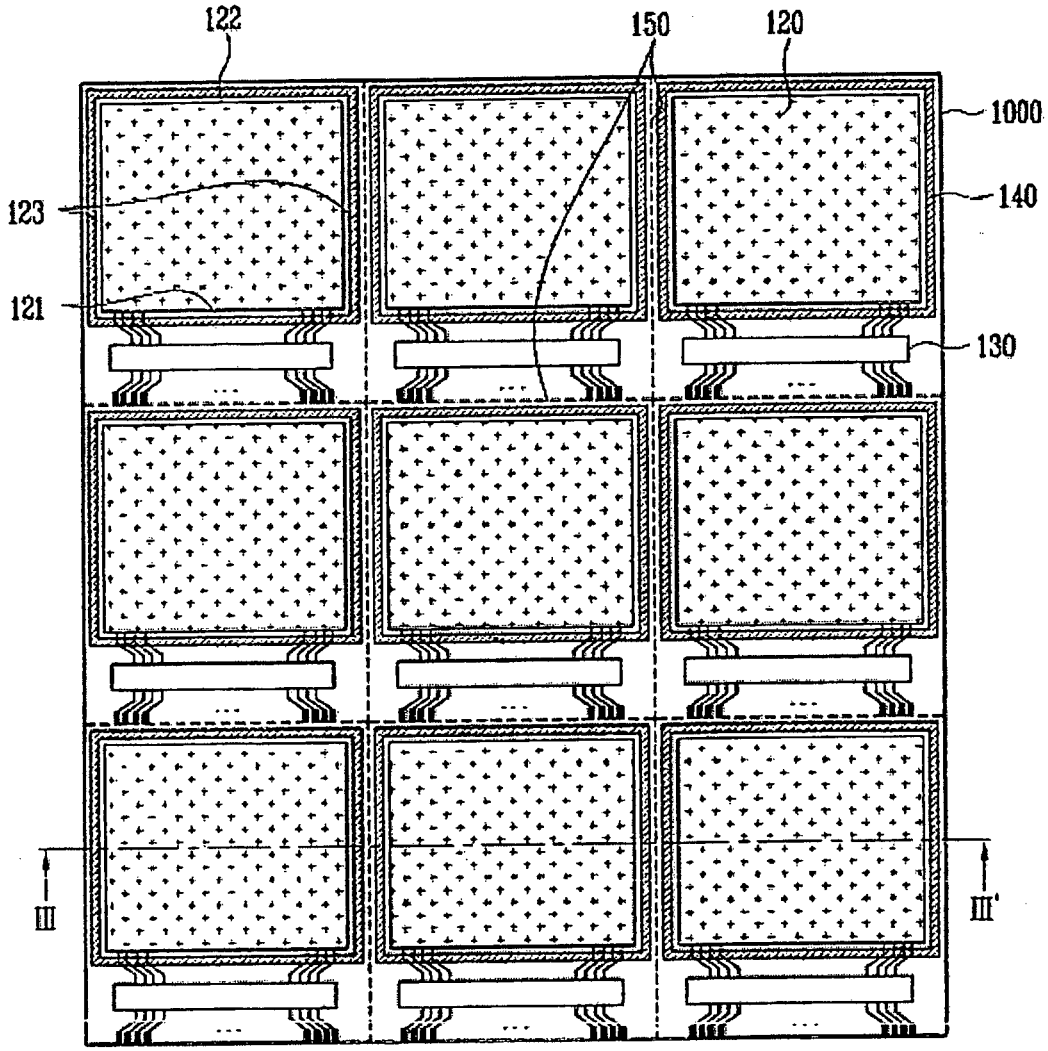


FIG. 3C

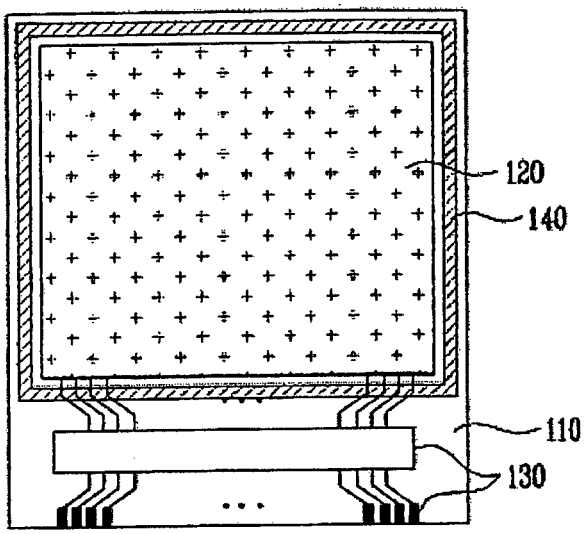


FIG. 4

