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(54) **MICRO LED DISPLAY PANEL**

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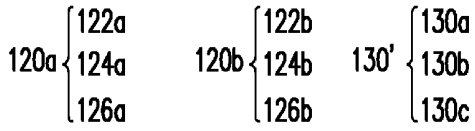
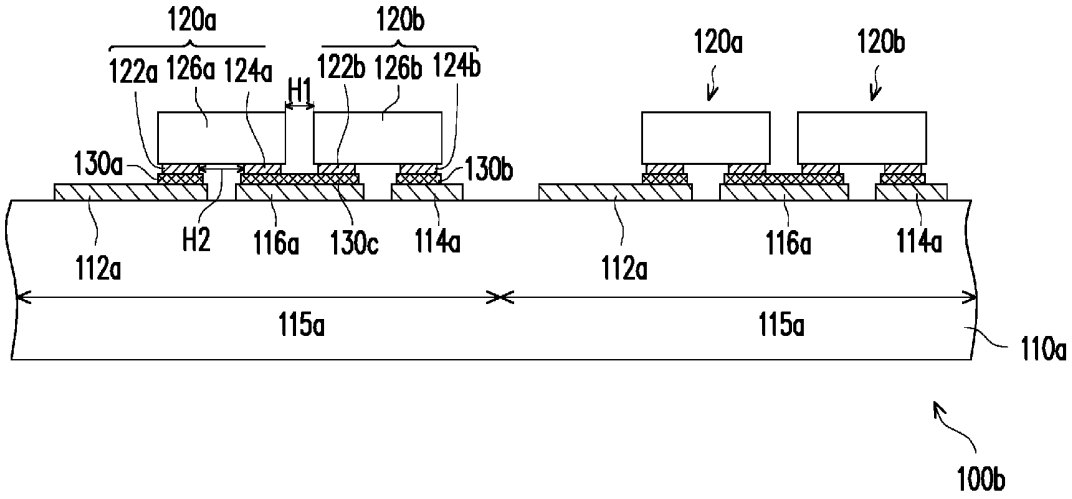
(57) **ABSTRACT**

A display panel includes a driving substrate and a plurality of micro light emitting diodes (LEDs). The driving substrate has a plurality of pixel regions. The micro LEDs are located on the driving substrate and arranged apart from each other. The micro LEDs at least includes a plurality of first micro LEDs and a plurality of second micro LEDs. Each of the pixel regions is at least provided with one first micro LED and one second micro LED, and the first micro LED and the second micro LED are electrically connected in series.





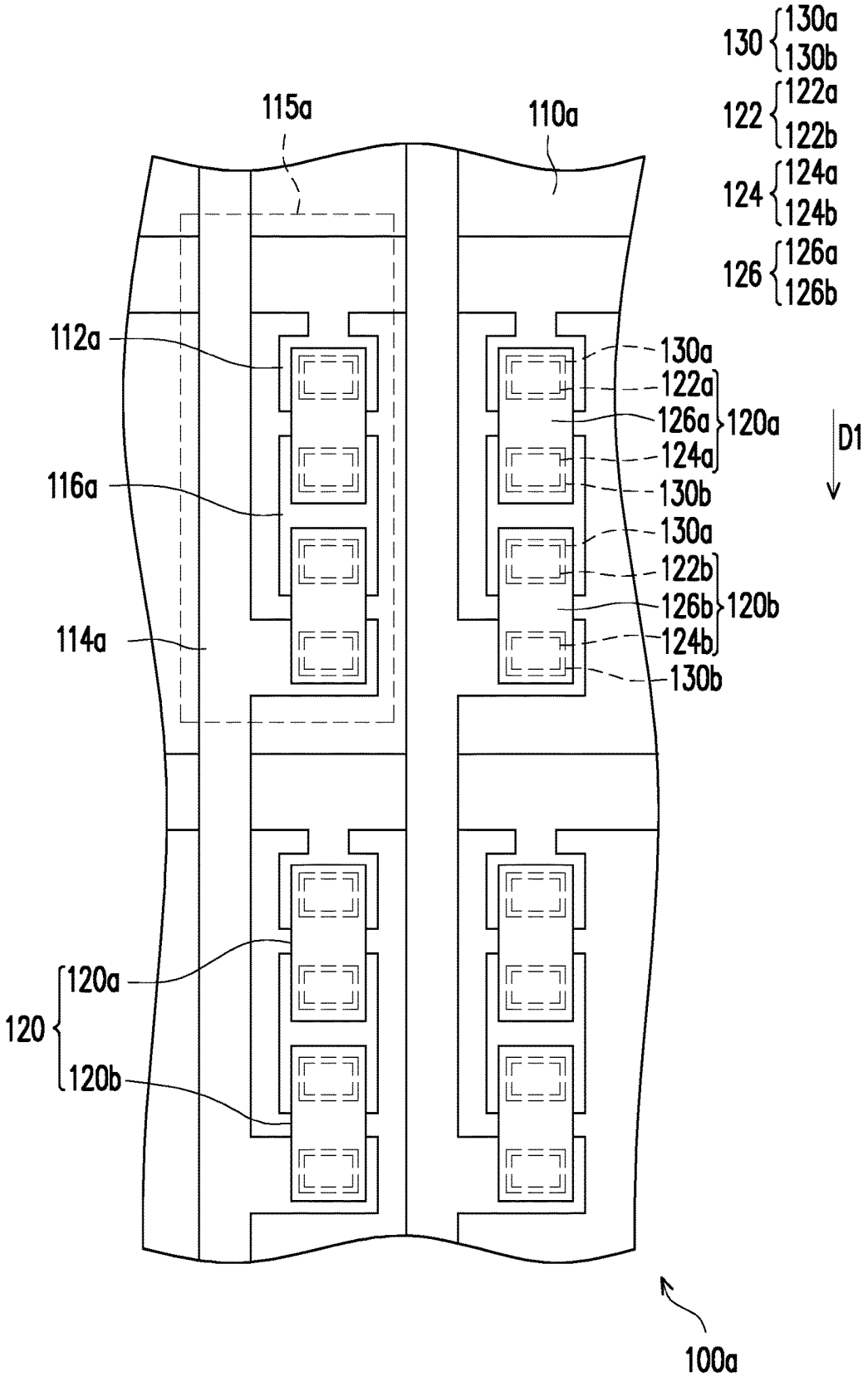

130
130a
130b
122
122a
122b
124
124a
124b
126
126a
126b
115a
110a
112a
116a
114a
120a
120b
120
D1
100a

