



(12) 实用新型专利

(10) 授权公告号 CN 205140985 U

(45) 授权公告日 2016. 04. 06

(21) 申请号 201520834324. 5

(22) 申请日 2015. 10. 22

(73) 专利权人 信利(惠州)智能显示有限公司

地址 516006 广东省惠州市仲恺高新区仲恺
大道 666 号科融创业大厦 13 层

(72) 发明人 郑武 陈天佑 罗锦钊 胡君文
苏君海 李建华

(74) 专利代理机构 广州三环专利代理有限公司
44202

代理人 章兰芳

(51) Int. Cl.

H01L 27/32(2006. 01)

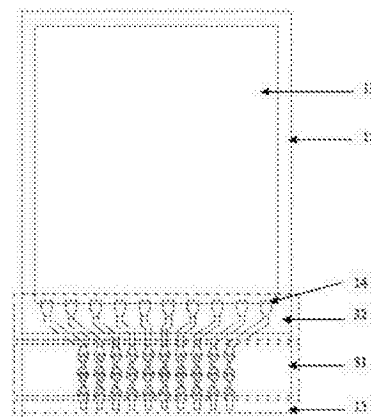
权利要求书1页 说明书3页 附图3页

(54) 实用新型名称

一种柔性 AMOLED 显示面板结构

(57) 摘要

本实用新型提供一种柔性 AMOLED 显示面板结构,包括第一基板和第二基板,第二基板为保护盖板,在第一基板上包含显示区域、非显示区域,非显示区域分布在显示区域四周并且左右对称,非显示区域上的控制器连接接口的各端点通过金属走线结构连接显示区域中的各数据线,所述金属走线结构包括弯折走线区域和扇形走线区域,每条弯折走线区域内的金属走线和扇形走线区域内的金属走线一一对应连接。本实用新型通过改变柔性 AMOLED 显示面板的金属走线结构,使得弯折走线区域的金属走线和扇形走线区域的金属走线的电阻更加均匀,提高显示区域在整个显示面板中所占的比例,增大显示区域的面积。



1. 一种柔性 AMOLED 显示面板结构, 包括第一基板和第二基板, 第二基板为保护盖板, 在第一基板上包含显示区域、非显示区域, 非显示区域分布在显示区域四周并且左右对称, 其特征在于: 非显示区域上的控制器连接接口的各端点通过金属走线结构连接显示区域中的各数据线, 所述金属走线结构包括弯折走线区域和扇型走线区域, 每条弯折走线区域内的金属走线和扇形走线区域内的金属走线一一对应连接。

2. 根据权利要求 1 所述的柔性 AMOLED 显示面板结构, 其特征在于:
弯折走线区域中的金属走线经刻蚀形成过孔。

3. 根据权利要求 2 所述的柔性 AMOLED 显示面板结构, 其特征在于:
弯折走线区域中的金属走线经刻蚀形成的过孔呈正六边形。

4. 根据权利要求 2 所述的柔性 AMOLED 显示面板结构, 其特征在于:
弯折走线区域中的金属走线经刻蚀形成的过孔呈三角形。

一种柔性 AMOLED 显示面板结构

技术领域

[0001] 本实用新型涉及柔性 AMOLED 显示面板技术领域，具体涉及一种柔性 AMOLED 显示面板的显示区域与非显示区域之间的走线结构。

背景技术

[0002] 在平板显示行业，有源矩阵有机发光二极管 (Active Matrix/Organic Light Emitting Diode, 简称 :AMOLED) 显示器与传统的液晶显示器相比，具有响应速度快、无需背光灯、对比度更高、整体结构更加轻薄、视角较广、可制成柔性产品等优点。随着技术的发展，消费者更注重显示面板的外观设计和显示区域在整个显示屏中所占的比例，而曲面显示应用领域在未来将会有更大的需求。通过改变柔性显示面板的非显示区域中连接器接口和显示区域数据线之间的连接走线结构，可提高显示区域在整个显示面板中所占的比例，增大显示区域的面积。柔性 AMOLED 显示面板主要包括第一基板、第二基板以及金属走线结构，其中，第一基板主要由 LTPS 基板和 OLED 构成，非显示区域分布在显示区域四周并且左右对称。目前柔性 AMOLED 显示面板的金属走线结构材料之间的粘附能力不高、弯折应力大、产品弯折可靠性不高，且金属走线热量的散失比较慢。

实用新型内容

[0003] 本实用新型提供一种柔性 AMOLED 显示面板结构，通过改变柔性 AMOLED 显示面板的金属走线结构，提高显示区域在整个显示面板中所占的比例，增大显示区域的面积。

