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(54) **FLEXIBLE ORGANIC LIGHT EMITTING DIODE DISPLAY AND MANUFACTURING METHOD THEREOF**

(71) Applicant: **Wuhan China Star Optoelectronics Technology Co., Ltd.**, Wuhan, HU (CN)

(72) Inventor: **Wei Wang**, Wuhan, HU (CN)

(73) Assignee: **Wuhan China Star Optoelectronics Technology Co., Ltd.**, Wuhan, HU (CN)

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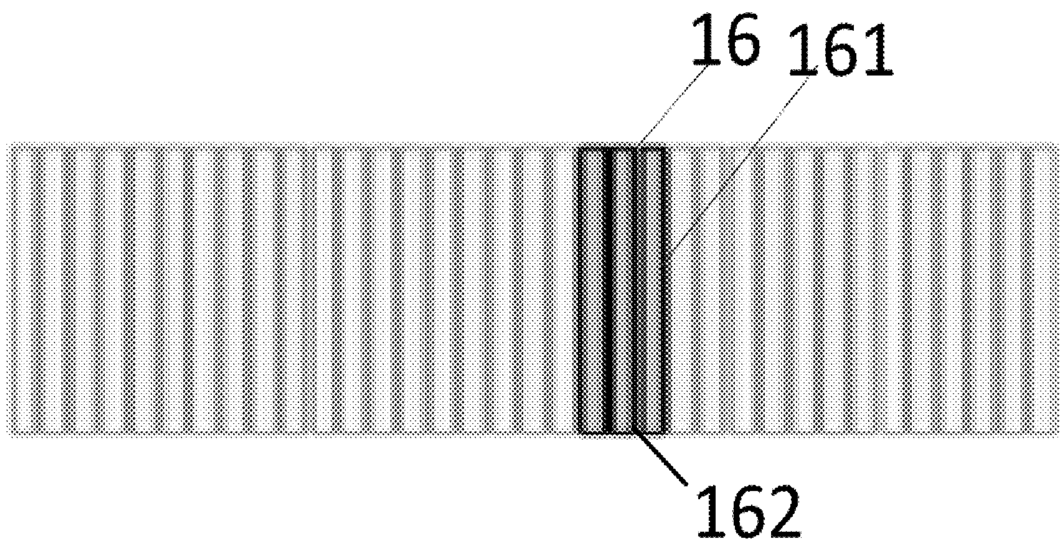
(57) **ABSTRACT**

A flexible organic light emitting diode display and manufacturing method thereof are provided. The method includes: performing a first patterning process on an amorphous silicon film; performing a crystallization treatment on the amorphous silicon film which has been processed by the first patterning process to form an oriented crystalline polycrystalline silicon film; performing a second patterning process on the polycrystalline silicon film to form a channel; and sequentially forming a gate, a source, a drain, an OLED display layer, and a packaging layer over the channel.



