

1) Family number: 64868002 (US2017039931A)

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Title:

DISPLAY PANEL, INFORMATION PROCESSING DEVICE, AND DRIVING METHOD OF DISPLAY PANEL

Priority:

JP20150157491 20050807JP20150157491 20150807JP20150157493 20150807JP20160050977 20160315JP20160101212 20160520JP20160121504 20160620JP20160152100 20160802

Family:

Publication number	Publication date	Application number	Application date
JP2017227856 A2	20171228	JP20160152100	20160802
TW201710754 A	20170316	TW20160124991	20160805
US2017039931 AA	20170209	US20160225950	20160802
US10073551 BB	20180911	US20160225950	20160802
WO17025835 A1	20170216	WO20161B54434	20160726

Probable Assignee:

SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std):

SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Assignee(s):

SEMICONDUCTOR ENERGY LABORATORY CO

Inventor(s):(std):

KUBOTA DAISUKE ; TOYOTAKA KOUHEI ; TOYOTAKA KOHEI

Agent(s):

FISH AND RICHARDSON PC

Designated states:

AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9):

G02F1/133 G02F1/1335 G02F1/1347 G02F1/1368 G06F3/041 G09F9/30 G09F9/302 G09F9/46 G09G3/20 G09G3/30 G09G3/3225 G09G3/34 G09G3/36 G09G5/36 H01L27/32 H01L51/50 H05B33/14 (Advanced/Invention)

CPC:

G09G3/3648 G09G3/3225 G09G2300/023 G06F3/0414 G06F3/0488 G09G5/363 G09G2300/046 G09G2310/06 G09G2330/023 G09G2354/00 G09G2360/144

US class:

345/174

[Classification Explorer](#)

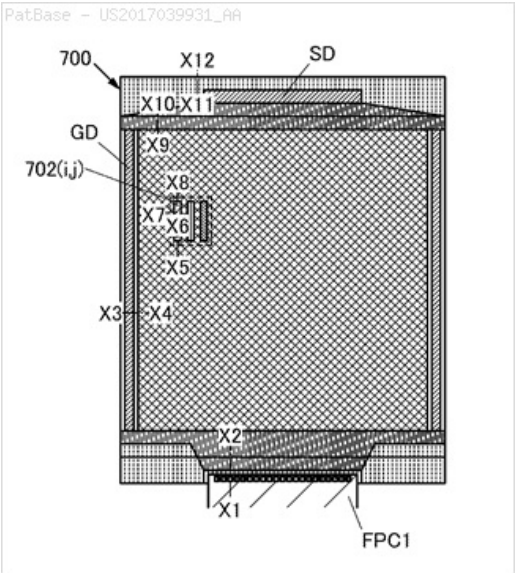
Cited documents:

WO04053819 A1, US8169555 BB, US7304696 BB, US2016313769 AA, US2016299387 AA, US2016283028 AA, US2016042702 AA, US2014234664 AA, US2014014960 AA, US2011205468 AA, US2011157216 AA, US2009066670 AA, US2009046110 AA, US2008284934 AA, US2007242031 AA, US2007085804 AA, US2006072047 AA, US2003052869 AA, TW588185 B, TW201407225 A, KR20140009024 A, KR20030022049 A, JP2014187356 A2, JP2014032960 A2, JP2011191750 A2, JP2009003436 A2, JP2003076302 A2, DE102013213552 A1 CN1714380 A, CN1403856 A, CN101308264 A,

Forward Citations:

US9964800, US2017040403, US10170528, US10163989,

Abstract:
Provided is a novel display panel which is highly convenient or reliable or a driving method thereof. The display panel includes a first display element, a first conductive film electrically connected to the first display element, a second conductive film having a region overlapping with the first conductive film, an insulating film having a region sandwiched between the second conductive film and the first conductive film, a pixel circuit electrically connected to the second conductive film, and a second display element electrically connected to the pixel circuit. The insulating film has an opening. The second conductive film is electrically connected to the first conductive film in the opening.



2) Family number: 69019015 (US2018085859A)

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Title: MANUFACTURING METHOD OF SEMICONDUCTOR DEVICE
Priority: JP20160185848 20160923 JP20170179658 20170920

Family:

Publication number	Publication date	Application number	Application date
JP2018056560 A2	20180405	JP20170179658	20170920
US2018085859 AA	20180329	US20170707017	20170918

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD
Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD
Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO
Inventor(s):(std): YASUMOTO SEIJI ; YAMAZAKI SHUNPEI ; IDOJIRI SATORU ; GOTO NAOTO ; GOTO NAOHITO
International class (IPC 8-9): B23K26/57 G02F1/1362 H01L21/02 H01L21/336 H01L27/12 H01L27/32 H01L29/786 H01L51/50 H05B33/10 (Advanced/Invention)
CPC: B23K26/57 H01L27/1266 G02F1/136286 H01L27/1225 H01L27/3276 H01L27/124 G02F2001/13613 G02F2201/44 H01L51/003

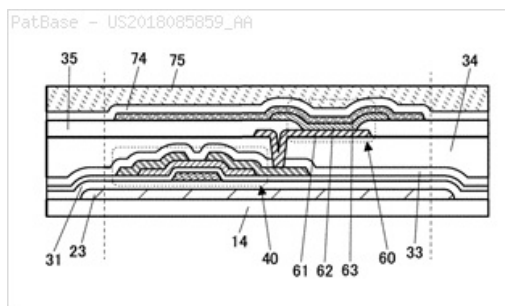
[Classification Explorer](#)

Cited documents: US2017299965 AA, US2017297793 AA, US2016222165 AA, US2015236280 AA, US2012213929 AA, US2005163816 AA,

Forward Citations: US10170600,

Abstract:

The yield of a manufacturing process of a semiconductor device is increased. The mass productivity of the semiconductor device is increased. The semiconductor device is manufactured by performing a step of performing plasma treatment on a first surface of a substrate; a step of forming a first layer over the first surface with the use of a material containing a resin or a resin precursor; a step of forming a resin layer by performing heat treatment on the first layer; and a step of separating the substrate and the resin layer from each other. In the plasma treatment, the first surface is exposed to an atmosphere containing one or more of hydrogen, oxygen, and water vapor.

**3) Family number: 68077027** (US2018004047A)

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Title: DISPLAY DEVICE, DISPLAY MODULE, ELECTRONIC DEVICE, AND MANUFACTURING METHOD OF DISPLAY DEVICE

Priority: JP20160130007 20160630 JP20160136220 20160708 JP20170124421 20170626

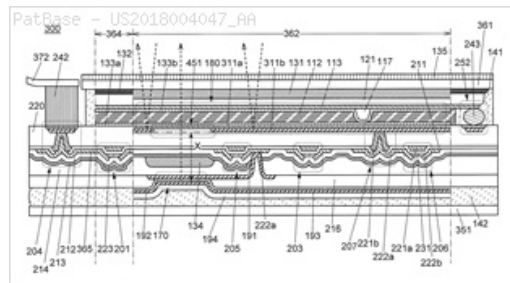
Family:

Publication number	Publication date	Application number	Application date
JP2018013771 A2	20180125	JP20170124421	20170626
US2018004047 AA	20180104	US20170634194	20170627

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD
Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD
Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO ; SEMICONDUCTOR ENERGY LABORATORY CO LTD
Inventor(s):(std): IKEDA HISAO ; IKEDA TOSHIO ; KUBOTA DAISUKE ; YAMAZAKI SHUNPEI
International class (IPC 8-9): G02F1/1333 G02F1/1335 G02F1/1343 G02F1/1362 G02F1/1368 G09F9/00 G09F9/30 G09F9/46 H01L27/32 H01L51/50 H01L51/52 H05B33/02 H05B33/12 H05B33/14 H05B33/22 H05B33/26 H05B33/28 (Advanced/Invention); H01L27/12 H01L29/786 (Advanced/Non-invention)
CPC: G02F1/134309 H01L51/5231 G02F1/133345 H01L51/5206 G02F1/133553 G02F1/136227 G02F1/1368 H01L27/3232 H01L27/3248 H01L27/3258 G02F2201/44 G02F2202/10 H01L27/1225 G02F2201/121 G02F2201/123 G02F2201/40 H01L29/7869 G02F1/1333 G02F1/133305 G02F1/136286 H01L2251/558

[Classification Explorer](#)**Abstract:**

A display device with a wide viewing angle is provided. A display device with a high aperture ratio is provided. The display device includes a first display element, a second display element, and an insulating layer. The first display element includes a first pixel electrode configured to reflect visible light. The second display element is configured to emit visible light. The second display element includes a second pixel electrode and a common electrode. The first pixel electrode is positioned on an opposite side of the insulating layer from the second pixel electrode. The common electrode is positioned on an opposite side of the second pixel electrode from the insulating layer. A shortest distance X between a first plane and a second plane is longer than or equal to 500 nm and shorter than or equal to 200 micro m. The first plane includes a plane of the first pixel electrode on the insulating layer side in a display region of the first display element, and the second plane includes a plane of the common electrode on the insulating layer side in a display region of the second display element.



4) Family number: 68722034 (US2018061919A)

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Title: DISPLAY DEVICE, DISPLAY MODULE, AND ELECTRONIC DEVICE

Priority: JP20160162391 20160823

Family:

Publication number	Publication date	Application number	Application date
JP2018032031 A2	20180301	JP20170159178	20170822
US2018061919 AA	20180301	US20170681844	20170821

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Inventor(s):(std): MIYAKE HIROYUKI ; TOYOTAKA KOHEI ; TOYOTAKA KOUHEI

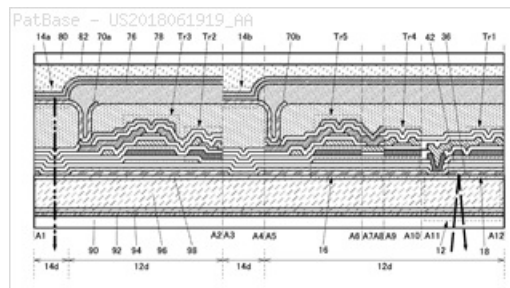
International class (IPC 8-9): G02F1/1333 G02F1/1335 G02F1/1337 G09F9/00 G09F9/30 G09F9/46 H01L21/336 H01L27/32 H01L29/786 H01L51/50 H05B33/14 (Advanced/Invention)

CPC: H01L27/3262 G02F1/1337 G02F1/133602 G02F1/133553 H01L27/323 H01L27/3232 H01L27/1225 G02F2203/02 G02F2201/44 G02F2001/133616 G02F2001/133618 G02F2001/133626 H01L27/3213 H01L29/78648 H01L29/7869

[Classification Explorer](#)

Abstract:

A display device with high luminance and excellent white balance is provided. The display device includes a first display element, a second display element, a first transistor, and a second transistor. The first display element includes a light-emitting layer and is electrically connected to the first transistor. The first transistor includes a first semiconductor film, a first gate electrode and a second gate electrode facing each other with the first semiconductor film provided therebetween, and a first source electrode and a first drain electrode over and in contact with the first semiconductor film. The second gate electrode is electrically connected to the first source electrode or the first drain electrode. The second display element includes a light-emitting layer and is electrically connected to the second transistor. The second transistor includes a second semiconductor film, and a third gate electrode and a fourth gate electrode facing each other with the second semiconductor film provided therebetween. The fourth gate electrode is electrically connected to the third gate electrode.



5) Family number: 68581050 (US2018047609A)

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Title: MANUFACTURING METHOD OF SEMICONDUCTOR DEVICE

Priority: JP20160156143 20160809 JP20170152413 20170807

Family:

Publication number	Publication date	Application number	Application date
JP2018026563 A2	20180215	JP20170152413	20170807
TW201808628 A	20180316	TW20160137944	20161118
US2018047609 AA	20180215	US20170664367	20170731
WO18029547 A1	20180215	WO20171B52785	20170512

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO

Inventor(s):(std): IDOJIRI SATORU ; IKEZAWA NAOKI ; OHNO MASAKATSU ; ONO MASAKATSU ; YAMAZAKI SHUNPEI ; YASUMOTO SEIJI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

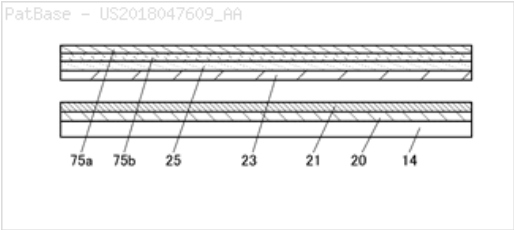
International class (IPC 8-9): B32B27/00 B32B7/06 B32B9/00 G09F9/00 G09F9/30 H01L21/02 H01L21/336 H01L21/48 H01L21/683 H01L21/8234 H01L27/088 H01L27/12 H01L29/66 H01L29/786 H01L51/50 H05B33/02 H05B33/10 (Advanced/Invention)

CPC: H01L21/6835 H01L21/481 H01L27/1218 H01L29/66969 H01L29/7869 H01L2221/68386 H01L27/1222 H01L27/1225 H01L27/3262 G02F1/133553 G02F1/13439 G02F1/1368 G02F2201/123 H01L27/1274 H01L51/0097 H01L51/56 H01L2221/68345 H01L2251/5338 H01L21/02422 H01L21/02488 H01L21/02565 H01L21/02631 H01L21/02664

[Classification Explorer](#)

Cited documents: WO16010106 A1, WO15147106 A1, US4618878 A, US2016222165 AA, US2016133864 AA, US2016079320 AA, US2015372255 AA, US2015183932 AA, US2015123106 AA, US2012187399 AA, JP2016036005 A2, JP2014187356 A2,

Abstract:
The yield of a manufacturing process of a display device is increased. The productivity of a display device is increased. A hydrogen-containing layer is formed over a substrate. Then, an oxygen-containing layer is formed over the hydrogen-containing layer. After that, a first layer is formed over the oxygen-containing layer with the use of a material containing a resin or a resin precursor. Subsequently, first heat treatment is performed on the first layer, so that a resin layer is formed. Next, a layer to be peeled is formed over the resin layer. The layer to be peeled and the substrate are separated from each other. The first heat treatment is performed in an oxygen-containing atmosphere.



6) Family number: 69103086 (US2018096670A) © PatBase

Title: DISPLAY SYSTEM AND ELECTRONIC DEVICE
Priority: JP20160192889 20160930 JP20170086898 20170426
Family:

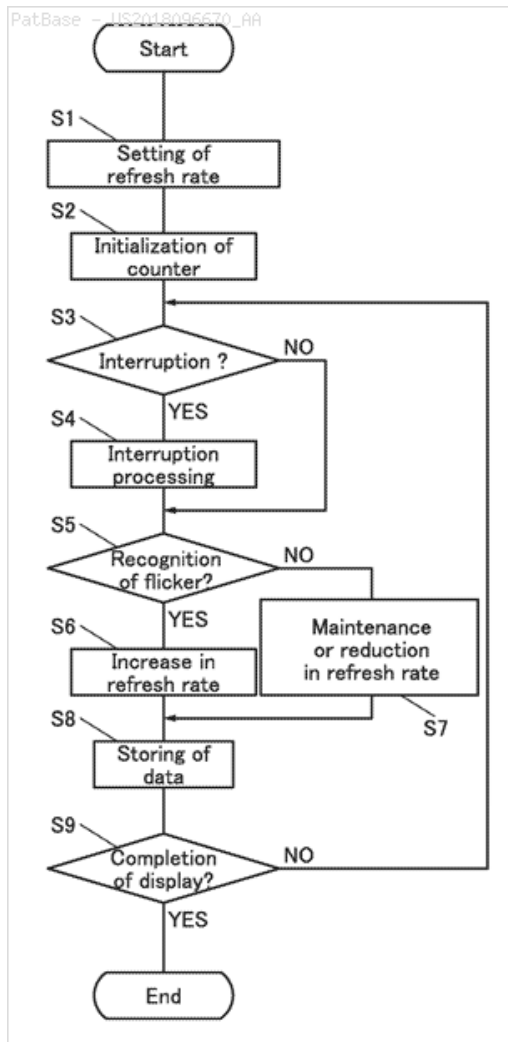
Publication number	Publication date	Application number	Application date
JP2018173619 A2	20181108	JP20170184407	20170926
TW201828277 A	20180801	TW20170133308	20170928
US2018096670 AA	20180405	US20170714206	20170925
WO18060817 A1	20180405	WO20171855749	20170922

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD
Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LABORATORY CO LTD
Assignee(s): SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO
Inventor(s):(std): IWAKI YUJI ; OKAMOTO HIDEAKI
Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW
International class (IPC 8-9): G06F3/14 G06N3/02 G09F9/00 G09F9/46 G09G3/20 G09G3/3208 G09G3/3233 G09G3/36 G09G5/00 G09G5/395 G09G5/42 H01L27/32 H01L51/50 H05B33/14 (Advanced/Invention)
CPC: G09G5/395 G09G5/42 G09G5/006 G09G2320/103 G09G3/3648 G09G2330/021 G09G2320/0247 G09G3/2007 G09G3/3225 G09G2300/0452 G09G2300/046 G09G2310/0278 G09G2320/0209 G09G2330/12 G09G2340/0435 G09G2340/06 G09G2360/18 G09G2380/02

[Classification Explorer](#)

Cited documents: WO16031659 A1, US2016086557 AA, US2015287352 AA, US2007236432 AA, US2004165084 AA, US2003052869 AA, JP2010197597 A2, JP2002281294 A2,

Abstract:
A novel display system is provided. The display system includes a display portion and a control portion. The control portion includes a controller and a memory device. The display portion has a function of displaying an image. The controller has a function of outputting a signal for controlling a refresh rate of the image. The memory device has a function of storing data including data indicating a recognition state of the image and data on whether a flicker is recognized in the recognition state by a user or not. The controller has a function of changing the refresh rate of the image with reference to the data stored in the memory device when data on whether a flicker is recognized or not is input by the user.