[0004] 为解决上述问题，本实用新型采用的技术方案为：

[0005] 一种柔性 AMOLED 显示面板结构，包括第一基板和第二基板，第二基板为保护盖板，在第一基板上包含显示区域、非显示区域，非显示区域分布在显示区域四周并且左右对称，非显示区域上的控制器连接接口的各端点通过金属走线结构连接显示区域中的各数据线，所述金属走线结构包括弯折走线区域和扇型走线区域，每条弯折走线区域内的金属走线和扇形走线区域内的金属走线一一对应连接。

[0006] 进一步地，弯折走线区域中的金属走线经刻蚀形成过孔。

[0007] 更进一步地，弯折走线区域中的金属走线经刻蚀形成的过孔呈正六边形。

[0008] 更进一步地，弯折走线区域中的金属走线经刻蚀形成的过孔呈三角形。

[0009] 本实用新型的有益效果在于：

[0010] 通过改变非显示区域的控制器连接接口和显示区域的数据线之间金属走线的走线结构，将弯折区域内的金属走线进行挖孔处理，这样使得弯折区域金属走线由光滑的平面变成凹凸不平的结构，增大各材料膜层之间的接触面积，提高相接触材料膜层之间的摩擦力，从而增大材料膜层之间的粘附力，从而将控制器接口区域和弯折区域后显示面板的背部弯折，提高显示区域在显示屏中所占空间；并且将弯折走线区域的金属走线采用刻蚀的方法形成过孔，提高材料之间的粘附能力和加快金属走线所产生热量的散失，使得弯折走线区域的金属走线和扇形走线区域的金属走线的电阻更加均匀，也将提高显示区域在整

个显示面板中所占的比例,增大显示区域的面积。

附图说明

[0011] 图 1 是本实用新型的柔性 AMOLED 显示面板结构的整体结构示意图;

[0012] 图 2 是本实用新型中的弯折走线区域的第一种结构示意图;

[0013] 图 3 是图 2 中弯折走线区域的第一种结构的剖视图;

[0014] 图 4 是本实用新型中的弯折走线区域的第二种结构示意图;

[0015] 图 5 是图 4 中弯折走线区域的第二种结构的剖视图;

[0016] 图 6 是本实用新型的柔性 AMOLED 显示面板结构的弯折测试示意图。

具体实施方式

[0017] 下面结合附图具体阐明本实用新型的实施方式,附图仅供参考和说明使用,不构成对本实用新型专利保护范围的限制。

[0018] 如图 1 所示,本实施例提供一种柔性 AMOLED 显示面板结构,包括第一基板 1 和第二基板 2,第二基板 2 为保护盖板,在第一基板 1 上包含显示区域 11、非显示区域 12,非显示区域 12 分布在显示区域 11 四周并且左右对称,非显示区域 12 上的控制器连接接口 13 的各端点通过金属走线结构 3 连接显示区域 11 中的各数据线 14,所述金属走线结构 3 包括弯折走线区域 31 和扇型走线区域 32,每条弯折走线区域 31 内的金属走线和扇形走线区域 32 内的金属走线一一对应连接。

[0019] 在本实施例中,弯折走线区域中的金属走线经刻蚀形成过孔。较佳地,所述过孔呈正六边形或三角形等形状。

[0020] 本实用新型的工作过程为:

[0021] 首先在显示基板 1 上沉积绝缘层材料,然后沉积多条金属走线,此金属走线结构 3 在非显示区域 12 的控制器接口和显示区域 11 之间,分为弯折走线区域 31 和扇形走线区域 32,并且每条弯折走线区域 31 内的金属走线和扇形走线区域 31 内的金属走线一一对应连接,然后采用曝光、显影、刻蚀的工艺方式对弯折走线区域 31 内的金属走线进行挖孔,之后在金属走线上沉积一层绝缘层,此挖孔形状包括正六边形、三角形等,这样在弯折走线区域 31 对金属走线制作过孔可以提高不同材料之间的粘附能力和加快金属走线所产生热量的散失,降低弯折区域走线电阻从而减少热量的产生;根据弯折区域内金属走线宽度和每根金属走线所包含相邻两过孔之间的走线宽度大小来确定过孔的大小。

[0022] 采用正六边形结构对弯折走线区域的金属走线制作过孔的方式如下:

[0023] 首先根据线宽等参数计算好孔的大小并放置在弯折区域内的金属走线上,根据过孔之间走线金属预留宽度分别对过孔进行水平和垂直移动,以便使弯折区域内的每一根金属走线都形成统一的过孔,然后通过采用曝光、显影、刻蚀等工艺步骤在金属导线上形成挖孔,在形成挖孔的过程中不能将走线打断,即使得弯折区域内的每一根金属走线分别和扇形区走线和控制器接口之间相互一一对应连接,中间不能有间断区域;图 2 为一组金属走线所形成挖孔的俯视图;图 3 为一根金属走线所形成挖孔的截面图,包括上下绝缘层 41、42 和中间的金属走线层 3;