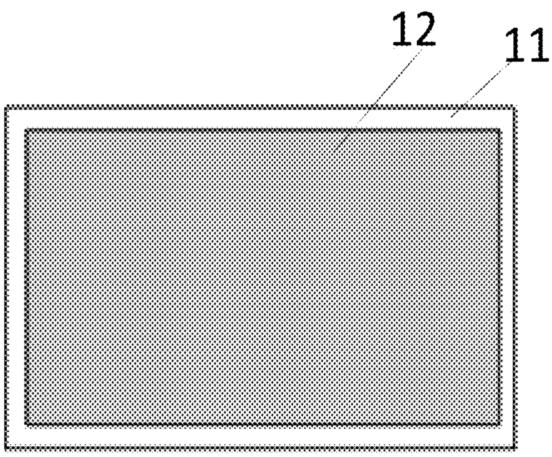



FIG. 1

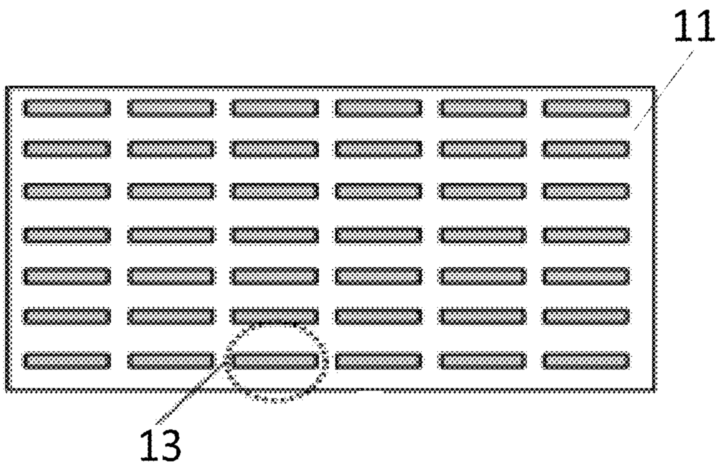



FIG. 2

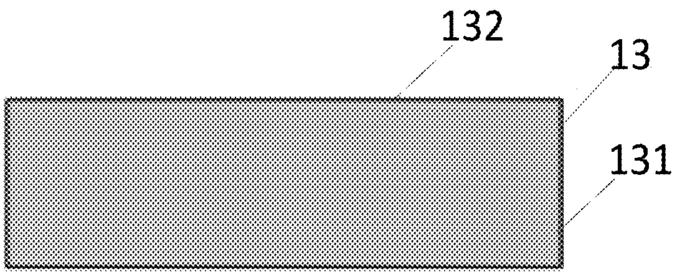



FIG. 3

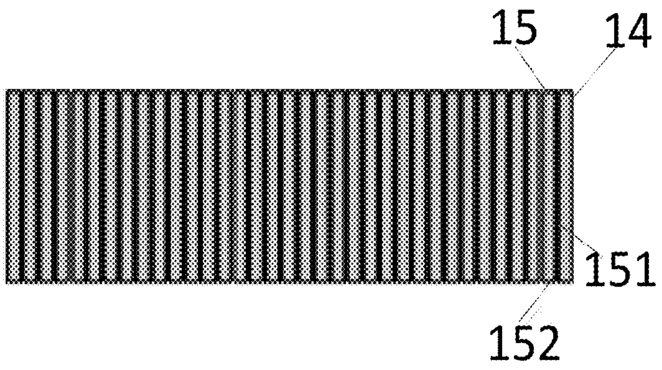



FIG. 4

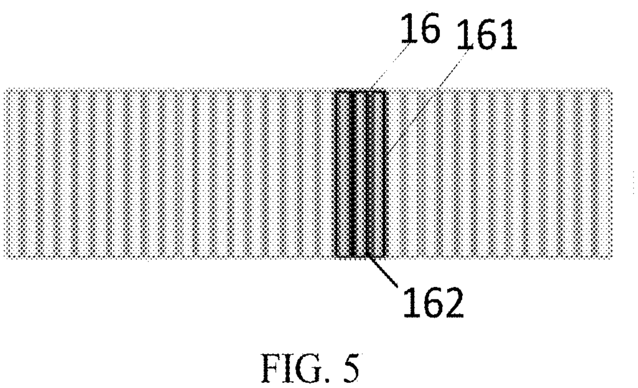



FIG. 5

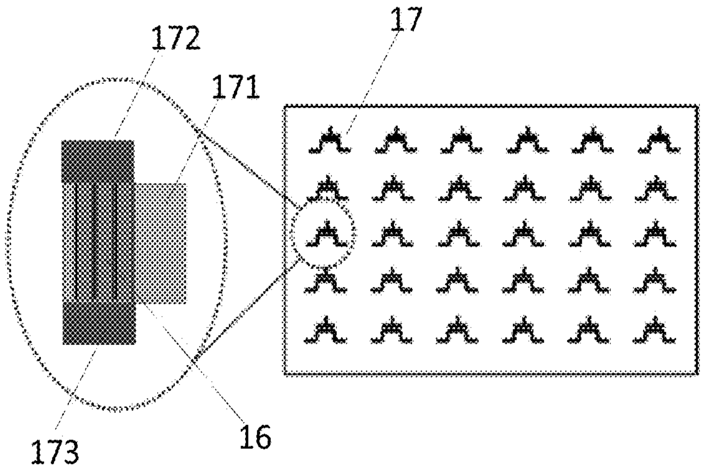



FIG. 6

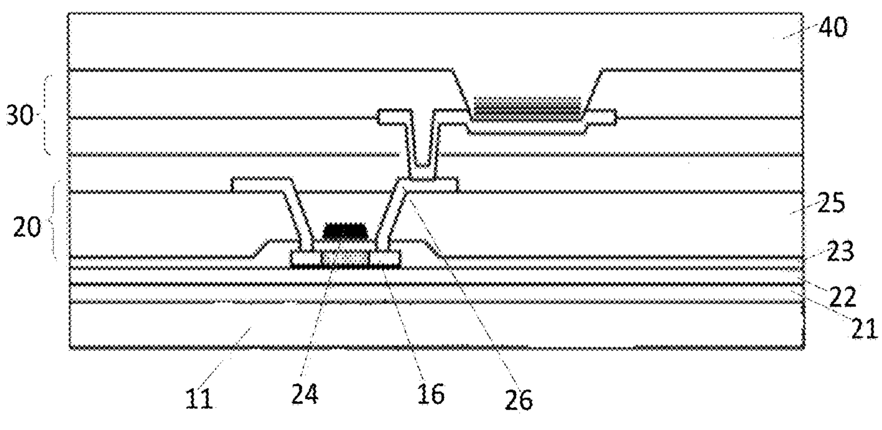



FIG. 7

# FLEXIBLE ORGANIC LIGHT EMITTING DIODE DISPLAY AND MANUFACTURING METHOD THEREOF

## FIELD OF THE DISCLOSURE

**[0001]** The present disclosure relates to the field of display devices, and more particularly to a flexible organic light emitting diode display and manufacturing method thereof.

## BACKGROUND

**[0002]** Recently, flexible display technology is mainly used in small and medium size products. In general, an LTPS-TFT back plane is used, where a low temperature poly-silicon (LTPS), which is crystallized by excimer laser annealing (ELA), serves as a channel layer of a thin film transistor (TFT). The electrical parameters (e.g., threshold voltage, subthreshold swing, mobility, etc.) of the TFT are strongly associated with a grain boundary density in the channel. To make an array substrate having good electrical uniformity, the LTPS film is required to have a very uniform grain size.

**[0003]** An LTPS film is constituted by many silicon grains, which inevitably have grain boundaries. Since an atomic binding force at a crystalline interface of the LTPS thin film is weak, an inter-granular fracture/deformation occurs at the grain boundary under a bending stress, so that electrical characteristics of the TFT are deteriorated and the device even fails.

**[0004]** Accordingly, it is necessary to provide a flexible organic light emitting diode display and manufacturing method thereof to solve the technical problems in the prior art.

## SUMMARY OF THE DISCLOSURE

**[0005]** An object of the present disclosure is to provide a flexible organic light emitting diode display and manufacturing method thereof, by which a grain boundary density of an LTPS film along a lengthwise direction of a channel can be decreased.

