

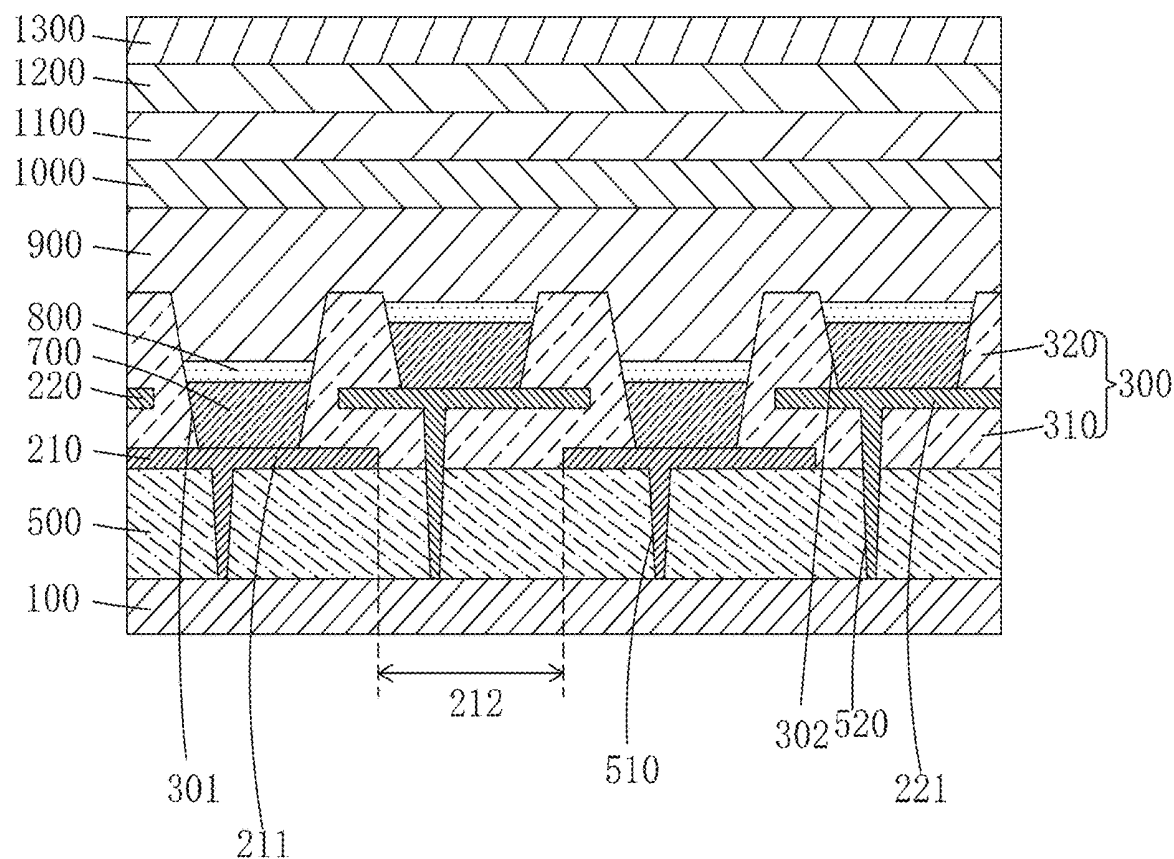
(12) **Patent Application Publication**
LIN et al.

(43) **Pub. Date:** **May 28, 2020**

(57) **ABSTRACT**

H01L 27/32 (2006.01)

Provided is an organic light emitting diode panel. The organic light emitting diode panel includes a thin film transistor substrate, a first anode layer disposed on the thin film transistor substrate and a second anode layer and a pixel definition layer disposed on the first anode layer, wherein the pixel definition layer comprises a first pixel definition layer disposed between the first anode layer and the second anode layer. By disposing the first anode layer and the second anode layer, as the organic light emitting diode panel displays, the reflection of the light emitted from the organic light emitting diode functional layer inside the organic light emitting diode panel is greatly enhanced, to enhance the brightness and viewing angle of the organic light emitting diode panel, to reduce the power consumption, and to improve the product quality.



