

# CPC COOPERATIVE PATENT CLASSIFICATION

## H ELECTRICITY

(NOTE omitted)

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

## H10H INORGANIC LIGHT-EMITTING SEMICONDUCTOR DEVICES HAVING POTENTIAL BARRIERS

### NOTES

1. This subclass covers inorganic light-emitting semiconductor devices that emit visible, infrared [IR] or ultraviolet [UV] light. This includes light-emitting diodes [LED] and superluminescent diodes [SLD].
2. This subclass does not cover semiconductor lasers, which are covered by group [H01S 5/00](#).
3. 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](#).

20/00	<b>Individual inorganic light-emitting semiconductor devices having potential barriers, e.g. light-emitting diodes [LED]</b>	20/014	. . . {having light-emitting regions comprising only Group IV materials}
20/01	. Manufacture or treatment		<b>WARNING</b> Group <a href="#">H10H 20/014</a> is impacted by reclassification into group <a href="#">H10H 20/0145</a> . Groups <a href="#">H10H 20/014</a> and <a href="#">H10H 20/0145</a> should be considered in order to perform a complete search.
	<b>WARNING</b> Group <a href="#">H10H 20/01</a> is impacted by reclassification into groups <a href="#">H10H 20/011</a> , <a href="#">H10H 20/016</a> , <a href="#">H10H 20/0165</a> , <a href="#">H10H 20/017</a> , <a href="#">H10H 20/021</a> , <a href="#">H10H 20/032</a> , <a href="#">H10H 20/034</a> , <a href="#">H10H 20/036</a> , <a href="#">H10H 20/0362</a> , <a href="#">H10H 20/0363</a> , <a href="#">H10H 20/0364</a> , <a href="#">H10H 20/0365</a> , <a href="#">H10H 29/01</a> , <a href="#">H10H 29/011</a> , <a href="#">H10H 29/012</a> , <a href="#">H10H 29/02</a> , <a href="#">H10H 29/03</a> , <a href="#">H10H 29/032</a> , <a href="#">H10H 29/034</a> , <a href="#">H10H 29/036</a> , <a href="#">H10H 29/0361</a> , <a href="#">H10H 29/0362</a> , <a href="#">H10H 29/0363</a> , <a href="#">H10H 29/0364</a> and <a href="#">H10H 29/0365</a> . All groups listed in this Warning should be considered in order to perform a complete search.	20/0145	. . . . {comprising polycrystalline, amorphous or porous Group IV materials}
			<b>WARNING</b> Group <a href="#">H10H 20/0145</a> is incomplete pending reclassification of documents from group <a href="#">H10H 20/014</a> . Groups <a href="#">H10H 20/014</a> and <a href="#">H10H 20/0145</a> should be considered in order to perform a complete search.
20/011	. . {of bodies, e.g. forming semiconductor layers}	20/016	. . . {Thermal treatments}
	<b>WARNING</b> Groups <a href="#">H10H 20/011</a> , <a href="#">H10H 20/016</a> , <a href="#">H10H 20/0165</a> and <a href="#">H10H 20/017</a> are incomplete pending reclassification of documents from group <a href="#">H10H 20/01</a> . All groups listed in this Warning should be considered in order to perform a complete search.	20/0165	. . . . {for recrystallisation}
		20/017	. . . {Etching}
		20/018	. . . {Bonding of wafers}
			<b>WARNING</b> Group <a href="#">H10H 20/018</a> is impacted by reclassification into group <a href="#">H10H 20/019</a> . Groups <a href="#">H10H 20/018</a> and <a href="#">H10H 20/019</a> should be considered in order to perform a complete search.
20/012	. . . {having light-emitting regions comprising only Group II-IV materials}	20/019	. . . {Removal of at least a part of a substrate on which semiconductor layers have been formed}
20/0125	. . . . {with a substrate not being Group II-VI materials}		<b>WARNING</b> Group <a href="#">H10H 20/019</a> is incomplete pending reclassification of documents from group <a href="#">H10H 20/018</a> . Groups <a href="#">H10H 20/018</a> and <a href="#">H10H 20/019</a> should be considered in order to perform a complete search.
20/013	. . . {having light-emitting regions comprising only Group III-V materials}		
20/0133	. . . . {with a substrate not being Group III-V materials}		
20/01335	. . . . . {the light-emitting regions comprising nitride materials}		
20/0137	. . . . . {the light-emitting regions comprising nitride materials}		

20/021 . . {Singulating, e.g. dicing}

**WARNING**

Group [H10H 20/021](#) is incomplete pending reclassification of documents from group [H10H 20/01](#).