**[0006]** In order to solve technical problems mentioned above, the present disclosure provides a manufacturing method of a flexible organic light emitting diode, including:

**[0007]** depositing an amorphous silicon film over a flexible substrate and performing a first patterning process on the amorphous silicon film;

**[0008]** excimer laser annealing the amorphous silicon film which has been processed by the first patterning process to form an oriented crystalline polycrystalline silicon film;

**[0009]** performing a second patterning process on the polycrystalline silicon film to form a channel;

**[0010]** sequentially forming a gate, a source, and a drain over the channel;

**[0011]** forming an OLED display layer on the source and the drain; and

**[0012]** forming a packaging layer on the OLED display layer;

**[0013]** wherein after performing the first patterning process on the amorphous silicon film, a plurality of sub-amorphous silicon films are formed, each of the sub-amorphous silicon films includes two sets of adjacent first sides and second sides, a length of the first side is less than a length of the second side; and

**[0014]** a lengthwise direction of the channel is parallel with the first side, and a widthwise direction of the channel is parallel with the second side.

**[0015]** In the manufacturing method of the flexible organic light emitting diode of the present disclosure, the polycrystalline silicon film is crystallized along an extension line of the first side.

**[0016]** In the manufacturing method of the flexible organic light emitting diode of the present disclosure, the polycrystalline silicon film includes a plurality of polysilicon grains, a lengthwise direction of the polysilicon grains is the same as the lengthwise direction of the channel, and a widthwise direction of the polysilicon grains is the same as the widthwise direction of the channel.