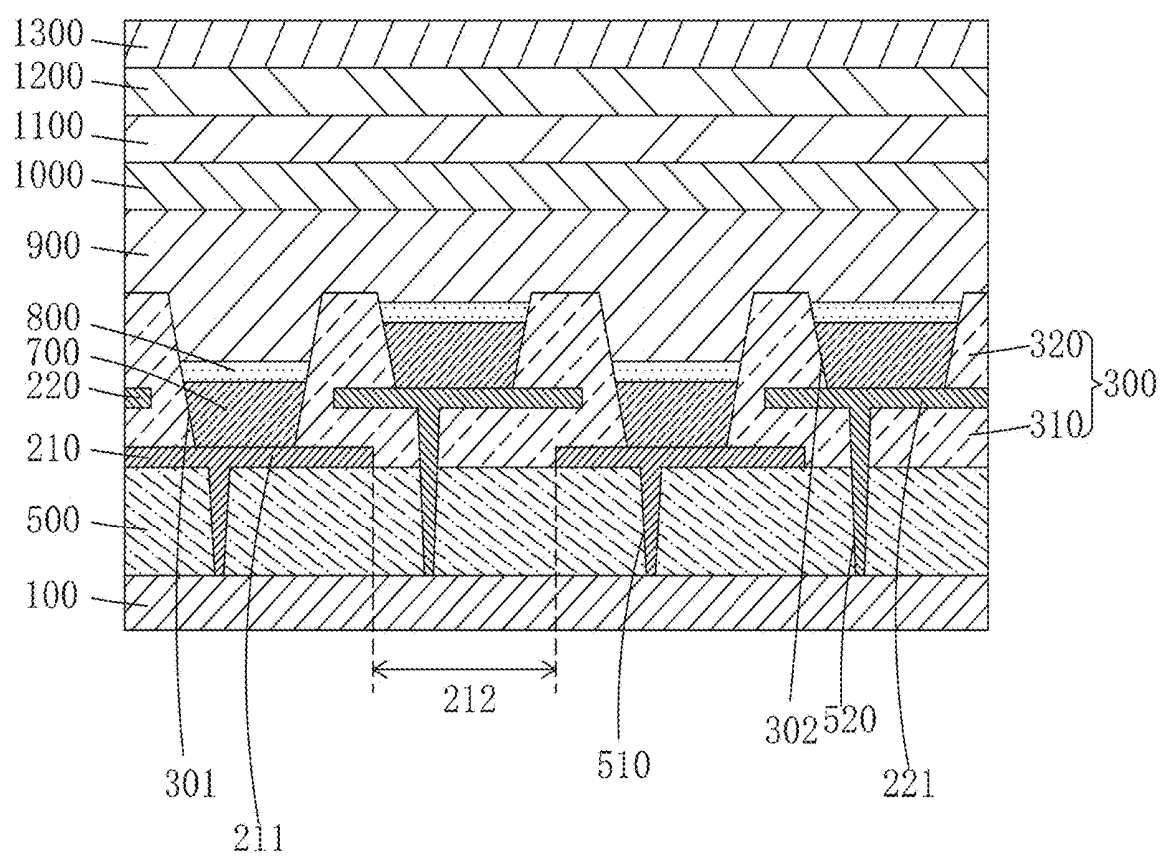


FIG. 1

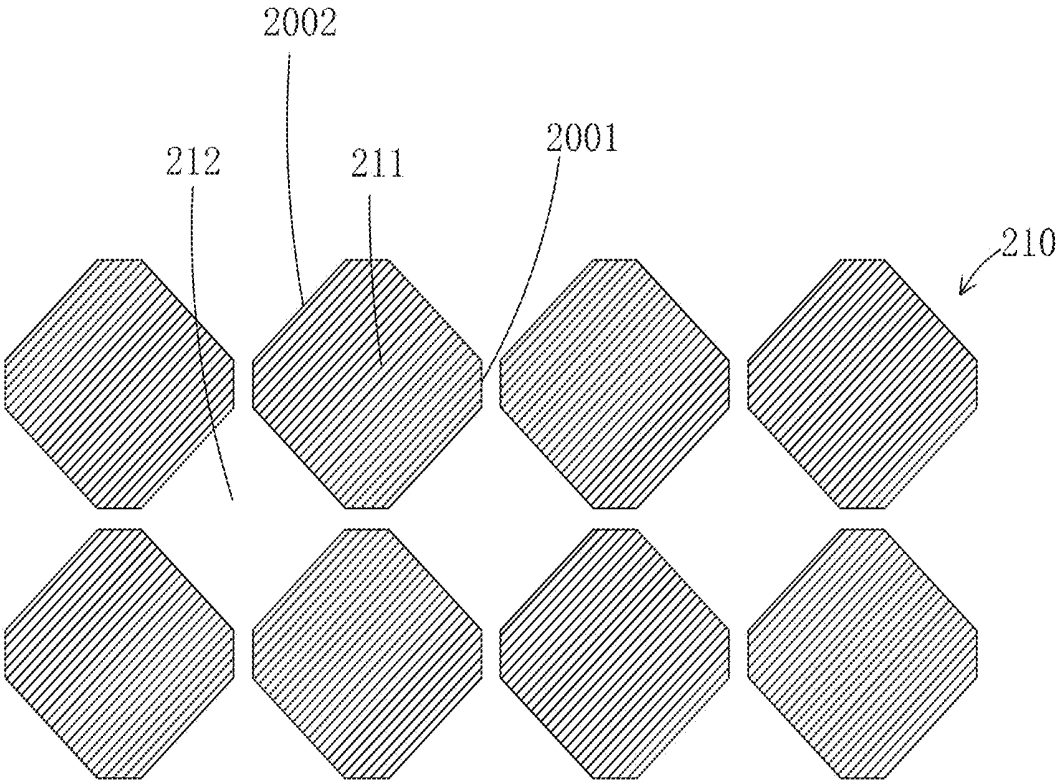


FIG. 2

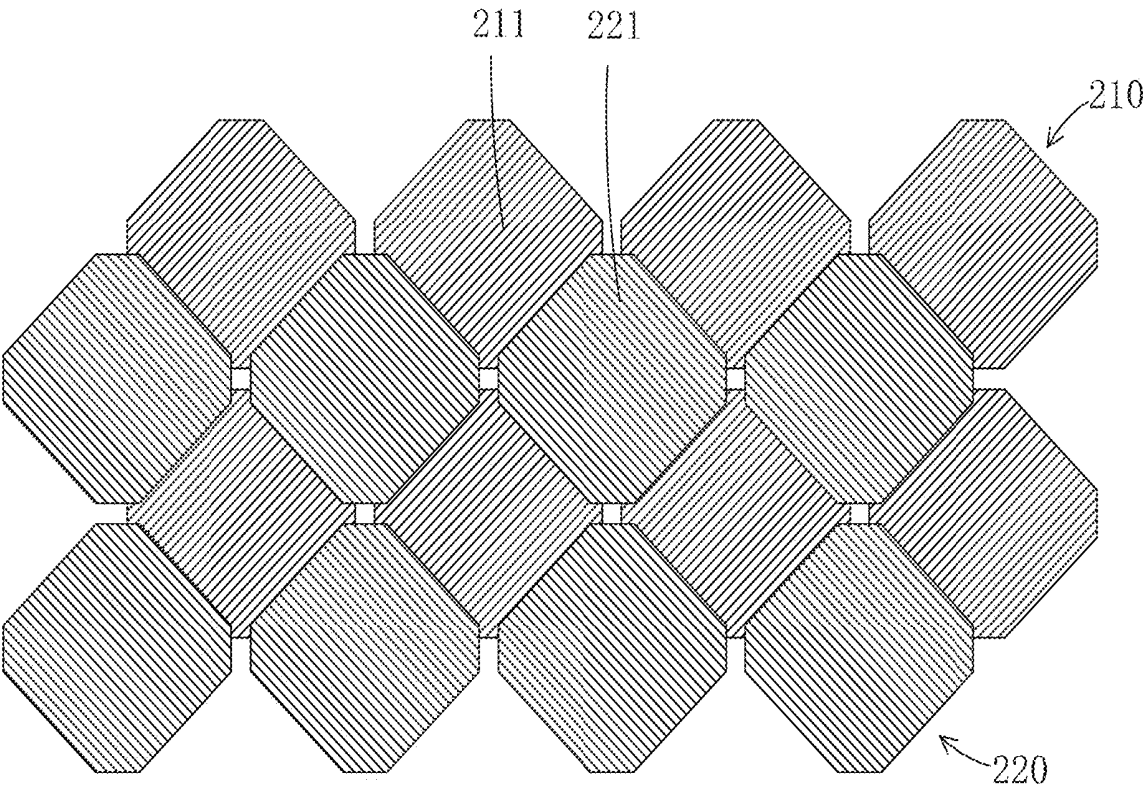


FIG. 3

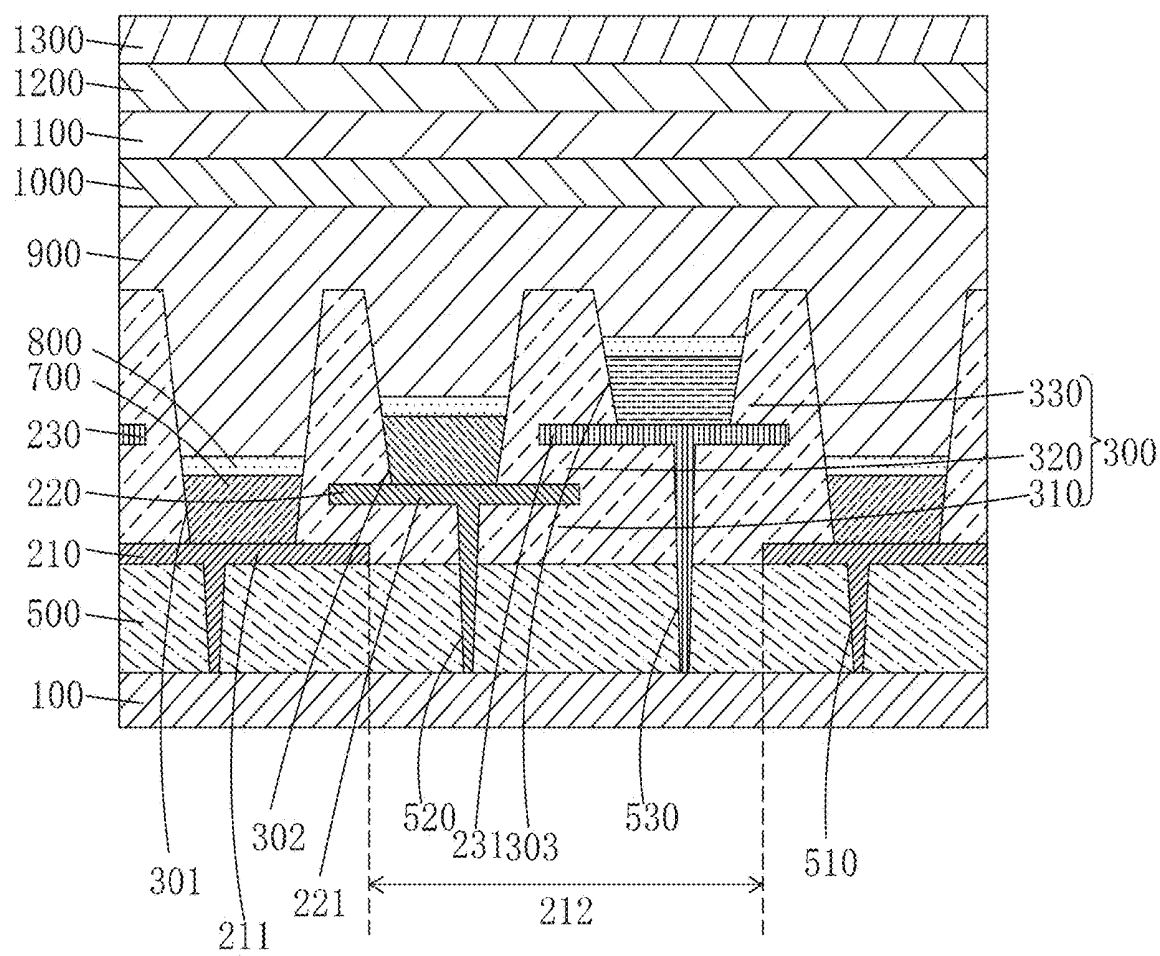


FIG. 4

ORGANIC LIGHT EMITTING DIODE PANEL

FIELD OF THE INVENTION

[0001] The present invention relates to a display field, and more particularly to an organic light emitting diode panel.

