

# CPC COOPERATIVE PATENT CLASSIFICATION

## H ELECTRICITY

(NOTE omitted)

### H10 SEMICONDUCTOR DEVICES; ELECTRIC SOLID-STATE DEVICES NOT OTHERWISE PROVIDED FOR

#### H10K ORGANIC ELECTRIC SOLID-STATE DEVICES

##### NOTES

- This subclass covers:
  - individual organic electric solid-state devices, i.e. electric solid-state devices comprising organic material in the active part;
  - integrated devices, or assemblies of multiple devices, comprising such elements.
- This subclass does not cover:
  - organic electronic memory devices, which are covered by subclass [H10B](#);
  - organic thermoelectric devices, organic thermomagnetic devices, organic piezoelectric devices, organic electrostrictive devices, organic magnetostrictive devices, organic galvanomagnetic devices, organic Hall-effect devices, organic superconducting devices or organic solid-state devices having no potential barriers, and specially adapted for rectifying, amplifying, oscillating or switching, which are covered by subclass [H10N](#);
  - organic resistors having no potential barriers and not specially adapted for integrated devices, which are covered by subclass [H01C](#);
  - organic capacitors having no potential barriers and not specially adapted for integrated devices, which are covered by subclass [H01G](#).
- In this subclass, the periodic system used is the I to VIII group system indicated in the Periodic Table under Note (3) of section [C](#).
- In this subclass, it is desirable to add the indexing codes of groups ([H10K 2101/00](#) - [H10K 2102/00](#)).

##### Organic devices specially adapted for rectifying, amplifying, oscillating or switching

10/40

. Organic transistors

##### WARNING

Groups [H10K 10/40](#) and [H10K 10/43](#) are incomplete pending reclassification of documents from group [H10K 10/00](#).

Groups [H10K 10/00](#), [H10K 10/40](#) and [H10K 10/43](#) should be considered in order to perform a complete search.

**10/00** Organic devices specially adapted for rectifying, amplifying, oscillating or switching; Organic capacitors or resistors having potential barriers (integrated devices or assemblies of multiple devices [H10K 19/00](#))

##### WARNING

Group [H10K 10/00](#) is impacted by reclassification into groups [H10K 10/10](#), [H10K 10/40](#) and [H10K 10/43](#).

All groups listed in this Warning should be considered in order to perform a complete search.

10/43

. . Bipolar transistors, e.g. organic bipolar junction transistors [OBJT]

10/46

. . Field-effect transistors, e.g. organic thin-film transistors [OTFT] ([H10K 10/43](#) takes precedence)

10/10 . Organic capacitors or resistors having potential barriers

10/462

. . . {Insulated gate field-effect transistors [IGFETs]}

10/464

. . . . {Lateral top-gate IGFETs comprising only a single gate}

10/466

. . . . {Lateral bottom-gate IGFETs comprising only a single gate}

10/468

. . . . {characterised by the gate dielectrics}

10/471

. . . . . {the gate dielectric comprising only organic materials}

10/472

. . . . . {the gate dielectric comprising only inorganic materials}

10/474

. . . . . {the gate dielectric comprising a multilayered structure}

10/476

. . . . . {comprising at least one organic layer and at least one inorganic layer}

10/20 . Organic diodes

10/23 . . Schottky diodes

10/26 . . Diodes comprising organic-organic junctions

10/29 . . Diodes comprising organic-inorganic heterojunctions

10/478	. . . . . {the gate dielectric comprising a layer of composite material comprising interpenetrating or embedded materials, e.g. TiO <sub>2</sub> particles in a polymer matrix}	19/00	<b>Integrated devices, or assemblies of multiple devices, comprising at least one organic element specially adapted for rectifying, amplifying, oscillating or switching, covered by group <a href="#">H10K 10/00</a></b>
10/481	. . . . . {characterised by the gate conductors}		
10/482	. . . . . {the IGFET comprising multiple separately-addressable gate electrodes}		
10/484	. . . . . {characterised by the channel regions}		
10/486	. . . . . {the channel region comprising two or more active layers, e.g. forming pn heterojunctions}		
10/488	. . . . . {the channel region comprising a layer of composite material having interpenetrating or embedded materials, e.g. a mixture of donor and acceptor moieties, that form a bulk heterojunction}		
10/491	. . . . . {Vertical transistors, e.g. vertical carbon nanotube field effect transistors [CNT-FETs]}	19/10	. comprising field-effect transistors
10/50	. Bistable switching devices	19/20	. comprising components having an active region that includes an inorganic semiconductor
10/701	. {Organic molecular electronic devices}	19/201	. {Integrated devices having a three-dimensional layout, e.g. 3D ICs}
10/80	. Constructional details		
	<b>WARNING</b>		<b>WARNING</b>
	Group <a href="#">H10K 10/80</a> is impacted by reclassification into group <a href="#">H10K 77/00</a> .		Group <a href="#">H10K 19/201</a> is impacted by reclassification into groups <a href="#">H10K 39/401</a> and <a href="#">H10K 59/751</a> .
	Groups <a href="#">H10K 10/80</a> and <a href="#">H10K 77/00</a> should be considered in order to perform a complete search.		Groups <a href="#">H10K 19/201</a> , <a href="#">H10K 39/401</a> and <a href="#">H10K 59/751</a> should be considered in order to perform a complete search.
10/82	. . Electrodes	19/202	. {Integrated devices comprising a common active layer}
	<b>WARNING</b>		<b>WARNING</b>
	Group <a href="#">H10K 10/82</a> is impacted by reclassification into group <a href="#">H10K 10/86</a> .		Group <a href="#">H10K 19/202</a> is impacted by reclassification into groups <a href="#">H10K 39/501</a> and <a href="#">H10K 59/771</a> .
	Groups <a href="#">H10K 10/82</a> and <a href="#">H10K 10/86</a> should be considered in order to perform a complete search.		Groups <a href="#">H10K 19/202</a> , <a href="#">H10K 39/501</a> and <a href="#">H10K 59/771</a> should be considered in order to perform a complete search.
10/84	. . . Ohmic electrodes, e.g. source or drain electrodes		
10/86	. . . Schottky electrodes	19/80	. Interconnections, e.g. terminals
	<b>WARNING</b>		<b>WARNING</b>
	Group <a href="#">H10K 10/86</a> is incomplete pending reclassification of documents from group <a href="#">H10K 10/82</a> .		Group <a href="#">H10K 19/80</a> is incomplete pending reclassification of documents from group <a href="#">H10K 19/00</a> .
	Groups <a href="#">H10K 10/82</a> and <a href="#">H10K 10/86</a> should be considered in order to perform a complete search.		Groups <a href="#">H10K 19/00</a> and <a href="#">H10K 19/80</a> should be considered in order to perform a complete search.
10/88	. . Passivation; Containers; Encapsulations	19/901	. {Assemblies of multiple devices comprising at least one organic element specially adapted for rectifying, amplifying, oscillating or switching}

**Organic radiation-sensitive devices**

**30/00**    **Organic devices sensitive to infrared radiation, light, electromagnetic radiation of shorter wavelength or corpuscular radiation (integrated devices or assemblies of multiple devices [H10K 39/00](#), [H10K 65/00](#); electrolytic light-sensitive devices [H01G 9/20](#))**

**NOTE**

This group covers organic semiconductor devices sensitive to radiation insofar as these devices are specially adapted for either:

- the conversion of the radiation energy into electrical energy; or
- the control of electrical energy by such radiation.

**WARNING**

Group [H10K 30/00](#) is impacted by reclassification into groups [H10K 30/50](#), [H10K 30/53](#) and [H10K 30/60](#).

Groups [H10K 30/00](#), [H10K 30/50](#), [H10K 30/53](#) and [H10K 30/60](#) should be considered in order to perform a complete search.

30/10    • comprising heterojunctions between organic semiconductors and inorganic semiconductors

**WARNING**

Group [H10K 30/10](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).

Groups [H10K 30/10](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.

30/15    • • Sensitised wide-bandgap semiconductor devices, e.g. dye-sensitised TiO<sub>2</sub> (photo-electrochemical devices comprising a liquid electrolyte or a solid electrolyte [H01G 9/20](#))

**WARNING**

Group [H10K 30/15](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).

Groups [H10K 30/15](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.