FIG. 1A

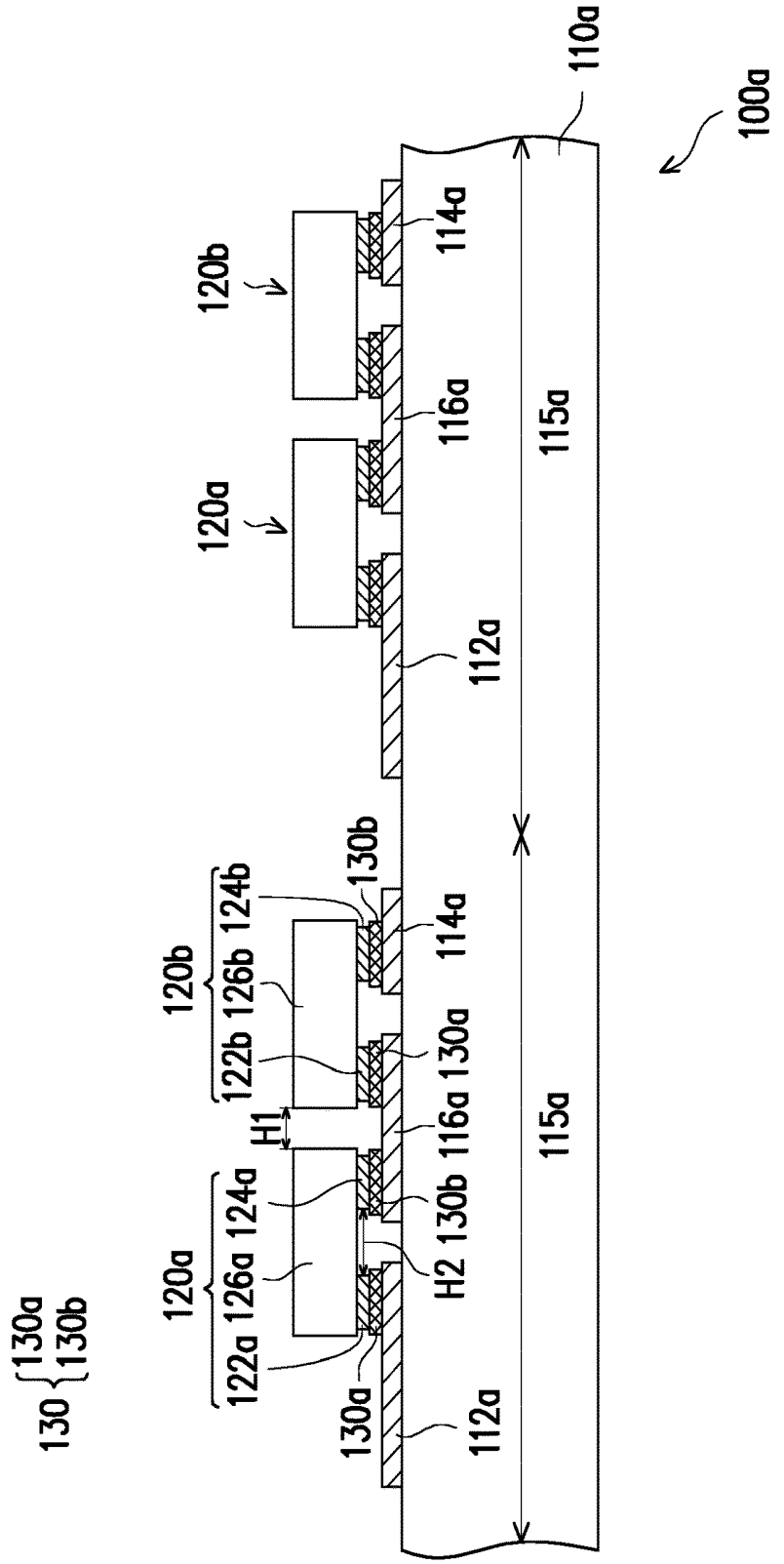

100a
110a
114a
116a
115a
112a
120b
120a
130b
124b
126b
122b
130a
H1
124a
126a
122a
H2
130
130a
130b