BACKGROUND OF THE INVENTION

[0002] The Organic Light Emitting Display (OLED) device possesses many outstanding properties of self-illumination, low driving voltage, high luminescence efficiency, short response time, high clarity and contrast, near 180 degrees view angle, wide range of working temperature, applicability of flexible display and large scale full color display. The OLED is considered as the most potential display device.

[0003] The OLED can be categorized into two major types according to the driving ways, which are the Passive Matrix OLED (PMOLED) and the Active Matrix OLED (AMOLED), i.e. two types of the direct addressing and the Thin Film Transistor matrix addressing. The AMOLED comprises pixels arranged in array and belongs to active display type, which has high lighting efficiency and is generally utilized for the large scale display devices of high resolution.

[0004] The OLED element generally comprises a substrate, an anode located on the substrate, a Hole Injection Layer located on the anode, a Hole Transporting Layer located on the Hole Injection Layer, an emitting layer located on the Hole Transporting Layer, an Electron Transport Layer located on the emitting layer, an Electron Injection Layer located on the Electron Transport Layer and a Cathode located on the Electron Injection Layer. The principle of the OLED element is that the illumination generates due to the carrier injection and recombination under the electric field driving of the semiconductor material and the organic semiconductor illuminating material. Specifically, the Indium Tin Oxide (ITO) electrode and the metal electrode are respectively employed as the anode and the cathode of the Display. Under certain voltage driving, the Electron and the Hole are respectively injected into the Electron and Hole Transporting Layers from the cathode and the anode. The Electron and the Hole respectively migrate from the Electron and Hole Transporting Layers to the Emitting layer and bump into each other in the Emitting layer to form an exciton to excite the emitting molecule. The latter can illuminate after the radiative relaxation.

[0005] With the development of display technologies, people are pursuing larger screens, higher resolutions, and more stimulating visual effects. This poses higher requirements for the manufacturing process, materials, and processes of the panels. The large-sized OLED displays possessing better visual experience have become a major trend in the future. However, the larger the size of the OLED display is, the higher the power consumption of the display becomes, which affects the quality of the product.

SUMMARY OF THE INVENTION

[0006] An objective of the present invention is to provide an organic light emitting diode panel, which possesses high luminous efficiency, low power consumption, and good product quality.

[0007] For realizing the aforesaid objective, the present invention first provides an organic light emitting diode panel, comprising a thin film transistor substrate, a first

anode layer disposed on the thin film transistor substrate and a second anode layer and a pixel definition layer disposed on the first anode layer, wherein the pixel definition layer comprises a first pixel definition layer disposed between the first anode layer and the second anode layer.

[0008] The pixel definition layer further comprises a second pixel definition layer disposed on the second anode layer.

[0009] The first pixel definition layer and the second pixel definition layer have the same material.

[0010] The first anode layer comprises a plurality of first anodes; the second anode layer comprises a plurality of second anodes; a first space is formed between two adjacent first anodes, and the second anode is correspondingly disposed above the first space.

[0011] A width of the second anode is greater than a width of the first space.

[0012] A plurality of first openings is disposed on the plurality of first anodes, and a plurality of second openings is disposed on the plurality of second anodes, and an organic light emitting diode functional layer is provided in the first opening and in the second opening.

[0013] The organic light emitting diode panel further comprises a planarization layer disposed between the first anode layer and the thin film transistor substrate, and the first anode and the second anode are electrically connected to the thin film transistor substrate by penetrating through the planarization layer.

[0014] The organic light emitting diode panel further comprises a third anode layer disposed on the second pixel definition layer.

[0015] The pixel definition layer further comprises a third pixel definition layer disposed on the third anode layer;

[0016] the first pixel definition layer, the second pixel definition layer and the third pixel definition layer have the same material.

[0017] The third anode layer comprises a plurality of third anodes; the third anode is correspondingly disposed above the first space, and both a width of the second anode and a width of the third anode are less than a width of the first space; and a sum of the width of the second anode and the width of the third anode is greater than the width of the first space;

[0018] a plurality of third openings is disposed on the plurality of third anodes, and the organic light emitting diode functional layer is provided in the third opening.

[0019] The benefits of the present invention are: the present invention provides an organic light emitting diode panel, comprising a thin film transistor substrate, a first anode layer disposed on the thin film transistor substrate and a second anode layer and a pixel definition layer disposed on the first anode layer, wherein the pixel definition layer comprises a first pixel definition layer disposed between the first anode layer and the second anode layer. By disposing the first anode layer and the second anode layer, as the organic light emitting diode panel displays, the reflection of the light emitted from the organic light emitting diode functional layer inside the organic light emitting diode panel is greatly enhanced, to enhance the brightness and viewing angle of the organic light emitting diode panel, to reduce the power consumption, and to improve the product quality.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] In order to better understand the characteristics and technical aspect of the invention, please refer to the following detailed description and accompanying drawings of the present invention. However, the drawings are provided for reference only and are not intended to be limiting of the invention.

[0021] In drawings,

[0022] FIG. 1 is a cross-sectional view diagram of the first embodiment of an organic light emitting diode panel according to the present invention;

[0023] FIG. 2 is a top view diagram of a first anode layer in the first embodiment of the organic light emitting diode panel of the present invention;

[0024] FIG. 3 is a top view diagram of the first anode layer and a second anode layer in the first embodiment of the organic light emitting diode panel of the present invention;

[0025] FIG. 4 is a cross-sectional view diagram of the second embodiment of an organic light emitting diode panel according to the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0026] For better explaining the technical solution and the effect of the present invention, the present invention will be further described in detail with the accompanying drawings and the specific embodiments.