30/151    • • • {the wide bandgap semiconductor comprising titanium oxide, e.g. TiO<sub>2</sub>}

**WARNING**

Group [H10K 30/151](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).

Groups [H10K 30/151](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.

30/152    • • • {the wide bandgap semiconductor comprising zinc oxide, e.g. ZnO}

**WARNING**

Group [H10K 30/152](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).

Groups [H10K 30/152](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.

30/20    • comprising organic-organic junctions, e.g. donor-acceptor junctions

**WARNING**

Group [H10K 30/20](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).

Groups [H10K 30/20](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.

30/211    • • {comprising multiple junctions, e.g. double heterojunctions}

**WARNING**

Group [H10K 30/211](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).

Groups [H10K 30/211](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.

30/30    • comprising bulk heterojunctions, e.g. interpenetrating networks of donor and acceptor material domains

**WARNING**

Group [H10K 30/30](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).

Groups [H10K 30/30](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.

30/35    • • comprising inorganic nanostructures, e.g. CdSe nanoparticles

**WARNING**

Group [H10K 30/35](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).

Groups [H10K 30/35](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.

- 30/352 . . . {the inorganic nanostructures being nanotubes or nanowires, e.g. CdTe nanotubes in P3HT polymer}
- WARNING**
- Group [H10K 30/352](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).
- Groups [H10K 30/352](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.
- 30/353 . . {comprising blocking layers, e.g. exciton blocking layers}
- WARNING**
- Group [H10K 30/353](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).
- Groups [H10K 30/353](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.
- 30/354 . {comprising a metal-insulator-semiconductor [m-i-s] structure}
- WARNING**
- Group [H10K 30/354](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).
- Groups [H10K 30/354](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.
- 30/40 . comprising a p-i-n structure, e.g. having a perovskite absorber between p-type and n-type charge transport layers
- WARNING**
- Group [H10K 30/40](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).
- Groups [H10K 30/40](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.
- 30/451 . {comprising a metal-semiconductor-metal [m-s-m] structure}
- WARNING**
- Group [H10K 30/451](#) is impacted by reclassification into groups [H10K 30/50](#) and [H10K 30/53](#).
- Groups [H10K 30/451](#), [H10K 30/50](#) and [H10K 30/53](#) should be considered in order to perform a complete search.
- 30/50 . Photovoltaic [PV] devices
- WARNING**
- Groups [H10K 30/50](#) and [H10K 30/53](#) are incomplete pending reclassification of documents from groups [H10K 30/00](#), [H10K 30/10](#), [H10K 30/15](#), [H10K 30/151](#), [H10K 30/152](#), [H10K 30/20](#), [H10K 30/211](#), [H10K 30/30](#), [H10K 30/35](#), [H10K 30/352](#), [H10K 30/353](#), [H10K 30/354](#), [H10K 30/40](#) and [H10K 30/451](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 30/53 . . in the form of fibres or tubes, e.g. photovoltaic fibres
- 30/57 . . comprising multiple junctions, e.g. tandem PV cells
- 30/60 . in which radiation controls flow of current through the devices, e.g. photoresistors
- WARNING**
- Group [H10K 30/60](#) is incomplete pending reclassification of documents from group [H10K 30/00](#).
- Groups [H10K 30/00](#) and [H10K 30/60](#) should be considered in order to perform a complete search.
- 30/65 . . Light-sensitive field-effect devices, e.g. phototransistors
- 30/671 . {Organic radiation-sensitive molecular electronic devices}
- WARNING**
- Group [H10K 30/671](#) is impacted by reclassification into group [H10K 50/401](#).
- Groups [H10K 30/671](#) and [H10K 50/401](#) should be considered in order to perform a complete search.
- 30/80 . Constructional details
- WARNING**
- Group [H10K 30/80](#) is impacted by reclassification into groups [H10K 30/84](#) - [H10K 30/86](#), [H10K 30/89](#) and [H10K 77/00](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 30/81 . . Electrodes
- 30/82 . . . Transparent electrodes, e.g. indium tin oxide [ITO] electrodes
- 30/821 . . . . {comprising carbon nanotubes}
- 30/83 . . . . comprising arrangements for extracting the current from the cell, e.g. metal finger grid systems to reduce the serial resistance of transparent electrodes

- 30/84 . . Layers having high charge carrier mobility
- WARNING**
- Groups [H10K 30/84](#) - [H10K 30/86](#) are incomplete pending reclassification of documents from group [H10K 30/80](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 30/85 . . . Layers having high electron mobility, e.g. electron-transporting layers or hole-blocking layers
- 30/86 . . . Layers having high hole mobility, e.g. hole-transporting layers or electron-blocking layers
- 30/865 . . {Intermediate layers comprising a mixture of materials of the adjoining active layers}
- 30/87 . . Light-trapping means
- 30/88 . . Passivation; Containers; Encapsulations
- 30/89 . . Terminals, e.g. bond pads
- WARNING**
- Group [H10K 30/89](#) is incomplete pending reclassification of documents from group [H10K 30/80](#).
- Groups [H10K 30/80](#) and [H10K 30/89](#) should be considered in order to perform a complete search.
- 39/00 Integrated devices, or assemblies of multiple devices, comprising at least one organic radiation-sensitive element covered by group [H10K 30/00](#)**
- NOTE**
- This group only covers devices that are sensitive to infrared radiation, light, electromagnetic radiation of shorter wavelength or corpuscular radiation.
- 39/10 . Organic photovoltaic [PV] modules; Arrays of single organic PV cells
- WARNING**
- Group [H10K 39/10](#) is incomplete pending reclassification of documents from groups [H01L 25/065](#), [H01L 25/0652](#), [H01L 25/0655](#), [H01L 25/0657](#), [H01L 25/16](#), [H01L 25/162](#), [H01L 25/165](#), [H01L 25/167](#), [H01L 25/18](#) and [H10K 39/601](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- Group [H10K 39/10](#) is also impacted by reclassification into groups [H10K 39/12](#), [H10K 39/15](#) and [H10K 39/18](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 39/12 . . Electrical configurations of PV cells, e.g. series connections or parallel connections
- WARNING**
- Group [H10K 39/12](#) is incomplete pending reclassification of documents from groups [H01L 25/065](#), [H01L 25/0652](#), [H01L 25/0655](#), [H01L 25/0657](#), [H01L 25/16](#), [H01L 25/162](#), [H01L 25/165](#), [H01L 25/167](#), [H01L 25/18](#), [H10K 39/10](#) and [H10K 39/601](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 39/15 . . comprising both organic PV cells and inorganic PV cells
- WARNING**
- Group [H10K 39/15](#) is incomplete pending reclassification of documents from groups [H01L 25/065](#), [H01L 25/0652](#), [H01L 25/0655](#), [H01L 25/0657](#), [H01L 25/16](#), [H01L 25/162](#), [H01L 25/165](#), [H01L 25/167](#), [H01L 25/18](#), [H10K 39/10](#) and [H10K 39/601](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 39/18 . . Interconnections, e.g. terminals
- WARNING**
- Group [H10K 39/18](#) is incomplete pending reclassification of documents from groups [H01L 25/065](#), [H01L 25/0652](#), [H01L 25/0655](#), [H01L 25/0657](#), [H01L 25/16](#), [H01L 25/162](#), [H01L 25/165](#), [H01L 25/167](#), [H01L 25/18](#), [H10K 39/10](#) and [H10K 39/601](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 39/30 . Devices controlled by radiation
- WARNING**
- Group [H10K 39/30](#) is impacted by reclassification into group [H10K 39/38](#).
- Groups [H10K 39/30](#) and [H10K 39/38](#) should be considered in order to perform a complete search.
- 39/32 . . Organic image sensors
- 39/34 . . . integrated with organic light-emitting diodes [OLED]
- WARNING**
- Group [H10K 39/34](#) is incomplete pending reclassification of documents from group [H10K 59/65](#).
- Groups [H10K 59/65](#) and [H10K 39/34](#) should be considered in order to perform a complete search.
- 39/36 . . Devices specially adapted for detecting X-ray radiation