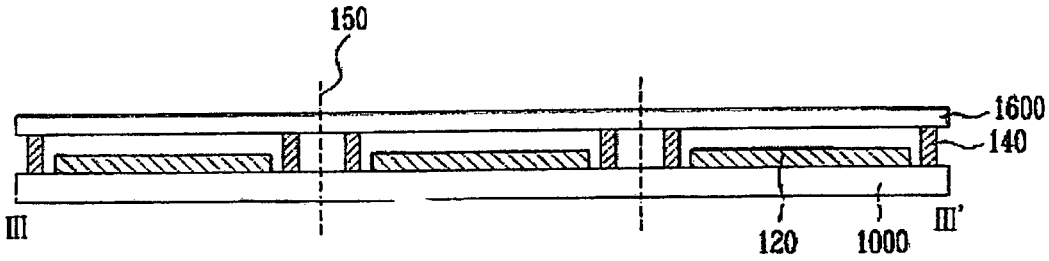


FIG. 5

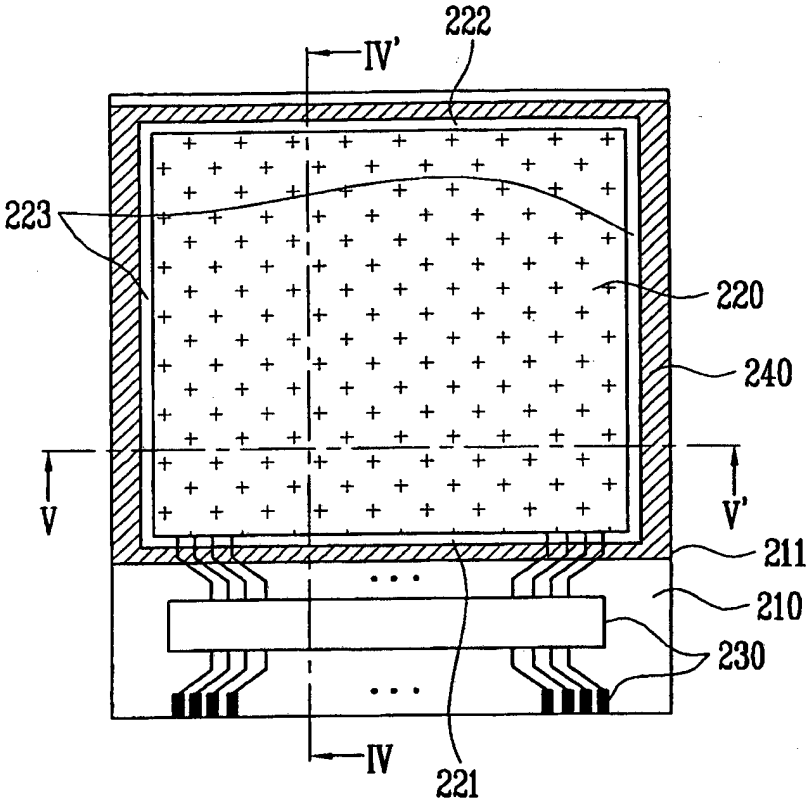


FIG. 6A

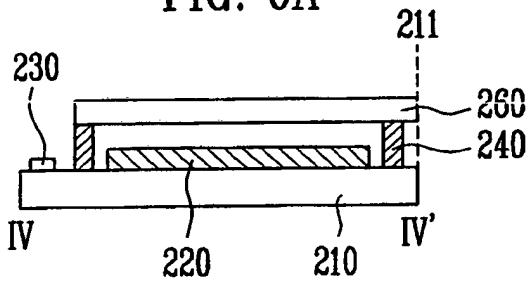