[0027] The present invention provides an organic light emitting diode panel. Please refer to FIG. 1, which is a diagram of the first embodiment of an organic light emitting diode panel according to the present invention. The first embodiment of the organic light emitting diode panel according to the present invention comprises a thin film transistor substrate 100, a first anode layer 210 disposed on the thin film transistor substrate 100, and a second anode layer 220 and a pixel definition layer 300 disposed on the first anode layer 210. The pixel definition layer 300 comprises a first pixel definition layer 310 disposed between the first anode layer 210 and the second anode layer 220 and a second pixel definition layer 320 disposed on the second anode layer 220.

[0028] Specifically, a material of the first pixel definition layer 310 and a material of the second pixel definition layer 320 can be selected from any one of polyimide (PI) and silicon nitride (SiN). The material of the first pixel definition layer 310 and the material of the second pixel definition layer 320 may be the same or different. Preferably, in the first embodiment of the present invention, the first pixel definition layer 310 and the second pixel definition layer 320 have the same material. Please refer to FIG. 1. There is no clear boundary between the first pixel definition layer 310 and the second pixel definition layer 320.

[0029] Specifically, the first anode layer 210 and the second anode layer 220 can be made of any material with high reflectivity. Preferably, the first anode layer 210 and the second anode layer 220 each include two indium tin oxide (ITO) layers and a silver (Ag) layer disposed between the two indium tin oxide layers.

[0030] Specifically, referring to FIG. 1 in combination with FIGS. 2 and 3, in the first embodiment of the present invention, the first anode layer 210 comprises a plurality of first anodes 211. The second anode layer 220 comprises a plurality of second anodes 221. A first space 212 is formed

between two adjacent first anodes 211, and the second anode 221 is correspondingly disposed above the first space 212. A width of the second anode 221 is greater than a width of the first space 212. Thus, a projection of the second anode 221 on the thin film transistor substrate 100 and a projection of the first anode 211 on the thin film transistor substrate 100 can cover the thin film transistor substrate 100 as much as possible, so that the first anode layer 210 and the second anode layer 220 together form a compact reflective structure. After the organic light emitting diode functional layer is formed on the first anode layer 210 and the second anode layer 220, light emitted from the organic light emitting diode functional layer can be reflected as much as possible by the first anode layer 210 and the second anode layer 220 and can be emitted to the direction away from the thin film transistor substrate 100 to enhance the lighting brightness.

[0031] Furthermore, referring to FIG. 2 and FIG. 3, in the first embodiment of the present invention, the plurality of first anodes 211 is arranged in an array, and the plurality of second anodes 221 is also in an array. Each first anode 211 and each second anode 221 comprise four equal-length first sides 2001 and four equal-length second sides 2002. The four first sides 2001 and the four second sides 2002 are alternately arranged in a closed pattern. The first side 2001 and the second side 2002 are straight lines, and the length of the first side 2001 is less than the length of the second side 2002. Please refer to FIG. 2. The adjacent second sides 2002 of the adjacent four first anodes 211 form a first space 212. Please refer to FIG. 3. Each second anode 221 is correspondingly disposed above one first space 212.

[0032] Specifically, referring to FIG. 1, in the first embodiment of the present invention, a plurality of first openings 301 is disposed on the plurality of first anodes 211, and a plurality of second openings 302 is disposed on the plurality of second anodes 221, and an organic light emitting diode functional layer 700 is provided in the first opening 301 and in the second opening 302.

[0033] Specifically, in the first embodiment of the present invention, the thin film transistor substrate 100 has a plurality of thin film transistor elements (not shown) corresponding to the plurality of first anodes 211 and the plurality of second anodes 221, respectively. The thin film transistor elements have drains. The organic light emitting diode panel further comprises a planarization layer 500 disposed between the first anode layer 210 and the thin film transistor substrate 100. Please refer to FIG. 1, in the first embodiment of the present invention, a first via 510 exposing the drain of the thin film transistor element corresponding to the first anode 211 is provided in the planarization layer 500. The first anode 211 is electrically connected to the drain of the corresponding thin film transistor element on the thin film transistor substrate 100 through the first via 510, so that as the corresponding thin film transistor element is activated, a data voltage can be transmitted to the first anode 211 through the drain of the thin film transistor element. A second via 520 exposing the drain of the thin film transistor element corresponding to the second anode 221 is provided in the planarization layer 500 and the first pixel definition layer 310. The second anode 221 is electrically connected to the drain of the corresponding thin film transistor element on the thin film transistor substrate 100 through the second via 520, so that as the corresponding thin film transistor element is activated, a data voltage can be transmitted to the second anode 221 through the drain of the thin film transistor

element, Specifically, the organic light emitting diode panel further comprises a cathode **800** disposed on the organic light emitting diode functional layer **700**. In the first embodiment of the present invention, the first anode **211** and the second anode **221** respectively constitute an organic light emitting diode element together with the organic light emitting diode functional layer **700** and the cathode **800** thereabove.

[0034] Specifically, a material of the cathode **800** is a transparent material. Preferably, the material of the cathode **800** is indium tin oxide (ITO).

[0035] Specifically, in the first embodiment of the present invention, the organic light emitting diode panel further a thin film packaging layer **900** disposed on the cathode **800** and the second pixel definition layer **320** for preventing water and oxygen from invading the organic light emitting diode element, a touch layer **1000** disposed on the thin film packaging layer **900** for implementing a touch function, an optical adhesive layer **1100** disposed on the touch layer **1000**, a polarizer **1200** disposed on the optical adhesive layer **1100** and a cover plate **1300** covering the polarizer **1200**.