- 39/38 . . Interconnections, e.g. terminals
- WARNING**
- Group [H10K 39/38](#) is incomplete pending reclassification of documents from group [H10K 39/30](#).
- Groups [H10K 39/30](#) and [H10K 39/38](#) should be considered in order to perform a complete search.
- 39/401 . {Integrated devices having a three-dimensional layout, e.g. 3D ICs}
- WARNING**
- Group [H10K 39/401](#) is incomplete pending reclassification of documents from group [H10K 19/201](#).
- Groups [H10K 19/201](#) and [H10K 39/401](#) should be considered in order to perform a complete search.
- 39/501 . {Integrated devices comprising a common active layer}
- WARNING**
- Group [H10K 39/501](#) is incomplete pending reclassification of documents from group [H10K 19/202](#).
- Groups [H10K 19/202](#) and [H10K 39/501](#) should be considered in order to perform a complete search.
- 39/601 . {Assemblies of multiple devices comprising at least one organic radiation-sensitive element}
- WARNING**
- Groups [H10K 39/601](#) is incomplete pending reclassification of documents from groups [H01L 25/065](#), [H01L 25/0652](#), [H01L 25/0655](#), [H01L 25/0657](#), [H01L 25/16](#), [H01L 25/162](#), [H01L 25/165](#), [H01L 25/167](#) and [H01L 25/18](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- Group [H10K 39/601](#) is also impacted by reclassification into groups [H10K 39/10](#), [H10K 39/12](#), [H10K 39/15](#), [H10K 39/18](#) and [H10K 39/621](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 39/621 . . {comprising only organic radiation-sensitive elements}
- WARNING**
- Groups [H10K 39/621](#) is incomplete pending reclassification of documents from groups [H01L 25/065](#), [H01L 25/0652](#), [H01L 25/0655](#), [H01L 25/0657](#), [H01L 25/16](#), [H01L 25/162](#), [H01L 25/165](#), [H01L 25/167](#), [H01L 25/18](#) and [H10K 39/601](#).
- All groups listed in this Warning should be considered in order to perform a complete search.

**Organic light-emitting devices**

- 50/00 **Organic light-emitting devices** (integrated devices or assemblies of multiple devices [H10K 59/00](#), [H10K 65/00](#); organic semiconductor lasers [H01S 5/36](#))
- WARNING**
- Group [H10K 50/00](#) is impacted by reclassification into group [H10K 50/10](#).
- Groups [H10K 50/00](#) and [H10K 50/10](#) should be considered in order to perform a complete search.
- 50/10 . OLEDs or polymer light-emitting diodes [PLED]
- WARNING**
- Group [H10K 50/10](#) is incomplete pending reclassification of documents from group [H10K 50/00](#).
- Groups [H10K 50/00](#) and [H10K 50/10](#) should be considered in order to perform a complete search.
- 50/11 . . characterised by the electroluminescent [EL] layers
- 50/115 . . . comprising active inorganic nanostructures, e.g. luminescent quantum dots
- 50/12 . . . comprising dopants
- 50/121 . . . . {for assisting energy transfer, e.g. sensitization}
- 50/125 . . . specially adapted for multicolour light emission, e.g. for emitting white light
- 50/13 . . . . comprising stacked EL layers within one EL unit
- 50/131 . . . . . {with spacer layers between the electroluminescent layers}
- 50/135 . . . comprising mobile ions
- 50/14 . . Carrier transporting layers
- 50/15 . . . Hole transporting layers
- 50/155 . . . . comprising dopants
- 50/156 . . . . {comprising a multilayered structure}
- 50/157 . . . . {between the light-emitting layer and the cathode}
- 50/16 . . . Electron transporting layers
- 50/165 . . . . comprising dopants
- 50/166 . . . . {comprising a multilayered structure}
- 50/167 . . . . {between the light-emitting layer and the anode}
- 50/17 . . Carrier injection layers
- WARNING**
- Group [H10K 50/17](#) is impacted by reclassification into group [H10K 50/171](#).
- Groups [H10K 50/17](#) and [H10K 50/171](#) should be considered in order to perform a complete search.



- 50/171 . . . {[Electron injection layers](#)}
- WARNING**
- Group [H10K 50/171](#) is incomplete pending reclassification of documents from group [H10K 50/17](#).
- Groups [H10K 50/17](#) and [H10K 50/171](#) should be considered in order to perform a complete search.
- 50/18 . . Carrier blocking layers
- WARNING**
- Group [H10K 50/18](#) is impacted by reclassification into group [H10K 50/181](#).
- Groups [H10K 50/18](#) and [H10K 50/181](#) should be considered in order to perform a complete search.
- 50/181 . . . {[Electron blocking layers](#)}
- WARNING**
- Group [H10K 50/181](#) is incomplete pending reclassification of documents from group [H10K 50/18](#).
- Groups [H10K 50/18](#) and [H10K 50/181](#) should be considered in order to perform a complete search.
- 50/182 . . {[OLED comprising a fiber structure](#)}
- 50/19 . . Tandem OLEDs
- 50/30 . Organic light-emitting transistors
- 50/401 . {[Organic light-emitting molecular electronic devices](#)}
- WARNING**
- Group [H10K 50/401](#) is incomplete pending reclassification of documents from group [H10K 30/671](#).
- Groups [H10K 30/671](#) and [H10K 50/401](#) should be considered in order to perform a complete search.
- 50/80 . Constructional details
- WARNING**
- Group [H10K 50/80](#) is impacted by reclassification into groups [H10K 50/88](#), [H10K 59/80](#) and [H10K 77/00](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 50/805 . . Electrodes
- WARNING**
- Group [H10K 50/805](#) is impacted by reclassification into group [H10K 59/805](#).
- Groups [H10K 50/805](#) and [H10K 59/805](#) should be considered in order to perform a complete search.
- 50/81 . . . Anodes
- WARNING**
- Group [H10K 50/81](#) is impacted by reclassification into groups [H10K 50/816](#) and [H10K 59/8051](#).
- Groups [H10K 50/81](#), [H10K 50/816](#) and [H10K 59/8051](#) should be considered in order to perform a complete search.
- 50/813 . . . . characterised by their shape
- WARNING**
- Group [H10K 50/813](#) is impacted by reclassification into group [H10K 59/80515](#).
- Groups [H10K 50/813](#) and [H10K 59/80515](#) should be considered in order to perform a complete search.
- 50/814 . . . . combined with auxiliary electrodes, e.g. ITO layer combined with metal lines
- WARNING**
- Group [H10K 50/814](#) is impacted by reclassification into group [H10K 59/80516](#).
- Groups [H10K 50/814](#) and [H10K 59/80516](#) should be considered in order to perform a complete search.
- 50/816 . . . . Multilayers, e.g. transparent multilayers
- WARNING**
- Group [H10K 50/816](#) is incomplete pending reclassification of documents from group [H10K 50/81](#).
- Group [H10K 50/816](#) is also impacted by reclassification into group [H10K 59/80517](#).
- Groups [H10K 50/81](#), [H10K 50/816](#) and [H10K 59/80517](#) should be considered in order to perform a complete search.
- 50/818 . . . . Reflective anodes, e.g. ITO combined with thick metallic layers
- WARNING**
- Group [H10K 50/818](#) is impacted by reclassification into group [H10K 59/80518](#).
- Groups [H10K 50/818](#) and [H10K 59/80518](#) should be considered in order to perform a complete search.
- 50/82 . . . Cathodes
- WARNING**
- Group [H10K 50/82](#) is impacted by reclassification into group [H10K 50/826](#) and [H10K 59/8052](#).
- Groups [H10K 50/82](#), [H10K 50/826](#) and [H10K 59/8052](#) should be considered in order to perform a complete search.