**[0017]** In the manufacturing method of the flexible organic light emitting diode of the present disclosure, the step of depositing the amorphous silicon film over the flexible substrate includes:

**[0018]** forming a barrier layer on the flexible substrate;

**[0019]** forming a buffer layer on the barrier layer; and

**[0020]** depositing the amorphous silicon film on the buffer layer.

**[0021]** In the manufacturing method of the flexible organic light emitting diode of the present disclosure, the step of sequentially forming the gate over the channel includes:

**[0022]** forming a gate insulator layer on the channel; and

**[0023]** forming a first metal layer on the gate insulator layer, and performing a patterning process on the first metal layer to form the gate.

**[0024]** The present disclosure provides a manufacturing method of a flexible organic light emitting diode, including:

**[0025]** depositing an amorphous silicon film over a flexible substrate and performing a first patterning process on the amorphous silicon film;

**[0026]** performing a crystallization treatment on the amorphous silicon film which has been processed by the first patterning process to form an oriented crystalline polycrystalline silicon film;

**[0027]** performing a second patterning process on the polycrystalline silicon film to form a channel;

**[0028]** sequentially forming a gate, a source, and a drain over the channel;

**[0029]** forming an OLED display layer on the source and the drain; and

**[0030]** forming a packaging layer on the OLED display layer.

**[0031]** In the manufacturing method of the flexible organic light emitting diode of the present disclosure, after performing the first patterning process on the amorphous silicon film, a plurality of sub-amorphous silicon films are formed, each of the sub-amorphous silicon films includes two sets of adjacent first sides and second sides, a length of the first side is less than a length of the second side; and

**[0032]** a lengthwise direction of the channel is parallel with the first side, and a widthwise direction of the channel is parallel with the second side.

**[0033]** In the manufacturing method of the flexible organic light emitting diode of the present disclosure, the polycrystalline silicon film is crystallized along an extension line of the first side.

**[0034]** In the manufacturing method of the flexible organic light emitting diode of the present disclosure, the polycrystalline silicon film includes a plurality of polysilicon grains, a lengthwise direction of the polysilicon grains is the same as the lengthwise direction of the channel, and a widthwise direction of the polysilicon grains is the same as the widthwise direction of the channel.

[0035] In the manufacturing method of the flexible organic light emitting diode of the present disclosure, the crystallization treatment is an excimer laser anneal treatment.

[0036] In the manufacturing method of the flexible organic light emitting diode of the present disclosure, the step of depositing the amorphous silicon film over the flexible substrate includes:

[0037] forming a barrier layer on the flexible substrate;

[0038] forming a buffer layer on the barrier layer; and

[0039] depositing the amorphous silicon film on the buffer layer.

[0040] In the manufacturing method of the flexible organic light emitting diode of the present disclosure, a material of the buffer layer includes $SiO_2$, $SiN_x$, or $Al_2O_3$.

[0041] In the manufacturing method of the flexible organic light emitting diode of the present disclosure, the step of sequentially forming the gate over the channel includes:

[0042] forming a gate insulator layer on the channel; and

[0043] forming a first metal layer on the gate insulator layer, and performing a patterning process on the first metal layer to form the gate.

[0044] The present disclosure also provides a flexible organic light emitting diode display, including:

[0045] a flexible substrate;

[0046] an active array layer located over the flexible substrate, where the active array layer includes an active layer for forming a channel, the channel is formed by performing a second patterning process on an oriented crystalline polycrystalline silicon film, the oriented crystalline polycrystalline silicon film is formed by performing a first patterning process on an amorphous silicon film and then by performing a crystallization treatment on the amorphous silicon film which has been processed by the first patterning process;

[0047] an OLED display layer located on the active array layer; and

[0048] a packaging layer located on the OLED display layer.

[0049] In the flexible organic light emitting diode display of the present disclosure, the amorphous silicon film, which has been processed by the first patterning process, includes a plurality of sub-amorphous silicon films, each of the sub-amorphous silicon films includes two sets of adjacent first sides and second sides, a length of the first side is less than a length of the second side; and

[0050] a lengthwise direction of the channel is parallel with the first side, and a widthwise direction of the channel is parallel with the second side.