[0024] 采用正三角形结构对弯折区金属走线制作过孔的方式如下:

[0025] 根据弯折区域内金属走线宽度和每根金属走线所包含相邻两孔之间的走线宽度大小来确定孔的大小,将正三角形结构放置在弯折区域内的金属走线上,根据过孔之间走线金属预留宽度分别对过孔进行水平和垂直移动,以便在弯折区域内的每一根金属走线上都形成统一的过孔,然后通过采用曝光、显影、刻蚀等工艺步骤在金属导线上形成挖孔,在形成挖孔的过程中不能将走线打断,即使得弯折区的每一根金属走线分别和扇形区走线 and 控制器接口之间相互一一对应连接,中间不能有间断区域;图 4 为一根金属走线所形成挖孔的俯视图;图 5 为一根金属走线所形成挖孔的截面图,包括上下绝缘层 51、52 和中间的金属走线层 3。

[0026] 通过设置弯折区域走线之后,将弯折区域向背板方向弯折 180 度,整体的结构如图 1 所示,只画出金属走线的一部分内容,弯折 180 度后的侧视图如图 6 所示。

[0027] 如上述实施例为本实用新型较佳的实施方式,但本实用新型的实施方式并不受上述实施例的限制,其他的任何未背离本实用新型的精神实质与原理下所作的改变、修饰、替代、组合、简化,均应为等效的置换方式,都包含在本实用新型的保护范围之内。