FIG. 6B

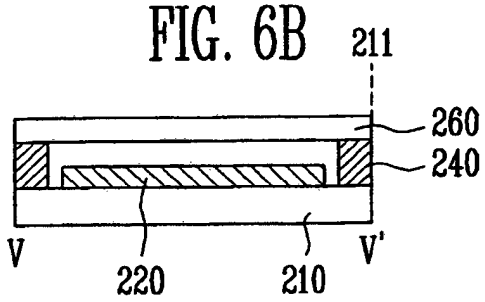


FIG. 7A

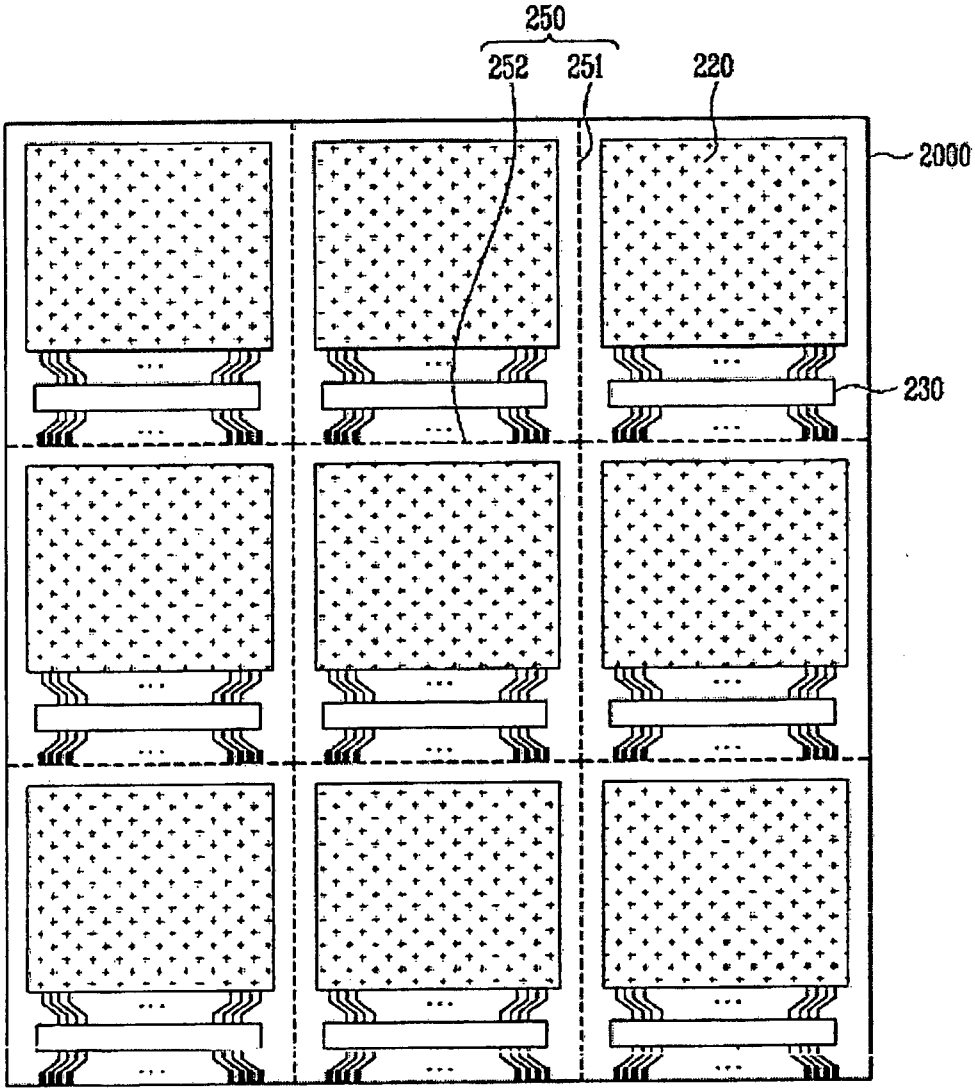