**7) Family number: 51419119** (US2012168910A)

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Title: MULTI-NARY GROUP IB AND VIA BASED SEMICONDUCTOR

Priority: US20090290490P 20091228 US20100980276 20101228 US20110430131P 20110105
 US20110502853P 20110629 US20110505084P 20110706 US20110208325 20110811
 US20120344583 20120105 WO2012US20385 20120105 US20120533761 20120626
 WO2012US44364 20120627

Family:	Publication number	Publication date	Application number	Application date
	■ CN103959436 A	20140730	CN201280041300	20120627
	■ JP2014524145 T2	20140918	JP20140518952T	20120627
	■ KR20140082636 A	20140702	KR20147002759	20120627
	■ TW201251088 A	20121216	TW20120100485	20120105
	■ TW201324826 A	20130616	TW20120123290	20120628
	■ US2012168910 AA	20120705	US20110208325	20110811
	■ US2012270363 AA	20121025	US20120344583	20120105
	■ US2012313200 AA	20121213	US20120533761	20120626
	■ US8729543 BB	20140520	US20110208325	20110811
	■ US8889469 BB	20141118	US20120533761	20120626
	■ WO12094537 A2	20120712	WO2012US20385	20120105
	■ WO12094537 A3	20121026	WO2012US20385	20120105
	■ WO13003439 A1	20130103	WO2012US44364	20120627

Probable Assignee: AERIS CAPITAL SUSTAINABLE IP LTD**Assignee(s):(std):** AERIS CAPITAL SUSTAINABLE IP LTD ; WOODRUFF JACOB ; STONE PETER ; POLLOCK KRISTIN ; DICKY KATHERINE ; BROWN GREGORY ; JACKREL DAVID B ; POLLACK KRISTIN ; NANOSOLAR INC ; JACKREL DAVID ; RYVES LUKE ; AERIS CAPITAL SUSTAINABLE IMPACT PRIVATE INVEST**Assignee(s):** AERIS CAPITAL SUSTAINABLE IMPACT PRIVATE INVESTMEN ; AERIS CAPITAL SUSTAINABLE IMPACT PRIVATE INVESTMENT ; AERIS CAPITAL SUSTAINABLE IMPACT PRIVATE INVESTMENT FUND CAYMAN LP**Inventor(s):(std):** WOODRUFF JACOB ; STONE PETER ; POLLOCK KRISTIN ; DICKY KATHERINE ; BROWN GREGORY ; JACKREL DAVID B ; POLLACK KRISTIN ; JACKREL DAVID ; RYVES LUKE**Agent(s):** ONDA MAKOTO; ONDA HIRONORI; JDI PATENT; JOSHUA D; TUNG HAO Y; ISENBERG JOSHUA D**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): C01B19/00 H01L21/20 H01L29/26 H01L31/0256 H01L31/0272 H01L31/032 H01L31/0352 H01L31/04 H01L31/042 H01L31/0749 H01L31/18 (Advanced/Invention)

CPC: C09D11/326 C23C18/1204 H01L21/268 H01L29/263 H01L31/03928 H01L31/18 H01L31/022466 H01L31/03923 H01L31/0322 H01L31/035218 H01L31/0749 Y02E10/541 Y02P70/521 H01L31/206

European class: H01L21/268 H01L29/26E H01L31/032C H01L31/0749 H01L31/18 H01L31/20C

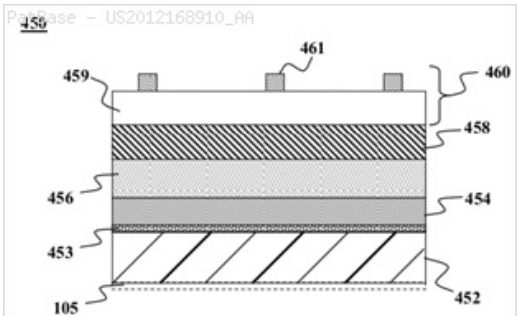
US class: 257/414 257/42 257/428 257/431 257/613 257/613P 257/95 257/E27.125 257/E29.079 257/E29.079S 257/E31.008 257/E31.027 257/E31.037 438/478 438/95

[Classification Explorer](#)

Cited documents: WO10114138 A1, WO10110461 A1, US7858151 BB, US6720239 BB, US2012270363 AA, US2012168910 AA, US2011294254 AA, US2011232760 AA, US2011048490 AA, US2010267222 AA, US2010261304 AA, US2010218827 AA, US2009169723 AA, US2009035882 AA, US2008202584 AA, US2008057203 AA, US2007163637 AA, US2006024503 AA, US2004063320 AA, US2003123167 AA, JP2009267332 A2,

Forward Citations: WO15195388, WO15071671, WO15030275, WO14140897, WO14098350, WO14097112, WO13173770, US9975115, US9960298, US9876130, US9871154, US9837565, US9786807, US9708127, US9647153, US9634162, US9601340, US9478695, US9406829, US9368660, US9177876, US9157019, US9112095, US9041141, US8900664, US8889469, US8859323, US8841160, US8790956, US8729543, US8632851, US8586457, US2018204902, US2015295128, US2015287854, US2015280050, US2015136216, US2015118487, US2015001191, US2014315346, US2014293546, US2014080250, US2013125977, US10141473, US10141463, US10109761, US10109755, US10084032, US10062800, TWI595680, TWI502762, KR20180043113, KR101888597, KR101807118, KR101734362, KR101583027, KR101541463, KR101352861, JP6316877, JP2017511782, JP2017128792, JP2016524319, JP2016510179, EP2993701, CN106460143, CN106132844, CN105144402, CN104704617,

Abstract:
Methods and devices are provided for forming multi-nary semiconductor. In one embodiment, a method is provided comprising of depositing a precursor material onto a substrate, wherein the precursor material may include or may be used with an additive to minimize concentration of group IIIA material such as Ga in the back portion of the final semiconductor layer. The additive may be a non-copper Group IB additive in elemental or alloy form. Some embodiments may use both selenium and sulfur, forming a senary or higher semiconductor alloy.



8) Family number: 63552132 (US2016266281A)

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Title: ANTI-STATIC, ANTI-REFLECTIVE COATING

Priority: US20150130502P 20150309 US20160065752 20160309 WO2016US21614 20160309

Family:

Publication number	Publication date	Application number	Application date
AU2016229066 AA	20160915	AU20160229066	20160309
BR112017015411 A2	20180717	BR20171115411	20160309
CA2973010 AA	20170704	CA20162973010	20160309
CL2017001856 A1	20180413	CL20170001856	20170718
CN107407746 A	20171128	CN201680009132	20160309
CO20170007226 A2	20171130	CO20170007226	20170719
EP3268775 A1	20180117	EP20160762460	20160309
EP3268775 A4	20181114	EP20160762460	20160309
KR20170125905 A	20171115	KR20177027611	20160309
MX2017009426 A1	20171012	MX20170009426	20160309
PE16832017 A1	20171127	PE20170001238	20160309
US2016266281 AA	20160915	US20160065752	20160309
WO16145118 A1	20160915	WO2016US21614	20160309

Probable Assignee: VISION EASE LP

Assignee(s):(std): VISION EASE LP

Assignee(s): BROWN JEFF ; MARSHALL MICHAEL

Inventor(s):(std): BROWN JEFF ; JEFF BROWN ; MARSHALL MICHAEL ; MICHAEL MARSHALL

Agent(s): SPRUSON AND FERGUSON; CAMERON IP; ESTUDIO CLARKE MODET AND CO CHILE LIMITADA; CAROLINA MERCEDES DAZA MONTALVO; KIPA AB; SWANSON SHANE S

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TN TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): B32B17/00 C08J7/06 G02B1/00 G02B1/10 G02B1/116 G02B1/16 G02C7/02 G2B1/00 (Advanced/Invention)

CPC: G02B1/116 G02B1/16 G02C7/022 G02C2202/16

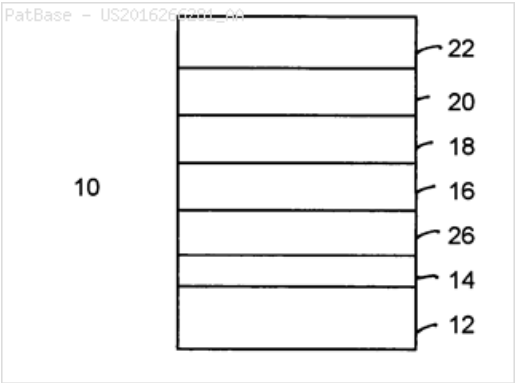
US class: 359/581

[Classification Explorer](#)

Cited documents: US6313577 BA, US5798182 A, US5719705 A, US4422721 A, JP2011232569 A2, EP3362826 A1, EP3271755 A1, EP3118658 A1, EP2286985 A1, EP0145201 A1,

Abstract:

An anti-reflective, anti-static coating, optical articles employing such a coating, and methods of forming the same. The coating formed of alternating layers of low, mid, and/or high refractive index oxide materials and one or more layers of electrically conductive, substantially non-oxide forms of the same materials employed to form the alternating layers of low, mid, and/or high refractive index oxide materials.



9) Family number: 64868205 (US2017040402A) © PatBase

Title: DISPLAY PANEL, DATA PROCESSING DEVICE, AND METHOD FOR MANUFACTURING DISPLAY PANEL

Priority: JP20150156992 20150807 JP20160122745 20160621 JP20160152099 20160802

Family:

Publication number	Publication date	Application number	Application date
JP2017227855 A2	20171228	JP20160152099	20160802
TW201723619 A	20170701	TW20160124474	20160802
US2017040402 AA	20170209	US20160221733	20160728
WO17025836 A1	20170216	WO20161B54436	20160726

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO

Inventor(s):(std): ADACHI HIROKI ; HIRAKATA YOSHIHARU ; KUSUNOKI KOJI ; SATO MASATAKA ; YASUMOTO SEIJI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): G02F1/1333 G02F1/1335 G02F1/1343 G02F1/1362 G02F1/1368 G06F3/01 G09F9/00 G09F9/30 G09F9/46 G09G3/20 H01L21/28 H01L21/336 H01L21/8242 H01L27/105 H01L27/108 H01L27/115 H01L27/12 H01L27/32 H01L29/417 H01L29/423 H01L29/49 H01L29/786 H01L29/788 H01L29/792 (Advanced/Invention)

CPC: H01L27/1237 H01L27/124 H01L27/1248 H01L27/1255 G02F1/136227 G02F1/1368 G02F1/133553 H01L27/3276 G02F1/136286 H01L27/1262 G09G3/2092 G09G2320/0626 G09G2320/066 G09G3/3648 G09G5/34 G09G2300/023 G09G2300/046 G09G2300/0465 G09G2310/0205 G09G2320/0242 G09G2320/0666 G09G2320/103 G09G2330/021 G09G2340/0435 G09G2360/144 H01L27/3258 H01L29/78648 H01L29/78696 H01L27/1225 H01L29/7869

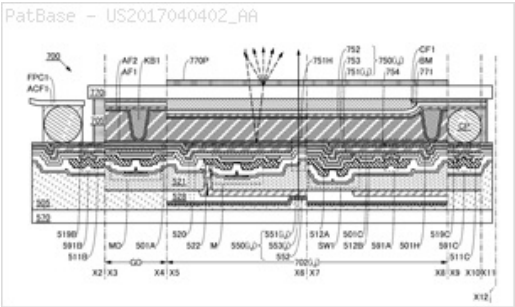
US class: 345/156

[Classification Explorer](#)

Cited documents: JP2014164389 A2, JP2006350312 A2, JP2003076302 A2,

Forward Citations: US9964800, US9837478, US10177697, US10163989, US10031392,

Abstract:
A novel display panel that is highly convenient or reliable is provided. A structure in invented which includes a first display element, a first conductive film, a second conductive film, a first insulating film, an intermediate film, a pixel circuit, and a second display element. The first conductive film is electrically connected to the first display element. The second conductive film includes a region overlapping with the first conductive film. The first insulating film includes a region located between the second conductive film and the first conductive film. The first conductive film is located between the second conductive film and part of the intermediate film. The pixel circuit is electrically connected to the second conductive film. The second display element is electrically connected to the pixel circuit. The first insulating film has an opening. The second conductive film is electrically connected to the first conductive film through the opening.



Title: PROTECTIVE FILM, LAMINATE, DISPLAY DEVICE, AND FILM-ATTACHING UNIT

Priority: JP20140074949 20140331

Family:

Publication number	Publication date	Application number	Application date
■ CN104950357 A	20150930	CN201510131719	20150324
■ JP2015196313 A2	20151109	JP20140074949	20140331
■ US2015273792 AA	20151001	US20150665581	20150323

Probable Assignee: SONY CORP

Assignee(s):(std): SONY CORP

Inventor(s):(std): HIROSHI TAZAWA ; TAZAWA HIROSHI

Agent(s): SUGIURA MASATOMO; SUGIURA TAKUMA

International class (IPC 8-9): B32B27/00 B32B3/30 B32B37/12 B32B7/12 C09J201/00 C09J4/00 G02B1/11 G02B1/14 G02F1/1335 (Advanced/Invention)

CPC: B32B3/30 B32B7/12 B32B2250/02 B32B2255/26 B32B2457/20 Y10T428/24364 Y10T428/28 B32B2255/00 C09J2201/622 C09J2203/318 G02B1/11 G02F1/133502 G02B1/14 B32B37/12 C09J7/385

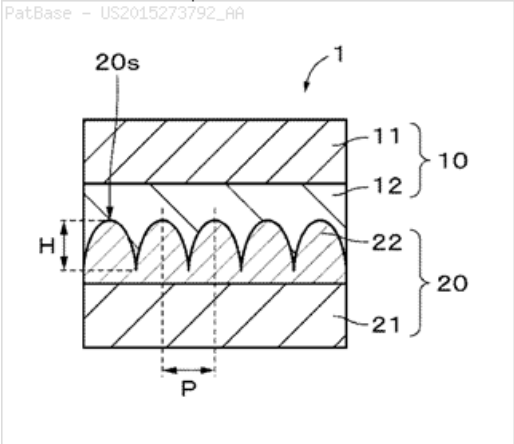
US class: 428/142 428/343

[Classification Explorer](#)

Cited documents: JP10083584, CN103525323 A, CN102177214 A, CN101896840 A,

Forward Citations: US9930749, CN106584998,

Abstract:
There is provided a laminate that includes a protective film configured to include an adhesive layer, and a film-attaching layer configured to include an uneven surface to which the protective film is attached via the adhesive layer. The protective film has adhesion of 3 [N/25 mm] to 20 [N/25 mm] inclusive with respect to the uneven surface before pretreatment, and the protective film has the adhesion of 0.05 [N/25 mm] or lower with respect to the uneven surface after the pretreatment.