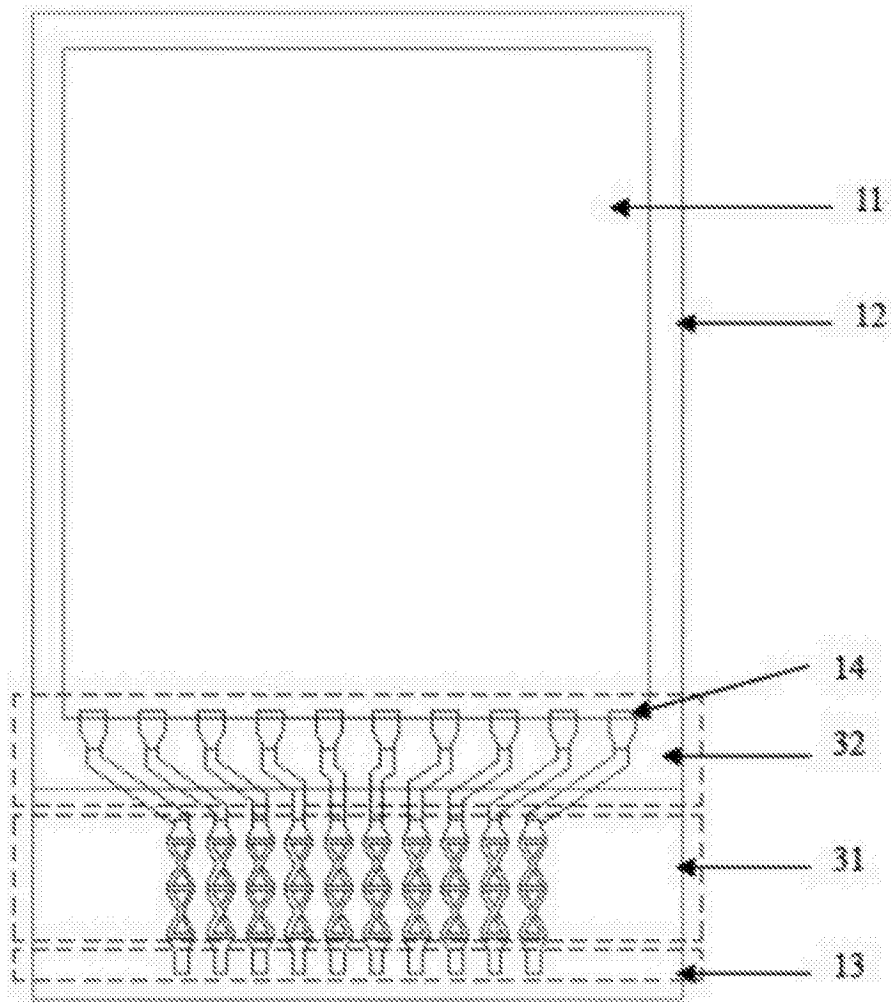


图 1

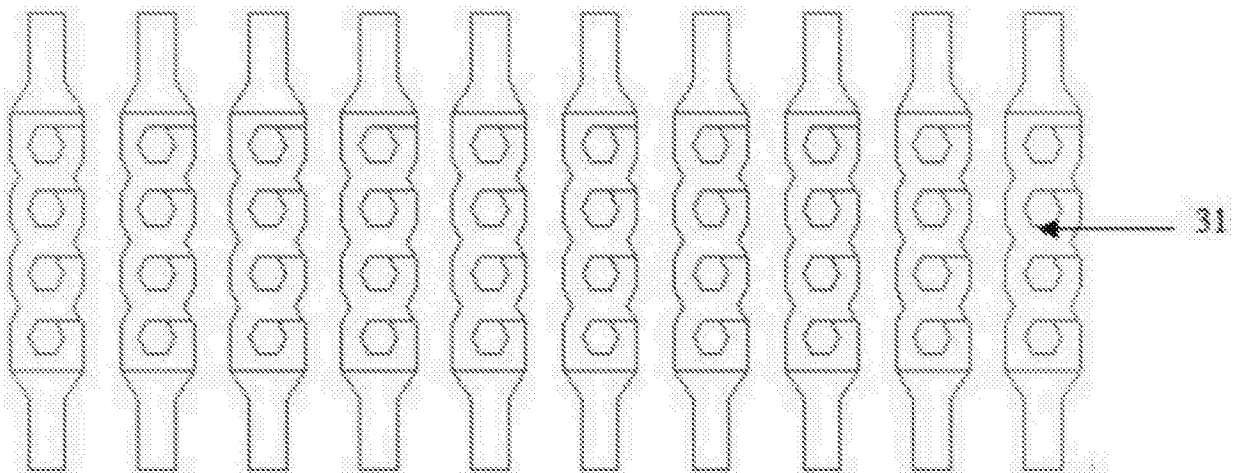


图 2

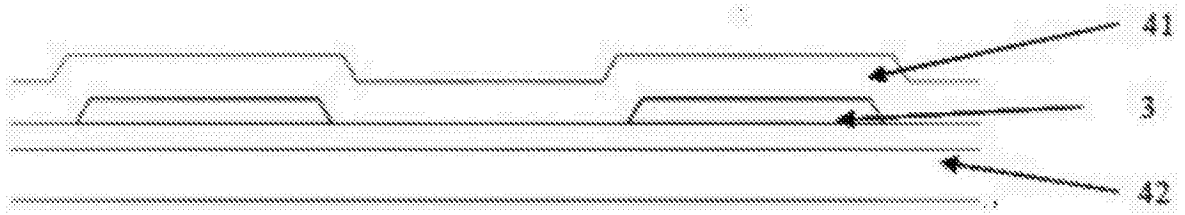


图 3

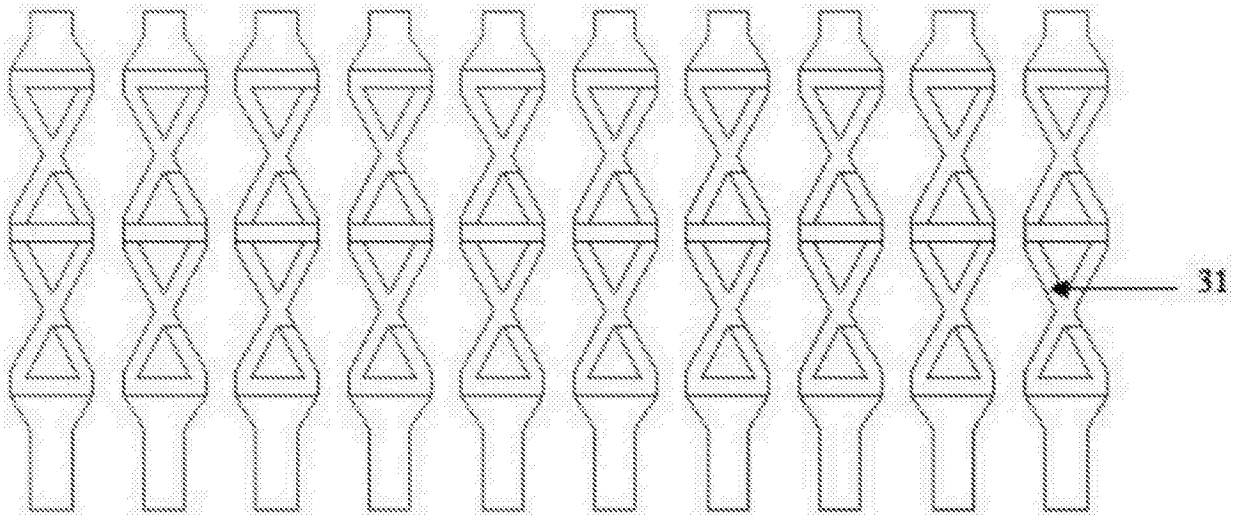


图 4

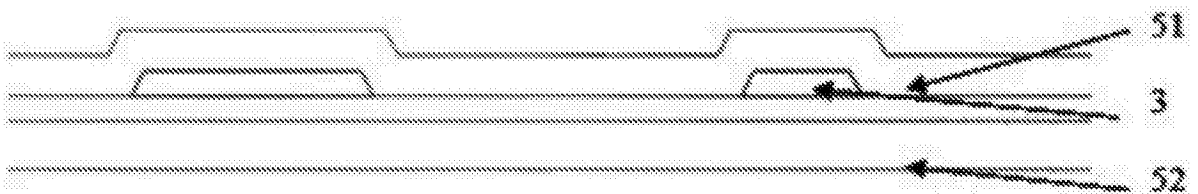


图 5

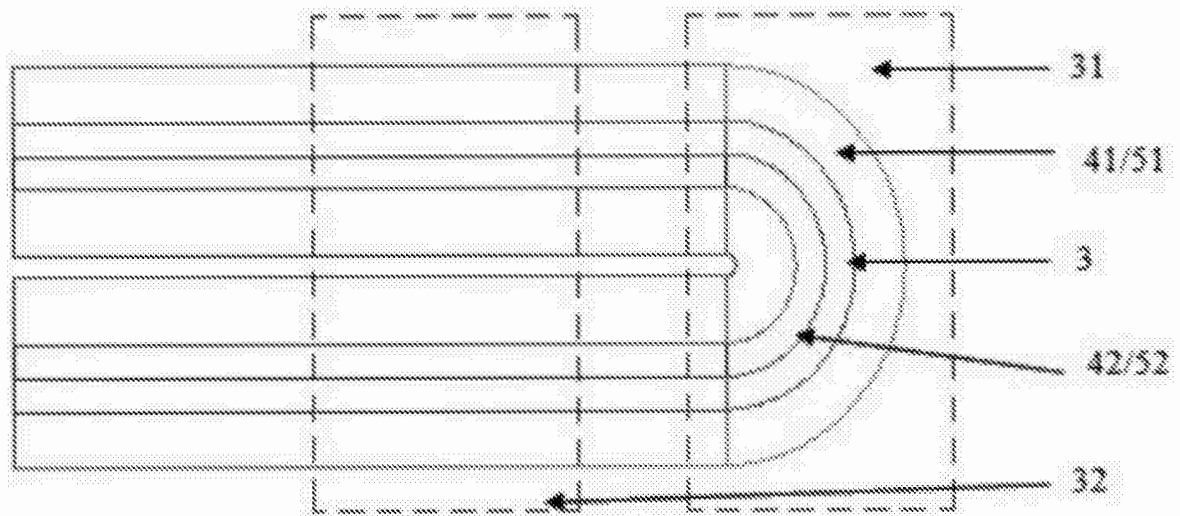


图 6

Flexible AMOLED display panel structure

Abstract

The utility model provides a flexible AMOLED display panel structure, including first base plate and second base plate, the second base plate contains display area, non - display area for the protection apron on first base plate, non - display area distribute display area all around and bilateral symmetry, each extreme point of the controller connection interface on the non - display area passes through each data line among the metal wiring structural connection display area, the metal wiring structure walks including buckling that the line is regional walks the line region with the fan type, buckles for every and walks metal wiring and the fan -shaped metal wiring one -to -one connection of walking in the line region in the line region. The utility model discloses a change flexible AMOLED display panel's metal wiring structure for buckle and walk the regional metal wiring of line and fan -shaped to walk the regional metal wiring's of line resistance more even, improve display area shared proportion in whole display panel, increase display area's area.

Landscapes