Groups [H10H 20/01](#) and [H10H 20/021](#) should be considered in order to perform a complete search.

20/032 . . {of electrodes}

**WARNING**

Group [H10H 20/032](#) is incomplete pending reclassification of documents from group [H10H 20/01](#).

Group [H10H 20/032](#) is also impacted by reclassification into group [H10H 29/032](#).

Groups [H10H 20/01](#), [H10H 20/032](#) and [H10H 29/032](#) should be considered in order to perform a complete search.

20/034 . . {of coatings}

**WARNING**

Group [H10H 20/034](#) is incomplete pending reclassification of documents from group [H10H 20/01](#).

Group [H10H 20/034](#) is also impacted by reclassification into group [H10H 29/034](#).

Groups [H10H 20/01](#), [H10H 20/034](#) and [H10H 29/034](#) should be considered in order to perform a complete search.

20/036 . . {of packages}

**WARNING**

Group [H10H 20/036](#) is incomplete pending reclassification of documents from group [H10H 20/01](#).

Group [H10H 20/036](#) is also impacted by reclassification into group [H10H 29/036](#).

Groups [H10H 20/01](#), [H10H 20/036](#) and [H10H 29/036](#) should be considered in order to perform a complete search.

20/0361 . . . {of wavelength conversion means}

**WARNING**

Group [H10H 20/0361](#) is impacted by reclassification into group [H10H 29/0361](#).

Groups [H10H 20/0361](#) and [H10H 29/0361](#) should be considered in order to perform a complete search.

20/0362 . . . {of encapsulations}

**WARNING**

Group [H10H 20/0362](#) is incomplete pending reclassification of documents from group [H10H 20/01](#).

Group [H10H 20/0362](#) is also impacted by reclassification into group [H10H 29/0362](#).

Groups [H10H 20/01](#), [H10H 20/0362](#) and [H10H 29/0362](#) should be considered in order to perform a complete search.

20/0363 . . . {of optical field-shaping means}

**WARNING**

Group [H10H 20/0363](#) is incomplete pending reclassification of documents from group [H10H 20/01](#).

Group [H10H 20/0363](#) is also impacted by reclassification into group [H10H 29/0363](#).

Groups [H10H 20/01](#), [H10H 20/0363](#) and [H10H 29/0363](#) should be considered in order to perform a complete search.

20/0364 . . . {of interconnections}

**WARNING**

Group [H10H 20/0364](#) is incomplete pending reclassification of documents from group [H10H 20/01](#).

Group [H10H 20/0364](#) is also impacted by reclassification into group [H10H 29/0364](#).

Groups [H10H 20/01](#), [H10H 20/0364](#) and [H10H 29/0364](#) should be considered in order to perform a complete search.

20/0365 . . . {of means for heat extraction or cooling}

**WARNING**

Group [H10H 20/0365](#) is incomplete pending reclassification of documents from group [H10H 20/01](#).

Group [H10H 20/0365](#) is also impacted by reclassification into group [H10H 29/0365](#).

Groups [H10H 20/01](#), [H10H 20/0365](#) and [H10H 29/0365](#) should be considered in order to perform a complete search.

20/042 . {Superluminescent diodes}

20/052 . {Light-emitting semiconductor devices having Schottky type light-emitting regions; Light emitting semiconductor devices having Metal-Insulator-Semiconductor type light-emitting regions}

20/062 . {Light-emitting semiconductor devices having field effect type light-emitting regions, e.g. light-emitting High-Electron Mobility Transistors}

20/80 . Constructional details

**WARNING**

Group [H10H 20/80](#) is impacted by reclassification into groups [H10H 29/80](#), [H10H 29/8517](#) and [H10H 29/8552](#).