FIG. 7B

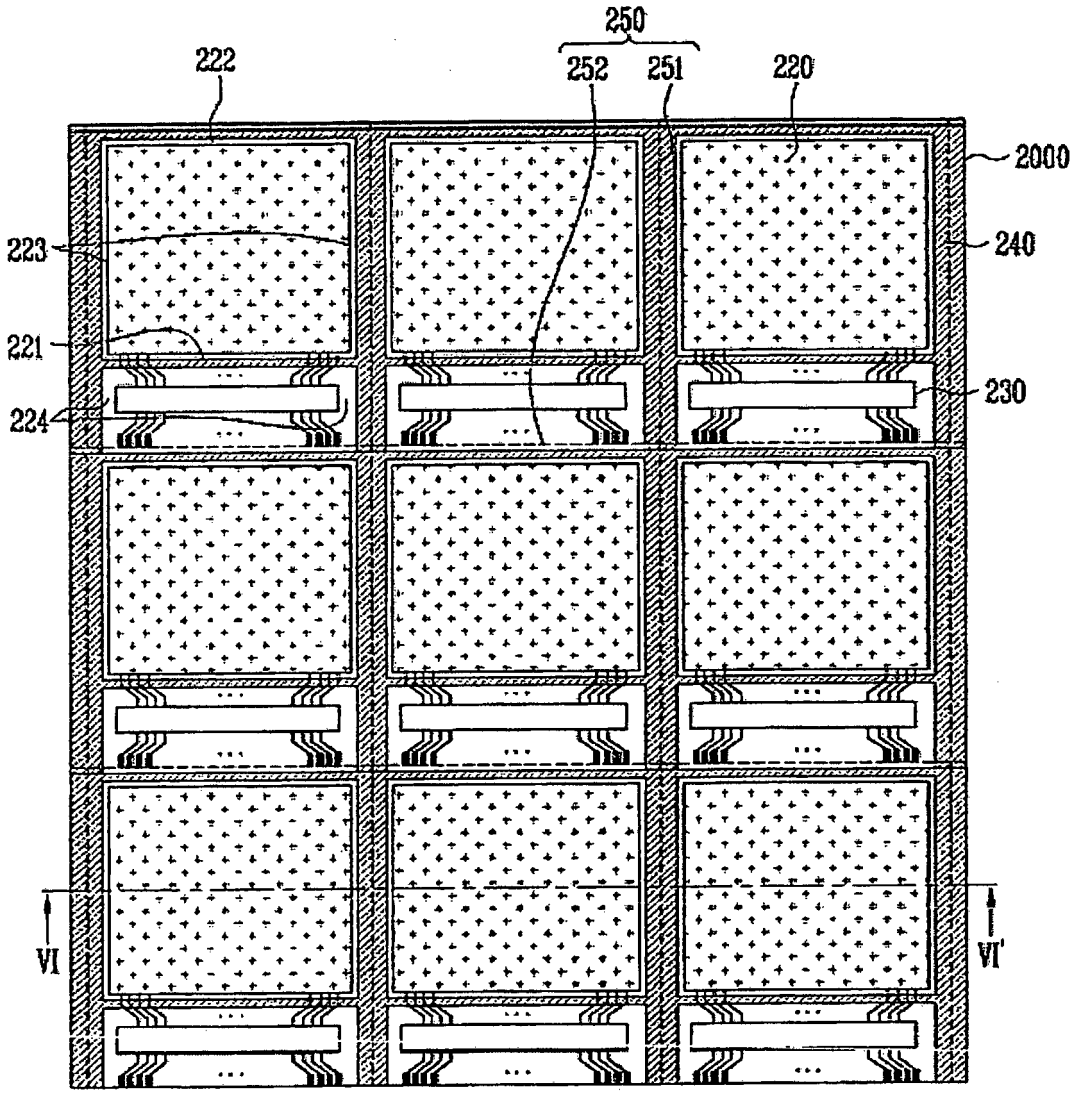


FIG. 7C

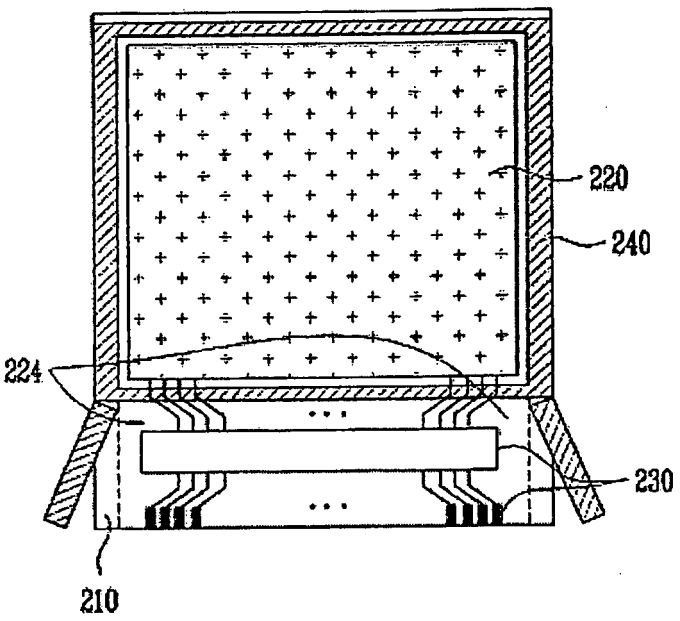


FIG. 7D