FIG. 1B

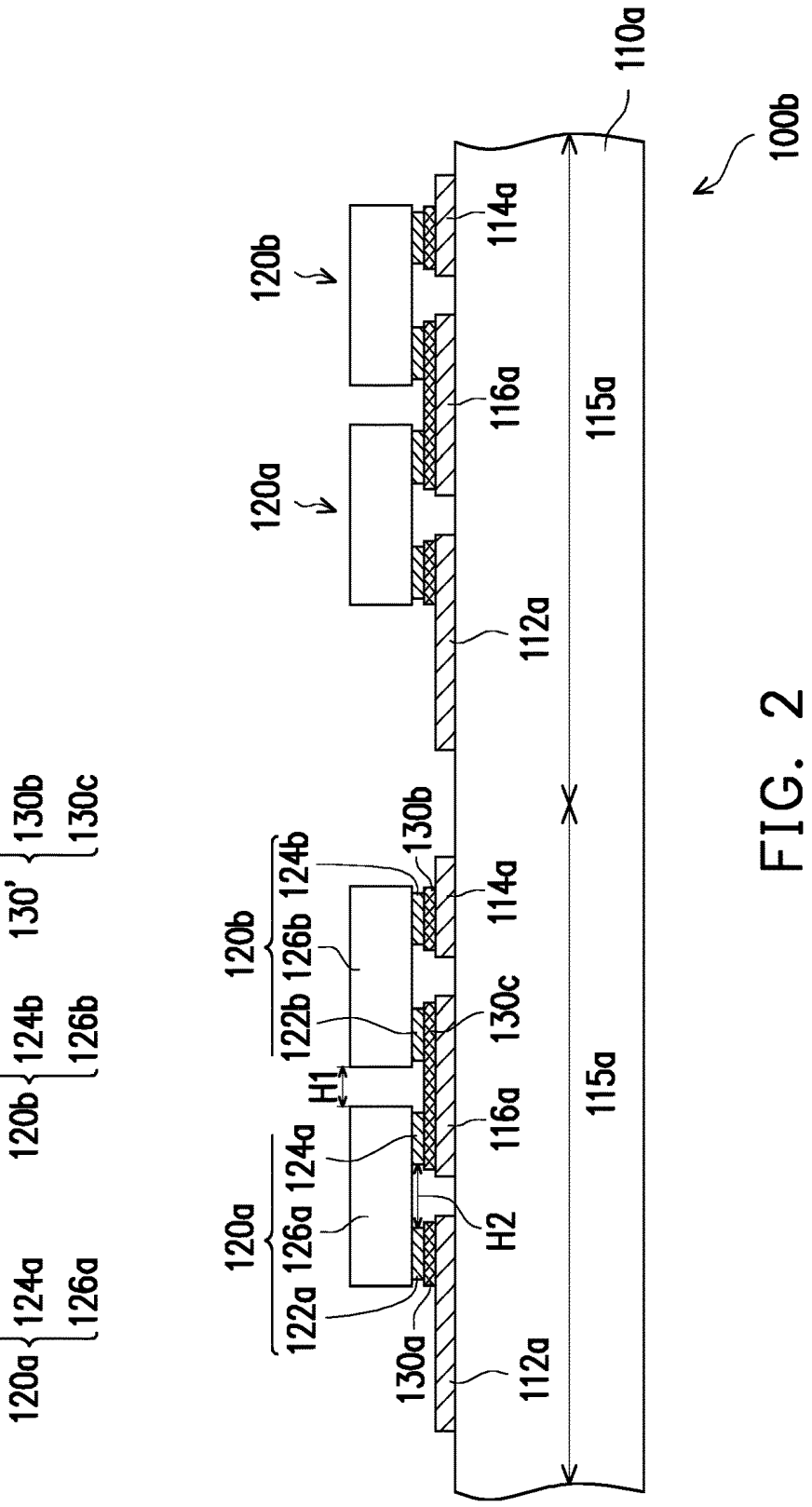

110a
100b
120b
114a
116a
115a
120a
112a
130b
120b
122b 126b 124b
114a
130c
H1
116a
120a
122a 126a 124a
H2
115a
130a
112a
120a
122a
124a
126a
120b
122b
124b
126b
130'
130a
130b
130c