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

20/81	. . Bodies	20/817	. . . characterised by the crystal structures or orientations, e.g. polycrystalline, amorphous or porous
20/811	. . . having quantum effect structures or superlattices, e.g. tunnel junctions	20/818	. . . . within the light-emitting regions
<b>WARNING</b>		<b>NOTE</b>	
Group <a href="#">H10H 20/811</a> is impacted by reclassification into group <a href="#">H10H 20/812</a> .		When classifying in this group, classification is also made in group <a href="#">H10H 20/822</a> in order to identify the chemical composition of the light-emitting region.	
Groups <a href="#">H10H 20/811</a> and <a href="#">H10H 20/812</a> should be considered in order to perform a complete search.			
20/812	. . . . within the light-emitting regions, e.g. having quantum confinement structures	20/819	. . . characterised by their shape, e.g. curved or truncated substrates
<b>WARNING</b>		20/82	. . . . Roughened surfaces, e.g. at the interface between epitaxial layers
Group <a href="#">H10H 20/812</a> is incomplete pending reclassification of documents from group <a href="#">H10H 20/811</a> .		20/821	. . . . of the light-emitting regions, e.g. non-planar junctions
Groups <a href="#">H10H 20/811</a> and <a href="#">H10H 20/812</a> should be considered in order to perform a complete search.		20/8215	. . . {characterised by crystalline imperfections, e.g. dislocations; characterised by the distribution of dopants, e.g. delta-doping}
20/813	. . . having a plurality of light-emitting regions, e.g. multi-junction LEDs or light-emitting devices having photoluminescent regions within the bodies	20/822	. . . Materials of the light-emitting regions
<b>WARNING</b>		<b>NOTE</b>	
Group <a href="#">H10H 20/813</a> is impacted by reclassification into groups <a href="#">H10H 20/8131</a> , <a href="#">H10H 20/8132</a> and <a href="#">H10H 20/8133</a> .		When classifying in this group, constituents of a material are considered irrespective of any dopants or other impurities.	
All groups listed in this Warning should be considered in order to perform a complete search.			
20/8131	. . . . {Stacked light-emitting regions}	20/823	. . . . comprising only Group II-VI materials, e.g. ZnO
<b>WARNING</b>		20/8232	. . . . . {characterised by the dopants}
Group <a href="#">H10H 20/8131</a> is incomplete pending reclassification of documents from group <a href="#">H10H 20/813</a> .		20/824	. . . . comprising only Group III-V materials, e.g. GaP
Groups <a href="#">H10H 20/813</a> and <a href="#">H10H 20/8131</a> should be considered in order to perform a complete search.		20/8242	. . . . . {characterised by the dopants}
20/8132	. . . . {Laterally arranged light-emitting regions, e.g. nano-rods}	20/825	. . . . . containing nitrogen, e.g. GaN
<b>WARNING</b>		20/8252	. . . . . {characterised by the dopants}
Groups <a href="#">H10H 20/8132</a> and <a href="#">H10H 20/8133</a> are incomplete pending reclassification of documents from group <a href="#">H10H 20/813</a> .		20/826	. . . . comprising only Group IV materials
Groups <a href="#">H10H 20/813</a> , <a href="#">H10H 20/8132</a> and <a href="#">H10H 20/8133</a> should be considered in order to perform a complete search.		<b>WARNING</b>	
20/8133	. . . . . {having core-shell structures}	Group <a href="#">H10H 20/826</a> is impacted by reclassification into group <a href="#">H10H 20/8264</a> .	
20/814	. . . having reflecting means, e.g. semiconductor Bragg reflectors	Groups <a href="#">H10H 20/826</a> and <a href="#">H10H 20/8264</a> should be considered in order to perform a complete search.	
20/8142	. . . . {forming resonant cavity structures}		
20/815	. . . having stress relaxation structures, e.g. buffer layers	20/8262	. . . . . {characterised by the dopants}
20/816	. . . having carrier transport control structures, e.g. highly-doped semiconductor layers or current-blocking structures	20/8264	. . . . . {comprising polycrystalline, amorphous or porous Group IV materials}
20/8162	. . . . {Current-blocking structures}	<b>WARNING</b>	
		Group <a href="#">H10H 20/8264</a> is incomplete pending reclassification of documents from group <a href="#">H10H 20/826</a> .	
		Groups <a href="#">H10H 20/826</a> and <a href="#">H10H 20/8264</a> should be considered in order to perform a complete search.	
20/83	. . Electrodes		
		<b>WARNING</b>	
		Group <a href="#">H10H 20/83</a> is impacted by reclassification into group <a href="#">H10H 29/832</a> .	
		Groups <a href="#">H10H 20/83</a> and <a href="#">H10H 29/832</a> should be considered in order to perform a complete search.	