11) Family number: 61864311 (DE102014013600A1)

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Title: SOLARABSORBER, VERFAHREN ZU SEINER HERSTELLUNG UND SEINE VERWENDUNG SOLAR ABSORBER, PROCESS FOR PRODUCING IT AND ITS USE (Machine translation)

Priority: DE201410013600 20140913

Family:

Publication number	Publication date	Application number	Application date
■ DE102014013600 A1	20160317	DE201410013600	20140913

Probable Assignee: WINDPLUSSONNE GMBH

Assignee(s):(std): WINDPLUSSONNE GMBH

Inventor(s):(std): LUTHE GREGOR

International class (IPC 8-9): F24J2/20 F24S10/50 (Advanced/Invention)

CPC: Y02E10/44 Y02B10/20 F28D20/003 F28D20/0034 F28D20/02 F28D20/026 F28D2020/0013 F28D2020/0021 F28D2020/0082 F28D2020/0095 F28F13/003 Y02E60/142 Y02E60/145 F28F21/04 F24S10/502 F24S10/72 F24S10/753 F24S10/755 F24S20/66 F24S60/00 F24S70/16 F24S80/30 F24S2080/011

[Classification Explorer](#)

Cited documents: WO9749747 A1, WO9749745 A1, WO9612747 A1, WO9514721 A1, WO9422969 A1, WO9410213 A1, WO9410212 A1, WO9410211 A1, WO9222615 A1, WO12093062 A2, WO10081561 A1, US5605965 A, US5474811 A, US5356669 A, US4268542 A, NL9500177 A, ES2398119 AA, EP2131120 A2, EP0928800 A1, EP0817684 A1, EP0783534 A1, EP0708788 A1, EP0678536 A1, EP0669356 A1, EP0650985 A1, EP0650979 A1, EP0650978 A1, EP0649865 A1, EP0636669 A2, EP0634431 A1, EP0604992 A1, EP0596461 A2, EP0596460 A2, EP0594142 A1, EP0594071 A1, EP0594068 A1, EP0593454 A1, EP0590484 A1, EP0584818 A1, EP0581211 A1, EP0574417 A1, EP0568967 A2, EP0543817 A1, EP0540884 A1, EP0536712 A1, EP0531510 A1, EP0523610 A1, EP0522420 A2, EP0522419 A1, EP0521928 A1, EP0496205 A1, EP0469389 A1, EP0427028 A1, EP0424705 A2, EP0410242 A2, EP0401565 A1, EP0397806 A1, EP0394737 A1, EP0358979 A2, EP0354261 A1, EP0299148 A2, EP0297576 A1, EP0260447 A2, EP0256540 A2, EP0234362 A1, EP0234361 A1, EP0228003 A1, EP0089497 A2, EP0054505 A1, DE4431124 A1, DE4328092 A1, DE4222194 A1, DE4204518 A1, DE4202477 A1, DE4142816 C1, DE3805629 C1, DE3409080 A1, DE3108861 C2, DE2446442 A1,

DE202012103819 U1

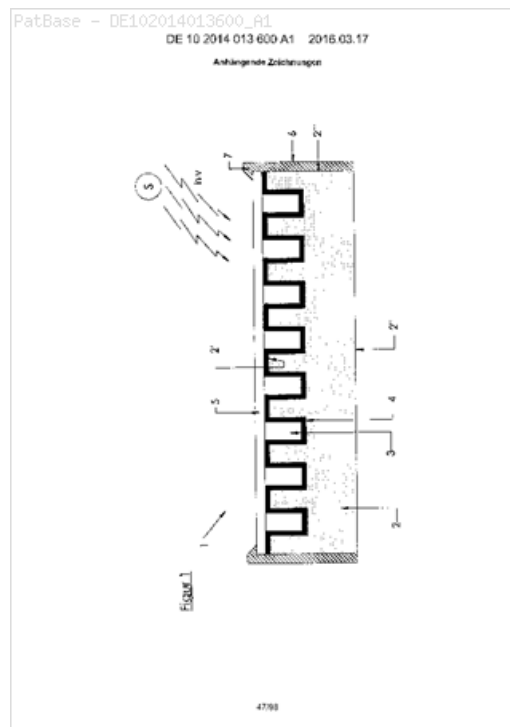
DE19814471 A1, DE19741554 A1, DE19718694 A1, DE19652813 A1, DE19628820 A1, DE19617086 A1, DE19613547 A1, DE19547944 A1, DE19540977 A1, DE19518392 A1, DE19504947 A1, DE10207860 A1,

DE102012105240 A1

DE102012021906 A1
DE102011076189 A1
DE102010036383 A1
DE102009040039 A1
DE102009022932 B4
DE102008027309 A1

Abstract:

Source: DE102014013600A1 [DE] Solarabsorber (1) gemaess 1, umfassend - mindestens eine offenporige und/oder geschlossenporige, makro-, mikro- und/oder nanoporige, unverstaerkte und/oder makro-, mikro- und/oder nanofaserverstaerke Keramikschaumplatte (2) mit einer im eingebauten Zustand der Sonne zugewandten, horizontalen Oberflaeche (2'), einer gegenueberliegenden, im eingebauten Zustand der Sonne abgewandten, horizontalen Oberflaeche (2'') und einer umlaufenden, im Wesentlichen vertikalen oder vertikalen Seitenflaeche (2''') sowie - mindestens eine Kanalstruktur (3) fuer mindestens ein Waermetauschermedium in der Oberflaeche (2'), Verfahren zu seiner Herstellung und seine Verwendung. **Machine translation:** The solar absorber (1) according to 1, comprising - at least one open-pore and / or closed-pore, macro-, micro- and / or nanoporous, unvertearke and / or macro-, mikro- and / or nanofaserverstaerke ceramic foam plate (2) having a facing the installed condition of the sun, horizontal surface (2'), an opposite, facing away from the installed state of the sun, horizontal surface (2'') and a peripheral, substantially vertical or vertical Seitenflaeche (2'''), and - at least one channel structure (3) for at least one Waermetauschermedium in the surface (2'), process for its preparation and its use.



12) Family number: 69102339 (US2018095502A)

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Title: ELECTRONIC DEVICE

Priority: JP20160196211 20161004 JP20160196213 20161004 JP20170193422 20171003

Family:

Publication number	Publication date	Application number	Application date
JP2018060202 A2	20180412	JP20170193422	20171003
US2018095502 AA	20180405	US20170722293	20171002

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Inventor(s):(std): UOCHI HIDEKI ; UOJI HIDEKI ; YAMAZAKI SHUNPEI

International class (IPC 8-9): F16M11/38 F21V15/04 F21V21/30 G06F1/16 G09F9/00 G09F9/30 H01L27/32 (Advanced/Invention)

CPC: G06F1/1652 G06F1/1618 G06F1/1626 H01L27/323 F21V21/30 F16M11/38 F21V15/04 H01L27/3232 H01L27/326 H01L51/0097 H04M1/0216 G06F1/1616 G06F1/1643 G06F1/165 G06F1/1681 H04M1/0268 H04M2250/16 Y02E10/549

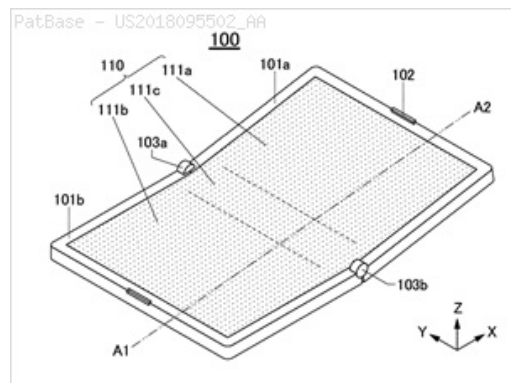
[Classification Explorer](#)

Cited documents: US9958976 BB, US9810406 BB, US9204565 BA, US2016014914 AA, US2014098471 AA, US2014042293 AA,

Forward Citations: US10146261,

Abstract:

An electronic device with favorable reliability is provided. The electronic device can be folded in half and includes a bendable display device. In the electronic device, a first space is provided in the neighborhood of a hinge that connects two housings. Part of the display device is stored in a second space when the electronic device is folded, which prevents excessing bending of the display device and increases reliability. The display device may be provided on a side surface of the housings, which increases visibility. The side surface of the housings preferably includes a curved surface. The display device may include a first pixel reflecting visible light and a second pixel emitting visible light, which increases the visibility and decreases power consumption of the electronic device.



13) Family number: 65931430 (US2017162115A)

© PatBase

Title:	DRIVING CIRCUIT OF ACTIVE-MATRIX ORGANIC LIGHT-EMITTING DIODE WITH HYBRID TRANSISTORS					
Priority:	US20150262430P	20151203	US20150387213P	20151224	US20160319965P	20160408
	TW20160115144	20160517	US20160337384P	20160517	TW20160115275	20160518
	TW20160118719	20160615	TW20160119030	20160617	TW20160119032	20160617
	US20160358177P	20160705	US20160371252P	20160805	US20160382281P	20160901
	US20160394225P	20160914	CN201610878503	20161009	US20160415542P	20161101
	US20160363289	20161129	US20160364350	20161130	CN201611089421	20161201
	US20160365990	20161201	US20160429162P	20161202	US20160384590	20161220
	US20170441579P	20170103	US20170450106P	20170125	CN201710067676	20170207
	CN201710071011	20170209	US20170436073	20170217	US20170441329	20170224
	US20170462999P	20170224	US20170465869P	20170302	US20170448592	20170303
	US20170451432	20170307	US20170451416	20170307	US20170452754	20170308
	US20170453907	20170309	US20170460331	20170316	US20170479326P	20170331
	US20170478874	20170404	US20170480458	20170406	US20170480423	20170406
	US20170480383	20170406	US20170484161	20170411	US20170486336	20170413
	US20170489754	20170418	US20170499922	20170428	US20170500539P	20170503
	US20170588707	20170508	US20170590030	20170509	US20170593626	20170512
	US20170594652	20170514	US20170595434	20170515	US20170512733P	20170531
	US20170609156	20170531	CN201710414084	20170605	US20170619552	20170612
	US20170623402	20170615	US20170527198P	20170630	US20170640647	20170703
	US20170642599	20170706	US20170645018	20170710	US20170649701	20170714
	US20170659947	20170726	US20170662256	20170727	KR20170097522	20170801
	US20170539579P	20170801	CN201710660574	20170804	US20170670129	20170807
	US20170670120	20170807	US20170673435	20170810	KR20170104610	20170818
	KR20170104611	20170818	US20170692031	20170831	US20170691765	20170831
	US20170698777	20170908	US20170698744	20170908	CN201710813708	20170911
	US20170713754	20170925	CN201710888168	20170927	US20170719600	20170929
	KR20170139270	20171025	US20170794153	20171026	US20170803830	20171105
	US20170804259	20171106	KR20170147215	20171107	CN201711104263	20171110
	US20170826639	20171129	CN201711435140	20171226	CN201711444797	20171227
	KR20170180945	20171227	US20180876383	20180122	US20180909097	20180301
	US20180916643	20180309	KR20180034346	20180326	US20180968895	20180502
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Family:

Publication number	Publication date	Application number	Application date
■ CN106847183 A	20170613	CN201610325979	20160517
■ CN106847195 A	20170613	CN201610431961	20160617
■ CN106920515 A	20170704	CN201610436667	20160617
■ CN106920801 A	20170704	CN201610329828	20160518
■ CN107275334 A	20171020	CN201610878503	20161009
■ CN107275367 A	20171020	CN201710178639	20170323
■ CN107302030 A	20171027	CN201610421390	20160615
■ CN107403804 A	20171128	CN201611089421	20161201
■ CN107452749 A	20171208	CN201710225564	20170407
■ CN107579075 A	20180112	CN201710067676	20170207
■ CN107688415 A	20180213	CN201710660248	20170804
■ CN107689192 A	20180213	CN201710660574	20170804
■ CN107799532 A	20180313	CN201710071011	20170209
■ CN107819003 A	20180320	CN201710551955	20170707
■ CN108022550 A	20180511	CN201710913338	20170930
■ CN108022935 A	20180511	CN201710821814	20170913
■ CN108022941 A	20180511	CN201711032522	20171030
■ CN108022945 A	20180511	CN201710414084	20170605
■ CN108153442 A	20180612	CN201711006049	20171025
■ CN108153443 A	20180612	CN201711006061	20171025
■ CN108153444 A	20180612	CN201711237517	20171130
■ CN108155194 A	20180612	CN201711192163	20171124
■ CN108155195 A	20180612	CN201711209703	20171127
■ CN108155201 A	20180612	CN201710564452	20170712
■ CN108268164 A	20180710	CN201711247869	20171201
■ CN108268165 A	20180710	CN201711262487	20171204
■ CN108269786 A	20180710	CN201711454185	20171228
■ CN108269798 A	20180710	CN201711472089	20171229
■ CN108269832 A	20180710	CN201711454199	20171228

■	CN108345142 A	20180731	CN201711474385	20171229
■	CN108345143 A	20180731	CN201810044020	20180117
■	CN108346375 A	20180731	CN201810034462	20180115
■	CN108346682 A	20180731	CN201810059776	20180122
■	CN108511458 A	20180907	CN201810085019	20180129
■	CN108511477 A	20180907	CN201810089311	20180130
■	CN108666338 A	20181016	CN201710813708	20170911
■	CN108693992 A	20181023	CN201810182820	20180306
■	CN108695354 A	20181023	CN201810174029	20180302
■	CN108803135 A	20181113	CN201711104263	20171110
■	CN108803922 A	20181113	CN201810410813	20180502
■	CN108806507 A	20181113	CN201810416041	20180503
■	CN108807256 A	20181113	CN201710888168	20170927
■	CN108807419 A	20181113	CN201810413284	20180503
■	CN108983466 A	20181211	CN201810339843	20180416
■	CN108986673 A	20181211	CN201810414037	20180503
■	CN108987412 A	20181211	CN201711444797	20171227
■	CN108987432 A	20181211	CN201810400246	20180428
■	CN108987591 A	20181211	CN201810339203	20180416
■	EP3316299 A1	20180502	EP20170191515	20170918
■	EP3316303 A1	20180502	EP20170191518	20170918
■	EP3331011 A1	20180606	EP20170185245	20170808
■	EP3343611 A1	20180704	EP20180150050	20180102
■	EP3352217 A2	20180725	EP20170209569	20171221
■	EP3352217 A3	20181107	EP20170209569	20171221
■	EP3382754 A1	20181003	EP20180163413	20180322
■	EP3399550 A1	20181107	EP20180170158	20180430
■	EP3410479 A1	20181205	EP20180169588	20180426
■	EP3410480 A2	20181205	EP20180172744	20180516
■	EP3422409 A1	20190102	EP20180174710	20180529
■	KR20180048282 A	20180510	KR20170097522	20170801
■	KR20180048336 A	20180510	KR20170139270	20171025
■	KR20180063810 A	20180612	KR20170104610	20170818
■	KR20180080091 A	20180711	KR20170104611	20170818
■	KR20180080113 A	20180711	KR20170180945	20171227
■	KR20180087823 A	20180802	KR20170147215	20171107
■	KR20180111555 A	20181011	KR20180034346	20180326
■	KR20180122542 A	20181113	KR20170180966	20171227
■	KR20180131329 A	20181210	KR20170135644	20171019
■	KR20180131496 A	20181210	KR20180062493	20180531
■	KR20190003289 A	20190109	KR20170162893	20171130
■	TW201721623 A	20170616	TW20160115144	20160517
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■	TWI631693 B	20180801	TW20170111672	20170407
■	US2017162115 AA	20170608	US20160364350	20161130
■	US2017162145 AA	20170608	US20160365990	20161201
■	US2017162606 AA	20170608	US20160363289	20161129
■	US2017186782 AA	20170629	US20160384590	20161220
■	US2017294456 AA	20171012	US20170436073	20170217
■	US2017294459 AA	20171012	US20170452754	20170308
■	US2017294460 AA	20171012	US20170460331	20170316
■	US2017294497 AA	20171012	US20170441329	20170224
■	US2017338252 AA	20171123	US20170480458	20170406
■	US2018012549 AA	20180111	US20170640647	20170703
■	US2018039352 AA	20180208	US20170453907	20170309
■	US2018040638 AA	20180208	US20170451432	20170307
■	US2018062105 AA	20180301	US20170649701	20170714
■	US2018076182 AA	20180315	US20170593626	20170512
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■	US2018122786 AA	20180503	US20170642599	20170706
■	US2018122787 AA	20180503	US20170698777	20170908
■	US2018145094 AA	20180524	US20180876383	20180122
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■	US2018158987 AA	20180607	US20170499922	20170428
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■	US2018188862 AA	20180705	US20170670129	20170807
■	US2018190672 AA	20180705	US20170590030	20170509
■	US2018190720 AA	20180705	US20170609156	20170531

US2018199835 AA	20180795	US20180659047	20180306
US2018210266 AA	20180726	US20170645018	20170710
US2018210280 AA	20180726	US20170588707	20170508
US2018210291 AA	20180726	US20170594652	20170514
US2018212051 AA	20180726	US20170595434	20170515
US2018246356 AA	20180830	US20170623402	20170615
US2018247979 AA	20180830	US20170619552	20170612
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US2018284934 AA	20181004	US20170673435	20170810
US2018287098 AA	20181004	US20180916643	20180309
US2018321558 AA	20181108	US20180968895	20180502
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US2018322848 AA	20181108	US20170826639	20171129
US2018323239 AA	20181108	US20170670120	20170807
US2018323356 AA	20181108	US20180968878	20180502
US2018348574 AA	20181206	US20170719600	20170929
US2018349719 AA	20181206	US20170713754	20170925
US2018350782 AA	20181206	US20180971291	20180504
US2018350871 AA	20181206	US20170692031	20170831
US2018351054 AA	20181206	US20170691765	20170831
US2019004347 AA	20190103	US20180100220	20180810
US2019004359 AA	20190103	US20170804259	20171106
US2019006328 AA	20190103	US20180996696	20180604
US2019006449 AA	20190103	US20170803830	20171105
US9911762 BB	20180306	US20160363289	20161129
US10021762 BA	20180710	US20170794153	20171026
US10073294 BA	20180911	US20170662256	20170727
US10074669 BB	20180911	US20170480423	20170406
US10141387 BB	20181127	US20170441329	20170224
US10149366 BA	20181204	US20180003246	20180608
US10157572 BB	20181218	US20170478874	20170404

Probable Assignee: INNOLUX CORP

Assignee(s):(std): INNOLUX CO LTD ; INNOLUX CORP ; INNOLUX DISPLAY GROUP

Assignee(s): INNOLUX CORPORATION

Inventor(s):(std): CHEN JIA YUAN ; CHEN YI AN ; CHOU CHENG HSU ; CHU WEI CHENG ; HSIEH CHIH YUNG ; HSU CHIA HSIU ; HSU NAI FANG ; JIANG MING FU ; KUO KUAN HUNG ; LEE CHIH YUAN ; LIN HSIAO LANG ; LIN MING CHANG ; LIU CHIA CHENG ; LIUS CHANDRA ; TSENG MING CHUN ; WANG HUI CHIEH ; WU YUAN LIN ; YAN TZU MIN ; YUEH JUI JEN ; WU CHENG MIN ; TSAI YU SHENG ; LIU TUNG KAI ; LEE KUANFENG ; LEE KUAN FENG ; KUO SHU MING ; KUO KUNG CHEN ; IWATSU AKIHIRO ; HUANG SHENG FENG ; HU SHUN YUAN ; HSIEH TSAU HUA ; CHEN LIEN HSIANG ; CHAO MING I ; YUE RUIREN ; YUAN LIN WU ; YU HSIEN WU ; YAN ZIMIN ; WU ZHENGMIN ; WU YUANLIN ; WU YU HSIEN ; WANG CHAO HSIANG ; TSUNG HAN TSAI ; TSAI TSUNG HAN ; LIN XIAOLANG ; LIN MINGCHANG ; LI GUANFENG ; KUAN FENG LEE ; HUANG SHENGFENG ; XU NAI FANG ; WANG ZHAOXIANG ; SHIH JIAN JUNG ; LIU YU HSIEN ; LIU MINZUAN ; LIN CHUN HSIEN ; LEEKUAN FENG ; CHEN YANG CHEN