- 50/822 . . . . characterised by their shape
- WARNING**
- Group [H10K 50/822](#) is impacted by reclassification into group [H10K 59/80521](#).
- Groups [H10K 50/822](#) and [H10K 59/80521](#) should be considered in order to perform a complete search.
- 50/824 . . . . combined with auxiliary electrodes
- WARNING**
- Group [H10K 50/824](#) is impacted by reclassification into group [H10K 59/80522](#).
- Groups [H10K 50/824](#) and [H10K 59/80522](#) should be considered in order to perform a complete search.
- 50/826 . . . . Multilayers, e.g. opaque multilayers
- WARNING**
- Group [H10K 50/826](#) is incomplete pending reclassification of documents from group [H10K 50/82](#).
- Group [H10K 50/826](#) is also impacted by reclassification into group [H10K 59/80523](#).
- Groups [H10K 50/82](#), [H10K 50/826](#) and [H10K 59/80523](#) should be considered in order to perform a complete search.
- 50/828 . . . . Transparent cathodes, e.g. comprising thin metal layers
- WARNING**
- Group [H10K 50/828](#) is impacted by reclassification into group [H10K 59/80524](#).
- Groups [H10K 50/828](#) and [H10K 59/80524](#) should be considered in order to perform a complete search.
- 50/84 . . Passivation; Containers; Encapsulations
- WARNING**
- Group [H10K 50/84](#) is impacted by reclassification into group [H10K 59/87](#).
- Groups [H10K 50/84](#) and [H10K 59/87](#) should be considered in order to perform a complete search.
- 50/841 . . . {Self-supporting sealing arrangements}
- WARNING**
- Group [H10K 50/841](#) is impacted by reclassification into groups [H10K 50/842](#), [H10K 59/871](#) and [H10K 59/872](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 50/842 . . . Containers
- WARNING**
- Group [H10K 50/842](#) is incomplete pending reclassification of documents from group [H10K 50/841](#).
- Groups [H10K 50/841](#) and [H10K 50/842](#) should be considered in order to perform a complete search.
- 50/8423 . . . . {Metallic sealing arrangements}
- WARNING**
- Group [H10K 50/8423](#) is impacted by reclassification into group [H10K 59/8721](#).
- Groups [H10K 50/8423](#) and [H10K 59/8721](#) should be considered in order to perform a complete search.
- 50/8426 . . . . {Peripheral sealing arrangements, e.g. adhesives, sealants}
- WARNING**
- Group [H10K 50/8426](#) is impacted by reclassification into group [H10K 59/8722](#).
- Groups [H10K 50/8426](#) and [H10K 59/8722](#) should be considered in order to perform a complete search.
- 50/8428 . . . . {Vertical spacers, e.g. arranged between the sealing arrangement and the OLED}
- WARNING**
- Group [H10K 50/8428](#) is impacted by reclassification into group [H10K 59/8723](#).
- Groups [H10K 50/8428](#) and [H10K 59/8723](#) should be considered in order to perform a complete search.
- 50/844 . . . Encapsulations
- WARNING**
- Group [H10K 50/844](#) is impacted by reclassification into group [H10K 59/873](#).
- Groups [H10K 50/844](#) and [H10K 59/873](#) should be considered in order to perform a complete search.
- 50/8445 . . . . {multilayered coatings having a repetitive structure, e.g. having multiple organic-inorganic bilayers}
- WARNING**
- Group [H10K 50/8445](#) is impacted by reclassification into group [H10K 59/8731](#).
- Groups [H10K 50/8445](#) and [H10K 59/8731](#) should be considered in order to perform a complete search.
- 50/846 . . . {comprising getter material or desiccants}
- WARNING**
- Group [H10K 50/846](#) is impacted by reclassification into group [H10K 59/874](#).
- Groups [H10K 50/846](#) and [H10K 59/874](#) should be considered in order to perform a complete search.



- 50/85 . . . Arrangements for extracting light from the devices  
**WARNING**  
Group [H10K 50/85](#) is impacted by reclassification into group [H10K 59/875](#).  
Groups [H10K 50/85](#) and [H10K 59/875](#) should be considered in order to perform a complete search.
- 50/852 . . . comprising a resonant cavity structure, e.g. Bragg reflector pair  
**WARNING**  
Group [H10K 50/852](#) is impacted by reclassification into group [H10K 59/876](#).  
Groups [H10K 50/852](#) and [H10K 59/876](#) should be considered in order to perform a complete search.
- 50/854 . . . comprising scattering means  
**WARNING**  
Group [H10K 50/854](#) is impacted by reclassification into group [H10K 59/877](#).  
Groups [H10K 50/854](#) and [H10K 59/877](#) should be considered in order to perform a complete search.
- 50/856 . . . comprising reflective means  
**WARNING**  
Group [H10K 50/856](#) is impacted by reclassification into group [H10K 59/878](#).  
Groups [H10K 50/856](#) and [H10K 59/878](#) should be considered in order to perform a complete search.
- 50/858 . . . comprising refractive means, e.g. lenses  
**WARNING**  
Group [H10K 50/858](#) is impacted by reclassification into group [H10K 59/879](#).  
Groups [H10K 50/858](#) and [H10K 59/879](#) should be considered in order to perform a complete search.
- 50/86 . . . Arrangements for improving contrast, e.g. preventing reflection of ambient light  
**WARNING**  
Group [H10K 50/86](#) is impacted by reclassification into group [H10K 59/8791](#).  
Groups [H10K 50/86](#) and [H10K 59/8791](#) should be considered in order to perform a complete search.
- 50/865 . . . {comprising light absorbing layers, e.g. light-blocking layers}  
**WARNING**  
Group [H10K 50/865](#) is impacted by reclassification into group [H10K 59/8792](#).  
Groups [H10K 50/865](#) and [H10K 59/8792](#) should be considered in order to perform a complete search.
- 50/868 . . . {Arrangements for polarized light emission ([H10K 50/86](#) takes precedence)}  
**WARNING**  
Group [H10K 50/868](#) is impacted by reclassification into group [H10K 59/8793](#).  
Groups [H10K 50/868](#) and [H10K 59/8793](#) should be considered in order to perform a complete search.
- 50/87 . . . Arrangements for heating or cooling  
**WARNING**  
Group [H10K 50/87](#) is impacted by reclassification into group [H10K 59/8794](#).  
Groups [H10K 50/87](#) and [H10K 59/8794](#) should be considered in order to perform a complete search.
- 50/88 . . . Terminals, e.g. bond pads  
**WARNING**  
Group [H10K 50/88](#) is incomplete pending reclassification of documents from group [H10K 50/80](#).  
Groups [H10K 50/80](#) and [H10K 50/88](#) should be considered in order to perform a complete search.
- 59/00 Integrated devices, or assemblies of multiple devices, comprising at least one organic light-emitting element covered by group [H10K 50/00](#)**  
**WARNING**  
Group [H10K 59/00](#) is impacted by reclassification into groups [H10K 59/70](#) and [H10K 59/80 - H10K 59/88](#).  
Groups [H10K 59/00](#), [H10K 59/70](#) and [H10K 59/80 - H10K 59/88](#) should be considered in order to perform a complete search.
- 59/10 . . . OLED displays  
**WARNING**  
Group [H10K 59/10](#) is impacted by reclassification into group [H10K 59/19](#).  
Groups [H10K 59/10](#) and [H10K 59/19](#) should be considered in order to perform a complete search.
- 59/12 . . . Active-matrix OLED [AMOLED] displays  
**WARNING**  
Group [H10K 59/12](#) is impacted by reclassification into groups [H10K 59/131](#) and [H10K 59/1315](#).  
Groups [H10K 59/12](#), [H10K 59/131](#) and [H10K 59/1315](#) should be considered in order to perform a complete search.
- 59/1201 . . . {Manufacture or treatment}
- 59/121 . . . characterised by the geometry or disposition of pixel elements
- 59/1213 . . . . {the pixel elements being TFTs}
- 59/1216 . . . . {the pixel elements being capacitors}
- 59/122 . . . Pixel-defining structures or layers, e.g. banks