[0051] In the flexible organic light emitting diode display of the present disclosure, the polycrystalline silicon film includes a plurality of polysilicon grains, a lengthwise direction of the polysilicon grains is the same as the lengthwise direction of the channel, and a widthwise direction of the polysilicon grains is the same as the widthwise direction of the channel.

[0052] In the flexible organic light emitting diode display of the present disclosure, the crystallization treatment is an excimer laser anneal treatment.

[0053] In the flexible organic light emitting diode display and manufacturing method of the present disclosure, since the active layer is made by the oriented crystalline polycrystalline silicon film, the grain boundary density of the LTPS thin film along the TFT channel direction is low. Therefore, the TFT has better electrical properties, and an inter-granular fracture/deformation does not easily occur at a grain boundary under a bending stress, thereby increasing a reliability of the TFT and increasing a reliability of the flexible display device under bending stress.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0054] FIG. **1** is a schematic diagram of a first step of a manufacturing method of a flexible organic light emitting diode of the present disclosure.

[0055] FIG. **2** is a schematic diagram of a second step of the manufacturing method of the flexible organic light emitting diode of the present disclosure.

[0056] FIG. **3** is an enlarged structural diagram of a sub-amorphous silicon film in FIG. **2**.

[0057] FIG. **4** is a schematic diagram of a third step of the manufacturing method of the flexible organic light emitting diode of the present disclosure.

[0058] FIG. **5** is a schematic diagram of a fourth step of the manufacturing method of the flexible organic light emitting diode of the present disclosure.

[0059] FIG. **6** is a structural diagram of a thin film transistor in the flexible organic light emitting diode display of the present disclosure.

[0060] FIG. **7** is a structural diagram of the flexible organic light emitting diode display of the present disclosure.

## DETAILED DESCRIPTION

[0061] The following embodiments refer to the accompanying drawings for exemplifying specific implementable embodiments of the present disclosure. Moreover, directional terms described by the present disclosure, such as upper, lower, front, back, left, right, inner, outer, side, etc., are only directions by referring to the accompanying drawings, and thus the used directional terms are used to describe and understand the present disclosure, but the present disclosure is not limited thereto. In the drawings, the same reference symbol represents the same or similar components.

[0062] FIG. **1** is a schematic diagram of a first step of a manufacturing method of a flexible organic light emitting diode of the present disclosure.

[0063] As shown in FIG. **1**, the manufacturing method of a flexible organic light emitting diode of the present disclosure includes:

[0064] S101, an amorphous silicon film is deposited over a flexible substrate.

[0065] As shown in FIG. **1**, a barrier layer, a buffer layer, and the amorphous silicon film **12** are sequentially deposited on the substrate **11**.

[0066] S102, the amorphous silicon film has performed a first patterning process.

[0067] As shown in FIG. **2**, the amorphous silicon film **12** is patterned by a yellow light lithography process to obtain a plurality of sub-amorphous silicon films **13**.

[0068] In one embodiment, the shape of the sub-amorphous silicon film **13** is rectangular. As shown in FIG. **3**, the sub-amorphous silicon film **13** has two sets of adjacent first sides **131** (short side) and second sides **132** (long side). A length of the first side **131** is less than a length of the second side **132**.

**[0069]** In conjunction with FIG. **7**, the step of depositing the amorphous silicon film on the flexible substrate includes:

**[0070]** S1021, a barrier layer is formed on the flexible substrate.

**[0071]** For example, the barrier layer **21** is formed on the flexible substrate **11**. The barrier layer **21** is made of inorganic materials such as $SiO_2$, $SiN_x$, or $Al_2O_3$, and is used to isolate water molecules, to avoid thin film transistors being damaged by the water molecules on the air. The barrier layer **21** is fabricated by low temperature plasma enhanced chemical vapor deposition (PECVD) or atomic layer deposition (ALD).

**[0072]** S1022, a buffer layer is formed on the barrier layer.

**[0073]** The material of the buffer layer **22** is an inorganic material. The material of the buffer layer **22** may be $SiO_2$, $SiN_x$, or $Al_2O_3$. The preparation method of the buffer layer **22** is the same as the preparation method of the barrier layer **21**.

**[0074]** S1023, the amorphous silicon film is deposited on the buffer layer.

**[0075]** S103, the amorphous silicon film which has been processed by the first patterning process has performed a crystallization treatment to form an oriented crystalline polycrystalline silicon film.