Agent(s): 2K PATENTANWALTE BLASBERG KEWITZ AND REICHEL; MCCLURE QUALEY AND RODACK LLP; HSU WINSTON; BACON AND THOMAS PLLC; PATTERSON AND SHERIDAN LLP

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

International class (IPC 8-9): G02B1/11 G02B5/30 G02F1/133 G02F1/1333 G02F1/1335 G02F1/13357 G02F1/1339 G02F1/1343 G02F1/1345 G02F1/1347 G02F1/1362 G02F1/1368 G02F1/153 G06F1/16 G06F3/041 G06F3/044 G06F3/045 G06F3/047 G06K9/00 G09F9/00 G09F9/30 G09F9/33 G09F9/35 G09G3/20 G09G3/30 G09G3/32 G09G3/3208 G09G3/3225 G09G3/3233 G09G3/3266 G09G3/3275 G09G3/36 G09G5/14 H01L21/02 H01L21/50 H01L21/60 H01L21/683 H01L21/77 H01L23/00 H01L23/488 H01L23/544 H01L25/075 H01L25/16 H01L27/01 H01L27/02 H01L27/088 H01L27/12 H01L27/15 H01L27/32 H01L29/04 H01L29/06 H01L29/16 H01L29/24 H01L29/417 H01L29/423 H01L29/49 H01L29/51 H01L29/66 H01L29/786 H01L33/00 H01L33/04 H01L33/06 H01L33/10 H01L33/16 H01L33/18 H01L33/20 H01L33/22 H01L33/32 H01L33/36 H01L33/38 H01L33/40 H01L33/44 H01L33/48 H01L33/50 H01L33/52 H01L33/54 H01L33/56 H01L33/58 H01L33/60 H01L33/62 H01L51/00 H01L51/05 H01L51/50 H01L51/52 H01L51/56 H03K17/96 H05B33/08 H05B33/22 H05K1/18 (Advanced/Invention); G02F1/1333 G02F1/1345 G02F1/1362 G02F1/1368 G09G3/32 G09G3/36 H01L21/02 H01L27/12 H01L27/32 H01L29/786 H01L33/12 H01L33/48 H01L33/62 (Advanced/Non-invention)

CPC: G09G2300/0426 G09G2300/043 G09G2300/0809 G09G2330/021 G09G2320/0233 G09G3/3648 G02F1/136286 G09G2310/08 H01L29/78696 H01L29/41733 H01L27/1248 H01L27/124 G09G2300/0852 G09G3/20 G09G2310/0267 G09G2310/0286 G11C19/28 G09G3/3233 G09G2300/0819 G09G2300/0842 G09G2300/0861 G09G2310/0262 H01L29/51 H01L27/1259 H01L29/66969 H01L21/02164 H01L29/66757 H01L29/24 H01L21/02532 H01L21/02595 H01L21/02565 H01L29/518 H01L27/1218 H01L27/1237 H01L27/3248 H01L27/3272 H01L29/78672 G09G3/3611 G02F1/136277 G09G3/3275 G02F2202/104 H01L29/78633 G02F2201/40 H01L27/3265 H01L27/323 G02F2001/13685 G02F1/136227 G02F1/136209 G02F1/13338 G09G2320/045 G02F1/13624 H01L29/78666 H01L29/78669 H01L29/78678 G09G3/3266 H01L29/4908 G06F2203/04102 H01L51/5203 H01L51/0508 H01L51/4273 H01L51/05 H01L51/5296 H01L33/20 H01L2933/0033 H01L33/58 H01L27/127 G02F1/13454 G09G2300/0452 H01L24/29 H01L2224/29499 H01L2224/32148 H01L2924/1426 H01L2933/005 H01L27/1255 H01L2924/12041 H01L27/156 H01L33/005 H01L33/36 H01L29/786 G02F1/1333 H01L21/77 H01L27/32 H01L2021/775 G02F1/134309 H01L29/42356 H01L33/16 H01L33/32 H01L33/12 H01L51/00 H01L29/7869 H01L29/78675 H01L2933/0025 G09F9/00 H01L51/0097 H01L2251/5338 H01L23/544 G09G2310/0297 H01L2223/54426 H01L27/3244 G02F1/133305 G02F1/133308 G02F1/1533 G02F1/1343 G02F1/1347 G02F1/13306 G02F1/133617 G02F2202/36 H01L27/0218 H01L29/0653 H01L27/3276 H01L51/502 H01L51/5237 G06F3/0416 H01L27/1222 G06F2203/04103 H01L2224/16225 H01L27/322 G02B5/3041 G02F2001/133616 G02F2203/30 G09G3/3607 G02F2001/133388 G02F1/1368 H01L21/6835 H01L2221/6835 H01L2221/68386 H01L24/32 H01L24/83 H01L2224/32146 H01L2224/83024 G09G3/3208 H01L29/04 H01L29/16 H01L33/18 G06F3/0418 G06F3/047 H01L33/22 H01L33/40 H01L33/60 G06F1/1601 G06F2203/04111 H01L51/5268 H05B33/0803 H01L51/5275 H01L33/0079 H01L33/10 H01L33/50 H01L27/1225 H01L29/78645 H01L29/78648 H01L27/3227 G09F9/33 H01L21/50 H01L51/5256 G02F1/133603 G02F1/133605 G02F2001/133548 H01L33/502 G09F9/301 H05K1/189 G02F2201/307 G06F1/1643 G06F1/1652 H01L27/1244 G09G5/14 G09G2360/04 G09G2380/02 G09G3/2092 H01L27/016 G02F1/133512 G02F1/133514 H05B33/22 H01L27/088 H01L27/3258 H01L51/5206 G02F1/13452 H01L21/02381 H01L2224/04026 H01L2924/10253 H01L27/3288 H01L33/00 G02F1/133345 H01L27/3213 H01L27/3216 H01L27/3218 H01L51/5284 H01L33/507 H01L33/387 H01L33/486 G06G9/00885 H01L33/54

Title:

SEMICONDUCTOR DEVICE, DISPLAY SYSTEM, AND ELECTRONIC DEVICE

Priority:

JP20160185876 20160923 JP20160223708 20161117 KR20170118778 20170915

JP20170180190 20170920

Family:

Publication number	Publication date	Application number	Application date
JP2018085716 A2	20180531	JP20170180190	20170920
KR20180033073 A	20180402	KR20170118778	20170915
US2018090616 AA	20180329	US20170697896	20170907

Probable Assignee:

SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std):

SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):

SEMICONDUCTOR ENERGY LABORATORY CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO

Inventor(s):(std):

KOZUMA MUNEHIRO ; KUROKAWA YOSHIMOTO ; KUROKAWA YOSHIYUKI ; NAKAGAWA TAKASHI

International class (IPC 8-9):

H01L21/82 H01L21/822 H01L27/04 H01L27/12 H01L29/16 H01L29/24 H01L29/786 H03K19/00 H03K19/177 (Advanced/Invention)

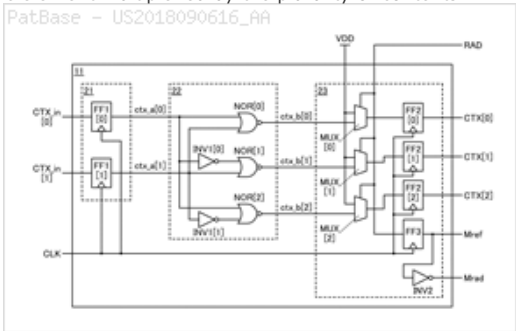
CPC:

H01L29/7869 H01L29/16 H01L29/24 H03K19/17744 H03K19/0013 H03K19/17708 H01L27/1207 H03K19/1776 H03K19/0016 H01L27/28

[Classification Explorer](#)

Abstract:

A novel semiconductor device is provided. The semiconductor device includes a programmable logic device including a programmable logic element, a control circuit, and a detection circuit. The programmable logic device includes a plurality of contexts. The control circuit is configured to control selection of the contexts. The detection circuit is configured to output a signal corresponding to the amount of radiation. The control circuit is configured to switch between a first mode and a second mode in accordance with the signal corresponding to the amount of radiation. The first mode is a mode in which the programmable logic device performs processing by a multi-context method, and the second mode is a mode in which the programmable logic device performs processing using a majority signal of signals output from the logic element multiplexed by the plurality of contexts.



Title:

DISPLAY DEVICE, ELECTRONIC DEVICE, AND SYSTEM

Priority:

JP20150157126 20150807 JP20160119609 20160616 JP20160152620 20160803

Family:

Publication number	Publication date	Application number	Application date
JP2017227857 A2	20171228	JP20160152620	20160803
US2017038641 AA	20170209	US20160225149	20160801

Probable Assignee:

SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std):

SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):

SEMICONDUCTOR ENERGY LABORATORY CO ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Inventor(s):(std):

YAMAZAKI SHUNPEI

International class (IPC 8-9):

G02F1/1333 G02F1/1335 G06F1/16 G09F9/00 G09F9/30 G09F9/40 G09F9/46 H01L51/50 H04M1/02 H05B33/02 (Advanced/Invention)

CPC:

G02F1/133555 G06F1/1616 G06F1/1647 G06F1/1654 G02F1/133308 G02F1/13338

US class:

349/58

[Classification Explorer](#)

Cited documents:

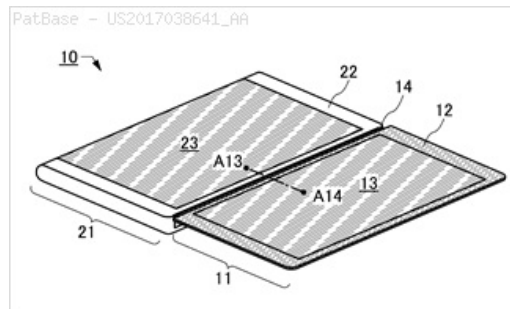
US2018032108 AA, US2016066440 AA, US2016018851 AA, US2001015777 AA,

Forward Citations:

US9964800, US9857849, US2018277930, US2017357294, US2017277225, US10163989,

Abstract:

A system includes an electronic device and a display device. The electronic device includes a first display portion positioned on a first surface including an upper surface of a housing and a second display portion positioned on a second surface including a first side surface of the housing. The display device includes a third display portion positioned on a third surface of a support portion and a connection portion having a function of connecting to the housing and reversibly changing the relative positions of the support portion and the housing between a first configuration and a second configuration. In the first configuration, the support portion covers the first display portion such that the second display portion is visible. In the second configuration, the support portion and the housing are opened such that the first, second, and third display portions are visible.



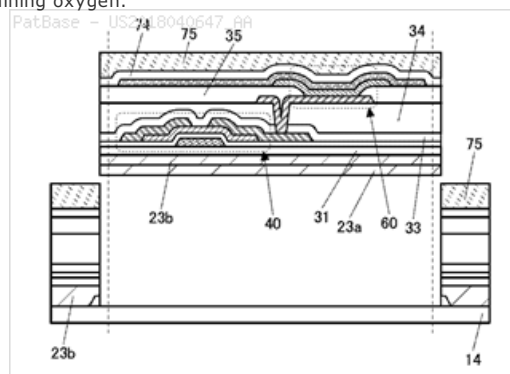
16) Family number: 68498483 (US2018040647A)

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Title:	SEPARATION METHOD, DISPLAY DEVICE, DISPLAY MODULE, AND ELECTRONIC DEVICE																							
Priority:	JP20160154489 20160805		JP20170148960 20170801																					
Family:	<table><tr><th>Publication number</th><th>Publication date</th><th>Application number</th><th>Application date</th></tr><tr><td>JP2018025788 A2</td><td>20180215</td><td>JP20170148960</td><td>20170801</td></tr><tr><td>TW201820384 A</td><td>20180601</td><td>TW20160137471</td><td>20161116</td></tr><tr><td>US2018040647 AA</td><td>20180208</td><td>US20170666758</td><td>20170802</td></tr><tr><td>WO18025096 A1</td><td>20180208</td><td>WO20171B52836</td><td>20170515</td></tr></table>				Publication number	Publication date	Application number	Application date	JP2018025788 A2	20180215	JP20170148960	20170801	TW201820384 A	20180601	TW20160137471	20161116	US2018040647 AA	20180208	US20170666758	20170802	WO18025096 A1	20180208	WO20171B52836	20170515
Publication number	Publication date	Application number	Application date																					
JP2018025788 A2	20180215	JP20170148960	20170801																					
TW201820384 A	20180601	TW20160137471	20161116																					
US2018040647 AA	20180208	US20170666758	20170802																					
WO18025096 A1	20180208	WO20171B52836	20170515																					
Probable Assignee:	SEMICONDUCTOR ENERGY LAB CO LTD																							
Assignee(s):(std):	SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO LTD																							
Assignee(s):	SEMICONDUCTOR ENERGY LABORATORY CO																							
Inventor(s):(std):	IDOJIRI SATORU ; KOBAYASHI YUKA ; YASUMOTO SEIJI ; YAMAZAKI SHUNPEI																							
Designated states:	AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW																							
International class (IPC 8-9):	B32B3/04 B32B3/18 B32B37/06 B32B37/26 G09F9/00 G09F9/30 H01L21/02 H01L21/336 H01L21/47 H01L21/683 H01L27/12 H01L27/32 H01L29/66 H01L29/786 H01L51/50 H05B33/02 H05B33/10 (Advanced/Invention)																							
CPC:	H01L27/1266 H01L21/02118 H01L21/02255 H01L21/47 H01L29/66969 H01L27/1225 H01L27/1218 H01L21/02282 H01L29/7869 H01L21/6835 H01L27/3232 H01L27/3262 H01L2221/68381 H01L2221/6835 H01L27/323 H01L2227/323 H01L2227/326 G02F1/1368 G02F1/133305 G02F1/133553 G02F1/136227 G02F2001/133354 G02F2201/44 G02F1/133603 G02F2001/13613																							
Classification Explorer																								
Cited documents:	WO16152906 A1, WO14050933 A1, US2018012751 AA, US2017158805 AA, US2015072454 AA, US2012325535 AA, US2012061664 AA, US2011308739 AA, JP2015187987 A2, JP2013080876 A2,																							
Forward Citations:	US2018213650, US2017097535, US10156744,																							

Abstract:

To increase the yield of the separation process. To produce display devices formed through the separation process with higher mass productivity. A first layer is formed using a material including a resin or a resin precursor over a substrate. Then, first heat treatment is performed on the first layer, whereby a first resin layer including a residue of an oxydiphthalic acid is formed. Then, a layer to be separated is formed over the first resin layer. Then, the layer to be separated and the substrate are separated from each other. The first heat treatment is performed in an atmosphere containing oxygen.



17) Family number: 69434530 (US2018113547A)

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Title:	TOUCH SENSOR, DISPLAY DEVICE, DISPLAY MODULE, AND ELECTRONIC DEVICE			
Priority:	JP20160207008 20161021		JP20170202708 20171019	
Family:	Publication number	Publication date	Application number	Application date
	JP2018073408 A2	20180510	JP20170202708	20171019
	TW201825974 A	20180716	TW20170135532	20171017
	US2018113547 AA	20180426	US20170784550	20171016
	WO18073690 A1	20180426	WO20171B56240	20171010

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO

Inventor(s):(std): FUKUTOME TAKAHIRO ; MIYAKE HIROYUKI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

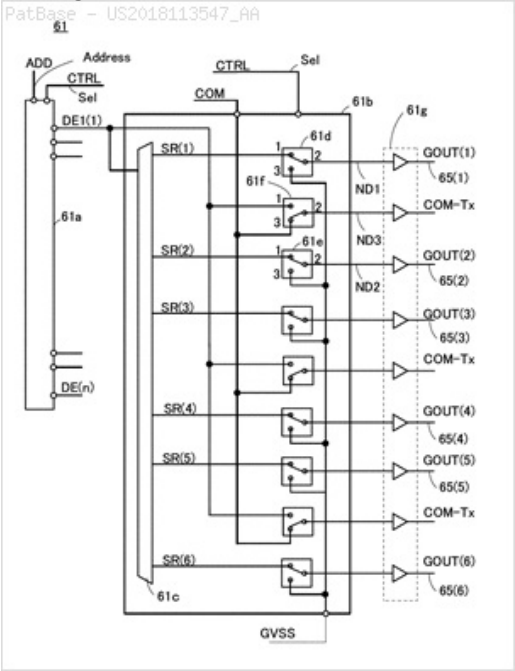
International class (IPC 8-9): G02F1/133 G02F1/1333 G02F1/1362 G06F3/041 G06F3/044 G06F3/045 G06F3/047 G09F9/00 G09F9/30 G09F9/33 G09F9/46 G09G3/20 G09G3/3233 G09G3/36 H01L27/32 H01L29/73 H01L51/50 (Advanced/Invention)

CPC: G06F3/0412 G06F3/044 G02F1/13338 G06F3/047 G06F3/045 G06F3/0416 G06F2203/04104

[Classification Explorer](#)

Cited documents: WO16088488 A1, US2014285466 AA, US2013069894 AA, JP2003076302 A2,

Abstract:
Sensing time of a touch sensor is shortened to increase responsiveness of touch sensing. A display device includes a gate driver, a plurality of touch sensors, and a plurality of touch wirings. The gate driver has a function of supplying a scan signal to the plurality of touch wirings at the same timing, and the touch sensors in different positions sense a plurality of touches at the same timing. In this manner, the responsiveness of touch sensing is increased. The gate driver has a function of controlling a scan signal for refreshing display and a scan signal used by the touch sensor for sensing.