FIG. 2

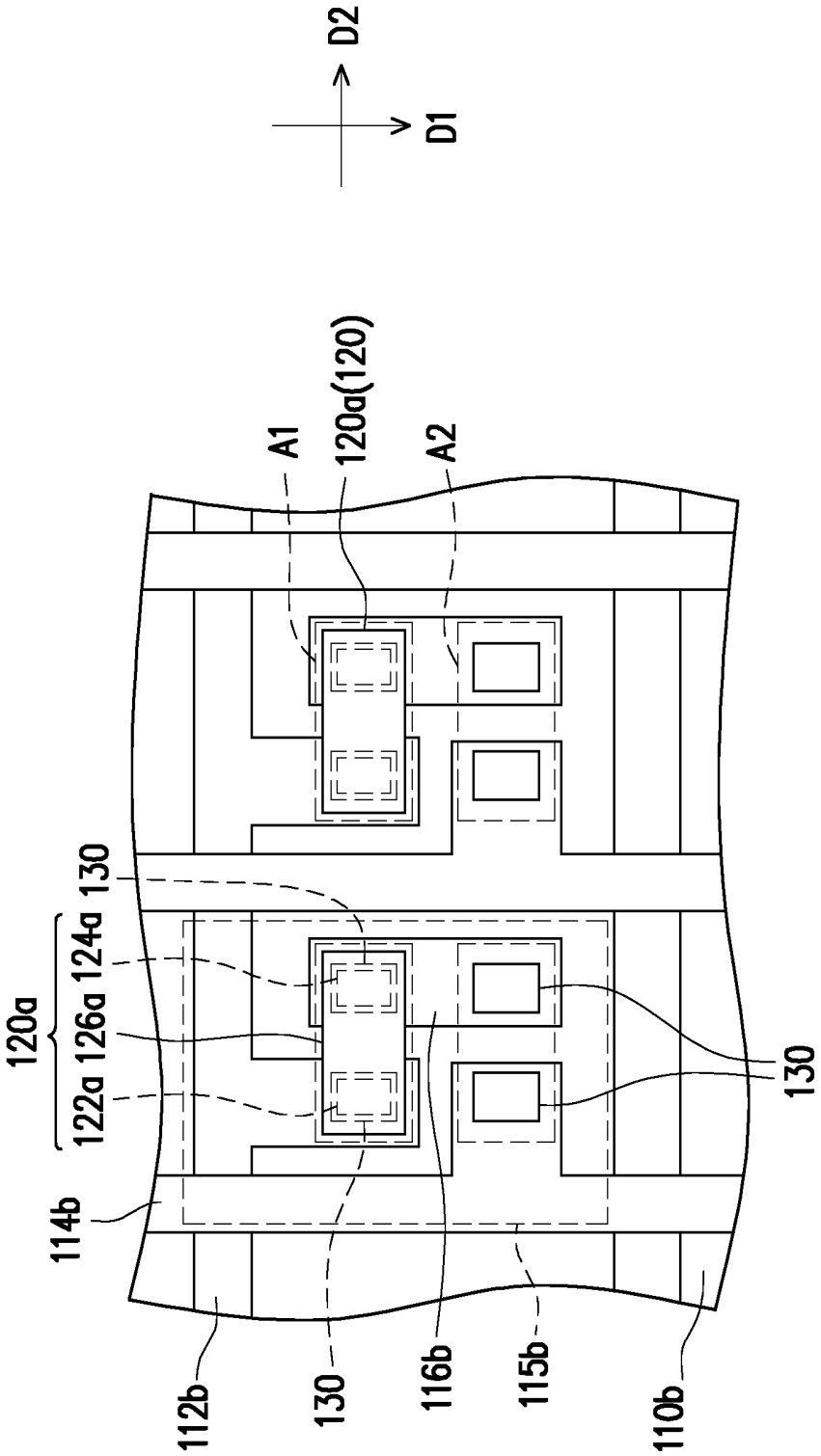

D2
D1
A1
120a(120)
A2
130
124a
120a
126a
122a
130
114b
112b
130
116b
115b
110b

FIG. 3A

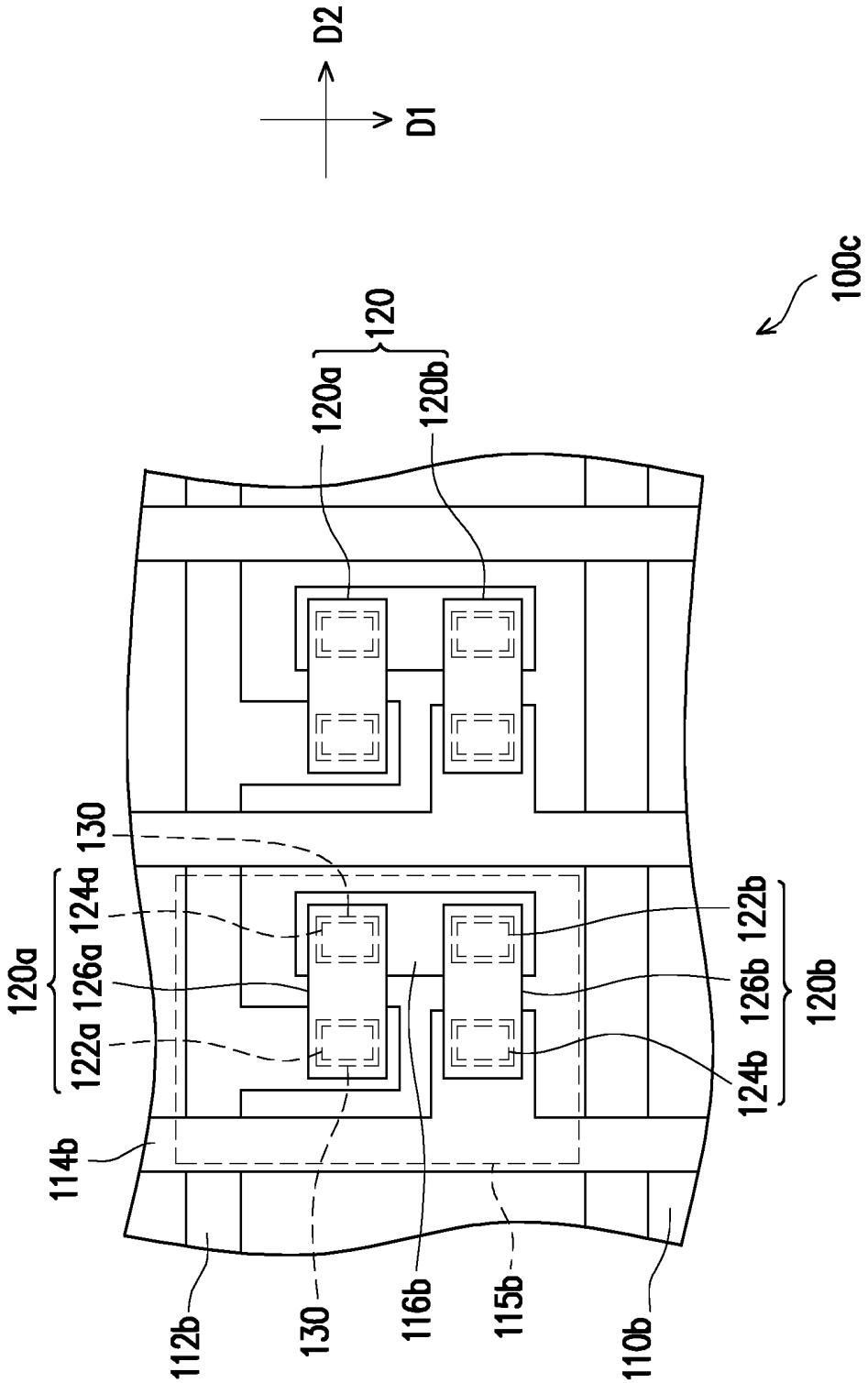

D2
D1
100c
120
120a
120b
130
124a
126a
122a
120a
114b
122b
126b
124b
120b
112b
130
116b
115b
110b