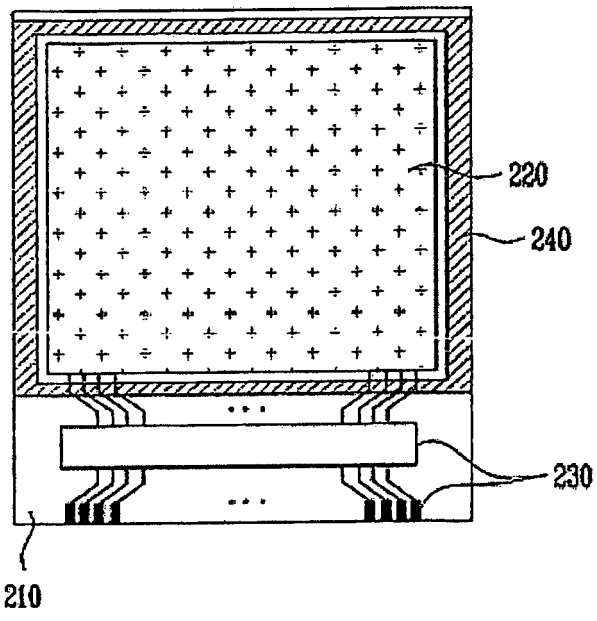


FIG. 8

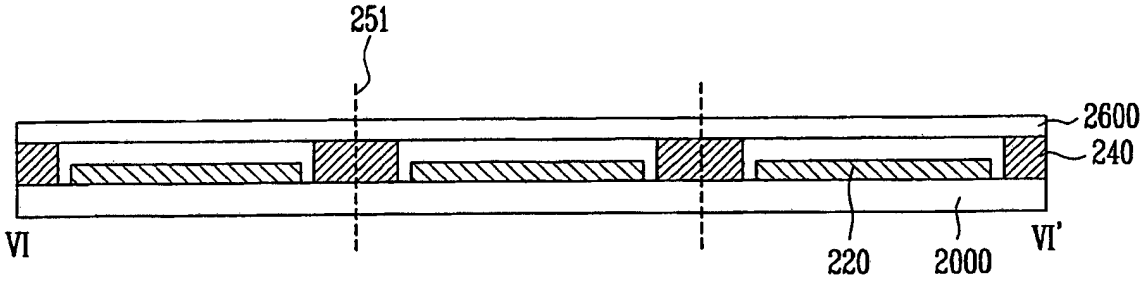

251
2600
240
VI
220
2000
VI'