Devices For Indicating Variable Information By Combining Individual Elements

Show more

CN205140985U

China

Download PDF Find Prior Art Similar

Other languages: [Chinese](#)

Inventor: [郑武](#), [陈天佑](#), [罗锦钊](#), [胡君文](#), [苏君海](#), [李建华](#)

Current Assignee : Truly Huizhou Smart Display Ltd

Worldwide applications

2015 [CN](#)

Application CN201520834324.5U events ⓘ

2015-10-22 Application filed by Truly Huizhou Smart Display Ltd

2015-10-22 Priority to CN201520834324.5U

2016-04-06 Application granted

2016-04-06 Publication of CN205140985U

2025-10-22 Anticipated expiration

Status Expired - Lifetime

Info: [Cited by \(25\)](#), [Legal events](#), [Similar documents](#), [Priority and Related Applications](#)

External links: [Espacenet](#), [Global Dossier](#), [Discuss](#)

Claims (4)

Hide Dependent ^

1. a flexible AMOLED display panel structure, comprise first substrate and second substrate, second substrate is cover sheet, comprise viewing area on the first substrate, non-display area, non-display area is distributed in viewing area surrounding and symmetrical, it is characterized in that: each end points of the controller connecting interface on non-display area is by each data wire in metal routing anatomical connectivity viewing area, described metal routing structure comprises bending routing region and fan routing region, metal routing in every bar bending routing region and the metal routing in fan-shaped routing region connect one to one.