18) Family number: 69434539 (US2018113564A) © PatBase

Title: DISPLAY DEVICE AND OPERATING METHOD THEREOF

Priority: JP20160207318 20161021 JP20160207335 20161021 JP20160210464 20161027
JP20170201055 20171017

Family:

Publication number	Publication date	Application number	Application date
JP2018072822 A2	20180510	JP20170201055	20171017
US2018113564 AA	20180426	US20170786100	20171017
WO18073706 A1	20180426	WO20171B56338	20171013

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Inventor(s):(std): TAKAHASHI KEI ; YAMAZAKI SHUNPEI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): G02F1/133 G02F1/1333 G02F1/1343 G02F1/1368 G06F3/041 G06F3/044 G09F9/30 G09F9/46 G09G3/20 G09G3/3225 G09G3/3233 G09G3/3266 G09G3/36 H01L21/336 H01L27/32 H01L29/786 H01L51/50 (Advanced/Invention)

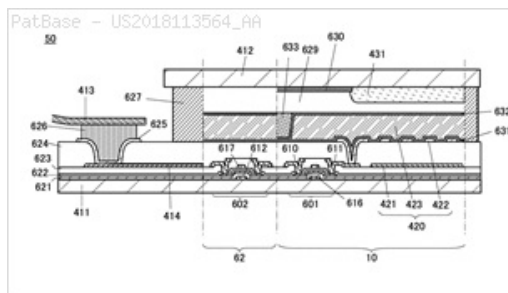
CPC: G06F3/0418 G06F3/044 G02F1/13338 G09G3/3266 G09G3/3225 G09G3/3677 G02F1/133553 G02F1/13439 G02F1/136286 G02F1/1368 G02F2001/133565 G02F2201/44 G09G2300/0426 G09G2310/0286 G09G2330/023 H01L27/1225 H01L27/323 H01L27/3232 H01L27/3262 H01L29/7869 G06F3/0412 G06F3/0416 G09G3/3291 G09G3/3688 G09G2300/046 G09G2310/04 G09G2330/12 G09G2360/18 G09G2380/14 G09G3/2029 G09G3/2033 G09G3/2037 G09G3/204

[Classification Explorer](#)

Cited documents: WO13036672 A1, WO07041150 A1, US2010110623 AA,

Abstract:

A display device that achieves both high detection sensitivity of the touch sensor unit and smooth input on the touch sensor unit is provided. A method for driving a display device includes a first period and a second period. The display device includes pixels, a gate driver, and a touch sensor unit. The touch sensor unit detects a touch in the first period and stops detecting a touch in the second period. The gate driver supplies signals to some of the pixels and does not supply signals to the other pixels in the second period.

**19) Family number: 65077545 (US2017061863A)**

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Title:	INFORMATION PROCESSING DEVICE																											
Priority:	JP20150170747 20150831	JP20160121505 20160620	JP20160162474 20160823																									
Family:	<table><tr><th>Publication number</th><th>Publication date</th><th>Application number</th><th>Application date</th></tr><tr><td>JP2017227859 A2</td><td>20171228</td><td>JP20160162474</td><td>20160823</td></tr><tr><td>TW201712412 A</td><td>20170401</td><td>TW20160127560</td><td>20160826</td></tr><tr><td>US2017061863 AA</td><td>20170302</td><td>US20160238888</td><td>20160817</td></tr><tr><td>US10114450 BB</td><td>20181030</td><td>US20160238888</td><td>20160817</td></tr><tr><td>WO17037561 A1</td><td>20170309</td><td>WO20161B54962</td><td>20160819</td></tr></table>				Publication number	Publication date	Application number	Application date	JP2017227859 A2	20171228	JP20160162474	20160823	TW201712412 A	20170401	TW20160127560	20160826	US2017061863 AA	20170302	US20160238888	20160817	US10114450 BB	20181030	US20160238888	20160817	WO17037561 A1	20170309	WO20161B54962	20160819
Publication number	Publication date	Application number	Application date																									
JP2017227859 A2	20171228	JP20160162474	20160823																									
TW201712412 A	20170401	TW20160127560	20160826																									
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US10114450 BB	20181030	US20160238888	20160817																									
WO17037561 A1	20170309	WO20161B54962	20160819																									
Probable Assignee:	SEMICONDUCTOR ENERGY LAB CO LTD																											
Assignee(s):(std):	SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO LTD																											
Assignee(s):	SEMICONDUCTOR ENERGY LABORATORY CO																											
Inventor(s):(std):	EGUCHI SHINGO																											
Agent(s):	FISH AND RICHARDSON PC																											
Designated states:	AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW																											
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US class:	345/520																											
Classification Explorer																												
Cited documents:	WO04053819 A1, USD763289 S1, USD763288 S1, US9477313 BB, US9030446 BB, US8994827 BB, US8830424 BB, US7385654 BB, US7248235 BB, US7239361 BB, US7176991 BB, US7102704 BB, US7084936 BB, US7038641 BB, US6714268 BB, US2017221410 AA, US2016328023 AA, US2016005353 AA, US2015332031 AA, US2015181087 AA, US2015012674 AA, US2014340420 AA, US2014143785 AA, US2014143784 AA, US2014143737 AA, US2014143678 AA, US2014139454 AA, US2013063409 AA, US2012299816 AA, US2012127140 AA, US2011205468 AA, US2011050545 AA, US2010171905 AA, US2008180618 AA, US2007075935 AA, US2006072047 AA, US2003201960 AA, JP4161574 B2, JP2013221965 A2, JP2011191750 A2, JP2007232882 A2, JP2004296162 A2, JP2003322850 A2, JP2003316295 A2, JP2003271079 A2, JP2003228304 A2, JP2003157029 A2, JP2003157026 A2, JP2003076302 A2, JP2003029240 A2, JP2002351384 A2, JP2002328630 A2, JP2002196702 A2, JP2001066593 A2,																											
Forward Citations:	US9971305, US9964800, US9952558, US10176748, US10175652, US10163989, US10145711, US10061399, US10048802, US10037006, US10019097, US10018966,																											

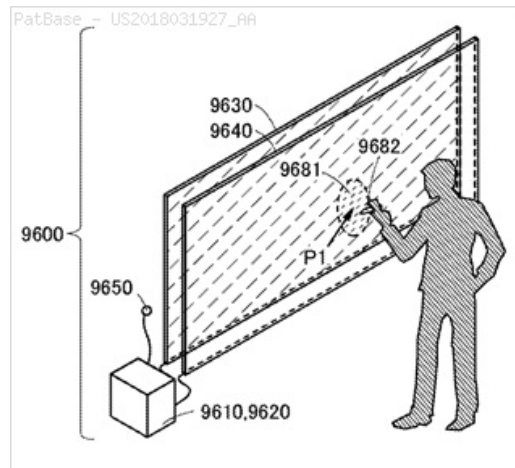
Abstract:

A novel information processing device that is highly convenient or reliable is provided. For example, a configuration including a selection circuit which has a function of selecting image information or background information on the basis of sensing information on the illuminance of an environment in which the information processing device is used and a photograph or a moving image included in the image information and supplying the selected information to a reflective display element or a light-emitting element has been devised.

A,

Abstract:

A display device includes a first pixel and a second pixel. The first pixel and the second pixel are adjacent to each other. Each of the first pixel and the second pixel includes a first display region and a second display region. The first display region is configured to reflect incident light. The second display region is positioned inside the first display region and configured to emit light. The second display region has at least two pairs of parallel sides. A position of the second display region inside the first display region in the first pixel and a position of the second display region inside the first display region in the second pixel are different from each other.



23) Family number: 68721675 (US2018061335A)

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Title: SEMICONDUCTOR DEVICE, DISPLAY DEVICE, AND ELECTRONIC DEVICE

Priority: JP20160167883 20160830

Family:	Publication number	Publication date	Application number	Application date
	JP2018036632 A2	20180308	JP20170159897	20170823
	US2018061335 AA	20180301	US20170684051	20170823
	WO18042285 A1	20180308	WO20171B55050	20170822

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Inventor(s):(std): FUJITA MASAFUMI ; FUJITA MASASHI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): G02F1/133 G02F1/1368 G08C19/36 G09G3/20 G09G3/3233 G09G3/3275 G09G3/36 G11C11/401 H01L21/8234 H01L27/088 H01L29/08 H01L29/423 H01L29/786 H01L51/50 (Advanced/Invention)

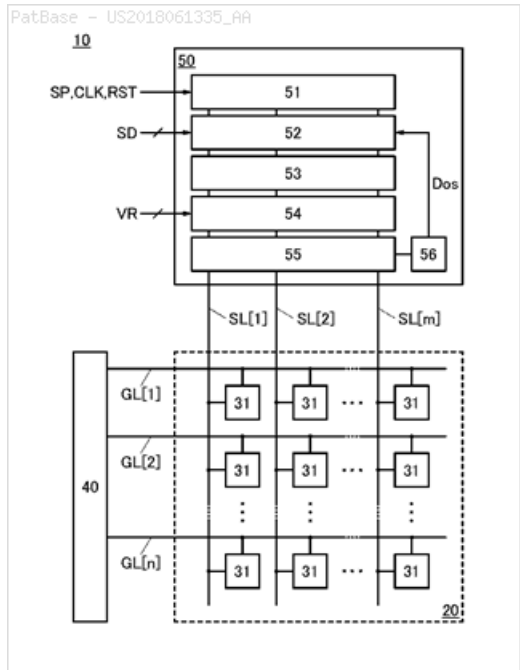
CPC: G09G3/3611 H01L29/42384 G08C19/36 H01L29/7869 H01L29/08 G02F1/13306 G09G3/3291 G09G3/3688 G09G2300/046 G09G2310/027 G09G2310/0291 G02F2201/44

[Classification Explorer](#)

Cited documents: US2016042696 AA, US2011260746 AA, US2006022925 AA, JP2013190513 A2, JP2006119225 A2,

Abstract:

To provide a novel semiconductor device or display device. The semiconductor device includes a decoder circuit, an amplifier circuit, and an arithmetic circuit. The amplifier circuit includes a first amplifier and a second amplifier. One of the first amplifier and the second amplifier has a function of inspecting an output of the other of the first amplifier and the second amplifier. The arithmetic circuit has a function of calculating an error of a potential output from the first amplifier or the second amplifier, on the basis of a result of the inspection. The decoder circuit has a function of correcting a video signal input to the decoder circuit by subtracting the error of the potential from the video signal.



24) Family number: 31402818 (US2004259326A)

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Title:	MANUFACTURING PROCESS FOR ULTRA SLIM ELECTROOPTIC DISPLAY DEVICE UNIT									
Priority:	JP20030083056 20030325		JP20040024897 20040130		US20040807958 20040324					
Family:		Publication number	Publication date	Application number	Application date					
	JP2004311955 A2	20041104	JP20040024897	20040130						
	KR20040084865 A	20041006	KR20040020529	20040325						
	TW200503063 A	20050116	TW20040108113	20040325						
	US2004259326 AA	20041223	US20040807958	20040324						
	US2005266591 AA	20051201	US20050175380	20050628						
	US6982181 BB	20060103	US20040807958	20040324						
	Probable Assignee:	SONY CORP								
Assignee(s):(std):	SONY CORP									
Assignee(s):	HIDEO YAMANAKA									
Inventor(s):(std):	HIDEO YAMANAKA ; YAMANAKA HIDEO									
Agent(s):	ROBERT J DEPKE LEWIS T STEADMAN; ROBERT J; TREXLER BUSHNELL GIANGIORGI BLACKSTONE AND MARR									
International class (IPC 8-9):	G02F1/13 G02F1/1362 G09F9/00 H01L21/00 H01L21/02 H01L21/20 H01L21/30 H01L21/336 H01L27/12 H01L29/786 (Advanced/Invention); G02F1/13 (Advanced/Non-invention); G02F1/13 G09F9/00 H01L21/00 H01L21/02 H01L27/12 H01L29/66 (Core/Invention)									
International class (IPC 1-7):	G02F1/13 G09F9/00 H01L21/00 H01L21/02 H01L21/20 H01L21/30 H01L21/336 H01L27/12 H01L29/786									
CPC:	G02F1/13454 G02F2202/104 G02F2202/105 G02F1/136277									
European class:	G02F1/1345E G02F1/1362S S02F202/10D S02F202/10E									
US class:	438/22 438/22P 438/30 438/458 438/458P 438/57									

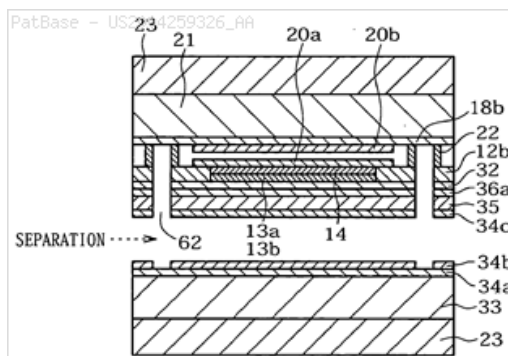
[Classification Explorer](#)

Cited documents:	US6891578 BB, US2005095810 AA, US2005059219 AA, US2004219762 AA, US2003136966 AA, US2003087503 AA, US2003008437 AA, US2001019371 AA, JP9312349 A2,
Forward Citations:	WO14032346, WO10089832, WO07140455, WO07140455, WO07109469, US9937698, US9875935, US9828668, US9799829, US9773998, US9755190, US9741961, US9735398, US9735379, US9733501, US9653639, US9627420, US9623628, US9575354, US9570329, US9472429, US9416442, US9407746, US9397126, US9377912, US9369553, US9299726, US9275893, US9227269, US9129924, US9092187, US9087931, US9069525, US9054141, US8975659, US8956965, US8946731, US8945339, US8889438, US8866989, US8830561, US8815620, US8767141, US8759842, US8743309, US8711304, US8685835, US8580356, US8575722, US8459808, US8454851, US8426249, US8399337, US8395748, US8395722, US8390748, US8330221, US8247700, US8236125, US8168512, US8137417, US8106487, US8058083, US8048777, US8048770, US8047887, US8043936, US8030177, US7964423, US7964036, US7964035, US7867905, US7834403, US7795119, US7737365, US7719745, US7719743, US7626681, US7615421, US7528028, US7494833, US7442615, US2018032105, US2017104175, US2016204364, US2015380675, US2015243551, US2015221627, US2015138710, US2015129985, US2014367716, US2014192467, US2014185202, US2014160649, US2014133074, US2014087504, US2014042399, US2013298387, US2013202005, US2013188305, US2013137244, US2013130491, US2012167819, US2012103518, US2012055909, US2012020002, US2011294244, US2011267684, US2011266655, US2011233595, US2011212575, US2011182042, US2011159611, US2011109829, US2010317251, US2010309397, US2010309396, US2010301415, US2010291391, US2010255638, US2010197113, US2010184270, US2010155907, US2010124795, US2010120224, US2009200550, US2009183907, US2009152748, US2009117692, US2009045467, US2009023251, US2009020757, US2009017599, US2009017567, US2009015901, US2008318066, US2008308810, US2008293258, US2008290300, US2008289690, US2008280539, US2008231786, US2008132033, US2008113486, US2008110862, US2008044590, US2008037095, US2008020007, US2007295534, US2007218213, US2007217008, US2007146679, US2007111468, US2007020945, US2007020898, US2007010073, US2006286758, US2006286700,

US2006046357, US2005237452, US10164219, US10134784, US10083989, TWI644464, TWI578505, TWI491953, TWI438864, TWI394204, TWI389593, TWI373985, TWI314660, KR20150013106, KR101589950, KR101513008, KR101246714, KR100855812, KR100792080, KR100781751, JP6126360, JP5972922, JP5909841, JP5521339, JP2017028293, JP2014179605, JP2014107314, JP2013254989, JP2013076758, JP2010182885, JP2010050484, JP2008277501, JP2007129110, CN103682175,

Abstract:

To obtain a high intensity, high definition and sophisticated electrooptic display device unit such as transmissive type LCD, a semi-transmissive type LCD, a reflective type LCD, a surface emitter type organic EL, or an underside emitter type organic EL, etc. which has high electron and positive hole mobility and low leak electric current qualities. A porous semiconductor layer (low porous Si layer 11a/high porous Si layer 11b/low porous Si layer 11c), a monocrystalline Si layer 12a, and the SiO₂ layer 13a are formed on a monocrystalline Si substrate 10. The SiO₂ layer 13a of the peripheral circuit area is removed, leaving the SiO₂ layer 13a in the display area. The poly Si layer 14a is formed in the display area by semiconductor epitaxial growth, and a monocrystalline Si layer 12b is formed in the peripheral circuit area. Then, the display element section is formed in the poly Si layer 14 of the display area and the peripheral circuitry section is formed in the monocrystalline Si layer 12b of the peripheral circuit area. The assembly is divided into each ultra slim electrooptic display device unit after separation from the backing, and after the process of separating the Si substrate 10 from the porous Si layer 11b and by attaching the backing to the ultra slim electrooptic display element substrate after its separation. Each ultra slim electrooptic display device unit is divided after attaching the backing.