- 59/123 . . . Connection of the pixel electrodes to the thin film transistors [TFT]
- 59/124 . . . Insulating layers formed between TFT elements and OLED elements
- 59/125 . . . including organic TFTs [OTFT]
- 59/126 . . . Shielding, e.g. light-blocking means over the TFTs
- 59/127 . . . comprising two substrates, e.g. display comprising OLED array and TFT driving circuitry on different substrates
- 59/1275 . . . . {Electrical connections of the two substrates}
- 59/128 . . . comprising two independent displays, e.g. for emitting information from two major sides of the display
- 59/129 . . . Chiplets
- 59/13 . . . comprising photosensors that control luminance
- 59/131 . . . Interconnections, e.g. wiring lines or terminals
- WARNING**
- Group [H10K 59/131](#) is incomplete pending reclassification of documents from group [H10K 59/12](#).
- Groups [H10K 59/12](#) and [H10K 59/131](#) should be considered in order to perform a complete search.
- 59/1315 . . . . {comprising structures specially adapted for lowering the resistance}
- WARNING**
- Group [H10K 59/1315](#) is incomplete pending reclassification of documents from group [H10K 59/12](#).
- Groups [H10K 59/12](#) and [H10K 59/1315](#) should be considered in order to perform a complete search.
- 59/17 . . Passive-matrix OLED displays
- WARNING**
- Group [H10K 59/17](#) is impacted by reclassification into groups [H10K 59/179](#) and [H10K 59/1795](#).
- Groups [H10K 59/17](#), [H10K 59/179](#) and [H10K 59/1795](#) should be considered in order to perform a complete search.
- 59/173 . . . comprising banks or shadow masks
- 59/176 . . . comprising two independent displays, e.g. for emitting information from two major sides of the display
- 59/179 . . . Interconnections, e.g. wiring lines or terminals
- WARNING**
- Group [H10K 59/179](#) is incomplete pending reclassification of documents from group [H10K 59/17](#).
- Groups [H10K 59/17](#) and [H10K 59/179](#) should be considered in order to perform a complete search.
- 59/1795 . . . . {comprising structures specially adapted for lowering the resistance}
- WARNING**
- Group [H10K 59/1795](#) is incomplete pending reclassification of documents from group [H10K 59/17](#).
- Groups [H10K 59/17](#) and [H10K 59/1795](#) should be considered in order to perform a complete search.
- 59/18 . . Tiled displays
- 59/19 . . Segment displays
- WARNING**
- Group [H10K 59/19](#) is incomplete pending reclassification of documents from group [H10K 59/10](#).
- Groups [H10K 59/10](#) and [H10K 59/19](#) should be considered in order to perform a complete search.
- 59/221 . . {Static displays, e.g. displaying permanent logos}
- 59/30 . Devices specially adapted for multicolour light emission
- 59/32 . . Stacked devices having two or more layers, each emitting at different wavelengths
- 59/35 . . comprising red-green-blue [RGB] subpixels
- 59/351 . . . {comprising more than three subpixels, e.g. red-green-blue-white [RGBW]}
- 59/352 . . . {the areas of the RGB subpixels being different}
- 59/353 . . . {characterised by the geometrical arrangement of the RGB subpixels}
- 59/38 . . comprising colour filters or colour changing media [CCM]
- 59/40 . OLEDs integrated with touch screens
- 59/50 . OLEDs integrated with light modulating elements, e.g. with electrochromic elements, photochromic elements or liquid crystal elements
- 59/60 . OLEDs integrated with inorganic light-sensitive elements, e.g. with inorganic solar cells or inorganic photodiodes
- 59/65 . . OLEDs integrated with inorganic image sensors
- WARNING**
- Group [H10K 59/65](#) is impacted by reclassification into group [H10K 39/34](#).
- Groups [H10K 59/65](#) and [H10K 39/34](#) should be considered in order to perform a complete search.
- 59/70 . OLEDs integrated with inorganic light-emitting elements, e.g. with inorganic electroluminescent elements
- WARNING**
- Group [H10K 59/70](#) is incomplete pending reclassification of documents from group [H10K 59/00](#).
- Groups [H10K 59/00](#) and [H10K 59/70](#) should be considered in order to perform a complete search.

- 59/751 . . . . {Integrated devices having a three-dimensional layout, e.g. 3D ICs}
- WARNING**
- Group [H10K 59/751](#) is incomplete pending reclassification of documents from group [H10K 19/201](#).
- Groups [H10K 19/201](#) and [H10K 59/751](#) should be considered in order to perform a complete search.
- 59/771 . . . . {Integrated devices comprising a common active layer}
- WARNING**
- Group [H10K 59/771](#) is incomplete pending reclassification of documents from group [H10K 19/202](#).
- Groups [H10K 19/202](#) and [H10K 59/771](#) should be considered in order to perform a complete search.
- 59/80 . . . . Constructional details
- WARNING**
- Group [H10K 59/80](#) is incomplete pending reclassification of documents from groups [H10K 50/80](#) and [H10K 59/00](#).
- Groups [H10K 50/80](#), [H10K 59/00](#) and [H10K 59/80](#) should be considered in order to perform a complete search.
- 59/805 . . . . {Electrodes}
- WARNING**
- Group [H10K 59/805](#) is incomplete pending reclassification of documents from groups [H10K 50/805](#) and [H10K 59/00](#).
- Groups [H10K 50/805](#), [H10K 59/00](#) and [H10K 59/805](#) should be considered in order to perform a complete search.
- 59/8051 . . . . {Anodes}
- WARNING**
- Group [H10K 59/8051](#) is incomplete pending reclassification of documents from groups [H10K 50/81](#) and [H10K 59/00](#).
- Groups [H10K 50/81](#), [H10K 59/00](#) and [H10K 59/8051](#) should be considered in order to perform a complete search.
- 59/80515 . . . . {characterised by their shape}
- WARNING**
- Group [H10K 59/80515](#) is incomplete pending reclassification of documents from groups [H10K 50/813](#) and [H10K 59/00](#).
- Groups [H10K 50/813](#), [H10K 59/00](#) and [H10K 59/80515](#) should be considered in order to perform a complete search.
- 59/80516 . . . . {combined with auxiliary electrodes, e.g. ITO layer combined with metal lines}
- WARNING**
- Group [H10K 59/80516](#) is incomplete pending reclassification of documents from groups [H10K 50/814](#) and [H10K 59/00](#).
- Groups [H10K 50/814](#), [H10K 59/00](#) and [H10K 59/80516](#) should be considered in order to perform a complete search.
- 59/80517 . . . . {Multilayers, e.g. transparent multilayers}
- WARNING**
- Group [H10K 59/80517](#) is incomplete pending reclassification of documents from groups [H10K 50/816](#) and [H10K 59/00](#).
- Groups [H10K 50/816](#), [H10K 59/00](#) and [H10K 59/80517](#) should be considered in order to perform a complete search.
- 59/80518 . . . . {Reflective anodes, e.g. ITO combined with thick metallic layers}
- WARNING**
- Group [H10K 59/80518](#) is incomplete pending reclassification of documents from groups [H10K 50/818](#) and [H10K 59/00](#).
- Groups [H10K 50/818](#), [H10K 59/00](#) and [H10K 59/80518](#) should be considered in order to perform a complete search.
- 59/8052 . . . . {Cathodes}
- WARNING**
- Group [H10K 59/8052](#) is incomplete pending reclassification of documents from groups [H10K 50/82](#) and [H10K 59/00](#).
- Groups [H10K 50/82](#), [H10K 59/00](#) and [H10K 59/8052](#) should be considered in order to perform a complete search.
- 59/80521 . . . . {characterised by their shape}
- WARNING**
- Group [H10K 59/80521](#) is incomplete pending reclassification of documents from groups [H10K 50/822](#) and [H10K 59/00](#).
- Groups [H10K 50/822](#), [H10K 59/00](#) and [H10K 59/80521](#) should be considered in order to perform a complete search.
- 59/80522 . . . . {combined with auxiliary electrodes}
- WARNING**
- Group [H10K 59/80522](#) is incomplete pending reclassification of documents from groups [H10K 50/824](#) and [H10K 59/00](#).
- Groups [H10K 50/824](#), [H10K 59/00](#) and [H10K 59/80522](#) should be considered in order to perform a complete search.

59/80523 . . . . {Multilayers, e.g. opaque multilayers}

**WARNING**

Group [H10K 59/80523](#) is incomplete pending reclassification of documents from groups [H10K 50/826](#) and [H10K 59/00](#).

Groups [H10K 50/826](#), [H10K 59/00](#) and [H10K 59/80523](#) should be considered in order to perform a complete search.

59/80524 . . . . {Transparent cathodes, e.g. comprising thin metal layers}

**WARNING**

Group [H10K 59/80524](#) is incomplete pending reclassification of documents from groups [H10K 50/828](#) and [H10K 59/00](#).

Groups [H10K 50/828](#), [H10K 59/00](#) and [H10K 59/80524](#) should be considered in order to perform a complete search.

59/82 . . Interconnections, e.g. terminals ([H10K 59/131](#), [H10K 59/179](#) take precedence)**WARNING**

Group [H10K 59/82](#) is incomplete pending reclassification of documents from group [H10K 59/00](#).

Groups [H10K 59/00](#) and [H10K 59/82](#) should be considered in order to perform a complete search.

59/84 . . Parallel electrical configurations of multiple OLEDs

**WARNING**

Group [H10K 59/84](#) is incomplete pending reclassification of documents from group [H10K 59/00](#).