2. flexible AMOLED display panel structure according to claim 1, is characterized in that:

Metal routing in bending routing region forms via hole through etching.

3. flexible AMOLED display panel structure according to claim 2, is characterized in that:

The via hole that metal routing in bending routing region is formed through etching is regular hexagon.

4. flexible AMOLED display panel structure according to claim 2, is characterized in that:

The via hole that metal routing in bending routing region is formed through etching is triangular in shape.

Description

translated from Chinese

A flexible AMOLED display panel structure

technical field

The utility model relates to the technical field of flexible AMOLED display panels, in particular to a wiring structure between a display area and a non-display area of a flexible AMOLED display panel.

Background technique

In the flat panel display industry, compared with traditional liquid crystal displays, active matrix organic light emitting diode (ActiveMatrix/OrganicLightEmittingDiode, referred to as: AMOLED) display has the advantages of fast response, no need for backlight, higher contrast, lighter and thinner overall structure, and wider viewing angle. , can be made into flexible products and other advantages. With the development of technology, consumers pay more attention to the appearance design of the display panel and the proportion of the display area in the entire display screen, and the curved display application field will have greater demand in the future. By changing the

connection wiring structure between the connector interface and the data lines in the display area in the non-display area of the flexible display panel, the proportion of the display area in the entire display panel can be increased, and the area of the display area can be increased. The flexible AMOLED display panel mainly includes a first substrate, a second substrate and a metal wiring structure, wherein the first substrate is mainly composed of an LTPS substrate and an OLED, and the non-display area is distributed around the display area and is left-right symmetrical. At present, the adhesion between the metal wiring structure materials of the flexible AMOLED display panel is not high, the bending stress is large, the bending reliability of the product is not high, and the heat loss of the metal wiring is relatively slow.

Utility model content

The utility model provides a flexible AMOLED display panel structure. By changing the metal wiring structure of the flexible AMOLED display panel, the proportion of the display area in the entire display panel is increased, and the area of the display area is increased.

In order to solve the above problems, the technical solution adopted by the utility model is:

A flexible AMOLED display panel structure, including a first substrate and a second substrate, the second substrate is a protective cover, and the first substrate includes a display area and a non-display area, and the non-display area is distributed around the display area and is left-right symmetrical. Each end point of the controller connection interface on the non-display area is connected to each data line in the display area through a metal wiring structure. The metal wiring structure includes a bent wiring area and a fan-shaped wiring area, and each bent wiring The metal traces in the line area and the metal traces in the fan-shaped trace area are connected in one-to-one correspondence.

Further, the metal traces in the bent trace area are etched to form via holes.

Furthermore, the via holes formed by etching the metal traces in the bent trace area are regular hexagonal.

Furthermore, the via holes formed by etching the metal traces in the bent trace area are triangular in shape.

The beneficial effects of the utility model are:

By changing the wiring structure of the metal wiring between the controller connection interface in the non-display area and the data line in the display area, the metal wiring in the bending area is dug, so that the metal wiring in the bending area is smooth. The plane becomes uneven structure, increasing the contact area between the material film layers, increasing the friction between the contact material film layers, thereby increasing the adhesion force between the material film layers, so that the controller The back of the display panel is bent after the interface area and the bending area to increase the space occupied by the display area in the display; and the metal wiring in the bending area is etched to form via holes to improve the distance between materials. Adhesive ability and speed up the dissipation of heat generated by the metal traces, making the resistance of the metal traces in the bent trace area and the metal traces in the fan-shaped trace area more uniform, and will also increase the display area in the entire display panel. Ratio, increase the area of the display area.

Description of drawings

1 is a schematic diagram of the overall structure of the flexible AMOLED display panel structure of the present invention;

Fig. 2 is a schematic diagram of the first structure of the bending routing area in the utility model;

Fig. 3 is a cross-sectional view of the first structure of the bent wiring area in Fig. 2;

Fig. 4 is a second structural schematic diagram of the bending routing area in the utility model;

Fig. 5 is a cross-sectional view of the second structure of the bent wiring area in Fig. 4;

FIG. 6 is a schematic diagram of a bending test of the flexible AMOLED display panel structure of the present invention.

detailed description

The implementation of the utility model will be described in detail below in conjunction with the accompanying drawings. The accompanying drawings are only for reference and description, and do not constitute limitations to the patent protection scope of the utility model.

As shown in FIG. 1, this embodiment provides a flexible AMOLED display panel structure, including a first substrate 1 and a second substrate 2, the second substrate 2 is a protective cover, and the first substrate 1 includes a display area 11, non- The display area 12 and the non-display area 12 are distributed around the display area 11 and are left-right symmetrical. Each end point of the controller connection interface 13 on the non-display area 12 is connected to each data line 14 in the display area 11 through the metal wiring structure 3, so The metal wiring structure 3 includes a bent wiring area 31 and a fan-shaped wiring area 32, and each metal wiring in the bent wiring area 31 is connected to the metal wiring in the fan-shaped wiring area 32 one by one.