**[0076]** As shown in FIG. **4**, the plurality of sub-amorphous silicon films shown in FIG. **2** are subjected to the crystallization treatment, so that the oriented crystalline polycrystalline silicon film crystallized along the short side direction of the sub-amorphous silicon film is formed.

**[0077]** In one embodiment, the crystallization treatment is an excimer laser anneal treatment. Amorphous silicon film absorbs laser energy and melts into liquid, and then it is passed through a cooling-crystallization. Since the heat dissipation from the edge of the sub-amorphous silicon film **13** is relatively fast, the temperature at the edge is relatively low. Hence, the edge becomes a nucleation point of the polysilicon crystal. Polysilicon grains are crystallized from the edge (low temperature region) of the sub-amorphous silicon film **13** to a center (high temperature region) of the sub-amorphous silicon film **13** to form columnar polysilicon grains in the long side direction perpendicular to the sub-amorphous silicon film **13**. Since a distance of the short side of the sub-amorphous silicon film is short and the temperature difference at the short side is large, it is easy to form the polysilicon grains grown in the direction of the short side.

**[0078]** That is, the polycrystalline silicon film **14** includes a plurality of polysilicon grains **15**, which are arranged side by side and have a rectangular shape. The polysilicon grain **15** has a long side **151** and a short side **152**. The direction of the long side is a lengthwise direction, and the direction of the short side is a widthwise direction.

**[0079]** S104, the polycrystalline silicon film has performed a second patterning process to form a channel.

**[0080]** As shown in FIG. **5**, the lengthwise direction **161** of the channel **16** is the same as the lengthwise direction of the polysilicon grains **15**, and the widthwise direction **162** of the channel **16** is the same as the widthwise direction of the polysilicon grains **15**.

**[0081]** Furthermore, the lengthwise direction **161** of the channel **16** is parallel to the first side **131**, and the widthwise direction **162** of the channel **16** is parallel to the second side **132**.

**[0082]** Thus, the grain boundary density along the lengthwise direction of the channel of a thin film transistor is very low. An inter-granular fracture/deformation does not easily occur at the grain boundary under a bending stress, such that the thin film transistor has higher reliability and better electrical properties under the bending stress, thereby increasing the reliability of the flexible display device under the bending stress.

**[0083]** S105, a gate, a source, and a drain are sequentially formed over the channel to form the thin film transistor.

**[0084]** For example, a gate insulator layer, the gate, an interlayer insulation layer, and the source, and the drain are sequentially formed on the channel.

**[0085]** As shown in FIG. **6**, the thin film transistor includes the gate **171**, the drain **171**, and the source **173**. The channel **16** is located between the source **172** and the drain **171**.

**[0086]** The step of sequentially forming the gate on the channel in step S105 includes:

**[0087]** In conjunction with FIG. **6** and FIG. **7**, S1051, the gate insulator layer **23** is formed on the channel **16**.

**[0088]** S1052, a first metal layer **24** is formed on the gate insulator layer **23**, and the first metal layer **24** is patterned to obtain the gate.

**[0089]** Furthermore, the above method may also include:

**[0090]** S1053, an interlayer insulation layer **25** is formed on the first metal layer **24**.

**[0091]** S1054, a second metal layer **26** is formed on the interlayer insulation layer **25**. The second metal layer **26** is patterned to obtain the source and the drain.

**[0092]** S106, an OLED display layer **30** is formed on the source and the drain.

**[0093]** S107, a packaging layer **40** is formed on the OLED display layer **30**.

**[0094]** In the manufacturing method of the flexible organic light emitting diode of the present disclosure, since the active layer is made by the oriented crystalline polycrystalline silicon film, the grain boundary density of the LTPS thin film along the TFT channel direction is low. Therefore, the TFT has better electrical properties, and an inter-granular fracture/deformation does not easily occur at a grain boundary under a bending stress, thereby increasing a reliability of the TFT and increasing a reliability of the flexible display device under bending stress.

**[0095]** As shown in FIG. **7**, the flexible organic light emitting diode display of the present disclosure includes the flexible substrate **11**, the barrier layer **21**, the buffer layer **22**, an active array layer **20**, the OLED display layer **30**, and the packaging layer **40**.