Groups [H10K 59/00](#) and [H10K 59/84](#) should be considered in order to perform a complete search.

59/86 . . Series electrical configurations of multiple OLEDs

**WARNING**

Group [H10K 59/86](#) is incomplete pending reclassification of documents from group [H10K 59/00](#).

Groups [H10K 59/00](#) and [H10K 59/86](#) should be considered in order to perform a complete search.

59/87 . . {Passivation; Containers; Encapsulations}

**WARNING**

Group [H10K 59/87](#) is incomplete pending reclassification of documents from groups [H10K 50/84](#) and [H10K 59/00](#).

Groups [H10K 50/84](#), [H10K 59/00](#) and [H10K 59/87](#) should be considered in order to perform a complete search.

59/871 . . . . {Self-supporting sealing arrangements}

**WARNING**

Groups [H10K 59/871](#) and [H10K 59/872](#) are incomplete pending reclassification of documents from groups [H10K 50/841](#) and [H10K 59/00](#).

All groups listed in this Warning should be considered in order to perform a complete search.

59/872 . . . . {Containers}

59/8721 . . . . {Metallic sealing arrangements}

**WARNING**

Group [H10K 59/8721](#) is incomplete pending reclassification of documents from groups [H10K 50/8423](#) and [H10K 59/00](#).

Groups [H10K 50/8423](#), [H10K 59/00](#) and [H10K 59/8721](#) should be considered in order to perform a complete search.

59/8722 . . . . {Peripheral sealing arrangements, e.g. adhesives, sealants}

**WARNING**

Group [H10K 59/8722](#) is incomplete pending reclassification of documents from groups [H10K 50/8426](#) and [H10K 59/00](#).

Groups [H10K 50/8426](#), [H10K 59/00](#) and [H10K 59/8722](#) should be considered in order to perform a complete search.

59/8723 . . . . {Vertical spacers, e.g. arranged between the sealing arrangement and the OLED}

**WARNING**

Group [H10K 59/8723](#) is incomplete pending reclassification of documents from groups [H10K 50/8428](#) and [H10K 59/00](#).

Groups [H10K 50/8428](#), [H10K 59/00](#) and [H10K 59/8723](#) should be considered in order to perform a complete search.

59/873 . . . . {Encapsulations}

**WARNING**

Group [H10K 59/873](#) is incomplete pending reclassification of documents from groups [H10K 50/844](#) and [H10K 59/00](#).

Groups [H10K 50/844](#), [H10K 59/00](#) and [H10K 59/873](#) should be considered in order to perform a complete search.

- 59/8731 . . . . {multilayered coatings having a repetitive structure, e.g. having multiple organic-inorganic bilayers}
- WARNING**
- Group [H10K 59/8731](#) is incomplete pending reclassification of documents from groups [H10K 50/8445](#) and [H10K 59/00](#).
- Groups [H10K 50/8445](#), [H10K 59/00](#) and [H10K 59/8731](#) should be considered in order to perform a complete search.
- 59/874 . . . . {including getter material or desiccant}
- WARNING**
- Group [H10K 59/874](#) is incomplete pending reclassification of documents from groups [H10K 50/846](#) and [H10K 59/00](#).
- Groups [H10K 50/846](#), [H10K 59/00](#) and [H10K 59/874](#) should be considered in order to perform a complete search.
- 59/875 . . {Arrangements for extracting light from the devices}
- WARNING**
- Group [H10K 59/875](#) is incomplete pending reclassification of documents from groups [H10K 50/85](#) and [H10K 59/00](#).
- Groups [H10K 50/85](#), [H10K 59/00](#) and [H10K 59/875](#) should be considered in order to perform a complete search.
- 59/876 . . . . {comprising a resonant cavity structure, e.g. Bragg reflector pair}
- WARNING**
- Group [H10K 59/876](#) is incomplete pending reclassification of documents from groups [H10K 50/852](#) and [H10K 59/00](#).
- Groups [H10K 50/852](#), [H10K 59/00](#) and [H10K 59/876](#) should be considered in order to perform a complete search.
- 59/877 . . . . {comprising scattering means}
- WARNING**
- Group [H10K 59/877](#) is incomplete pending reclassification of documents from groups [H10K 50/854](#) and [H10K 59/00](#).
- Groups [H10K 50/854](#), [H10K 59/00](#) and [H10K 59/877](#) should be considered in order to perform a complete search.
- 59/878 . . . . {comprising reflective means}
- WARNING**
- Group [H10K 59/878](#) is incomplete pending reclassification of documents from groups [H10K 50/856](#) and [H10K 59/00](#).
- Groups [H10K 50/856](#), [H10K 59/00](#) and [H10K 59/878](#) should be considered in order to perform a complete search.
- 59/879 . . . . {comprising refractive means, e.g. lenses}
- WARNING**
- Group [H10K 59/879](#) is incomplete pending reclassification of documents from groups [H10K 50/858](#) and [H10K 59/00](#).
- Groups [H10K 50/858](#), [H10K 59/00](#) and [H10K 59/879](#) should be considered in order to perform a complete search.
- 59/8791 . . {Arrangements for improving contrast, e.g. preventing reflection of ambient light}
- WARNING**
- Group [H10K 59/8791](#) is incomplete pending reclassification of documents from groups [H10K 50/86](#) and [H10K 59/00](#).
- Groups [H10K 50/86](#), [H10K 59/00](#) and [H10K 59/8791](#) should be considered in order to perform a complete search.
- 59/8792 . . . . {comprising light absorbing layers, e.g. black layers}
- WARNING**
- Group [H10K 59/8792](#) is incomplete pending reclassification of documents from groups [H10K 50/865](#) and [H10K 59/00](#).
- Groups [H10K 50/865](#), [H10K 59/00](#) and [H10K 59/8792](#) should be considered in order to perform a complete search.
- 59/8793 . . {Arrangements for polarized light emission ([H10K 59/8791](#) takes precedence)}
- WARNING**
- Group [H10K 59/8793](#) is incomplete pending reclassification of documents from groups [H10K 50/868](#) and [H10K 59/00](#).
- Groups [H10K 50/868](#), [H10K 59/00](#) and [H10K 59/8793](#) should be considered in order to perform a complete search.
- 59/8794 . . {Arrangements for heating and cooling}
- WARNING**
- Group [H10K 59/8794](#) is incomplete pending reclassification of documents from groups [H10K 50/87](#) and [H10K 59/00](#).
- Groups [H10K 50/87](#), [H10K 59/00](#) and [H10K 59/8794](#) should be considered in order to perform a complete search.
- 59/88 . . . Dummy elements, i.e. elements having non-functional features
- WARNING**
- Group [H10K 59/88](#) is incomplete pending reclassification of documents from group [H10K 59/00](#).
- Groups [H10K 59/00](#) and [H10K 59/88](#) should be considered in order to perform a complete search.