FIG. 9

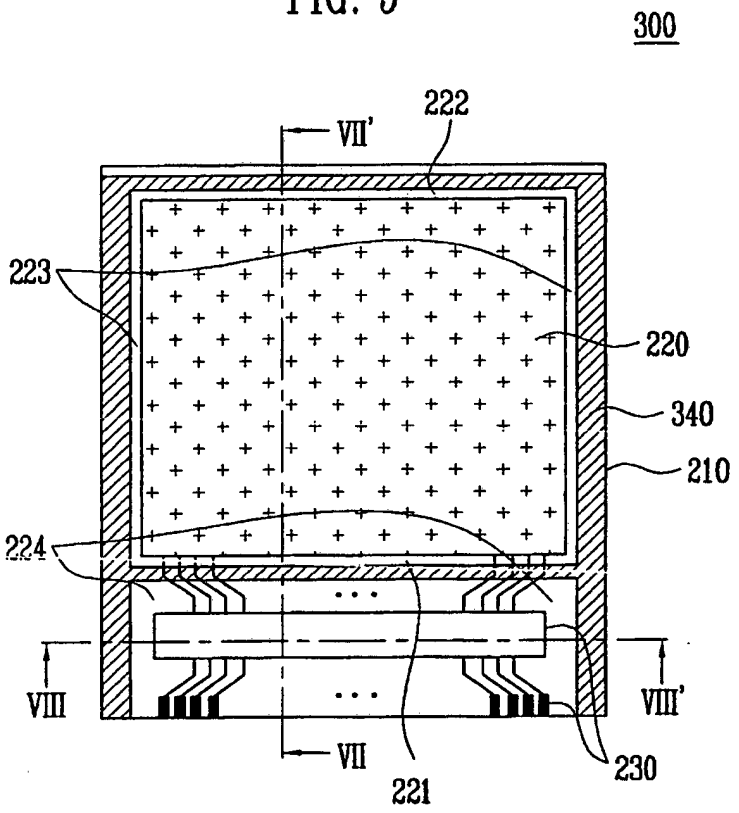

300
222
VII'
223
220
340
210
224
VIII
VIII'
VII
230
221

FIG. 10A

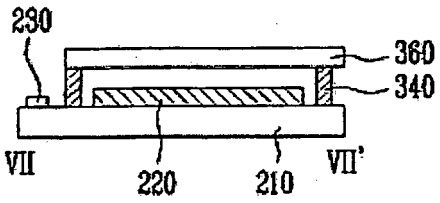


FIG. 10B

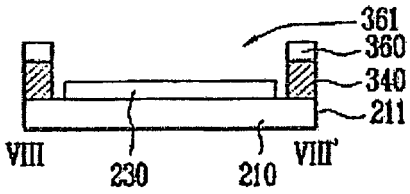


FIG. 11

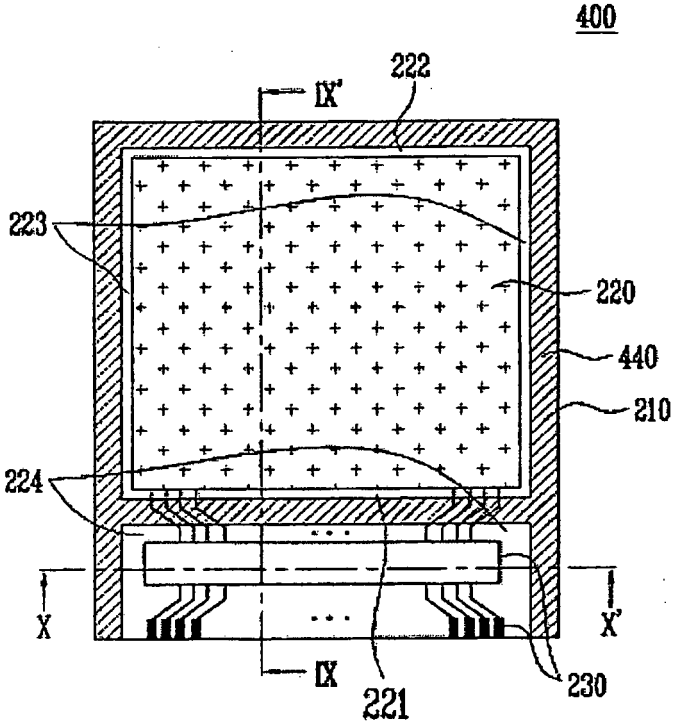


FIG. 12A

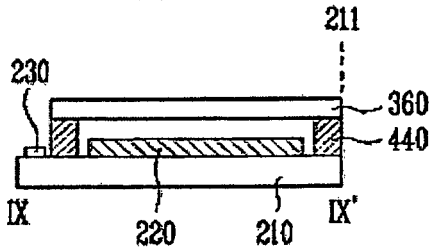
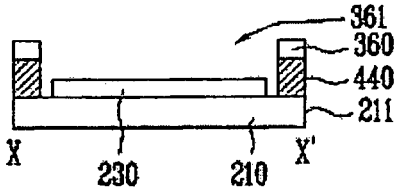


FIG. 12B



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1662590 A **[0014]**
- US 6590337 B **[0015]**
- JP 2006150642 B **[0016]**
- US 20060270304 A **[0017]**
- JP 2006330185 B **[0017]**

专利名称(译)	制造发光显示装置的方法		
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申请号	EP2008252657	申请日	2008-08-08
[标]申请(专利权)人(译)	三星斯笛爱股份有限公司		