25) Family number: 68242820 (US2018019425A)

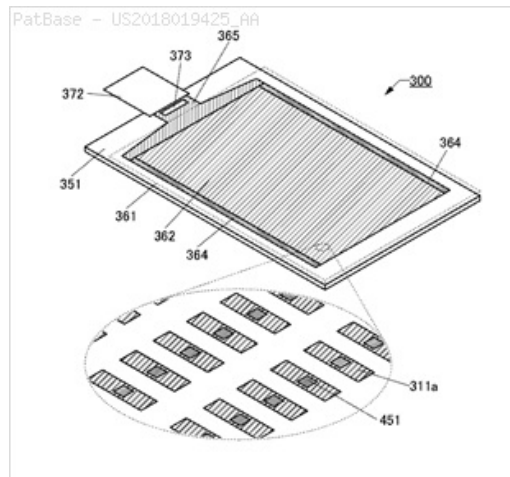
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Title:	DISPLAY DEVICE, DISPLAY MODULE, ELECTRONIC DEVICE, AND METHOD FOR MANUFACTURING DISPLAY DEVICE																			
Priority:	JP20160140282 20160715 JP20170132398 20170706																			
Family:	<table><tr><th>Publication number</th><th>Publication date</th><th>Application number</th><th>Application date</th></tr><tr><td>JP2018018068 A2</td><td>20180201</td><td>JP20170132398</td><td>20170706</td></tr><tr><td>TW201813147 A</td><td>20180401</td><td>TW20160137473</td><td>20161116</td></tr><tr><td>US2018019425 AA</td><td>20180118</td><td>US20170646146</td><td>20170711</td></tr></table>				Publication number	Publication date	Application number	Application date	JP2018018068 A2	20180201	JP20170132398	20170706	TW201813147 A	20180401	TW20160137473	20161116	US2018019425 AA	20180118	US20170646146	20170711
Publication number	Publication date	Application number	Application date																	
JP2018018068 A2	20180201	JP20170132398	20170706																	
TW201813147 A	20180401	TW20160137473	20161116																	
US2018019425 AA	20180118	US20170646146	20170711																	
Probable Assignee:	SEMICONDUCTOR ENERGY LAB CO LTD																			
Assignee(s):(std):	SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO LTD																			
Assignee(s):	SEMICONDUCTOR ENERGY LABORATORY CO																			
Inventor(s):(std):	ADACHI HIROKI ; SATO MASATAKA ; TAKASE NATSUKO ; TAKAYAMA TORU ; YASUMOTO SEIJI																			
International class (IPC 8-9):	G02F1/1335 G02F1/1362 G09F9/00 G09F9/30 G09F9/46 G09G5/02 H01L21/02 H01L21/336 H01L21/8234 H01L27/088 H01L27/12 H01L27/32 H01L29/786 H01L51/50 H05B33/10 (Advanced/Invention); G02F1/1362 (Advanced/Non-invention)																			
CPC:	H01L51/502 G09G5/026 H01L51/508 G02F1/136227 H01L51/5056 H01L51/5271 H01L51/5281 G09G3/20 G09G3/3233 G09G3/3648 G09G2300/0452 G09G2300/0456 G09G2300/046 G09G2300/0814 G02F1/133555 G02F2201/44																			

[Classification Explorer](#)

Abstract:

A display device with high visibility regardless of the ambient brightness is manufactured at low cost. A method for manufacturing a display device that includes a first display element, a second display element, and an insulating layer is provided. The first display element includes a first pixel electrode that reflects visible light, a liquid crystal layer, and a first common electrode that transmits visible light. The second display element includes a second pixel electrode that transmits visible light, a light-emitting layer, and a second common electrode that reflects visible light. The first common electrode is formed over a first substrate. A separation layer that reflects visible light is formed over a formation substrate, the insulating layer is formed over the separation layer, and the second display element is formed over the insulating layer. The formation substrate and a second substrate are bonded to each other with an adhesive. Then, the formation substrate and the separation layer are separated from each other. The exposed separation layer is processed into the first pixel electrode. The liquid crystal layer is positioned between the first common electrode and the first pixel electrode and the first substrate and the second substrate are bonded to each other with an adhesive to form the first display element.



26) Family number: 31882833 (US2004084080A)

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Title:	OPTOELECTRONIC DEVICE AND FABRICATION METHOD							
Priority:	US20020390904P	20020622	US20020290119	20021105	US20020303665	20021122		
	US20020319406	20021211	US20020330665	20021230	US20030338079	20030106		
	US20030443456	20030521	US20030443546	20030522	WO2003US19604	20030617		
	WO2003US19173	20030617	WO2003US35147	20031104	US20040771092	20040202		
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	US20060527748	20060926	US20090564047	20090921	US20100756498	20100408		
	US20120347023	20120110	US20120626919	20120926				

Family:	Publication number	Publication date	Application number	Application date
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	US2013020557 AA	20130124	US20120626919	20120926
	US6852920 BB	20050208	US20020319406	20021211
	US6946597 BB	20050920	US20030443456	20030521
	US7253017 BA	20070807	US20020303665	20021122
	US7291782 BB	20071106	US20020290119	20021105
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	US7761795 BB	20100720	US20060527748	20060926
	US8042047 BB	20111018	US20100756498	20100408
	US8093489 BB	20120110	US20090564047	20090921
	WO04001926 A2	20031231	WO2003US19604	20030617
	WO04001926 A3	20040429	WO2003US19604	20030617
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	WO04042432 A3	20041223	WO2003US35147	20031104
	WO04044948 A2	20040527	WO2003US19173	20030617
	WO04044948 A3	20041111	WO2003US19173	20030617

Probable Assignee: TIVO SOLUTIONS INC

Assignee(s):(std): GLICK SAMUEL D ; NANOSOLAR INC ; NANOSOLAR INC ; ROSCHEISEN MARTIN R ; SAGER BRIAN M ; PICHLER KARL ; DIGITALSMITHS CORP ; DG ENTERTAINMENT MEDIA INC ; DAVIS ROBERT L ; WEINBERGER BENJAMIN J

Assignee(s): TIVO INC ; MORGAN STANLEY SENIOR FUNDING INC COLLATERAL AGENT AS ; TIVO SOLUTIONS INC ; GENERAL ELECTRIC CO ; AERIS CAPITAL SUSTAINABLE IMPACT PRIVATE INVESTMEN ; AERIS CAPITAL SUSTAINABLE IMPACT PRIVATE INVESTMENT FUND CAYMAN LP ; AERIS CAPITAL SUSTAINABLE IP LTD ; DAVIS GLICK PRODUCTIONS INC

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KLUS ; PETRITSCH KLAUS ; PETRITSCH KLAUS ; NANOSOLAR INC ; MILLER GREGORY A ; GLICK SAMUEL D ; FIDANZA JACQUELINE ; DAVIS ROBERT L ; WEINBERGER BENJAMIN J ; SMESTAD GREGORY ; MILLER GREGORY ; DONG YU ; JACQUELINE FIDANZA ; KARL PICHLER ; KLAUS PETRITSCH ; MARTIN ROSCHEISEN ; ROSCHEISEN MARTIN ; SAGER BRIAN ; BRIAN SAGER

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Agent(s): JOSHUA D ISENBURG ; NANOSOLAR INC ; NEXSEN PRUETT JACOBS AND POLLARD ; DIRECTOR OF IP ; NEXSEN PRUETT LLC ; JDI PATENT ; JOSHUA D ; ISENBURG JOSHUA D ; JOSEPH T

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW

International class (IPC 8-9): B32B17/00 B81B1/00 B82B3/00 C07C61/00 C07C63/42 C08G61/00 C08G75/12 C08L65/00 C09D5/24 G06F13/00 G06F17/00 G06F17/30 G06F3/00 G06F3/01 G06F9/00 G11B27/00 H01L21/00 H01L29/06 H01L31/00 H01L31/0248 H01L31/0256 H01L31/0352 H01L31/04 H01L31/042 H01L31/06 H01L31/18 H01L31/20 H01L35/24 H01L51/00 H01L51/30 H01L51/42 H01M4/02 H02N6/00 H04N5/445 H04N7/025 H04N7/10 (Advanced/Invention); B82Y20/00 H01G9/20 H01L51/00 H01L51/30 (Advanced/Non-invention); B32B17/00 C08G75/00 C08L65/00 H01L21/00 H01L31/00 H01L31/0248 H01L31/0256 H01L31/042 H01L31/06 H01L35/12 H01L51/00 H01L51/05 H01L51/42 H01M4/02 H04N7/025 H04N7/10 (Core/Invention); H01G9/20 (Core/Non-invention); G02B H01L H02J (Subclass/Invention)

International class (IPC 1-7): B81B1/00 B82B3/00 C07C61/00 C07C63/42 C08G61/00 C08G75/12 C08L65/00 C09D5/24 G02B H01L21/00 H01L31/00 H01L31/0248 H01L31/0256 H01L31/0352 H01L31/04 H01L31/042 H01L31/06 H01L31/18 H01L35/24 H01L51/00 H01L51/20 H01L51/30 H04N7/025 H04N7/10

CPC: H04N5/44591 G11B27/034 G11B27/329 H04N21/812 H04N21/84 H04N21/8456 H04N21/85406 Y10S977/948 Y10S977/781 Y02E10/549 H01G9/2031 H01L51/0012 H01L51/0046 H01L51/005 H01L51/426 H01L51/0015 H01L51/0034 H01L51/0035 H01L51/0036 H01L51/0038 H01L51/0052 H01L51/0053 H01L51/0064 H01L51/0078 H01L51/4253 H01L51/0037 H01L51/447 H01L31/022466 H01L51/441 H01L31/03529 H01L51/0039 H01L51/0047 H01L51/0051 H01L51/0062 H01L51/0094 H01L51/4233 G06Q30/0241 G06Q30/02 H04M15/55 Y02P70/521 B82Y30/00 H01L31/0352 B82Y10/00 H01L51/422 H01L51/4226 H01L51/4213 H01L31/1884

European class: B82Y10/00 B82Y30/00 G06Q30/02 G06Q30/0241 G11B27/034 G11B27/32D2 H01L31/0352 H01L31/0352B H01L31/0352C3 H01L31/18J H01L51/00A2F H01L51/00A4B H01L51/20C4 H01L51/20C4B H01L51/42D H01L51/42D2 H01L51/42D2B H01L51/42D2D H01L51/42H H01L51/42H2 H01L51/44B H01L51/44L H04M15/55 H04N21/81C H04N21/84 H04N21/845T H04N21/854F H04N5/445W T01G9/20D2 T01L51/00M12B T01L51/00M16 T01L51/00M2 T01L51/00M2B T01L51/00M2B2 T01L51/00M2B2B T01L51/00M2B4 T01L51/00M2B6 T01L51/00M4B T01L51/00M4B2 T01L51/00M6 T01L51/00M6B T01L51/00M6D T01L51/00M6D2 T01L51/00M6H T01L51/00M6H4 T01L51/30D2 T01L51/30D2B T01L51/30D2B2 T01L51/30D2D T01L51/30D2F T01L51/30H2 T01L51/30H4B T01L51/30H8D T01L51/30M2 T01L51/30S T01L51/42D2 T01L51/42H Y02E10/50 Y02E10/52 Y02E10/54D

US class: 136/244 136/244S 136/250 136/250S 136/252 136/255 136/256 136/256S 136/263 136/263S 204/284 257/21 257/4 257/40 257/40S 257/43 257/461 257/464 257/465 257/466 257/79 257/9 257/E29.005 257/E31.032 257/E31.032S 257/E31.039 257/E31.039S 257/E31.047 257/E51.049 428/432 429/209 438/57 438/57S 438/63 438/63S 438/71 438/82 438/82S 438/85 438/88 707/802 707/802S 707/E17.044 707/E17.044S 715/719 715/723 715/723P 715/723S 715/731 715/731S 715/765 725/34 725/34P 725/35 725/35S 725/41 725/42 725/47 725/47P 725/53 977/762 977/781 977/948

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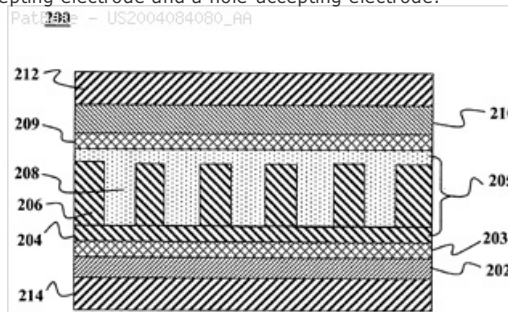
Forward Citations: WO17062786, WO16057429, WO15126248, WO14183457, WO14129575, WO14127002, WO14108289, WO13119755, WO12173816, WO12106119, WO12033882, WO12028137, WO12015989, WO12015989, WO12010759, WO12008761, WO12008761, WO12006621, WO12006621, WO11137951, WO11131176, WO11125024, WO11119752, WO11119752, WO11062457, WO11062457, WO11044687, WO11031707, WO11005462, WO10131241, WO10131011, WO10107795, WO10100345, WO10070679, WO10057964, WO10050575, WO10044847, WO10044847, WO10036805, WO10027337, WO10010972, WO10008399, WO09156596, WO09142787, WO09142787, WO09120974, WO09120974, WO09108479, WO09045707, WO09019417, WO09006878, WO09006878, WO09003150, WO09003150, WO08143721, WO08132455, WO08128122, WO08121997, WO08121183, WO08121183, WO08057629, WO08056891, WO08050931, WO08048233, WO08048233, WO08007124, WO07149835, WO07136994, WO07134322, WO07130671, WO07128575, WO07117668, WO07117668, WO07098378, WO07079726, WO07079726, WO07076843, WO07070645, WO07065480, WO07065039, WO07065039, WO07062072, WO07059586, WO07041533, WO07040594, WO07032802, WO07022221, WO07022221, WO06073562, WO06073562, WO06034561, WO05106965, WO04053941, WO04053941, USD662041, USD662040, USD652262, USD632415, USD628332, USD627696, USD625695, US9972741, US9966257, US9954126, US9947817, US9947816, US9905928, US9904393, US9893564, US9882274, US9866911, US9865793, US9847581, US9825346, US9825193, US9808616, US9771481, US9752932, US9751755, US9748435, US9741918, US9735148, US9735022, US9731013, US9694422, US9691849, US9666747, US9660310, US9660116, US9634163, US9611559, US9601529, US9576739, US9576694, US9553223, US9549162, US9545612, US9543481, US9543458, US9530912, US9521465, US9520649, US9520525, US9520513, US9515274, US9515218, US9514931, US9508944, US9496462, US9490292, US9490283, US9478685, US9476129, US9472765, US9459797, US9444003, US9429723, US9410843, US9410260, US9406824, US9406709, US9390920, US9362509, US9362423, US9359195, US9356172, US9352342, US9352146, US9349975, US9349970, US9343609, US9343490, US9337220, US9318641, US9304035, US9299866, US9293720, US9284639, US9263613, US9263612, US9257627, US9252013, US9251922, US9248589, US9242855, US9240328, US9231133, US9227224, US9219215, US9211566, US9210478, US9203011, US9202954, US9202947, US9197757, US9184317, US9178082, US9177985, US9169548, US9159939, US9159590, US9142408, US9139917, US9139908, US9139582, US9136490, US9130084, US9123905, US9123844,

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AU2007224649, AU2007211902, AU2006297870,

Abstract:

Charge-splitting networks, optoelectronic devices, methods for making optoelectronic devices, power generation systems utilizing such devices and method for making charge-splitting networks are disclosed. An optoelectronic device may include a porous nano-architected (e.g., surfactant-templated) film having interconnected pores that are accessible from both the underlying and overlying layers. A pore-filling material substantially fills the pores. The interconnected pores have diameters of about 1-100 nm and are distributed in a substantially uniform fashion with neighboring pores separated by a distance of about 1-100 nm. The nano-architected porous film and the pore-filling, material have complementary charge-transfer properties with respect to each other, i.e., one is an electron-acceptor and the other is a hole-acceptor. The nano-architected porous, film may be formed on a substrate by a surfactant templation technique such as evaporation-induced self-assembly. A solar power generation system may include an array of such optoelectronic devices in the form of photovoltaic cells with one or more cells in the array having one or more porous charge-splitting networks disposed between an electron-accepting electrode and a hole-accepting electrode.