FIG. 3B

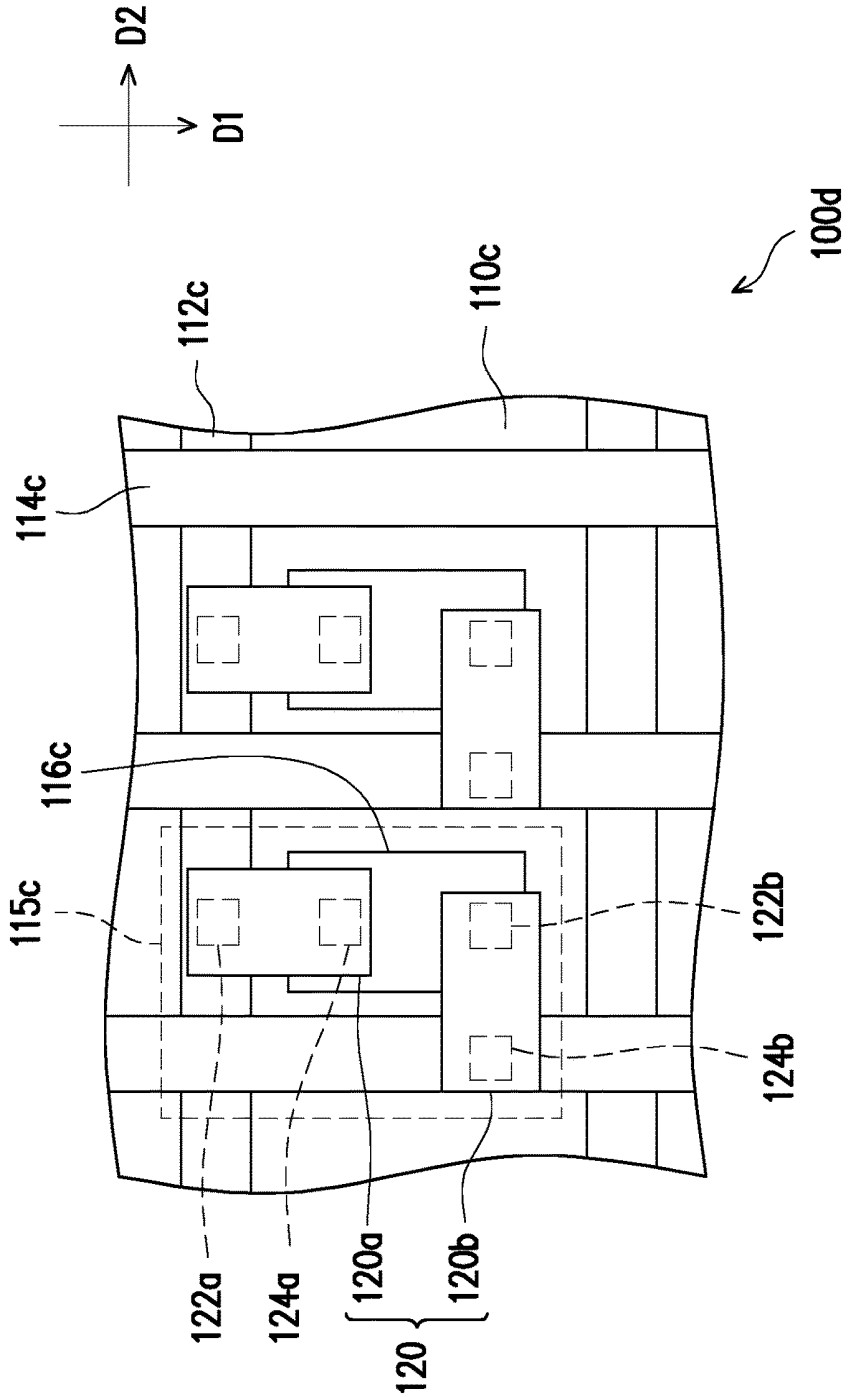

D2
D1
100d
110c
112c
114c
116c
115c
122b
124b
122a
124a
120a
120b
120

FIG. 4

MICRO LED DISPLAY PANEL

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the priority benefit of Taiwan application serial no. 106121222, filed on Jun. 26, 2017. The entirety of the above-mentioned patent application is hereby incorporated by reference herein and made a part of this specification.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The invention relates to a display device, and particularly to a micro LED display panel.

Description of Related Art

[0003] The micro Light-Emitting Diode display (micro-LED display) belongs to an active light emitting device display. Compared to the Liquid Crystal Display (LCD) or the Organic Light-Emitting Diode (OLED) display, the micro-LED display is more power efficient and has better contrast performance and visibility in the sun. In addition, since the micro-LED display uses inorganic materials, it has better reliability and longer service life than the OLED display. In a conventional display panel, each pixel is only provided one micro LED; therefore, the pixel cannot display a predetermined color image due to a malfunction in the micro LED. The display quality of the display panel is affected, especially in the passive driving display panel. In addition, due to epitaxial process variation of the micro LED, the wavelength range of each micro LED also varies; as a result, the brightness uniformity is getting worse and the display quality of the display panel is affected.

SUMMARY OF THE INVENTION

[0004] The invention provides a display panel, which has a better display quality.

[0005] The display panel of the invention includes a driving substrate and a plurality of micro light emitting diodes (LEDs). The driving substrate has a plurality of pixel regions. The micro LEDs are located on the driving substrate and arranged apart from each other. The micro LEDs at least include a plurality of first micro LEDs and a plurality of second micro LEDs. Each of the pixel regions is at least provided with one first micro LED and one second micro LED, and the first micro LED and the second micro LED are electrically connected in series.

[0006] In one embodiment of the invention, a dominant wavelength of the first micro LED and the second micro LED connected in series in one pixel region is in a wavelength range of a specific color light.

[0007] In one embodiment of the invention, each of the micro LEDs includes an epitaxial layer, a first-type electrode and a second-type electrode, and the first-type electrode and the second-type electrode are disposed on the same side of the epitaxial layer.

[0008] In one embodiment of the invention, the driving substrate includes a plurality of first-type electrode layers, a plurality of second-type electrode layers and a plurality of connecting layers. One pixel region is provided with one first-type electrode layer, one second-type electrode layer and one connecting layer. The first-type electrode of the first micro LED is connected to the first-type electrode layer, and the second-type electrode of the first micro LED is connected to the connecting layer. The first-type electrode of the second micro LED is connected to the connecting layer, and the second-type electrode of the second micro LED is connected to the second-type electrode layer.

[0009] In one embodiment of the invention, in the pixel region, the first-type electrode layer, the second-type electrode layer and the connecting layer are arranged apart from each another.

[0010] In one embodiment of the invention, the first micro LED and the second micro LED in one pixel region are arranged along a first direction, and the first-type electrode and the second-type electrode are arranged along the first direction.

[0011] In one embodiment of the invention, a first gap between the first micro LED and the second micro LED in one pixel region is smaller than a second gap between the first-type electrode and the second-type electrode of the first micro LED.

[0012] In one embodiment of the invention, the first micro LED and the second micro LED in one pixel region are arranged along a first direction. The first-type electrode and the second-type electrode of the first micro LED are arranged along a second direction. The first direction is different from the second direction.

[0013] In one embodiment of the invention, the first-type electrode of the first micro LED in one pixel region is adjacent to the second-type electrode of the second micro LED, and the second-type electrode of the first micro LED is adjacent to the first-type electrode of the second micro LED.

[0014] In one embodiment of the invention, the display panel further includes a plurality of bonding pads that are respectively disposed in corresponding to the first-type electrode and the second-type electrode of the micro LED. The bonding pads are disposed and electrically connected between the first-type electrodes and the first-type electrode layers, between the second-type electrodes and the second-type electrode layers, and between the first-type electrodes and the connecting layers and between the second-type electrodes and the connecting layers.

[0015] In one embodiment of the invention, in one pixel region, the connecting layer is provided with one bonding pad disposed thereon, and the second-type electrode of the first micro LED and the first-type electrode of the second micro LED are contacted with the bonding pad on the connecting layer.

[0016] In one embodiment of the invention, in one pixel region, the connecting layer is provided with two bonding pads disposed thereon, and the second-type electrode of the first micro LED and the first-type electrode of the second micro LED are respectively contacted with the two bonding pads on the connecting layer.

[0017] In one embodiment of the invention, a length of each of the micro LEDs ranges from 3 μm to 150 μm.

[0018] In one embodiment of the invention, the driving substrate is an active driving substrate.

[0019] In summary, according to the design of the display panel of the invention, each one of the pixel regions is at least provided with the first micro LED and the second micro LED that are connected in series. Therefore, the display panel of the invention at least has one of the following advantages: (1) when one micro LED in each pixel region is

malfunctioned, another micro LED can still emit light normally so that each pixel region can operate normally and emit the predetermined color light; (2) a better brightness uniformity in each pixel region can be achieved; and (3) the amount of current demand of each pixel region is decreased so that the service life of the micro LEDs can be prolonged.

