CLAIMS

1. A current-driven type display device, comprising:

a plurality of pixel circuits arranged two-dimensionally;

a plurality of control lines provided for respective rows of the pixel circuits;

a plurality of data lines provided for respective columns of the pixel circuits;

a plurality of power lines provided to supply a power supply potential to the pixel circuits;

a single or a plurality of common power lines, each connected to two or more of the power lines;

a drive circuit that drives the control lines and the data lines; and

a power control circuit that drives the power lines, wherein

each of the pixel circuits includes:

an electro-optic element;

a driving transistor provided on a path of a current flowing through the electro-optic element;

a write control transistor provided between a control terminal of the driving transistor and a corresponding one of the data lines;

a light emission control transistor provided between one conduction terminal of the driving transistor and a corresponding one of the power lines; and

a capacitor provided between an other conduction terminal and the control terminal of the driving transistor, and

the power control circuit applies the power supply potential and an initialization potential to the common power line(s) in a switching manner.

2. The display device according to claim 1, wherein the drive circuit selects initialized pixel circuits on a row basis, and controls to allow each of the selected pixel circuits to perform detection of a threshold of the driving transistor, writing, and light emission in turn.

3. The display device according to claim 2, wherein

the light emission control transistor is placed in an on state upon initialization, and

the initialization potential is a potential at which the driving transistor is placed in an on state when the potential is applied to the power line upon initialization.

4. The display device according to claim 3, wherein the light emission control transistor is placed in an off state upon completion of the initialization and is placed in an on state upon threshold detection.

5. The display device according to claim 4, wherein the light emission control transistor is placed in an on state for a fixed period of time upon light emission.

6. The display device according to claim 2, wherein each of the pixel circuits further includes a reference potential application transistor provided between the control terminal of the driving transistor and a reference potential line.

7. The display device according to claim 2, wherein each of the pixel circuits further includes a reference potential application transistor that is provided between the control terminal of the driving transistor and a control line connected to the write control transistor, and that has a control terminal connected to a control line provided for pixel circuits in another row.

8. The display device according to claim 2, wherein upon threshold detection, a reference potential is applied to the data line and the write control transistor is placed in an on state.

9. The display device according to claim 1, comprising a single common power line.

10. The display device according to claim 1, comprising a plurality of common power lines, wherein

the power lines are provided for the respective rows of the pixel circuits, and

the power control circuit applies the initialization potential to the common power lines at different timings.

11. The display device according to claim 10, wherein a plurality of power lines disposed adjacent to each other are connected to each of the common power lines.

12. The display device according to claim 10, wherein a plurality of power lines selected every predetermined number

of lines according to order of disposition are connected to each of the common power lines.

13. The display device according to claim 1, wherein all of the transistors included in the pixel circuit are of an N-channel type.

14. A method of driving a current-driven type display device including a plurality of pixel circuits arranged two-dimensionally; a plurality of control lines provided for respective rows of the pixel circuits; a plurality of data lines provided for respective columns of the pixel circuits; a plurality of power lines provided to supply a power supply potential to the pixel circuits; and a single or a plurality of common power lines, each connected to two or more of the power lines, the method comprising the steps of:

when each of the pixel circuits includes: an electro-optic element; a driving transistor provided on a path of a current flowing through the electro-optic element; a write control transistor provided between a control terminal of the driving transistor and a corresponding one of the data lines; a light emission control transistor provided between one conduction terminal of the driving transistor and a corresponding one of the power lines; and a capacitor provided between an other conduction terminal and the control terminal of the driving transistor,

applying, using a power control circuit, the power supply potential and an initialization potential to the common power line(s) in a switching manner;

controlling states of the transistors included in the

pixel circuits by driving the control lines; and

applying potentials corresponding to display data to the data lines.