27) Family number: 68632851 (US2018053475A)

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Title: SEMICONDUCTOR DEVICE, DISPLAY MODULE, AND ELECTRONIC DEVICE

Priority: JP20160159948 20160817

Family: **Publication number** **Publication date** **Application number** **Application date**

CN107767804 A	20180306	CN201710694156	20170815
JP2018032018 A2	20180301	JP20170152950	20170808
US2018053475 AA	20180222	US20170672980	20170809

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Inventor(s):(std): TAKAHASHI KEI

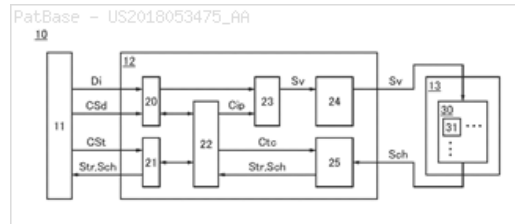
International class (IPC 8-9): G02F1/133 G02F1/1333 G02F1/1368 G09F9/00 G09F9/30 G09F9/46 G09G3/20 G09G3/32 G09G3/3225 G09G3/36 H01L27/32 H01L51/50 (Advanced/Invention)

CPC: G09G3/3607 G09G2300/0426 G09G3/3611 G09G3/32 G09G3/20 G09G3/3225 G09G2300/046 G09G2320/0233 G09G2320/0295 G09G2370/08 G09G2330/12

[Classification Explorer](#)

Abstract:

A novel semiconductor device, display module, or electronic device is provided. The semiconductor device includes a controller, an image processing portion, a driver circuit, and an examination circuit. The controller has a function of controlling operations of the image processing portion and the examination circuit. The image processing portion has a function of generating a video signal using image data. The driver circuit has a function of outputting the video signal to a display portion. The examination circuit has a function of examining the degree of variations in characteristics of an element provided in the display portion. The examination results are output to the outside.



28) Family number: 64976856 (US2017053603A)

© PatBase

Title: INFORMATION PROCESSING DEVICE

Priority: JP20150161562 20150819 JP20160122746 20160621 KR20160102133 20160811
JP20160161134 20160819

Family:

Publication number	Publication date	Application number	Application date
CN106469536 A	20170301	CN201610694002	20160819
IN201614027097 A	20170512	IN201614027097	20160808
JP2017228263 A2	20171228	JP20160161134	20160819
KR20170022887 A	20170302	KR20160102133	20160811
TW201712410 A	20170401	TW20160125005	20160805
US2017053603 AA	20170223	US20160231965	20160809

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO

Inventor(s):(std): HIRAKATA YOSHIHARU

International class (IPC 8-9): G02F1/133 G02F1/1333 G02F1/1335 G06F3/038 G06F3/048 G06F3/0484 G09F9/00 G09F9/46 G09G3/20 G09G3/32 G09G3/3225 G09G3/34 G09G3/36 H01L51/50 H04L12/24 (Advanced/Invention)

CPC: G09G3/3406 G09G3/32 G09G3/2092 G09G2354/00 G09G2320/0686 G09G2320/0626 G09G3/20 G09G3/3225 G09G3/3648 G09G2330/021 G09G3/3233 G09G2300/046 G06F1/1643 G06F3/03547 G06F2203/04101 G06F3/04842

US class: 345/156

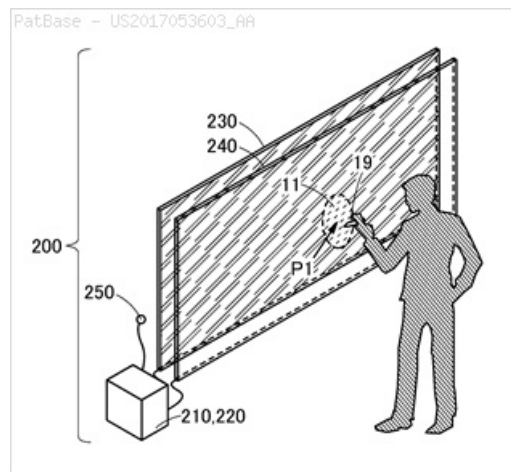
[Classification Explorer](#)

Cited documents: JP2011191750 A2,

Forward Citations: US9964800, US9791945, US2017083111, US10163989,

Abstract:

A novel information processing device that is highly convenient or reliable is provided. The inventor has thought of a structure including an input portion configured to supply the positional information of a pointer, an arithmetic device configured to determine a first region based on the positional information of a pointer and generate the image information so that the luminance of an image displayed in the first region is increased, and a display portion for displaying the image information.



29) Family number: 15254881 (US2003035917A)

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Title: IMAGE MAKING MEDIUM

Priority: US19990138694P 19990611 EP20000944650 20000612 WO2000US16111 20000612
 US20010012259 20011211 US20020170503 20020614 US20020012259 20020614
 US20040567022P 20040430 US20050118975 20050428 US20090631627 20091204
 US20140203327 20140310 US20140584921 20141229 US20170630499 20170622
 US20170647051 20170711

Family:	Publication number	Publication date	Application number	Application date
	AU2000058715 A1	20010102	AU20000058715	20000612
	AU2000058715 A5	20010102	AU20000058715D	20000612
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	EP1777255 A3	20070711	EP20070100176	20000612
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	US7629400 BB	20091208	US20020170503	20020614
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	WO0077085 A1	20001221	WO2000US16111	20000612

Probable Assignee: HYMAN SYDNEY

Assignee(s):(std): HYMAN SYDNEY

Assignee(s): SYDNEY HYMAN

Inventor(s):(std): HYMAN SYDNEY

Inventor(s): SYDNEY HYMAN

Agent(s): OSLER HOSKIN AND HARCOURT LLP; WINSTON AND STRAWN LLP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CR CU CY CZ DE DK DM DZ
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International class (IPC 8-9): B41M1/00 B41M1/30 B41M5/24 B41M5/26 B41M5/36 B44C3/00 B44C3/04 B44C5/00 B44D3/18
 B44F1/00 B44F1/06 B44F11/00 C08K3/34 C08K5/00 C08K5/34 C08K5/3445 C08L101/00 C08L81/00
 D06N7/04 G03C5/00 G09B11/10 (Advanced/Invention);
 B41M5/24 B41M5/26 C08K5/00 (Advanced/Non-invention)

International class (IPC 1-7): B32B1/00 B32B19/00 B32B9/00 B44C1/00 B44C1/26 B44C1/28 B44C3/12 C08J3/00 C08K5/34
 C08L1/00 D06N7/04

CPC: Y10T428/22 Y10T428/24355 B41M1/30 B41M5/0047 B41M5/24 G03C5/00 B44C5/00 B41M5/26
 B41M5/267 B41M5/36 B44C3/046 B44C3/048 B44D3/18 B44F1/00 C08K5/005 G09B11/10 B41M5/00
 C08K3/04

European class: B41M1/30 B41M5/36 B44C3/04F B44C3/04F2 C08K5/00P6 G03C5/00 L41M5/00S2 L41M5/24 L41M5/26
 L41M5/26L

US class: 156/58 156/58S 257/40 257/79 345/173 423/445R 428/141 428/141S 428/15 428/174 428/542.8
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CN105844212, CN105318979, CN104011265, CN103548096, CN103124881, CN103124881, CN102473648, CN102371833,

Abstract:

The invention relates to an image support medium for creation of an aesthetic image that is an work or object for display. This support medium includes a polymer in an amount sufficient to enable the image to have at least one aesthetic element. In different embodiments, the image support medium is an image support stabilizer, the polymer is a synthetic absorbent or conductive polymer, or the polymer is a transparent or synthetic translucent polymer and a property of this transparent or translucent polymer is enhanced to facilitate the creation or preservation of the image by at least one stabilizer. The invention also relates to a method for preparing this image support medium. The method includes forming a reaction mixture comprising a monomer in an amount sufficient to provide or enable the image to have an aesthetic element, and processing the reaction mixture into a 2- or 3-dimensional shape.



30) Family number: 49339885 (US2011294254A)

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Title: LOW COST SOLAR CELLS FORMED USING A CHALCOGENIZATION RATE MODIFIER
Priority: US20090290490P 20091228 US20100980276 20101228 WO2010US62270 20101228
Family:

Publication number	Publication date	Application number	Application date
AU2010343092 AA	20110728	AU20100343092	20101228
EP2519977 A2	20121107	EP20100844273	20101228
EP2519977 A4	20160518	EP20100844273	20101228
IN06280CN2012 A	20131129	IN2012CN06280	20120717
US2011294254 AA	20111201	US20100980276	20101228
WO11090728 A2	20110728	WO2010US62270	20101228
WO11090728 A3	20111229	WO2010US62270	20101228

Probable Assignee: AERIS CAPITAL SUSTAINABLE IP LTD
Assignee(s):(std): DICKEY KATHERINE ; JACKREL DAVID ; WOODRUFF JACOB ; JACKREL DAVID B ; NANOSOLAR INC
Assignee(s): AERIS CAPITAL SUSTAINABLE IMPACT PRIVATE INVESTMEN ; AERIS CAPITAL SUSTAINABLE IMPACT PRIVATE INVESTMENT FUND CAYMAN LP ; AERIS CAPITAL SUSTAINABLE IP LTD
Inventor(s):(std): JACKREL DAVID ; DICKEY KATHERINE ; JACKREL DAVID B ; WOODRUFF JACOB
Agent(s): KING AND WOOD MALLESONS; MINTER ELLISON; JOHNSTON MAGNUS GEORGE; TUNG HAO Y
Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): H01L21/36 H01L31/0264 H01L31/032 H01L31/042 H01L31/18 (Advanced/Invention)

CPC: H01L31/0322 Y02E10/541 Y02P70/521 H01L21/02568 H01L21/02601 H01L21/02614 H01L21/02628

European class: H01L31/032C Y02E10/50 Y02E10/54B

US class: 257/E31.004 257/E31.004S 438/478 438/478S 438/95 438/95P

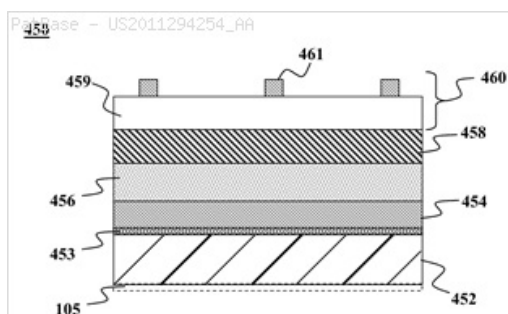
[Classification Explorer](#)

Cited documents: WO09046178 A1, US6720239 BB, US2009035882 AA, US2007163644 AA, US2007163637 AA, JP2009267332 A2,

Forward Citations: WO15030275, WO15016652, WO15016650, WO14150235, WO14052515, WO13160421, WO13039912, US9975115, US9954123, US9911887, US9893220, US9876131, US9601340, US9478695, US9478684, US9444001, US9196760, US9178097, US9177876, US9112095, US9041141, US8993882, US8980682, US8969720, US8907253, US8889469, US8790956, US8741386, US8729543, US8728855, US8551802, US8440497, US8426241, US2016133766, US2015340525, US2015325718, US2015295128, US2015144177, US2015101665, US2014315346, US2014273333, US2014273311, US2014220724, US2014158190, US2014113403, US2014110813, US2014026949, US2013344646, US2013217211, US2013164918, US2013164917, US2013164885, US2013065355, US2012313200, US2012289033, US2012270363, US2012100664, US2012061790, US10134929, TWI462319, KR101865239, KR101815277, EP2996159, CN105308759, CN105308758, CN104247036, CN103378214,

Abstract:

Methods and devices are provided for forming an absorber layer. In one embodiment, a method is provided comprising of depositing a precursor material onto a substrate, wherein the precursor material may include or may be used with an additive to minimize concentration of group IIIA material such as Ga in the back portion of the final semiconductor layer. The additive may be a non-copper Group IB additive in elemental or alloy form.



Title: ALUMINUM PHOSPHATE COMPOUNDS, COMPOSITIONS, MATERIALS AND RELATED METAL COATINGS

Priority: US20020398265P 20020724 US20020403470 20020814 US20020403470P 20020814
US20030627194 20030724 US20030642069 20030814 WO2003US25542 20030814
US20100724052 20100315 US20100729705 20100323

Family:	Publication number	Publication date	Application number	Application date
	AU2003285193 AA	20040303	AU20030285193	20030814
	AU2003285193 AH	20040303	AU20030285193	20030814
	CA2497468 AA	20050211	CA20032497468	20030814
	CA2497468 C	20111011	CA20032497468	20030814
	EP1539376 A2	20050615	EP20030779079	20030814
	EP1539376 A4	20110406	EP20030779079	20030814
	IN00964DN2005 A	20090109	IN2005DN00964	20050311
	IN06643DN2007 A	20070921	IN2007DN06643	20070827
	IN236224 B	20091016	IN2005DN00964	20050311
	JP2005535554 T2	20051124	JP20040529433T	20030814
	US2004138058 AA	20040715	US20030627194	20030724
	US2005106384 AA	20050519	US20030642069	20030814
	US2010183813 AA	20100722	US20100724052	20100315
	US2010236686 AA	20100923	US20100729705	20100323
	US7678465 BB	20100316	US20030627194	20030724
	US7682700 BB	20100323	US20030642069	20030814
	US8124184 BB	20120228	US20100724052	20100315
	WO04016548 A2	20040226	WO2003US25542	20030814
	WO04016548 A3	20040708	WO2003US25542	20030814

Probable Assignee: APPLIED THIN FILMS INC

Assignee(s):(std): APPLIED THIN FILMS INC ; SAMBASIVAN SANKAR ; STEINER KIMBERLY A

Inventor(s):(std): SAMBASIVAN SANKAR ; STEINER KIMBERLY A ; SANKAR SAMBASIVAN ; KIMBERLY A STEINER

Inventor(s): STEINER KIMBERLY ; SANKER SAMBASIVAN

Agent(s): FINLAYSON AND SINGLEHURST; REINHART BOERNER VAN DEUREN SC ATTN LINDA GABRIEL DOCKET COORDINATOR; REINHART BOERNER VAN DEUREN SC ATTN LINDA KASULKE DOCKET COORDINATOR; REINHART BOERNER VAN DEUREN SC

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG UZ VN YU ZA ZM ZW

International class (IPC 8-9): B01J27/187 B05D1/00 B05D1/02 B05D3/00 B05D3/02 B05D3/10 B32B15/00 B32B17/06 B32B18/00 B32B38/00 B32B9/00 B32B9/04 C01B25/36 C03C17/22 C03C17/25 C03C17/34 C03C8/08 C03C8/14 C04B41/50 C04B41/52 C04B41/85 C04B41/89 C09C1/00 C09C3/06 C09C3/08 C23C22/74 (Advanced/Invention); B01J27/14 B05D3/02 B32B15/00 C23C22/73 (Core/Invention); C01B (Subclass/Invention)

International class (IPC 1-7): B01J27/187 B05D1/00 B05D1/02 B05D3/00 B32B17/06 B32B18/00 B32B31/26 B32B9/00 B32B9/04 C01B C01B25/36 C03C17/22 C03C17/25 C03C17/34 C04B41/50 C04B41/89 C09C1/00 C09C3/06 C09C3/08

CPC: C23C22/74 C04B41/009 C03C8/08 C03C8/14 C03C17/00 C04B35/447 C04B35/62852 C04B35/62881 C04B35/62886 C04B35/62894 C04B35/803 C04B41/5092 C04B41/52 C04B41/85 C04B41/89 C04B2235/3217 C04B2235/5228 C04B2235/5248 C04B2235/96 Y10T156/10 Y10T428/266 Y10T428/31663

European class: C03C17/00 C03C8/08 C03C8/14 C04B41/00V C04B41/50T34 C04B41/52 C04B41/85 C04B41/89 C23C22/74

US class: 156/60 156/60P 427/327 427/331 427/343 427/343S 427/372.2 427/384 427/384P 427/384S 427/435 428/337 428/337P 428/426 428/426S 428/432 428/447 428/447S 428/469 428/472 428/689 428/689S 428/698 428/698S 428/701 428/702 502/208

[Classification Explorer](#)

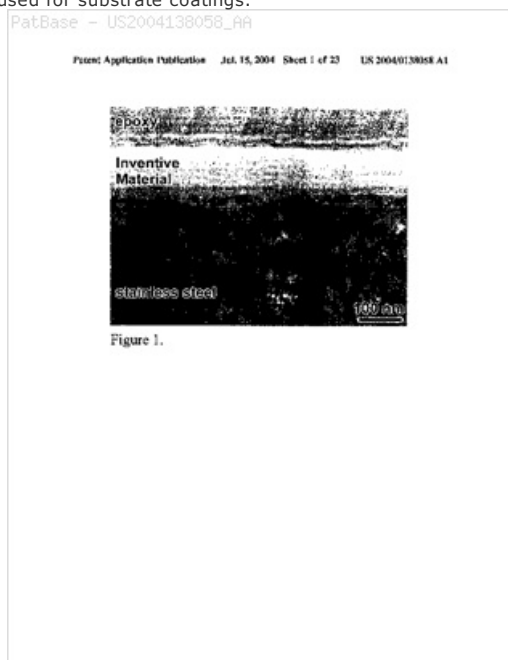
Cited documents: WO9821797 A1, WO0216263 A1, WO0142881 A2, US6770325 BB, US6692678 BB, US6677053 BB, US6589661 BB, US6589324 BB, US6554948 BA, US6461415 BA, US6403164 BA, US6383989 BB, US6379746 BA, US6358532 BB, US6312819 BA, US6221955 BA, US6210715 BA, US6162498 A, US6140410 A, US6110528 A, US6038762 A, US6036762 A, US6022513 A, US5856027 A, US5849055 A, US5833728 A, US5744777 A, US5713974 A, US5707442 A, US5698758 A, US5665483 A, US5665463 A, US5614255 A, US5552361 A, US5496529 A, US5411711 A, US5348694 A, US5292701 A, US5223338 A, US5223336 A, US5208089 A, US5208069 A, US5146743 A, US5030431 A, US5017523 A, US4929493 A, US4671909 A, US4551852 A, US4551652 A, US4450184 A, US4336338 A, US4303732 A, US4289863 A, US4008299 A, US4005232 A, US4005172 A, US3984591 A, US3963500 A, US3960592 A, US3943231 A, US3926103 A, US3870737 A, US3847583 A, US3839078 A, US3793105 A, US3711322 A, US3694299 A, US3516811 A, US3516611 A, US3450574 A, US3323889 A, US2165819 A, US2005106384 AA, US2004258601 AA, US2004138058 AA, US2004011245 AA, US2003049134 AA, US2002054884 AA, US2002004111 AA, RU2148017 C1, JP64036774 U1, JP64036774 A2, JP63297243 A2, JP60233163 A2, JP53011200 A2, JP5229911 A2, JP47012233 A2, JP47004780 A2, JP401036774, JP2142881 A2, JP1036774 A2, GB2021544 A1, GB1451145 A, GB1396795 A, GB1322726 A, GB1322724 A, GB1322722 A, GB1192304 A, FR2176489 A2, FR2176469 A2, FR2156800 A1, EP0539342 A1, EP0302465 A2, EP000302465, DE2406411 A1,

Forward Citations: WO13025735, WO11149655, WO11008248, WO11008248, WO09152481, WO07028621, WO07028621, WO06042116, WO06042116, USD815281, US9955700, US9938610, US9908296, US9855709, US9848973, US9840625, US9828658, US9801385, US9790343, US9764502, US9647194, US9630206, US9622847, US9611147, US9546820, US9517593, US9504550, US9498922, US9395467, US9371454, US9353235, US9287106, US9187653, US9169120, US9155311, US9078445, US9023145, US9017764, US9011791, US9005355, US8916248, US8916246, US8814863, US8814862, US8685155, US8497018, US8475666, US8440388, US8394473, US8334031, US8247050, US8130167, US8124184, US8049088, US8025725, US8021758, US7951309, US7915181, US7915159, US7858294, US7709371, US7678712, US7562647, US7559991, US7531034, US6884527, US2014134398, US2013065066, US2012128993, US2012094130, US2011281110, US2011014372, US2010304129, US2010304063, US2010236627,

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Abstract:

Aluminophosphate compounds, compositions and/or materials as can be used for substrate coatings.