**[0096]** The barrier layer **21** is located on the flexible substrate **11**. The active array layer **20** is located on the buffer layer **22**. The material of the barrier layer **21** is an inorganic material, such as $SiO_2$, $SiN_x$, or $Al_2O_3$, and is used to isolate water molecules, to avoid thin film transistors being damaged by the water molecules on the air. The barrier layer **21** is fabricated by low temperature plasma enhanced chemical vapor deposition (PECVD) or atomic layer deposition (ALD).

**[0097]** The material of the buffer layer **22** is an inorganic material. The material of the buffer layer **22** may be $SiO_2$,

$SiN_x$, or $Al_2O_3$. The preparation method of the buffer layer **22** is the same as the preparation method of the barrier layer **21**.

**[0098]** The active array layer **20** includes the active layer for forming the channel **16**, the gate insulator layer **23**, the first metal layer **24**, the interlayer insulation layer **25**, and the second metal layer **26**.

**[0099]** The active layer is made by the oriented crystalline polycrystalline silicon film which is formed by performing the first patterning process on the amorphous silicon film, and then performing the crystallization treatment on the amorphous silicon film. The channel **16** is formed by performing the second patterning process on the oriented crystalline polycrystalline silicon film.

**[0100]** The gate insulator layer **23** and the gate (i.e., a metal gate electrode) formed by patterning the first metal layer **24** are located between the first metal layer **24** and the active layer. The interlayer insulation layer **25** is located on the gate. The second metal layer **26** is located on the interlayer insulation layer **25**. The source and the drain (i.e., source/drain metal electrodes) are formed by patterning the second metal layer **26**.

**[0101]** The OLED display layer **30** is located on the active array layer **20**. The OLED display layer **30** includes OLED units, where the OLED units are electrically connected with the active array layer. Specifically, the OLED unit is connected with the drain of the thin film transistor. The packaging layer **40** is located on the OLED display layer **30**.

**[0102]** In the flexible organic light emitting diode display of the present disclosure, since the active layer is made by the oriented crystalline polycrystalline silicon film, the grain boundary density of the LTPS thin film along the TFT channel direction is low. Therefore, the TFT has better electrical properties, and has higher reliability under bending stress, thereby increasing the reliability of the flexible display device under bending stress.

**[0103]** The above descriptions are merely preferable embodiments of the present disclosure, and are not intended to limit the scope of the present disclosure. Any modification or replacement made by those skilled in the art without departing from the spirit and principle of the present disclosure should fall within the protection scope of the present disclosure. Therefore, the protection scope of the present disclosure is subject to the appended claims.

What is claimed is:

**1**. A manufacturing method of a flexible organic light emitting diode (OLED) display, comprising:

depositing an amorphous silicon film over a flexible substrate and performing a first patterning process on the amorphous silicon film;

excimer laser annealing the amorphous silicon film which has been processed by the first patterning process to form an oriented crystalline polycrystalline silicon film;

performing a second patterning process on the polycrystalline silicon film to form a channel;

sequentially forming a gate, a source, and a drain over the channel;

forming an OLED display layer on the source and the drain; and

forming a packaging layer on the OLED display layer;

wherein after performing the first patterning process on the amorphous silicon film, a plurality of sub-amorphous silicon films are formed, each of the sub-amorphous silicon films comprises two sets of adjacent first sides and second sides, a length of the first side is less than a length of the second side; and

a lengthwise direction of the channel is parallel with the first side, and a widthwise direction of the channel is parallel with the second side.

**2**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **1**, wherein the polycrystalline silicon film is crystallized along an extension line of the first side.

**3**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **1**, wherein the polycrystalline silicon film comprises a plurality of polysilicon grains, a lengthwise direction of the polysilicon grains is the same as the lengthwise direction of the channel, and a widthwise direction of the polysilicon grains is the same as the widthwise direction of the channel.

**4**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **1**, wherein the step of depositing the amorphous silicon film over the flexible substrate comprises:

forming a barrier layer on the flexible substrate;

forming a buffer layer on the barrier layer; and

depositing the amorphous silicon film on the buffer layer.

**5**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **1**, wherein the step of sequentially forming the gate over the channel comprises:

forming a gate insulator layer on the channel; and

forming a first metal layer on the gate insulator layer, and performing a patterning process on the first metal layer to form the gate.