20/831 . . . characterised by their shape

**WARNING**

Group [H10H 20/831](#) is impacted by reclassification into group [H10H 29/8321](#).  
Groups [H10H 20/831](#) and [H10H 29/8321](#) should be considered in order to perform a complete search.

20/8312 . . . . {extending at least partially through the bodies}

20/8314 . . . . {extending at least partially onto an outer side surface of the bodies}

20/8316 . . . . {Multi-layer electrodes comprising at least one discontinuous layer}

20/832 . . . characterised by their material

**WARNING**

Group [H10H 20/832](#) is impacted by reclassification into group [H10H 29/8322](#).  
Groups [H10H 20/832](#) and [H10H 29/8322](#) should be considered in order to perform a complete search.

20/833 . . . . Transparent materials

**WARNING**

Group [H10H 20/833](#) is impacted by reclassification into group [H10H 29/8323](#).  
Groups [H10H 20/833](#) and [H10H 29/8323](#) should be considered in order to perform a complete search.

20/835 . . . . {Reflective materials}

**WARNING**

Group [H10H 20/835](#) is impacted by reclassification into group [H10H 29/8325](#).  
Groups [H10H 20/835](#) and [H10H 29/8325](#) should be considered in order to perform a complete search.

20/84 . . Coatings, e.g. passivation layers or antireflective coatings

**WARNING**

Group [H10H 20/84](#) is impacted by reclassification into groups [H10H 29/842](#), [H10H 29/8517](#) and [H10H 29/8552](#).  
All groups listed in this Warning should be considered in order to perform a complete search.

20/841 . . . Reflective coatings, e.g. dielectric Bragg reflectors

**WARNING**

Group [H10H 20/841](#) is impacted by reclassification into group [H10H 29/8421](#).  
Groups [H10H 20/841](#) and [H10H 29/8421](#) should be considered in order to perform a complete search.

20/85 . . Packages

**WARNING**

Group [H10H 20/85](#) is impacted by reclassification into groups [H10H 20/8504](#), [H10H 20/8508](#), [H10H 29/85](#), [H10H 29/8508](#), [H10H 29/8517](#) and [H10H 29/8552](#).

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

20/8502 . . . {Surface mount technology [SMT] type packages}

**WARNING**

Group [H10H 20/8502](#) is incomplete pending reclassification of documents from group [H10H 20/8506](#).

Groups [H10H 20/8506](#) and [H10H 20/8502](#) should be considered in order to perform a complete search.

20/8504 . . . {Chip-scale type packages}

**WARNING**

Group [H10H 20/8504](#) is incomplete pending reclassification of documents from groups [H10H 20/85](#) and [H10H 20/8506](#).

Groups [H10H 20/85](#), [H10H 20/8506](#) and [H10H 20/8504](#) should be considered in order to perform a complete search.

20/8506 . . . {Containers}

**WARNING**

Group [H10H 20/8506](#) is impacted by reclassification into groups [H10H 20/8502](#), [H10H 20/8504](#), [H10H 20/8508](#), [H10H 29/8506](#) and [H10H 29/8508](#).

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

20/8508 . . . {Package substrates, e.g. submounts}

**WARNING**

Group [H10H 20/8508](#) is incomplete pending reclassification of documents from groups [H10H 20/85](#) and [H10H 20/8506](#).

Groups [H10H 20/85](#), [H10H 20/8506](#) and [H10H 20/8508](#) should be considered in order to perform a complete search.

20/851 . . . Wavelength conversion means

**WARNING**

Group [H10H 20/851](#) is impacted by reclassification into group [H10H 29/851](#).