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当前申请(专利权)人(译)	三星DISPLAY CO.，LTD.		
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发明人	KWON, OH-JUNE SONG, SEUNG YONG CHOI, YOUNG SEO JUNG, SUN-YOUNG JOO, YOUNG-CHEOL RYU, JI-HUN LEE, KWAN HEE		
IPC分类号	H01L51/52 H01L27/32		
CPC分类号	H01L51/5246 H01L2251/566		
优先权	1020070079528 2007-08-08 KR		
其他公开文献	EP2023421A2 EP2023421A3		
外部链接	Espacenet		

摘要(译)

公开了一种包括密封件的发光显示装置及其制造方法。该发光显示装置包括由像素区域和围绕像素区域设置的非像素区域组成的第一基板;形成在非像素区域中的焊盘部分，用于向像素区域提供信号;第二基板，设置为面对第一基板;密封件设置在第一基板和第二基板之间，并设置成围绕像素区域。这里，密封件设置在像素区域和焊盘部分之间的第一侧上，面向第一侧的第二侧上，以及接触第一侧和第二侧的两端的第三侧的外环上，以及设置在第三侧的外环中的密封件填充到第一基板和第二基板的轮廓线上。

FIG. 1

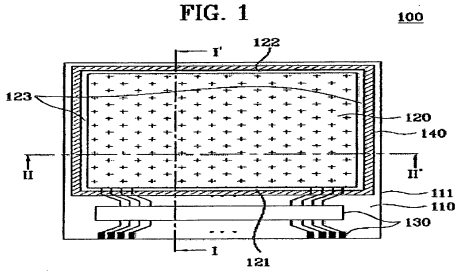

FIG. 2A

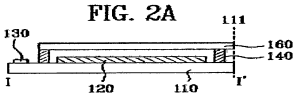

FIG. 2B