[0036] Furthermore, there are two methods for fabricating the first embodiment of the organic light emitting diode panel of the present invention.

[0037] The first manufacturing method of the first embodiment of the organic light emitting diode panel of the present invention specifically is: firstly, a thin film transistor substrate **100** is provided, and a planarization layer **500** is formed on the thin film transistor substrate **100**. Afterwards, an electrode material is formed on the planarization layer **500** and is patterned to obtain a first anode layer **210**. A first pixel definition layer **310** is formed on the planarization layer **500** and the first anode layer **210**. Then, an electrode material is formed on the first pixel definition layer **310** and is patterned to obtain a second anode layer **220**. Afterwards, a second pixel definition layer **320** is formed on the first pixel definition layer **310** and the second anode layer **220**, and then a plurality of first openings **301**, correspondingly disposed above the plurality of first anodes **211**, is formed on the first pixel definition layer **310** and the second pixel definition layer **320**, and a plurality of second openings **302**, correspondingly disposed above the plurality of second anodes **221**, is formed on the second pixel definition layer **320**. Afterwards, an organic light emitting diode functional layer **700** is formed in the plurality of first openings **301** and the plurality of second openings **302**, and a cathode **800** is formed on the organic light emitting diode functional layer **700**. Finally, a thin film packaging layer **900** is formed on the cathode **800** and the second pixel defining layer **320**. A touch layer **1000**, an optical adhesive layer **1100**, a polarizer **1200** and a cover plate **1300** are sequentially formed on the thin film packaging layer **900**. The difference of the second manufacturing method of the first embodiment of the organic light emitting diode panel of the present invention from the first manufacturing method is that: after the first pixel definition layer **310** is formed, the plurality of the first openings **301**, correspondingly disposed above the plurality of first anodes **211**, is first formed on the first pixel definition layer **310**. Then, after forming the second pixel definition layer **320**, the plurality of second openings **302**, correspondingly disposed above the plurality of second anodes **221**, is formed on the second pixel definition layer **320**. Meanwhile, a portion of the second pixel definition layer **320** corresponding to the first opening **301** is removed, and the rest

steps are the same as those of the first manufacturing method. Compared with the first fabricating method, the second fabricating method does not need to make openings with different depths. The process is simple and the reliability is higher.

[0038] Specifically, in the first embodiment of the organic light emitting diode of the present invention, the first anode layer **210** is disposed above the thin film transistor substrate **100**, and the second anode layer **220** and the pixel definition layer **300** are disposed on the first anode layer **210**, and specifically, the width of the plurality of the second anode **221** of the second anode layer **220** is greater than the width of the first space **212** among the plurality of the first anode **211** of the first anode layer **210**. Thus, the first anode layer **210** and the second anode layer **220** together shield the thin film transistor substrate **100** to form a compact reflective layer inside the organic light emitting diode panel. Thus, as the organic light emitting diode panel displays, the light emitted from the organic light emitting diode functional layer **700** is totally reflected on the compact reflective layer formed by the first anode layer **210** and the second anode layer **220**, together. The reflection of the light emitted from the organic light emitting diode functional layer **700** inside the organic light emitting diode panel is greatly enhanced, to enhance the brightness and viewing angle of the organic light emitting diode panel, to reduce the power consumption, and to improve the product quality.

[0039] Please refer to FIG. 4, which is the second embodiment of an organic light emitting diode panel of the present invention. The difference of the second embodiment from the aforesaid first embodiment is that the organic light emitting diode panel further comprises a third anode layer **230** disposed on the second pixel definition layer **320**. The pixel definition layer **300** further comprises a third pixel definition layer **330** disposed on the third anode layer **230**.

[0040] Specifically, a material of the first pixel definition layer **310**, a material of the second pixel definition layer **320** and a material of the third pixel definition layer **330** can be selected from any one of polyimide and silicon nitride. The material of the first pixel definition layer **310**, the material of the second pixel definition layer **320** and the material of the third pixel definition layer **330** may be the same or different. Preferably, Preferably, in the second embodiment of the present invention, the first pixel definition layer **310**, the second pixel definition layer **320** and the third pixel definition layer **330** have the same material. Please refer to FIG. 4. There is no clear boundary between the first pixel definition layer **310**, the second pixel definition layer **320** and the third pixel definition layer **330**.

[0041] Specifically, the third anode layer **230** can be made of any material with high reflectivity. Preferably, the third anode layer **230** also includes two indium tin oxide (ITO) layers and a silver (Ag) layer disposed between the two indium tin oxide layers.

[0042] Specifically, referring to FIG. 4, in the second embodiment of the present invention, the third anode layer **230** comprises a plurality of third anodes **231**. The third anode **231** is correspondingly disposed above the first space **212**. Both a width of the second anode **221** and a width of the third anode **231** are less than a width of the first space **212**, and a sum of the width of the second anode **221** and the width of the third anode **231** is greater than the width of the first space **212**. Thus, a projection of the second anode **221** on the thin film transistor substrate **100**, a projection of the

first anode **211** on the thin film transistor substrate **100** and a projection of the third anode **231** on the thin film transistor substrate **100** can cover the thin film transistor substrate **100** as much as possible, so that the first anode layer **210**, the second anode layer **220** and the third anode layer **230** together form a compact reflective structure. After the organic light emitting diode functional layer is formed on the first anode layer **210**, the second anode layer **220** and the third anode layer **230**, light emitted from the organic light emitting diode functional layer can be reflected as much as possible by the first anode layer **210**, the second anode layer **220** and the third anode layer **230** and can be emitted to the direction away from the thin film transistor substrate **100** to enhance the lighting brightness.