CLAIMS

1. A current-driven type display device, including:

a plurality of pixel circuits arranged two-dimensionally;

a plurality of control lines provided for respective rows of the pixel circuits;

a plurality of data lines provided for respective columns of the pixel circuits;

a plurality of power lines provided to supply a power supply potential to the pixel circuits;

a single or a plurality of common power lines, each connected to two or more of the power lines;

a drive circuit that drives the control lines and the data lines; and

a power control circuit that drives the power lines, wherein

each of the pixel circuits includes:

an electro-optic element;

a driving transistor provided on a path of a current flowing through the electro-optic element;

a write control transistor provided between a control terminal of the driving transistor and a corresponding one of the data lines;

a light emission control transistor provided between one conduction terminal of the driving transistor and a corresponding one of the power lines; and

a capacitor provided between an other conduction terminal and the control terminal of the driving transistor,

the power control circuit applies an initialization

potential to the common power line(s) upon initialization and applies the power supply potential to the common power line(s) except upon initialization, and

the drive circuit selects initialized pixel circuits on a row basis, and controls to allow each of the selected pixel circuits to perform detection of a threshold of the driving transistor, writing, and light emission in turn,

characterized in that

the light emission control transistor is placed in an on state upon initialization, threshold detection, and light emission and is placed in an off state upon writing.

2. The display device according to claim 1, wherein

the initialization potential is a potential at which the driving transistor is placed in an on state when the potential is applied to the power line upon initialization.

3. The display device according to claim 2, wherein the light emission control transistor is placed in an off state upon completion of initialization and is placed in an on state upon start of threshold detection.

4. The display device according to claim 3, wherein the light emission control transistor is placed in an on state for a fixed period of time upon light emission.

5. The display device according to claim 1, wherein each of the pixel circuits further includes a reference potential application transistor provided between the control terminal of the driving transistor and a reference potential line.

6. The display device according to claim 1, wherein each of the pixel circuits further includes a reference potential application transistor that is provided between the control terminal of the driving transistor and a control line connected to the write control transistor, and that has a control terminal connected to a control line provided for pixel circuits in another row.

7. The display device according to claim 1, wherein upon threshold detection, a reference potential is applied to the data line and the write control transistor is placed in an on state.

8. The display device according to claim 1, including a single common power line.

9. The display device according to claim 1, including a plurality of common power lines, wherein

the power lines are provided for the respective rows of the pixel circuits, and

the power control circuit applies the initialization potential to the common power lines at different timings.

10. The display device according to claim 9, wherein a plurality of power lines disposed adjacent to each other are connected to each of the common power lines.

11. The display device according to claim 9, wherein a plurality of power lines selected every predetermined number

of lines according to order of disposition are connected to each of the common power lines.

12. The display device according to claim 1, wherein all of the transistors included in the pixel circuit are of an N-channel type.

13. A method of driving a current-driven type display device including a plurality of pixel circuits arranged two-dimensionally; a plurality of control lines provided for respective rows of the pixel circuits; a plurality of data lines provided for respective columns of the pixel circuits; a plurality of power lines provided to supply a power supply potential to the pixel circuits; and a single or a plurality of common power lines, each connected to two or more of the power lines, the method including:

when each of the pixel circuits includes: an electro-optic element; a driving transistor provided on a path of a current flowing through the electro-optic element; a write control transistor provided between a control terminal of the driving transistor and a corresponding one of the data lines; a light emission control transistor provided between one conduction terminal of the driving transistor and a corresponding one of the power lines; and a capacitor provided between an other conduction terminal and the control terminal of the driving transistor,

a first step for applying, using a power control circuit, an initialization potential to the common power line(s) upon initialization and applying the power supply potential to the common power line(s) except upon initialization;

a second step for controlling states of the transistors included in the pixel circuits by driving the control lines; and

a third step for applying potentials corresponding to display data to the data lines, wherein

in the second and third steps, initialized pixel circuits are selected on a row basis, and each of the selected pixel circuits is controlled to perform detection of a threshold of the driving transistor, writing, and light emission in turn, characterized in that

the light emission control transistor is placed in an on state upon initialization, threshold detection, and light emission and is placed in an off state upon writing.