CLAIMS

1. A touch panel comprising:

an insulating substrate;

a first electrode that is formed on the substrate and extends in a first direction;

a second electrode that is formed on the substrate and extends in a second direction that crosses the first direction;

a first insulating film that insulates the first electrode and the second electrode from each other;

a terminal formed on the substrate; and

a line that electrically connect a respective one of the first and second electrodes with the terminal,

wherein the terminal includes a first conductive film that is formed so as to be in contact with a lower surface of the line, and a second conductive film that is formed so as to be in contact with an upper surface of the first conductive film, and

the second conductive film is in contact with the line in such a manner that the contact is achieved only on a side surface of the line.

2. The touch panel according to claim 1,

wherein the first electrode includes a plurality of first island electrodes that are arranged in the first direction, and a first connection part that connects adjacent ones of the first island electrodes,

the second electrode includes a plurality of second island electrodes that are arranged in the second direction, and a second connection part that connects adjacent ones of the second island electrodes,

the first island electrodes, the second island electrodes, the first connection part, and the first conductive film are formed with a same material, and

the second connection part and the second conductive film are formed with a same material.

3. The touch panel according to claim 1,

wherein the first electrode includes a plurality of first island electrodes that are arranged in the first direction, and a first connection part

that connect adjacent ones of the first island electrodes,

the second electrode includes a plurality of second island electrodes that are arranged in the second direction, and a second connection part that connect adjacent ones of the second island electrodes,

the second connection part and the first conductive film are formed with a same material, and

the first island electrodes, the second island electrodes, the first connection part, and the second conductive film are formed with a same material.

4. The touch panel according to claim 1,

wherein the first electrode includes a plurality of first island electrodes that are arranged in the first direction, and a first connection part that connect adjacent ones of the first island electrodes,

the second electrode includes a plurality of second island electrodes that are arranged in the second direction, and a second connection part that connect adjacent ones of the second island electrodes, and

the first island electrodes, the second island electrodes, the first connection part, the second connection part, the first conductive film, and the second conductive film are formed with a same material.

5. The touch panel according to any one of claims 1 to 4, further comprising a second insulating film that is formed so as to cover the line.

6. The touch panel according to claim 5,

wherein the line and the second insulating film have a recess in a part of a place where the line and the terminal overlap when viewed in a plan view, and the first conductive film and the second conductive film are in contact with each other at the recess.

7. The touch panel according to claim 5,

wherein the line and the second insulating film have an opening in a part of a place where the line and the terminal overlap when viewed in a plan view, and the first conductive film and the second conductive film are in contact with each other at the opening.

8. The touch panel according to any one of claims 1 to 7,
wherein in the place where the first conductive film and the line overlap, the first conductive film has a width wider than that of the line.

9. The touch panel according to any one of claims 1 to 8,
the first conductive film is formed so as to overlap an entirety of the line when viewed in a plan view.

10. A display device with touch panel comprising:
a liquid crystal display device; and
the touch panel according to any one of claims 1 to 9.

Claims

1. A touch panel comprising:

an insulating substrate;

a first electrode that is formed on the substrate and extends in a first direction;

a second electrode that is formed on the substrate and extends in a second direction that crosses the first direction;

a first insulating film that insulates the first electrode and the second electrode from each other;

a terminal formed on the substrate; and

a line that electrically connect a respective one of the first and second electrodes with the terminal,

wherein the terminal includes a first conductive film that is formed so as to be in contact with a lower surface of the line, and a second conductive film that is formed so as to be in contact with an upper surface of the first conductive film, and

the second conductive film is in contact with the line in such a manner that the contact is achieved only on a side surface of the line.

2. The touch panel according to claim 1,

wherein the first electrode includes a plurality of first island electrodes that are arranged in the first direction, and a first connection part that connects adjacent ones of the first island electrodes,

the second electrode includes a plurality of second island electrodes that are arranged in the second direction, and a second connection part that connects adjacent ones of the second island electrodes,

the first island electrodes, the second island electrodes, the first connection part, and the first conductive film are formed with a same material, and

the second connection part and the second conductive film are formed with a same material.

3. The touch panel according to claim 1,

wherein the first electrode includes a plurality of first island electrodes that are arranged in the first direction, and a first connection part

that connect adjacent ones of the first island electrodes,

the second electrode includes a plurality of second island electrodes that are arranged in the second direction, and a second connection part that connect adjacent ones of the second island electrodes,

the second connection part and the first conductive film are formed with a same material, and

the first island electrodes, the second island electrodes, the first connection part, and the second conductive film are formed with a same material.

4. The touch panel according to claim 1,

wherein the first electrode includes a plurality of first island electrodes that are arranged in the first direction, and a first connection part that connect adjacent ones of the first island electrodes,

the second electrode includes a plurality of second island electrodes that are arranged in the second direction, and a second connection part that connect adjacent ones of the second island electrodes, and

the first island electrodes, the second island electrodes, the first connection part, the second connection part, the first conductive film, and the second conductive film are formed with a same material.

5. The touch panel according to any one of claims 1 to 4, further comprising a second insulating film that is formed so as to cover the line.

6. The touch panel according to claim 5,

wherein the line and the second insulating film have a recess in a part of a place where the line and the terminal overlap when viewed in a plan view, and the first conductive film and the second conductive film are in contact with each other at the recess.

7. The touch panel according to claim 5,

wherein the line and the second insulating film have an opening in a part of a place where the line and the terminal overlap when viewed in a plan view, and the first conductive film and the second conductive film are in contact with each other at the opening.

8. The touch panel according to any one of claims 1 to 7,
wherein in the place where the first conductive film and the line overlap, the first conductive film has a width wider than that of the line.

9. The touch panel according to any one of claims 1 to 8,
the first conductive film is formed so as to overlap an entirety of the line when viewed in a plan view.

10. A display device with touch panel comprising:
a liquid crystal display device; and
the touch panel according to any one of claims 1 to 9.

11. The display device with touch panel according to claim 10,
wherein the liquid crystal display device includes a thin film transistor containing indium zinc gallium oxide.