59/90	<ul style="list-style-type: none"> <li>• Assemblies of multiple devices comprising at least one organic light-emitting element</li> </ul> <p><b>WARNING</b></p> <p>Groups <a href="#">H10K 59/90</a> and <a href="#">H10K 59/95</a> are incomplete pending reclassification of documents from groups <a href="#">H01L 25/065</a>, <a href="#">H01L 25/0652</a>, <a href="#">H01L 25/0655</a>, <a href="#">H01L 25/0657</a>, <a href="#">H01L 25/16</a>, <a href="#">H01L 25/162</a>, <a href="#">H01L 25/165</a>, <a href="#">H01L 25/167</a> and <a href="#">H01L 25/18</a>.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p> <p>Group <a href="#">H10K 59/90</a> is also impacted by reclassification into group <a href="#">H10K 59/95</a>.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>	71/15	<ul style="list-style-type: none"> <li>• . . . characterised by the solvent used</li> </ul>
		71/16	<ul style="list-style-type: none"> <li>• . . using physical vapour deposition [PVD], e.g. vacuum deposition or sputtering</li> </ul>
		71/162	<ul style="list-style-type: none"> <li>• . . . {using laser ablation}</li> </ul>
		71/164	<ul style="list-style-type: none"> <li>• . . . {using vacuum deposition}</li> </ul>
		71/166	<ul style="list-style-type: none"> <li>• . . . {using selective deposition, e.g. using a mask}</li> </ul>
		71/18	<ul style="list-style-type: none"> <li>• . . using non-liquid printing techniques, e.g. thermal transfer printing from a donor sheet</li> </ul>
		71/191	<ul style="list-style-type: none"> <li>• . . {characterised by provisions for the orientation or alignment of the layer to be deposited}</li> </ul>
		71/20	<ul style="list-style-type: none"> <li>• Changing the shape of the active layer in the devices, e.g. patterning</li> </ul>
		71/211	<ul style="list-style-type: none"> <li>• . . {by selective transformation of an existing layer}</li> </ul>
		71/221	<ul style="list-style-type: none"> <li>• . . {by lift-off techniques}</li> </ul>
		71/231	<ul style="list-style-type: none"> <li>• . . {by etching of existing layers}</li> </ul>
		71/233	<ul style="list-style-type: none"> <li>• . . . {by photolithographic etching}</li> </ul>
		71/236	<ul style="list-style-type: none"> <li>• . . . {using printing techniques, e.g. applying the etch liquid using an ink jet printer}</li> </ul>
59/95	<ul style="list-style-type: none"> <li>• . . wherein all light-emitting elements are organic, e.g. assembled OLED displays</li> </ul> <p><b>WARNING</b></p> <p>Group <a href="#">H10K 59/95</a> is incomplete pending reclassification of documents from groups <a href="#">H01L 25/04</a>, <a href="#">H01L 25/16</a>, <a href="#">H01L 25/162</a>, <a href="#">H01L 25/165</a>, <a href="#">H01L 25/167</a>, <a href="#">H01L 25/18</a> and <a href="#">H10K 59/90</a>.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>	71/30	<ul style="list-style-type: none"> <li>• Doping active layers, e.g. electron transporting layers</li> </ul>
		71/311	<ul style="list-style-type: none"> <li>• {Purifying organic semiconductor materials}</li> </ul>
		71/40	<ul style="list-style-type: none"> <li>• Thermal treatment, e.g. annealing in the presence of a solvent vapour</li> </ul> <p><b>WARNING</b></p> <p>Groups <a href="#">H10K 71/40</a>, <a href="#">H10K 71/421</a> and <a href="#">H10K 71/441</a> are incomplete pending reclassification of documents from group <a href="#">H10K 71/00</a>.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>
65/00	<p><b>Integrated devices, or assemblies of multiple devices, comprising at least one organic light-emitting element and at least one organic radiation-sensitive element, e.g. organic opto-couplers (organic image sensors integrated with organic light-emitting devices <a href="#">H10K 39/34</a>; OLED displays integrated with photosensors <a href="#">H10K 59/13</a>)</b></p> <p><b>WARNING</b></p> <p>Group <a href="#">H10K 65/00</a> is incomplete pending reclassification of documents from groups <a href="#">H01L 25/04</a> and <a href="#">H01L 25/18</a>.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>	71/421	<ul style="list-style-type: none"> <li>• . . {using coherent electromagnetic radiation, e.g. laser annealing}</li> </ul>
		71/441	<ul style="list-style-type: none"> <li>• . . {in the presence of solvent vapors, e.g. solvent vapour annealing}</li> </ul>
		71/50	<ul style="list-style-type: none"> <li>• Forming devices by joining two substrates together, e.g. lamination techniques</li> </ul>
		71/60	<ul style="list-style-type: none"> <li>• Forming conductive regions or layers, e.g. electrodes</li> </ul>
		71/611	<ul style="list-style-type: none"> <li>• . . {using printing deposition, e.g. ink jet printing}</li> </ul>
		71/621	<ul style="list-style-type: none"> <li>• {Providing a shape to conductive layers, e.g. patterning or selective deposition}</li> </ul>
		71/70	<ul style="list-style-type: none"> <li>• Testing, e.g. accelerated lifetime tests</li> </ul>
		71/80	<ul style="list-style-type: none"> <li>• using temporary substrates</li> </ul>
		71/811	<ul style="list-style-type: none"> <li>• {Controlling the atmosphere during processing (<a href="#">H10K 71/40</a> takes precedence)}</li> </ul>
		71/821	<ul style="list-style-type: none"> <li>• {Patterning of a layer by embossing, e.g. stamping to form trenches in an insulating layer}</li> </ul>
		71/831	<ul style="list-style-type: none"> <li>• {Aging}</li> </ul>
		71/841	<ul style="list-style-type: none"> <li>• {Applying alternating current [AC] during manufacturing or treatment}</li> </ul>
		71/851	<ul style="list-style-type: none"> <li>• {Division of substrate}</li> </ul>
		71/861	<ul style="list-style-type: none"> <li>• {Repairing}</li> </ul>
<b>Manufacture or treatment; Constructional details</b>			
71/00	<p><b>Manufacture or treatment specially adapted for the organic devices covered by this subclass</b></p> <p><b>WARNING</b></p> <p>Group <a href="#">H10K 71/00</a> is impacted by reclassification into groups <a href="#">H10K 71/40</a>, <a href="#">H10K 71/421</a> and <a href="#">H10K 71/441</a>.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>		
71/10	<ul style="list-style-type: none"> <li>• Deposition of organic active material</li> </ul>		
71/12	<ul style="list-style-type: none"> <li>• . . using liquid deposition, e.g. spin coating</li> </ul>		
71/125	<ul style="list-style-type: none"> <li>• . . . {using electrolytic deposition e.g. in-situ electropolymerisation}</li> </ul>		
71/13	<ul style="list-style-type: none"> <li>• . . . using printing techniques, e.g. ink-jet printing or screen printing</li> </ul>		
71/135	<ul style="list-style-type: none"> <li>• . . . . {using ink-jet printing}</li> </ul>		