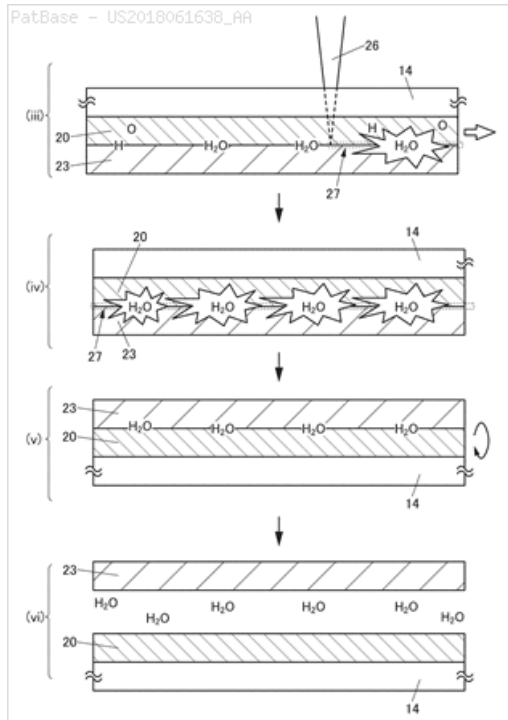
32) Family number: 68721897 (US2018061638A)

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Title:	METHOD FOR MANUFACTURING SEMICONDUCTOR DEVICE			
Priority:	JP20160170379 20160831	JP20160173346 20160906	JP20160198948 20161007	
	JP20160233445 20161130			
Family:	Publication number	Publication date	Application number	Application date
	JP2018093169 A2	20180614	JP20170163366	20170828
	TW201825298 A	20180716	TW20170129130	20170828
	US2018061638 AA	20180301	US20170687855	20170828
	WO18042284 A1	20180308	WO20171B55049	20170822
Probable Assignee:	SEMICONDUCTOR ENERGY LAB CO LTD			
Assignee(s):(std):	SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO LTD			
Assignee(s):	SEMICONDUCTOR ENERGY LABORATORY CO			
Inventor(s):(std):	YANAKA JUNPEI ; YAMAZAKI SHUNPEI ; SATO MASATAKA ; IKEZAWA NAOKI ; IDOJIRI SATORU ; YANAKA JUMPEI			
Designated states:	AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW			
International class (IPC 8-9):	B23K26/57 B32B15/04 B32B38/18 B32B9/00 G09F9/00 H01L21/02 H01L21/18 H01L21/336 H01L27/12 H01L29/66 H01L29/786 H01L51/50 H05B33/02 H05B33/10 (Advanced/Invention)			
CPC:	H01L27/1266 H01L29/66969 H01L21/02488 H01L21/02345 H01L2221/68386 H01L2224/83052 H01L2924/35121 H01L31/1892 H01L21/02694 H01L21/6835 H01L31/1896 H01L51/003			
Classification Explorer				
Cited documents:	WO16010106 A1, WO15147106 A1, WO15087192 A1, WO14129519 A1, US2017227705 AA, US2017137571 AA, US2016172244 AA, US2011253208 AA, US2011204361 AA, US2007072439 AA, US2007004233 AA,			
Forward Citations:	US10170600,			

Abstract:

The yield of a manufacturing process of a semiconductor device is increased. The productivity of a semiconductor device is increased. A first material layer is formed over a substrate, a second material layer is formed over the first material layer, and the first material layer and the second material layer are separated from each other, so that a semiconductor device is manufactured. In addition, a stack including the first material layer and the second material layer is preferably heated before the separation. The first material layer includes one or more of hydrogen, oxygen, and water. The first material layer includes a metal oxide, for example. The second material layer includes a resin (e.g., polyimide or acrylic). The first material layer and the second material layer are separated from each other by cutting a hydrogen bond. The first material layer and the second material layer are separated from each other in such a manner that water separated out by heat treatment at an interface between the first material layer and the second material layer or in the vicinity of the interface is irradiated with light.



33) Family number: 68721898 (US2018061639A)

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Title: MANUFACTURING METHOD OF SEMICONDUCTOR DEVICE

Priority: JP20160170378 20160831 JP20160173345 20160906 JP20160198947 20161007
JP20170163365 20170828 KR20170110586 20170831

Family:

Publication number	Publication date	Application number	Application date
■ CN107799668 A	20180313	CN201710769657	20170831
■ JP2018064088 A2	20180419	JP20170163365	20170828
■ KR20180025280 A	20180308	KR20170110586	20170831
■ US2018061639 AA	20180301	US20170687915	20170828

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO

Inventor(s):(std): IDOJIRI SATORU ; KUMAKURA KAYO ; SATO MASATAKA ; YAMAZAKI SHUNPEI ; YASUMOTO SEIJI

International class
(IPC 8-9): G09F9/00 H01L21/02 H01L21/336 H01L27/12 H01L29/66 H01L29/786 H01L51/00
H01L51/56 (Advanced/Invention)

CPC: H01L21/02694 H01L29/66969 H01L27/1266 H01L21/02488 H01L51/56 H01L21/02172 H01L51/0002
H01L51/0026 H01L51/003 H01L21/7806 H01L21/67132

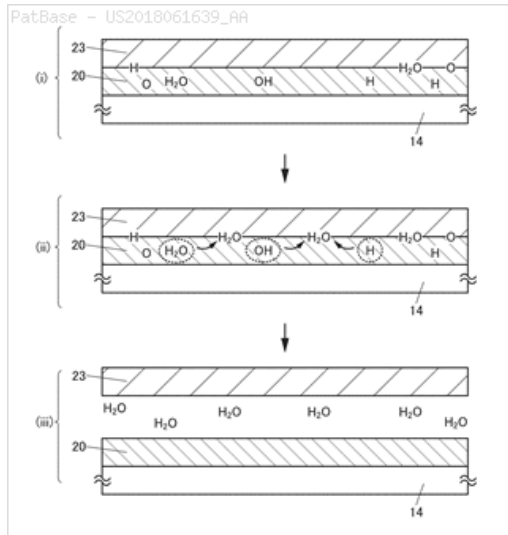
[Classification Explorer](#)

Cited documents: US5783022 A, US5464500 A, US2017137571 AA, US2016172244 AA, US2011204361 AA, US2004026736 AA,

Forward Citations: US10170600,

Abstract:

The yield of a manufacturing process of a semiconductor device is increased. The mass productivity of a semiconductor device is increased. A semiconductor device is manufactured by forming a first material layer over a substrate; forming a second material layer over the first material layer; and separating the first material layer and the second material layer from each other; and heating the first material layer and the second material layer that are stacked before the separation. The first material layer includes a gas containing hydrogen, oxygen, or hydrogen and oxygen (e.g., water) in a metal oxide, for example. The second material layer includes a resin. The first material layer and the second material layer are separated from each other by a break of a hydrogen bond. Specifically water is separated out at the interface or near the interface, and then adhesion is reduced due to the water present.



34) Family number: 68163905 (US2018013003A)

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Title: SEMICONDUCTOR DEVICE

Priority: JP20160137191 20160711 JP20170134557 20170710

Family:

Publication number	Publication date	Application number	Application date
JP2018014496 A2	20180125	JP20170134557	20170710
TW201813095 A	20180401	TW20160142761	20161222
US2018013003 AA	20180111	US20170642641	20170706

Probable Assignee: SEMICONDUCTOR ENERGY LAB CO LTD

Assignee(s):(std): SEMICONDUCTOR ENERGY LAB ; SEMICONDUCTOR ENERGY LAB CO LTD ; SEMICONDUCTOR ENERGY LABORATORY CO LTD

Assignee(s): SEMICONDUCTOR ENERGY LABORATORY CO

Inventor(s):(std): YAMAZAKI SHUNPEI

International class (IPC 8-9): H01L29/24 H01L29/786 (Advanced/Invention)

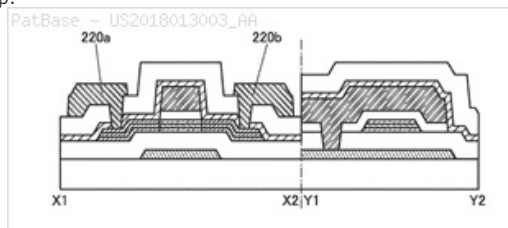
CPC: H01L29/7869 H01L29/24 H01L29/78648 H01L29/78696

[Classification Explorer](#)

Cited documents: US2017117416 AA, US2015221679 AA, US2015097181 AA, US2014319514 AA, US2014183530 AA, US2014151685 AA, US2014145183 AA, US2014042437 AA, US2014027762 AA, US2011140100 AA, US2010102309 AA, US2009152530 AA, US2008237687 AA,

Abstract:

A transistor including a metal oxide and having a high field-effect mobility is provided. A highly reliable display device including the transistor is provided. At least two or more layers of a metal oxide layer having a first bandgap and a metal oxide layer having a second bandgap are alternately stacked. A difference between the first bandgap and the second bandgap is preferably 0.3 eV or more, further preferably 0.4 eV or more. Carriers flow owing to an In oxide, an In-Zn oxide, or an In-Ti-Zn oxide having the second bandgap, i.e., a narrow bandgap. At that time, carriers overflow into an In-Ti-Ga-Zn oxide having the first bandgap, i.e., a wide bandgap, from the oxide having the second bandgap.



35) Family number: 42756918 (US2008319143A)

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Title: METAL OXIDE COATINGS

Priority: US20070945715P 20070622 US20070930991 20071031 US20070931039 20071031
US20090512152 20090730

Family:

Publication number	Publication date	Application number	Application date
CN101445513 A	20090603	CN200810191117	20081031
CN101445513 B	20140108	CN200810191117	20081031
DE102008037499 A1	20090520	DE200810037499	20081031
DE102008037499 B4	20180322	DE200810037499	20081031
IN02472DE2008 A	20090619	IN2008DE02472	20081031
KR101565613 B1	20151103	KR20080107939	20081031
KR20090045124 A	20090507	KR20080107939	20081031
TW200938551 A	20090916	TW20080142062	20081031

■ TWI437004 B	20140511	TW20080142062	20081031
■ US2008319143 AA	20081225	US20070930991	20071031
■ US2008319212 AA	20081225	US20070931039	20071031
■ US2009289235 AA	20091126	US20090512152	20090730
■ US7652157 BB	20100126	US20070931039	20071031
■ US8404877 BB	20130326	US20070930991	20071031
■ US8624050 BB	20140107	US20090512152	20090730

Probable Assignee: GENERAL ELECTRIC CO

Assignee(s):(std): GEN ELECTRIC ; GENERAL ELECTRIC CO LTD ; KNIAJANSKI SERGEI ; YAKIMOV AHARON

Assignee(s): GENERAL ELECTRIC COMPANY ; GENERAL ELECTRIC CO

Inventor(s):(std): YAKIMOV AHARON ; SERGEI KNIAJANSKI ; KNIAJANSKI SERGEI ; AHARON YAKIMOV

Agent(s): GENERAL ELECTRIC COMPANY, GLOBAL RESEARCH; GENERAL ELECTRIC CO GLOBAL RESEARCH; GENERAL ELECTRIC COMPANY,GLOBAL RESEARCH; MARY LOUISE

International class (IPC 8-9): B05D5/12 C01B33/06 C01F7/08 C01G1/02 C07F19/00 C07F3/06 C07F5/00 C07F5/06 C07F7/02 C07F7/04 C07F7/08 C07F7/18 C07F7/22 C07F7/26 C07F7/28 C07F9/00 C08F283/12 C08G77/06 C08G77/58 H01B1/02 (Advanced/Invention); C01B33/06 C01F7/08 (Advanced/Non-invention); B05D5/12 C01B33/00 C01F7/00 C01G1/02 C07F7/00 C08F283/00 H01B1/02 (Core/Invention); C01G1/02 C07F7/08 (Core/Non-invention)

International class (IPC 1-7): C23D5/04

CPC: C08G77/58 C09D183/14 Y10T428/31663 C07F7/0874 C07F7/0889 C07F9/005 C09D5/24 G02B1/105 G02B27/0006 G02B1/10 C07F7/0836 C09D1/00 C07F7/0838 C01G1/02 C01B13/32 C01F7/30 C01G19/02 C01G23/00 C01G23/053 C01P2002/02

European class: C01B13/32 C01F7/30 C01G1/02 C01G19/02 C01G23/00 C01G23/053 C07F7/08D2 C07F7/08D4H6 C07F7/08D4K2 C07F7/08D4K6 C07F9/00B C08G77/58 C09D1/00 C09D183/14 C09D5/24 G02B1/10B G02B27/00C M01P2/02

US class: 252/519.54 252/519.540P 252/520.22 252/520.220S 252/521.3 252/521.300S 427/126.3 427/126.300S 428/447 525/474 525/474P 528/30 556/10 556/173 556/450 556/467

[Classification Explorer](#)

Cited documents: WO0227063 A2, US7507618 BB, US7476603 BB, US7416688 BB, US5614654 A, US4525565 A, US4334051 A, US2009081826 AA, US2008217576 AA, US2008138539 AA, US2008031943 AA, US2006110936 AA, US2006062902 AA, US2005112282 AA, US2004086643 AA, RU2064956 C1, JP948787, JP9048787 A2, JP9048787, JP6283507, JP2003165841 A2, JP2003165841, JP2003162923 A2, GB2428689 A1, EP1621258 A1, EP1420024, EP0803589,

Forward Citations: WO13117354, US9598576, US9546300, US9545042, US9532405, US9326327, US9309589, US8962091, US8956730, US8674048, US8420166, US2016194496, US2014321798, US2013230603, US2010307238, TWI384636, DE102012201688, CN104394609, CN104394609, CN104357757, CN104357757, CN102575350,

Abstract:

Compounds of formula I may be hydrolyzed to produce metal oxides wherein M is Mg, Al, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Ge, As, Y, Zr, Nb, Mo, Tc, Ru, Rh, Pd, Cd, In, Sn, Sb, La, Hf, Ta, W, Re, Os, Ir, Pt, Hg, Tl, Pb, Bi, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th, U, or Pu; X is O1/2 or OR; R is alkyl; R1, R2, R3, R4, R5, R6, and R7 are independently H, alkoxy, C1-C10 alkyl, phenyl or R10, R11, R12, R13, R14, and R15 are independently C1-C10 alkyl or phenyl; n is equal to the value of the oxidation state of M minus q; m and p are independently 0 or an integer from 1 to 5; and q is 0, 1, 2, or 4; with the proviso that when q is 1, X is OR; and when q is 2, X is O1/2, and M is V, Cr, Mn, Fe, As, Nb, Mo, Tc, Ru, Sb, Ta, W, Re, Os, Ir, Pt, Bi, Th, U, or Pu; and when q is 4, X is O1/2, and M is Cr, Mo, W, Ru, Re, Os, U, or Pu. Articles comprising at least one metal oxide are fabricated by coating a substrate with at least one compounds of formula I before hydrolyzing, and/or heating the compound at a temperature ranging from about 50 degrees centigrade to about 450 degrees centigrade