[0020] In order to make the aforementioned features and advantages of the invention more comprehensible, embodiments accompanying figures are described in detail below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] The accompanying drawings are included to provide a further understanding of the invention, and are incorporated in and constitute a part of this specification. The drawings illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention.

[0022] FIG. **1**A is a partial top view of a display panel according to one embodiment of the invention.

[0023] FIG. **1**B is a sectional view of FIG. IA taken along line I-I'.

[0024] FIG. **2** is a partial sectional view of a display panel according to one embodiment of the invention.

[0025] FIGS. **3**A and **3**B are top views of a pixel region of a display panel according to one embodiment of the invention.

[0026] FIG. **4** is a top view of a pixel region of a display panel according to another embodiment of the invention.

DESCRIPTION OF EMBODIMENTS

[0027] FIG. **1** A is a partial top view of a display panel according to one embodiment of the invention. FIG. **1**B is a sectional view of FIG. **1** A taken along line I-I'. Referring to both of FIGS. **1**A and **1**B, in the embodiment, a display panel **100***a* includes a driving substrate **110***a* and a plurality of micro light emitting diodes (LEDs) **120**. The driving substrate **110***a* includes a plurality of pixel regions **115***a*. The micro LEDs **120** are disposed on the driving substrate **110***a* and arranged apart from each other. The micro LEDs **120** at least include a plurality of first micro LEDs **120***a* and a plurality of second micro LEDs **120***b*. In particular, each of the pixel regions **115***a* is at least provided with one first micro LED **120***a* and one second micro LED **120***b*, and the first micro LED **120***a* and the second micro LED **120***b* are electrically connected in series.

[0028] Specifically, the driving substrate **110***a* of the embodiment includes a plurality of first-type electrode layers **112***a*, a plurality of second-type electrode layers **114***a* and a plurality of conductive connecting layers **116***a*. As shown in FIG. **1**A, in one of the pixel regions **115***a*, the first-type electrode layer **112***a*, the second-type electrode layer **114***a* and the connecting layer **116***a* are arranged apart from each other. It should be mentioned that the driving substrate **110***a* of the embodiment does not include active device such as a thin-film transistor, and is driven by voltage or current input via corresponding lateral and longitudinal wires. In other words, the micro LEDs **120** of the display panel **100***a* of the embodiment are driven using passive matrix. Briefly, the driving substrate **110***a* of the embodiment is practically a passive driving substrate.

[0029] Furthermore, the micro LEDs **120** of the embodiment are inorganic micro LEDs. A dominant wavelength of the first micro LED **120***a* and the second micro LED **120***b* connected in series in one pixel region **115***a* is within a wavelength range of a specific color light, but the invention provides no particular limitation thereto. Each of the micro LEDs **120** includes a first-type electrode **122**, a second-type electrode **124** and an epitaxial layer **126**, wherein the first-type electrode **122** and the second-type electrode **124** are disposed on the same side of the epitaxial layer **126**. The first micro LED **120***a* and the second micro LED **120***b* in one pixel region **115***a* are arranged along a first direction D**1**, and the first-type electrode **122***a* and the second-type electrode **124***a* of the first micro LED **120***a* as well as the first-type electrode **122***b* and the second-type electrode **124***b* of the second micro LED **120***b* are arranged along the first direction D**1**. As shown in FIG. **1**B, a first gap H**1** between the first micro LED **120***a* and the second micro LED **120***b* in one pixel region **115***a* is smaller than a second gap H**2** between the first-type electrode **122***a* and the second-type electrode **124***a* of the first micro LED **120***a*.

[0030] More specifically, in one pixel region **115***a*, there is the gap H**1** between the first micro LED **120***a* and the second micro LED **120***b* that are electrically connected in series, wherein the first gap H**1** is preferably from 1 μm to 15 μm. There is the second gap H**2** between the first-type electrode **122***a* and the second-type electrode **124***a* of the first micro LED **120***a*, wherein the second gap H**2** is preferably from 2 μm to 18 μm. Herein, the first gap H**1** and the second gap H**2** are practically a horizontal gap, respectively. Particularly, in each of the pixel regions **115***a*, since the first micro LED **120***a* and the second micro LED **120***b* are connected in series and the first gap H**1** may be smaller than the second gap H**2**, the size of the pixel region **115***a* will be reduced effectively. Herein, a length of each of the micro LEDs **120** ranges from 3 μm to 150 μm, for example.

[0031] Referring to FIG. **1**B again, in one pixel region **115***a*, the first-type electrode **122***a* of the first micro LED **120** is connected to the first-type electrode layer **112***a*; the second-type electrode **124***a* of the first micro LED **120***a* is connected to the connecting layer **116***a*; the first-type electrode **122***b* of the second micro LED **120***b* is connected to the connecting layer **116***a*; and the second-type electrode **124***b* of the second micro LED **120***b* is connected to the second-type electrode layer **114***a*. As a result, the first micro LED **120***a* and the second micro LED **120***b* that are connected in series is formed in one pixel region **115***a*. That is, in the same pixel region **115***a*, the first micro LED **120***a* and the second micro LED **120***b* may have the same current.

[0032] Moreover, the display panel **100***a* of the embodiment further includes a plurality of bonding pads **130** that are respectively disposed in corresponding to the first-type electrode **122** and the second-type electrode **124** of the micro LED **120**. The bonding pads **130** are disposed and electrically connected between the first-type electrodes **122** and the first-type electrode layers **112***a*, between the second-type electrodes **124** and the second-type electrode layers **114***a*, and between the first-type electrodes **122** and the conducive connection layers **116***a* and between the second-type electrodes **124** and the conducive connection layers **116***a*. In one pixel region **115***a*, two bonding pads **130***b* and **130***a* are disposed on the connecting layer **116***a*. The second-type electrode **124***a* of the first micro LED **120***a* and the first-type electrode **122***b* of the second micro LED **120***b* contact to the two bonding pads **130***b* and **130***a* on the connecting layer **116***a* respectively. Herein, the bonding pads **130***a* and **130***b* are disposed on the first-type electrode

layer **112***a* and the second-type electrode layer **114***a* respectively. The first-type electrode **122***a* of the first micro LED **120***a* is contacted with the first-type electrode layer **112***a* by the bonding pads **130***a*. The second-type electrode **124***b* of the first micro LED **120***b* is contacted with the second-type electrode layer **114***a* by the bonding pads **130***b*. The second-type electrode **124***a* of the first micro LED **120***a* is contacted with the connecting layer **116***a* by the bonding pads **130***b*. The first-type electrode **122***b* of the second micro LED **120***b* is contacted with the connecting layer **116***a* by the bonding pads **130***a*.