In this embodiment, the metal traces in the bent trace region are etched to form via holes. Preferably, the via hole is in the shape of a regular hexagon or a triangle.

The working process of the present utility model is:

First, an insulating layer material is deposited on the display substrate 1, and then a plurality of metal wirings are deposited. The metal wiring structure 3 is divided into a bent wiring area 31 and a display area 11 between the controller interface of the non-display area 12 and the display area 11. The fan-shaped wiring area 32, and the metal wiring in each bent wiring area 31 is connected with the metal wiring in the fan-shaped wiring area 31 in one-to-one correspondence, and then the bending process is performed by exposing, developing, and etching. The metal wiring in the wiring area 31 is dug, and then an insulating layer is deposited on the metal wiring. The shape of the digging includes regular hexagons, triangles, etc. Vias can improve the adhesion between different materials and accelerate the heat dissipation of metal traces, reduce the resistance of the traces in the bending area and reduce the heat generation; according to the width of the metal traces in the bending area and each metal trace The size of the via is determined by the trace width between two adjacent vias included in the line.

The method of making vias for the metal traces in the bent trace area using a regular hexagonal structure is as follows:

First, calculate the size of the hole according to the line width and other parameters and place it on the metal trace in the bending area, and move the via hole horizontally and vertically according to the reserved width of the trace metal between the via holes, so that the bending area Each metal trace in the circuit forms a unified via hole, and then digs holes on the metal wires through the use of exposure, development, etching and other process steps. During the process of forming the digging holes, the traces cannot be interrupted, even if Each metal trace in the bending area is connected with the traces in the fan-shaped area and the controller interface in one-to-one correspondence, and there should be no discontinuous area in the middle; Figure 2 is a top view of the hole formed by a group of metal traces; FIG. 3 is a cross-sectional view of a hole formed by a metal wiring, including the upper and lower insulating layers 41, 42 and the middle metal wiring layer 3;

The method of making via holes for the metal traces in the bending area using the regular triangle structure is as follows:

The size of the holes is determined according to the width of the metal traces in the bending area and the width of the traces between two adjacent holes contained in each metal trace, and the regular triangle structure is placed on the metal traces in the bending area. Move the via holes horizontally and vertically according to the reserved width of the trace metal between the via holes, so as to form a uniform via hole on each metal trace in the bending area, and then use exposure, development, engraving Process steps such as etching form holes on the metal wires. During the process of forming the holes, the wires cannot be interrupted, that is, each metal wire in the bending area is connected to the wire in the fan-shaped area and the interface of the controller. Connect each other one by one, and there can be no discontinuous area in the middle; Figure 4 is a top view of a hole formed by a metal trace; Figure 5 is a cross-sectional view of a hole formed by a metal trace, including upper and lower insulating layers 51, 52 and the middle metal wiring layer 3.

After setting the bending area and wiring, bend the bending area 180 degrees toward the backplane. The overall structure is shown in Figure 1. Only a part of the metal wiring is drawn. The side view after bending 180 degrees is shown in Figure 1. 6.

Such as the above-mentioned embodiment is the preferred implementation mode of the present utility model, but the implementation mode of the present utility model is not limited by the above-mentioned embodiment, and any other changes, modifications, changes made without departing from the spirit and principle of the present utility model Substitution, combination, and simplification should all be equivalent replacement methods, and are all included in the protection scope of the present utility model.

Cited By (25)

