CLAIMS

1. A display device, comprising:

a circuit substrate having a display region having formed therein a plurality of pixels, and a non-display region provided outside a periphery of the display region;

pixel-driving thin film transistors for driving the pixels, each of the pixel-driving thin film transistors being formed in the display region of the circuit substrate and having a source electrode and a drain electrode disposed apart from each other on an insulating film, and a first active layer made of an oxide semiconductor provided so as to cover a separation section between the source electrode and the drain electrode and so as to cover a portion of the source electrode and a portion of the drain electrode that are respectively adjacent to the separation section from a side thereof opposite to the insulating film; and

a driver circuit thin film transistor for driving the pixel-driving thin film transistors, the driver circuit thin film transistor being formed in the non-display region of the circuit substrate and having a second active layer made of a non-oxide semiconductor.

2. The display device according to claim 1,

wherein, in the non-display region of the circuit substrate, a CMOS circuit having a p-channel thin film transistor including the driver circuit thin film transistor and an n-channel thin film transistor having a third active layer made of the oxide semiconductor is formed.

3. The display device according to claim 1 or 2,

wherein the pixel-driving thin film transistors and the driver circuit thin film transistor respectively have gate electrodes formed in the same layer as each other.

4. The display device according to claim 2,

wherein the second active layer of the p-channel thin film transistor and the third active layer of the n-channel thin film transistor in the CMOS circuit are disposed so as not to overlap each other when viewed from a direction normal to a surface of the circuit substrate.

5. The display device according to claim 4,

wherein a gate electrode of the p-channel thin film transistor extends in parallel with a gate electrode of the n-channel thin film transistor.

6. The display device according to claim 4,

wherein a gate electrode of the p-channel thin film transistor is formed so as to be connected to a gate electrode of the n-channel thin film transistor and so as to extend in a line shape.

7. The display device according to claim 2,

wherein the second active layer of the p-channel thin film transistor and the third active layer of the n-channel thin film transistor in the CMOS circuit are disposed so as to overlap each other when viewed from a direction normal to a surface of the circuit substrate, and

wherein the p-channel thin film transistor and the n-channel thin film transistor have a common gate electrode.

8. A method of manufacturing a display device including a circuit substrate having a display region having formed therein a plurality of pixels, and a non-display region provided outside a periphery of the display region, the method comprising:

forming an insulating film in a region of the circuit substrate to be the display region;

forming a source electrode and a drain electrode included in each of pixel-driving thin film transistors for driving the pixels such that the source electrode and the drain electrode are formed apart from each other on the insulating film;

forming a first active layer included in each of the pixel-driving thin film transistors and made of an oxide semiconductor so as to cover a separation section between the source electrode and the drain electrode and so as to cover a portion of the source electrode and a portion of the drain electrode that are respectively adjacent to the separation section from a side thereof opposite to the insulating film; and

forming a second active layer included in a driver circuit thin film transistor for driving the pixel-driving thin film transistors and made of a non-oxide semiconductor in a region to be the non-display region of the circuit substrate.

9. The method of manufacturing a display device according to claim 8,

wherein, in the step of forming the first active layer, a third active layer included in an n-channel thin film transistor and made of the same oxide semiconductor as the first active layer is formed in the region of the circuit substrate to be the non-display region,

wherein, in the step of forming the second active layer, the second active layer included in a p-channel thin film transistor as the driver circuit thin film transistor is formed, and

wherein the p-channel thin film transistor and the n-channel thin film transistor are included in a CMOS circuit.

10. The method of manufacturing a display device according to claim 8 or 9,

wherein, before the step of forming the insulating film, gate electrodes of the pixel-driving thin film transistors and a gate electrode of the driver circuit thin film transistor are formed in the same layer, and

wherein, in the step of forming the insulating film, the gate electrodes are covered by the insulating film.

11. The method of manufacturing a display device according to claim 9,

wherein in the step of forming the first active layer and the third active layer, the third active layer is formed so as not to overlap the second active layer when viewed from a direction normal to a surface of the circuit substrate.

12. The method of manufacturing a display device according to claim 11,

wherein, before the step of forming the insulating film, a gate electrode of the p-channel thin film transistor is formed so as to extend in parallel with a gate electrode of the n-channel thin film transistor.

13. The method of manufacturing a display device according to claim 11,

wherein, before the step of forming the insulating film, a gate electrode of the p-channel thin film transistor is formed so as to be connected to a gate electrode of the n-channel thin film transistor and so as to extend in a line shape.

14. The method of manufacturing a display device according to claim 9,

wherein, before the step of forming the insulating film, a gate electrode common to the p-channel thin film transistor and the n-channel thin film transistor is formed, and

wherein in the step of forming the third active layer, the third active layer is formed so as to overlap the second active layer when viewed from a direction normal to a surface of the circuit substrate.

Claims:

1. An invention not claimed in any divisional application.