[0033] Briefly, according to the design of the display panel **100***a* of the embodiment, each of the pixel regions **115***a* in the passive driving substrate **110***a* is at least provided with the first micro LED **120***a* and the second micro LED **120***b* that are electrically connected in series. Therefore, when one micro LED (e.g. first micro LED **120***a*) in each of the pixel regions **115***a* is malfunctioned, another micro LED (e.g. second micro LED **120***b*) can still emit light so that each of the pixel regions **115***a* can be operated normally and performs predetermined color light. Accordingly, the display panel **100***a* of the embodiment can have a better display quality.

[0034] It should be indicated that the following embodiments adopt the reference numbers and a part of the content of the embodiments provided above, wherein the same reference numbers are used to denote the same or similar elements, and identical technical content is omitted. Please refer to the above embodiments for the omitted descriptions; no repetitions are incorporated in the following embodiments.

[0035] FIG. **2** is a partial sectional view of a display panel according to one embodiment of the invention. Referring to both of FIGS. **1**B and **2**, a display panel **100***b* of the embodiment is similar to the display panel **100***a* of FIG. **1**B; a difference between the two is that a bonding pad **130'** of the embodiment is different from the bonding pad **130** of FIG. **1**B. Specifically, in one pixel region **115***a* of the embodiment, a bonding pad **130***c* is disposed on the connecting layer **116***a*, and the second-type electrode **124***a* of the first micro LED **120***a* and the first-type electrode **122***b* of the second micro LED **120***b* contact with the bonding pad **130***c* on the connecting layer **116***a*. Herein, the bonding pads **130***a* and **130***b* are disposed on the first-type electrode layer **112***a* and the second-type electrode layer **114***a* respectively. The first-type electrode **122***a* of the first micro LED **120***a* and the second-type electrode **124***b* of the second micro LED **120***b* are respectively contacted with the bonding pad **130***a* on the first-type electrode layer **112***a* and the bonding pad **130***b* on the second-type electrode layer **114***a*.

[0036] Since the first micro LED **120***a* and the second micro LED **120***b* in each of the pixel regions **115***a* of the embodiment are electrically connected in series, the second-type electrode **124***a* and the first-type electrode **122***b* have no risk of short-circuit during transfer or bonding processes. In other words, the spacing between **120***a* and **120***b* could be very closer, so that the first gap H**1** may be smaller than the second gap H**2**.

[0037] FIG. **3**B is a top view of a pixel region of a display panel according to another one embodiment of the invention. Referring to both of FIGS. **1**A and **3**B, a display panel **100***c* of the embodiment is similar to the display panel **100***a* of FIG. **1**A; a difference between the two is that the driving substrate **110***b* of the embodiment is practically an active driving substrate, which means that the driving substrate **110***b* has a plurality of active devices (e.g. a thin-film transistor, not shown) disposed thereon to control the micro LEDs **120** to emit light. Another difference between the two embodiments is the arrangement of the first micro LED **120***a* and the second micro LED **120***b* in one of the pixel regions **115***b*. Specifically, in one pixel region **115***b* of the embodiment, the first micro LED **120***a* and the second micro LED **120***b* are arranged along the first direction D**1**; the first-type electrode **122***a* and the second-type electrode **124***a* of the first micro LED **120***a* as well as the second-type electrode **124***b* and the first-type electrode **122***b* of the second micro LED **120***b* are arranged along a second direction D**2**; and the first direction D**1** is different from the second direction D**2**. As shown in FIG. **3**B, in one pixel region **115***b*, the first-type electrode **122***a* of the first micro LED **120***a* is adjacent to the second-type electrode **124***b* of the second micro LED **120***b*, and the second-type electrode **124***a* of the first micro LED **120***a* is adjacent to the first-type electrode **122***b* of the second micro LED **120***b*. Accordingly, the first micro LED **120***a* and the second micro LED **120***b* that are connected in series with the same current are formed in one pixel region **115***b*.

[0038] More specifically, the micro LEDs **120** of the embodiment are bonded to the driving substrate **110***a* via a mass transfer method. The micro LEDs **120** are transferred from a growth wafer (e.g. a sapphire substrate) to the driving substrate **110***a* by plural transfer process with a transfer apparatus. Generally speaking, the transfer apparatus picks up micro LEDs **120** with a predetermined range of size from the growth wafer. Then, after aligning the driving substrate **110***a* as shown in FIG. **3**A, a portion of the micro LEDs **120** on the transfer apparatus are transferred and bonded to a first position A**1** in the pixel region **115***b* to form the first micro LEDs **120***a* at a predetermined position. Afterwards, a relative relationship between the transfer apparatus and the driving substrate **110***a* is turned 180 degrees, so that another portion of the micro LED **120** on the transfer apparatus is transferred and bonded to a second position A**2** in the pixel region **115***b*. The arrangement of the first micro LED **120***a* and the second micro LED **120***b* as shown in FIG. **3**B is designed. Due to epitaxial process variation, a characteristic distributing trend (e.g. wavelength variation) of the micro LEDs **120** may occur on growth wafer. For example, the wavelength decreases from left to right on growth wafer. Therefore, preferably, in one pixel region **115***b* of the embodiment, by performing two times of transfer and bonding processes, the first micro LED **120***a* and the second micro LED **120***b* in the same pixel region **115***b* can be distributed in the corresponding positions on the transfer apparatus. As a result, the light-emitting characteristics can be mutually compensated for each other, and the uniformity of the overall display panel **100***c* can be improved.

[0039] Briefly, in the design of the display panel **100***c* of the embodiment, each of the pixel regions **115***b* of the active driving substrate **110***b* is at least provided with the first micro LED **120***a* and the second micro LED **120***b* electrically connected to first micro LED **120***a* in series. The first micro LED **120***a* and the second micro LED **120***b* are arranged along the first direction D **1**; the first-type electrode **122***a* and the second-type electrode **124***a* of the first micro LED **120***a* are arranged along a second direction D**2**; wherein the first direction D**1** is different from the second direction D**2**. As a result, the light emitted by the first micro

LED **120***a* and the second micro LED **120***b* in the same pixel region **115***b* can be complementary, so that brightness uniformity within the pixel regions **115***b* is better. Therefore, the display panel **110***c* of the embodiment can have a better display quality. In addition, aforementioned design can also effectively reduce the driving current to the micro LEDs **120**, thereby the life time of the micro LEDs **120** could be prolonged.