**6**. A manufacturing method of a flexible organic light emitting diode display, comprising:

depositing an amorphous silicon film over a flexible substrate and performing a first patterning process on the amorphous silicon film;

performing a crystallization treatment on the amorphous silicon film which has been processed by the first patterning process to form an oriented crystalline polycrystalline silicon film;

performing a second patterning process on the polycrystalline silicon film to form a channel;

sequentially forming a gate, a source, and a drain over the channel;

forming an OLED display layer on the source and the drain; and

forming a packaging layer on the OLED display layer.

**7**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **6**, wherein after performing the first patterning process on the amorphous silicon film, a plurality of sub-amorphous silicon films are formed, each of the sub-amorphous silicon films comprises two sets of adjacent first sides and second sides, a length of the first side is less than a length of the second side; and

a lengthwise direction of the channel is parallel with the first side, and a widthwise direction of the channel is parallel with the second side.

**8**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **7**, wherein the polycrystalline silicon film is crystallized along an extension line of the first side.

**9**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **7**, wherein the polycrystalline silicon film comprises a plurality of polysilicon grains, a lengthwise direction of the polysilicon grains is the same as the lengthwise direction of the channel, and a widthwise direction of the polysilicon grains is the same as the widthwise direction of the channel.

**10**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **6**, wherein the crystallization treatment is an excimer laser anneal treatment.

**11**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **6**, wherein the step of depositing the amorphous silicon film over the flexible substrate comprises:

forming a barrier layer on the flexible substrate;

forming a buffer layer on the barrier layer; and

depositing the amorphous silicon film on the buffer layer.

**12**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **11**, wherein a material of the buffer layer comprises SiO2, SiNx, or Al2O3.

**13**. The manufacturing method of the flexible organic light emitting diode display as claimed in claim **6**, wherein the step of sequentially forming the gate over the channel comprises:

forming a gate insulator layer on the channel; and

forming a first metal layer on the gate insulator layer, and performing a patterning process on the first metal layer to form the gate.

**14**. A flexible organic light emitting diode display, comprising:

a flexible substrate;

an active array layer located over the flexible substrate, wherein the active array layer comprises an active layer for forming a channel, the channel is formed by performing a second patterning process on an oriented crystalline polycrystalline silicon film, the oriented crystalline polycrystalline silicon film is formed by performing a first patterning process on an amorphous silicon film and then by performing a crystallization treatment on the amorphous silicon film which has been processed by the first patterning process;

an OLED display layer located on the active array layer; and

a packaging layer located on the OLED display layer.

**15**. The flexible organic light emitting diode display as claimed in claim **14**, wherein the amorphous silicon film which has been processed by the first patterning process comprises a plurality of sub-amorphous silicon films, each of the sub-amorphous silicon films comprises two sets of adjacent first sides and second sides, a length of the first side is less than a length of the second side; and

a lengthwise direction of the channel is parallel with the first side, and a widthwise direction of the channel is parallel with the second side.

**16**. The flexible organic light emitting diode display as claimed in claim **15**, wherein the polycrystalline silicon film comprises a plurality of polysilicon grains, a lengthwise direction of the polysilicon grains is the same as the lengthwise direction of the channel, and a widthwise direction of the polysilicon grains is the same as the widthwise direction of the channel.

**17**. The flexible organic light emitting diode display as claimed in claim **14**, wherein the crystallization treatment is an excimer laser anneal treatment.

* * * * *

| | |
|---|---|
| 专利名称(译) | 柔性有机发光二极管显示器及其制造方法 |

| | | | |
|---|---|---|---|
| 公开(公告)号 | US20180301480A1 | 公开(公告)日 | 2018-10-18 |
| 申请号 | US15/568690 | 申请日 | 2017-04-25 |

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| [标]申请(专利权)人(译) | 武汉华星光电技术有限公司 |
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| [标]发明人 | WANG WEI |
| 发明人 | WANG, WEI |
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摘要(译)

提供一种柔性有机发光二极管显示器及其制造方法。该方法包括：对非晶硅膜进行第一次构图工艺;对已经通过第一次构图工艺处理的非晶硅膜进行结晶处理，以形成取向的结晶多晶硅膜;在多晶硅膜上进行第二次构图工艺以形成沟道;在沟道上依次形成栅极，源极，漏极，OLED显示层和封装层。