Publication number	Priority date	Publication date	Assignee	Title
CN105870152A *	2016-04-06	2016-08-17	昆山工研院新型平板显示技术中心有限公司	Flexible active-matrix organic light-emitting diode (AMOLED) display device and flexible display substrate
CN106205394A *	2016-09-05	2016-12-07	京东方科技集团股份有限公司	A kind of flexible display panels, display device and manufacture method
CN106952937A *	2017-04-28	2017-07-14	京东方科技集团股份有限公司	Wiring structure, display base plate and display device
CN106971671A *	2017-04-28	2017-07-21	京东方科技集团股份有限公司	Wiring structure, display base plate and display device
CN107039396A *	2017-04-28	2017-08-11	京东方科技集团股份有限公司	Wiring structure, display substrate and display device
CN107039397A *	2017-04-28	2017-08-11	京东方科技集团股份有限公司	Wiring structure, display base plate and display device
CN107995988A *	2016-12-30	2018-05-04	深圳市柔宇科技有限公司	Flexible displays and display devices
CN108172122A *	2017-12-12	2018-06-15	武汉华星光电半导体显示技术有限公司	A kind of array substrate
CN108231854A *	2018-01-05	2018-06-29	上海天马微电子有限公司	Flexible display substrate, flexible display panel and flexible display device
CN108695358A *	2017-04-05	2018-10-23	上海和辉光电有限公司	A kind of display panel and display device
CN108807477A *	2018-06-07	2018-11-13	武汉华星光电半导体显示技术有限公司	OLED display panel
CN109100914A *	2018-06-29	2018-12-28	武汉华星光电半导体显示技术有限公司	Mask plate and flexible display panels
WO2019100580A1 *	2017-11-23	2019-05-31	武汉华星光电半导体显示技术有限公司	Equivalent structure for bending experiment instead of flexible display panel
CN110010624A *	2017-12-19	2019-07-12	乐金显示有限公司	Display device
CN110660347A *	2019-09-24	2020-01-07	信利（惠州）智能显示有限公司	AMOLED panel module impedance testing method
WO2020093526A1 *	2018-11-06	2020-05-14	武汉华星光电半导体显示技术有限公司	Flexible display panel and display device
CN111276495A *	2020-02-12	2020-06-12	武汉华星光电半导体显示技术有限公司	Array substrate and preparation method thereof
WO2020118936A1 *	2018-12-13	2020-06-18	武汉华星光电技术有限公司	Display panel and frame substrate therefor
WO2020118889A1 *	2018-12-12	2020-06-18	武汉华星光电半导体显示技术有限公司	Display wiring structure and display panel structure
JP2020532093A *	2017-08-31	2020-11-05	京東方科技集團股▲ふん▼有限公司B o e T e c h n o l o g y G r o u p C o . , L t d .	Wiring structure, display board and display device
CN112133737A *	2018-11-28	2020-12-25	上海天马微电子有限公司	Display panel and display device
WO2023133938A1 *	2022-01-17	2023-07-20	深圳市华星光电半导体显示技术有限公司	Display panel and display device
CN116594518A *	2023-04-12	2023-08-15	华映科技（集团）股份有限公司	A touch display structure capable of improving TIC dark blocks
US12004392B2	2017-04-28	2024-06-04	Chengdu Boe Optoelectronics Technology Co., Ltd.	Display panel and display device
US12174497B2	2022-01-17	2024-12-24	Shenzhen China Star Optoelectronics Semiconductor Display Technology Co., Ltd.	Display panel and display device

Family To Family Citations

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
CN104916252B	2017-08-25	Circular display panel and preparation method thereof, display device
CN206193724U	2017-05-24	Touch panel reaches display device including touch panel
CN108155220B	2019-08-02	The manufacturing method of display device
CN107112348B	2019-02-15	Organic Light Emitting Diode Display Device with Flexible Printed Circuit Film
CN103700694B	2016-02-03	AMOLED array substrate and display device
JP6759301B2	2020-09-23	Electrode connection structure and electronic devices including it
CN106952937A	2017-07-14	Wiring structure, display base plate and display device
CN107037647B	2022-06-17	Display panel, display device and manufacturing method of display panel
CN108122497A	2018-06-05	A kind of flexible array substrate, flexible display apparatus and assemble method
CN108807476B	2020-12-22	display panel
TWI642995B	2018-12-01	Flexible folding display screen and preparation method
W02023108750A1	2023-06-22	Display module and electronic device
JP2014519129A	2014-08-07	Metal mesh conductive layer and touch panel having the same
W02020042338A1	2020-03-05	Display panel and preparation method therefor
W02020051963A1	2020-03-19	Flexible display panel
JP2020532093A	2020-11-05	Wiring structure, display board and display device
CN107995988A	2018-05-04	Flexible displays and display devices
CN107039397B	2019-11-01	Wiring structure, display base plate and display device
CN109686757B	2020-08-04	Flexible substrate and display panel using the same
CN107103881A	2017-08-29	Method for adjusting brightness of display panel and display device
W02021017414A1	2021-02-04	Touch panel and display device thereof
CN108183095B	2019-11-22	Flexible display panel and its chip-on-chip film structure
US11139355B2	2021-10-05	Display panel having stress releasing structure and method for manufacturing same
CN110165042A	2019-08-23	Transparent LED display screen of metal mesh grid wire
CN107924250A	2018-04-17	Electrode connection unit and electrical device including the electrode connection unit

Priority And Related Applications

Priority Applications (1)

Application	Priority date	Filing date	Title
CN201520834324.5U	2015-10-22	2015-10-22	Flexible AMOLED display panel structure

Applications Claiming Priority (1)

Application	Filing date	Title
CN201520834324.5U	2015-10-22	Flexible AMOLED display panel structure

Legal Events

Petitioner Samsung Ex-1021, 0012

Date	Code	Title	Description
2016-04-06	C14	Grant of patent or utility model	
2016-04-06	GR01	Patent grant	
2025-11-07	CX01	Expiry of patent term	
2025-11-07	CX01	Expiry of patent term	Granted publication date: 20160406