[0040] FIG. **4** is a top view of a partial of a display panel according to another embodiment of the invention. For ease of description, FIG. **4** omits the bonding pad. Referring to both of FIGS. **1**A and **3**, a display panel **100***d* of the embodiment is similar to the display panel **100***a* of FIG. **1**A; a difference between the two is that, in one pixel region **115***c* of the embodiment, the first micro LED **120***a* is arranged along the first direction D**1**, and the second micro LED **120***b* is arranged along the second direction D**2**, wherein the first direction D**1** is different from the second direction D**2**. In one pixel region **115***c*, the first-type electrode **122***a* of the first micro LED **120***a* is electrically connected to the first-type electrode layer **112***c* of the driving substrate **110***c*; the second-type electrode **124***a* of the first micro LED **120***a* and the first-type electrode **122***b* of the second micro LED **120***b* are electrically connected to the connecting layer **116***c* of the driving substrate **110***c*; and the second-type electrode **124***b* of the second micro LED **120***b* is electrically connected to the second-type electrode layer **114***c* of the driving substrate **110***c*. In other words, **122***a* and **124***a* are arranged along the first direction D**1**, and **122***b* and **124***b* are arranged along the second direction D**2**. Accordingly, the first micro LED **120***a* and the second micro LED **120***b* can be connected in series with each other and have the same current in one pixel region **115***c*. The above-mentioned arrangement can improve the circuit layout of the display panel **100***d* for reducing pixel size and having higher resolution.

[0041] In summary, in the design of the display panel of the invention, each of the pixel regions is at least provided with two micro LEDs connected in series; therefore, the display panel of the invention at least has one of the following advantages: (1) when one micro LED in each of the pixel regions is malfunctioned, another micro LED can still emit light normally; (2) a better brightness uniformity in each of the pixel regions can be achieved; and (3) the amount of current demand is reduced.

[0042] Although the invention has been disclosed by the above embodiments, the embodiments are not intended to limit the invention. It will be apparent to those skilled in the art that various modifications and variations can be made to the structure of the invention without departing from the scope or spirit of the invention. Therefore, the protecting range of the invention falls in the appended claims.

What is claimed is:

1. A display panel, comprising:

a driving substrate, comprising a plurality of pixel regions; and

a plurality of micro light emitting diodes (LEDs), disposed on the driving substrate and arranged apart from each other, the micro LEDs comprising a plurality of first micro LEDs and a plurality of second micro LEDs, wherein each of the pixel regions is at least provided with one of the first micro LEDs and one of the second micro LEDs, and the first micro LED and the second micro LED are electrically connected in series.

2. The display panel as claimed in claim **1**, wherein a dominant wavelength of the first micro LED and the second micro LED connected in series in one of the pixel regions is within a wavelength range of a specific color light.

3. The display panel as claimed in claim **1**, wherein each of the micro LEDs comprises an epitaxial layer, a first-type electrode and a second-type electrode, and the first-type electrode and the second-type electrode are disposed on a same side of the epitaxial layer.

4. The display panel as claimed in claim **3**, wherein the driving substrate comprises a plurality of first-type electrode layers, a plurality of second-type electrode layers and a plurality of connecting layers, one of the pixel regions is provided with one of the first-type electrode layers, one of the second-type electrode layers and one of the connecting layers; the first-type electrode of the first micro LED is connected to the first-type electrode layer, and the second-type electrode of the first micro LED is connected to the connecting layer, and the first-type electrode of the second micro LED is connected to the connecting layer, and the second-type electrode of the second micro LED is connected to the second-type electrode layer.

5. The display panel as claimed in claim **4**, wherein in the pixel regions, the first-type electrode layers, the second-type electrode layers and the connecting layers are arranged apart from each other.

6. The display panel as claimed in claim **3**, wherein the first micro LED and the second micro LED in one of the pixel regions are arranged along a first direction, and the first-type electrodes and the second-type electrodes are arranged along the first direction.

7. The display panel as claimed in claim **6**, wherein a first gap between the first micro LED and the second micro LED in one of the pixel regions is smaller than a second gap between the first-type electrode and the second-type electrode of the first micro LED.

8. The display panel as claimed in claim **3**, wherein the first micro LED and the second micro LED in one of the pixel regions are arranged along a first direction, the first-type electrode and the second-type electrode of the first micro LED are arranged along a second direction, the first direction is different from the second direction.

9. The display panel as claimed in claim **8**, wherein the first-type electrode of the first micro LED in one of the pixel regions is adjacent to the second-type electrode of the second micro LED, and the second-type electrode of the first micro LED is adjacent to the first-type electrode of the second micro LED.

10. The display panel as claimed in claim **4**, further comprising:

a plurality of bonding pads, disposed respectively in corresponding to the first-type electrodes and the second-type electrodes of the micro LEDs, wherein the bonding pads are disposed and electrically connected between the first-type electrodes and the first-type electrode layers, between the second-type electrodes and the second-type electrode layers, and between the first-type electrodes and the connecting layers and between the second-type electrodes and the connecting layers.

11. The display panel as claimed in claim **10**, wherein in one of the pixel regions, the connecting layer is provided with one of the bonding pads disposed thereon, the second-type electrode of the first micro LED and the first-type

electrode of the second micro LED are contacted with the bonding pad on the connecting layer.

12. The display panel as claimed in claim **10**, wherein in one of the pixel regions, the connecting layer is provided with two of the bonding pads, the second-type electrode of the first micro LED and the first-type electrode of the second micro LED are respectively contacted with the two bonding pads on the connecting layer.

13. The display panel as claimed in claim **1**, wherein a length of each of the micro LEDs ranges from 3 μm to 150 μm.

14. The display panel as claimed in claim **1**, wherein the driving substrate is an active driving substrate.

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摘要(译)

显示面板包括驱动基板和多个微发光二极管（LED）。驱动基板具有多个像素区域。微LED位于驱动基板上并且彼此分开布置。微LED至少包括多个第一微LED和多个第二微LED。每个像素区域至少设置有一个第一微LED和一个第二微LED，并且第一微LED和第二微LED串联电连接。