77/00	<b>Constructional details of devices covered by this subclass and not covered by groups <a href="#">H10K 10/80</a>, <a href="#">H10K 30/80</a>, <a href="#">H10K 50/80</a> or <a href="#">H10K 59/80</a></b>	85/324	. . . {comprising aluminium, e.g. Alq <sub>3</sub> }
		85/326	. . . {comprising gallium}
		85/331	. . . {Metal complexes comprising an iron-series metal, e.g. Fe, Co, Ni}
	<b>WARNING</b>	85/341	. . . {Transition metal complexes, e.g. Ru(II)polypyridine complexes ( <a href="#">H10K 85/331</a> takes precedence)}
	Group <a href="#">H10K 77/00</a> is incomplete pending reclassification of documents from groups <a href="#">H10K 10/80</a> , <a href="#">H10K 30/80</a> , <a href="#">H10K 50/80</a> and <a href="#">H10K 99/00</a> .	85/342	. . . {comprising iridium}
	All groups listed in this Warning should be considered in order to perform a complete search.	85/344	. . . {comprising ruthenium}
77/10	. Substrates, e.g. flexible substrates	85/346	. . . {comprising platinum}
77/111	. . {Flexible substrates}	85/348	. . . {comprising osmium}
85/00	<b>Organic materials used in the body or electrodes of devices covered by this subclass</b>	85/351	. . {Metal complexes comprising lanthanides or actinides, e.g. comprising europium}
	<b>NOTE</b>	85/361	. . {Polynuclear complexes, i.e. complexes comprising two or more metal centers}
	This group only <u>covers</u> organic materials for their electrical or other properties, insofar as they are specially adapted for the devices covered by this subclass.	85/371	. . {Metal complexes comprising a group IB metal element, e.g. comprising copper, gold or silver}
	<b>WARNING</b>	85/381	. . {Metal complexes comprising a group IIB metal element, e.g. comprising cadmium, mercury or zinc}
	Group <a href="#">H10K 85/00</a> is impacted by reclassification into group <a href="#">H10K 85/50</a> .	85/40	. Organosilicon compounds, e.g. TIPS pentacene
	Groups <a href="#">H10K 85/00</a> and <a href="#">H10K 85/50</a> should be considered in order to perform a complete search.	85/50	. Organic perovskites; Hybrid organic-inorganic perovskites [HOIP], e.g. CH <sub>3</sub> NH <sub>3</sub> PbI <sub>3</sub>
85/10	. Organic polymers or oligomers		<b>WARNING</b>
85/111	. . {comprising aromatic, heteroaromatic, or aryl chains, e.g. polyaniline, polyphenylene or polyphenylene vinylene}		Group <a href="#">H10K 85/50</a> is incomplete pending reclassification of documents from group <a href="#">H10K 85/00</a> .
85/113	. . . {Heteroaromatic compounds comprising sulfur or selenium, e.g. polythiophene}		Groups <a href="#">H10K 85/00</a> and <a href="#">H10K 85/50</a> should be considered in order to perform a complete search.
85/1135	. . . . {Polyethylene dioxythiophene [PEDOT]; Derivatives thereof}	85/60	. Organic compounds having low molecular weight ( <a href="#">H10K 85/10</a> - <a href="#">H10K 85/50</a> take precedence)
85/114	. . . {Poly-phenylenevinylene; Derivatives thereof}	85/611	. . {Charge transfer complexes}
85/115	. . . {Polyfluorene; Derivatives thereof}	85/615	. . {Polycyclic condensed aromatic hydrocarbons, e.g. anthracene}
85/141	. . {comprising aliphatic or olefinic chains, e.g. poly N-vinylcarbazol, PVC or PTFE}	85/621	. . . {Aromatic anhydride or imide compounds, e.g. perylene tetra-carboxylic dianhydride or perylene tetracarboxylic di-imide}
85/143	. . . {Polyacetylene; Derivatives thereof}	85/622	. . . {containing four rings, e.g. pyrene}
85/146	. . . {poly N-vinylcarbazol; Derivatives thereof}	85/623	. . . {containing five rings, e.g. pentacene}
85/151	. . {Copolymers}	85/624	. . . {containing six or more rings}
85/154	. . {Ladder-type polymers}	85/625	. . . {containing at least one aromatic ring having 7 or more carbon atoms, e.g. azulene}
85/20	. Carbon compounds, e.g. carbon nanotubes or fullerenes	85/626	. . . {containing more than one polycyclic condensed aromatic rings, e.g. bis-anthracene}
85/211	. . {Fullerenes, e.g. C <sub>60</sub> }	85/631	. . {Amine compounds having at least two aryl rest on at least one amine-nitrogen atom, e.g. triphenylamine}
85/215	. . . {comprising substituents, e.g. PCBM}	85/633	. . . {comprising polycyclic condensed aromatic hydrocarbons as substituents on the nitrogen atom}
85/221	. . {Carbon nanotubes}	85/636	. . . {comprising heteroaromatic hydrocarbons as substituents on the nitrogen atom}
85/225	. . . {comprising substituents}	85/649	. . {Aromatic compounds comprising a hetero atom}
85/30	. Coordination compounds	85/652	. . . {Cyanine dyes}
85/311	. . {Phthalocyanine}	85/653	. . . {comprising only oxygen as heteroatom}
85/321	. . {Metal complexes comprising a group IIIA element, e.g. Tris (8-hydroxyquinoline) gallium [Gaq3]}	85/654	. . . {comprising only nitrogen as heteroatom ( <a href="#">H10K 85/652</a> takes precedence)}
85/322	. . . {comprising boron}	85/655	. . . {comprising only sulfur as heteroatom}
	<b>WARNING</b>	85/656	. . . {comprising two or more different heteroatoms per ring ( <a href="#">H10K 85/652</a> takes precedence)}
	Group <a href="#">H10K 85/322</a> is impacted by reclassification into group <a href="#">H10K 85/658</a> .	85/6565	. . . . {Oxadiazole compounds}
	Groups <a href="#">H10K 85/322</a> and <a href="#">H10K 85/658</a> should be considered in order to perform a complete search.		

- 85/657 . . . {Polycyclic condensed heteroaromatic hydrocarbons}
- 85/6572 . . . . {comprising only nitrogen in the heteroaromatic polycondensed ring system, e.g. phenanthroline or carbazole}
- 85/6574 . . . . {comprising only oxygen in the heteroaromatic polycondensed ring system, e.g. cumarine dyes}
- 85/6576 . . . . {comprising only sulfur in the heteroaromatic polycondensed ring system, e.g. benzothiophene}
- 85/658 . . {Organoboranes}

**WARNING**

Group [H10K 85/658](#) is incomplete pending reclassification of documents from group [H10K 85/322](#).

Groups [H10K 85/322](#) and [H10K 85/658](#) should be considered in order to perform a complete search.

- 85/701 . {Langmuir Blodgett films}
- 85/731 . {Liquid crystalline materials}
- 85/761 . {Biomolecules or bio-macromolecules, e.g. proteins, chlorophyll, lipids or enzymes}
- 85/791 . {Starburst compounds}

**99/00 Subject matter not provided for in other groups of this subclass****WARNING**

Group [H10K 99/00](#) is impacted by reclassification into group [H10K 77/00](#).

Groups [H10K 99/00](#) and [H10K 77/00](#) should be considered in order to perform a complete search.

**Indexing scheme associated with group [H10K 85/00](#), relating to properties of organic materials****2101/00 Properties of the organic materials covered by group [H10K 85/00](#)****WARNING**

Group [H10K 2101/00](#) is impacted by reclassification into groups [H10K 2101/20](#) - [H10K 2101/25](#), [H10K 2101/60](#), [H10K 2101/70](#) and [H10K 2102/00](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 2101/10 . Triplet emission
- 2101/20 . Delayed fluorescence emission

**WARNING**

Groups [H10K 2101/20](#) and [H10K 2101/25](#) are incomplete pending reclassification of documents from group [H10K 2101/00](#).

Groups [H10K 2101/00](#), [H10K 2101/20](#) and [H10K 2101/25](#) should be considered in order to perform a complete search.

- 2101/25 . . using exciplex
- 2101/27 . {Combination of fluorescent and phosphorescent emission}

- 2101/30 . Highest occupied molecular orbital [HOMO], lowest unoccupied molecular orbital [LUMO] or Fermi energy values
- 2101/40 . Interrelation of parameters between multiple constituent active layers or sublayers, e.g. HOMO values in adjacent layers
- 2101/50 . Oxidation-reduction potentials, e.g. excited state redox potentials
- 2101/60 . Up-conversion, e.g. by triplet-triplet annihilation

**WARNING**

Group [H10K 2101/60](#) is incomplete pending reclassification of documents from group [H10K 2101/00](#).

Groups [H10K 2101/00](#) and [H10K 2101/60](#) should be considered in order to perform a complete search.

- 2101/70 . Down-conversion, e.g. by singlet fission

**WARNING**

Group [H10K 2101/70](#) is incomplete pending reclassification of documents from group [H10K 2101/00](#).

Groups [H10K 2101/00](#) and [H10K 2101/70](#) should be considered in order to perform a complete search.

- 2101/80 . {Composition varying spatially, e.g. having a spatial gradient}
- 2101/90 . {Multiple hosts in the emissive layer}

**Indexing scheme associated with groups [H10K 10/80](#), [H10K 30/80](#), [H10K 50/80](#), [H10K 59/80](#) and [H10K 77/00](#), relating to constructional details****2102/00 Constructional details relating to the organic devices covered by this subclass****WARNING**

Group [H10K 2102/00](#) is incomplete pending reclassification of documents from group [H10K 2101/00](#).

Groups [H10K 2101/00](#) and [H10K 2102/00](#) should be considered in order to perform a complete search.

- 2102/10 . Transparent electrodes, e.g. using graphene
- 2102/101 . . {comprising transparent conductive oxides [TCO]}
- 2102/102 . . . {comprising tin oxides, e.g. fluorine-doped SnO<sub>2</sub>}
- 2102/103 . . . {comprising indium oxides, e.g. ITO}
- 2102/20 . Metallic electrodes, e.g. using a stack of layers
- 2102/301 . {Details of OLEDs}
- 2102/302 . . {of OLED structures}
- 2102/3023 . . . {Direction of light emission}
- 2102/3026 . . . . {Top emission}
- 2102/3031 . . . . {Two-side emission, e.g. transparent OLEDs [TOLED]}
- 2102/3035 . . . . {Edge emission}
- 2102/311 . . {Flexible OLED}
- 2102/321 . . {Inverted OLED, i.e. having cathode between substrate and anode}
- 2102/331 . . {Nanoparticles used in non-emissive layers, e.g. in packaging layer}

Indexing scheme associated with groups H10K10/80, H10K30/80, H10K50/80, H10K59/80 and H10K77/00, relating to...

**H10K**

- 2102/341 . . {Short-circuit prevention}
- 2102/351 . . {Thickness}
- 2102/361 . . {Temperature}