[0043] Specifically, referring to FIG. 4, in the second embodiment of the present invention, a plurality of first openings **301** is disposed on the plurality of first anodes **211**, and a plurality of second openings **302** is disposed on the plurality of second anodes **221**, and a plurality of third openings **303** is disposed on the plurality of third anodes **231**. While, an organic light emitting diode functional layer **700** is disposed in the first opening **301** and the second opening **302**, and an organic light emitting diode functional layer **700** is also disposed in the third opening **303**.

[0044] Specifically, in the second embodiment of the present invention, the first anode **211**, the second anode **221** and the third anode **231** respectively constitute an organic light emitting diode element together with the organic light emitting diode functional layer **700** and the cathode **800** thereabove.

[0045] Specifically, in the second embodiment of the present invention, the thin film transistor substrate **100** further comprises a plurality of thin film transistor elements corresponding to the plurality of third anodes **231**, a third via **530** exposing the drain of the thin film transistor element corresponding to the third anode **231** is provided in the planarization layer **500**, the first pixel definition layer **310** and the second pixel definition layer **320**. The third anode **231** is electrically connected to the drain of the corresponding thin film transistor element on the thin film transistor substrate **100** through the third via **530**, so that as the corresponding thin film transistor element is activated, a data voltage can be transmitted to the third anode **231** through the drain of the thin film transistor element.

[0046] Specifically, in the second embodiment of the present invention, the thin film packaging layer **900** is disposed on the cathode **800** and the third pixel definition layer **330**.

[0047] Furthermore, there are two methods for fabricating the second embodiment of the organic light emitting diode panel of the present invention.

[0048] The first manufacturing method of the second embodiment of the organic light emitting diode panel of the present invention specifically is: firstly, a thin film transistor substrate **100** is provided, and a planarization layer **500** is formed on the thin film transistor substrate **100**. Afterwards, an electrode material is formed on the planarization layer **500** and is patterned to obtain a first anode layer **210**. A first pixel definition layer **310** is formed on the planarization layer **500** and the first anode layer **210**. Then, an electrode material is formed on the first pixel definition layer **310** and is patterned to obtain a second anode layer **220**. Afterwards, a second pixel definition layer **320** is formed on the first pixel definition layer **310** and the second anode layer **220**. Afterwards, an electrode material is formed on the second

pixel definition layer **320** and is patterned to obtain a third anode layer **230**. A third pixel definition layer **330** is formed on the second pixel definition layer **320** and the third anode layer **230**. Then, a plurality of first openings **301**, correspondingly disposed above the plurality of first anodes **211**, is formed on the first pixel definition layer **310**, the second pixel definition layer **320** and the third pixel definition layer **330**, and a plurality of second openings **302**, correspondingly disposed above the plurality of second anodes **221**, is formed on the second pixel definition layer **320** and the third pixel definition layer **330**, and a plurality of third openings **303**, correspondingly disposed above the plurality of third anodes **231**, is formed on the third pixel definition layer **330**. Afterwards, an organic light emitting diode functional layer **700** is formed in the plurality of first openings **301**, the plurality of second openings **302** and the plurality of third openings **303**, and a cathode **800** is formed on the organic light emitting diode functional layer **700**. Finally, a thin film packaging layer **900** is formed on the cathode **800** and the third pixel definition layer **330**. A touch layer **1000**, an optical adhesive layer **1100**, a polarizer **1200** and a cover plate **1300** are sequentially formed on the thin film packaging layer **900**.

[0049] The difference of the second manufacturing method of the first embodiment of the organic light emitting diode panel of the present invention from the first manufacturing method is that: after the first pixel definition layer **310** is formed, the plurality of the first openings **301**, correspondingly disposed above the plurality of first anodes **211**, is first formed on the first pixel definition layer **310**. Then, after forming the second pixel definition layer **320**, the plurality of second openings **302**, correspondingly disposed above the plurality of second anodes **221**, is formed on the second pixel definition layer **320**. Meanwhile, a portion of the second pixel definition layer **320** corresponding to the first opening **301** is removed. Then, after forming the third pixel definition layer **330**, the plurality of third openings **303**, correspondingly disposed above the plurality of third anodes **231**, is formed on the third pixel definition layer **330**. Meanwhile, a portion of the third pixel definition layer **330** corresponding to the first opening **301** and the second opening **302** is removed, and the rest steps are the same as those of the first manufacturing method. Compared with the first fabricating method, the second fabricating method does not need to make openings with different depths. The process is simple and the reliability is higher.

[0050] Significantly, as the second embodiment of the organic light emitting diode panel of the present invention is used in a red, green and blue three color display device, preferably, the organic light emitting diode functional layer **700** located in the plurality of first openings **301** has the same color, the organic light emitting diode functional layer **700** located in the plurality of second openings **302** has the same color, and the organic light emitting diode functional layer **700** located in the plurality of third openings **303** has the same color. Meanwhile, the organic light emitting diode functional layer **700** in the first opening **301**, the organic light emitting diode functional layer **700** in the second opening **302**, and the organic light emitting diode functional layer **700** in the third opening **303** are one of a red organic light emitting diode functional layer, a green organic light emitting diode functional layer and a blue color, respectively. Namely, the OLED functional layer **700** of the same color is formed on the anodes of the same anode layer, so as

to avoid the influence on the monochromatic display effect due to the inconsistency of the process conditions to improve the quality of the product.

[0051] Specifically, in the second embodiment of the organic light emitting diode of the present invention, the first anode layer **210** is disposed above the thin film transistor substrate **100**, and the second anode layer **220** and the pixel definition layer **300** are disposed on the first anode layer **210**, and meanwhile, the third anode layer **230** is disposed on the second pixel definition layer **320** of the pixel definition layer **300**, and specifically, a sum of the width of the plurality of the second anode **221** of the second anode layer **220** and the width of the plurality of the third anode **231** of the third anode layer **230** is greater than the width of the corresponding first space **212**. Thus, the first anode layer **210**, the second anode layer **220** and the third anode layer **230** together shield the thin film transistor substrate **100** to form a compact reflective layer. Thus, as the organic light emitting diode panel displays, the light emitted from the organic light emitting diode functional layer **700** is totally reflected on the compact reflective layer formed by the first anode layer **210**, the second anode layer **220** and the third anode layer **230**, together. The reflection of the light emitted from the organic light emitting diode functional layer **700** inside the organic light emitting diode panel is greatly enhanced, to enhance the brightness and viewing angle of the organic light emitting diode panel, to reduce the power consumption, and to improve the product quality.

[0052] In conclusion, the organic light emitting diode panel of the present invention comprises a thin film transistor substrate, a first anode layer disposed on the thin film transistor substrate and a second anode layer and a pixel definition layer disposed on the first anode layer, wherein the pixel definition layer comprises a first pixel definition layer disposed between the first anode layer and the second anode layer. By disposing the first anode layer and the second anode layer, as the organic light emitting diode panel displays, the reflection of the light emitted from the organic light emitting diode functional layer inside the organic light emitting diode panel is greatly enhanced, to enhance the brightness and viewing angle of the organic light emitting diode panel, to reduce the power consumption, and to improve the product quality.

[0053] Above are only specific embodiments of the present invention, the scope of the present invention is not limited to this, and to any persons who are skilled in the art, change or replacement which is easily derived should be covered by the protected scope of the invention. Thus, the protected scope of the invention should go by the subject claims.

What is claimed is:

1. An organic light emitting diode panel, comprising a thin film transistor substrate, a first anode layer disposed on the thin film transistor substrate and a second anode layer and a

pixel definition layer disposed on the first anode layer, wherein the pixel definition layer comprises a first pixel definition layer disposed between the first anode layer and the second anode layer.

2. The organic light emitting diode panel according to claim 1, wherein the pixel definition layer further comprises a second pixel definition layer disposed on the second anode layer.

3. The organic light emitting diode panel according to claim 2, wherein the first pixel definition layer and the second pixel definition layer have the same material.

4. The organic light emitting diode panel according to claim 2, wherein the first anode layer comprises a plurality of first anodes; the second anode layer comprises a plurality of second anodes; a first space is formed between two adjacent first anodes, and the second anode is correspondingly disposed above the first space.

5. The organic light emitting diode panel according to claim 4, wherein a width of the second anode is greater than a width of the first space.

6. The organic light emitting diode panel according to claim 4, wherein a plurality of first openings is disposed on the plurality of first anodes, and a plurality of second openings is disposed on the plurality of second anodes, and an organic light emitting diode functional layer is provided in the first opening and in the second opening.

7. The organic light emitting diode panel according to claim 4, further comprising a planarization layer disposed between the first anode layer and the thin film transistor substrate, and the first anode and the second anode are electrically connected to the thin film transistor substrate by penetrating through the planarization layer.

8. The organic light emitting diode panel according to claim 6, further comprising a third anode layer disposed on the second pixel definition layer.

9. The organic light emitting diode panel according to claim 8, wherein the pixel definition layer further comprises a third pixel definition layer disposed on the third anode layer;

the first pixel definition layer, the second pixel definition layer and the third pixel definition layer have the same material.

10. The organic light emitting diode panel according to claim 9, wherein the third anode layer comprises a plurality of third anodes; the third anode is correspondingly disposed above the first space, and both a width of the second anode and a width of the third anode are less than a width of the first space, and a sum of the width of the second anode and the width of the third anode is greater than the width of the first space;

a plurality of third openings is disposed on the plurality of third anodes, and the organic light emitting diode functional layer is provided in the third opening.

* * * * *

专利名称(译)	有机发光二极管面板		
公开(公告)号	US20200168843A1	公开(公告)日	2020-05-28
申请号	US16/090968	申请日	2018-09-13
[标]发明人	LIN JIANHONG ZHANG DI		
发明人	LIN, JIANHONG ZHANG, DI		
IPC分类号	H01L51/52 H01L27/32		
CPC分类号	H01L27/326 H01L51/5278 H01L51/5253 H01L27/3244 H01L51/5271 H01L27/323 H01L27/3246 H01L27/3248 H01L51/5206 H01L51/5209 H01L51/5281		
优先权	201810321519.8 2018-04-11 CN		
外部链接	Espacenet USPTO		

摘要(译)

提供了一种有机发光二极管面板。有机发光二极管面板包括薄膜晶体管基板，设置在薄膜晶体管基板上的第一阳极层，以及第二阳极层和设置在第一阳极层上的像素限定层，其中像素限定层包括第一像素。限定层设置在第一阳极层和第二阳极层之间。通过布置第一阳极层和第二阳极层，当有机发光二极管面板显示时，从有机发光二极管面板内部的有机发光二极管功能层发出的光的反射大大增强，从而提高了亮度。有机发光二极管面板的视角和角度，以减少功耗，并提高产品质量。