Groups [H10H 20/851](#) and [H10H 29/851](#) should be considered in order to perform a complete search.

20/8511 . . . . {characterised by their material, e.g. binder}

**WARNING**

Group [H10H 20/8511](#) is impacted by reclassification into group [H10H 29/8511](#).  
Groups [H10H 20/8511](#) and [H10H 29/8511](#) should be considered in order to perform a complete search.

20/8512 . . . . . {Wavelength conversion materials}

**WARNING**

Group [H10H 20/8512](#) is impacted by reclassification into group [H10H 29/8512](#).  
Groups [H10H 20/8512](#) and [H10H 29/8512](#) should be considered in order to perform a complete search.

20/8513 . . . . . {having two or more wavelength conversion materials}

**WARNING**

Group [H10H 20/8513](#) is impacted by reclassification into group [H10H 29/8513](#).  
Groups [H10H 20/8513](#) and [H10H 29/8513](#) should be considered in order to perform a complete search.

20/8514 . . . . {characterised by their shape, e.g. plate or foil}

**WARNING**

Group [H10H 20/8514](#) is impacted by reclassification into group [H10H 29/8514](#).  
Groups [H10H 20/8514](#) and [H10H 29/8514](#) should be considered in order to perform a complete search.

20/8515 . . . . {not being in contact with the bodies}

**WARNING**

Group [H10H 20/8515](#) is impacted by reclassification into group [H10H 29/8515](#).  
Groups [H10H 20/8515](#) and [H10H 29/8515](#) should be considered in order to perform a complete search.

20/8516 . . . . {having a non-uniform spatial arrangement or non-uniform concentration, e.g. patterned wavelength conversion layer or wavelength conversion layer with a concentration gradient}

**WARNING**

Group [H10H 20/8516](#) is impacted by reclassification into group [H10H 29/8516](#).  
Groups [H10H 20/8516](#) and [H10H 29/8516](#) should be considered in order to perform a complete search.

20/852 . . . Encapsulations

**WARNING**

Group [H10H 20/852](#) is impacted by reclassification into group [H10H 29/852](#).  
Groups [H10H 20/852](#) and [H10H 29/852](#) should be considered in order to perform a complete search.

20/853 . . . . characterised by their shape

**WARNING**

Group [H10H 20/853](#) is impacted by reclassification into group [H10H 29/853](#).  
Groups [H10H 20/853](#) and [H10H 29/853](#) should be considered in order to perform a complete search.

20/854 . . . . characterised by their material, e.g. epoxy or silicone resins

**WARNING**

Group [H10H 20/854](#) is impacted by reclassification into group [H10H 29/854](#).  
Groups [H10H 20/854](#) and [H10H 29/854](#) should be considered in order to perform a complete search.

20/855 . . . Optical field-shaping means, e.g. lenses

**WARNING**

Group [H10H 20/855](#) is impacted by reclassification into groups [H10H 29/855](#) and [H10H 29/8552](#).  
Groups [H10H 20/855](#), [H10H 29/855](#) and [H10H 29/8552](#) should be considered in order to perform a complete search.

20/856 . . . . Reflecting means

**WARNING**

Group [H10H 20/856](#) is impacted by reclassification into group [H10H 29/856](#).  
Groups [H10H 20/856](#) and [H10H 29/856](#) should be considered in order to perform a complete search.

20/857 . . . Interconnections, e.g. lead-frames, bond wires or solder balls

**WARNING**

Group [H10H 20/857](#) is impacted by reclassification into groups [H10H 29/49](#), [H10H 29/857](#), [H10H 29/922](#) and [H10H 29/942](#).

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

20/858 . . . Means for heat extraction or cooling

**WARNING**

Group [H10H 20/858](#) is impacted by reclassification into group [H10H 29/858](#).  
Groups [H10H 20/858](#) and [H10H 29/858](#) should be considered in order to perform a complete search.

20/8581 . . . . {characterised by their material}

**WARNING**

Group [H10H 20/8581](#) is impacted by reclassification into group [H10H 29/8581](#).  
Groups [H10H 20/8581](#) and [H10H 29/8581](#) should be considered in order to perform a complete search.

20/8582 . . . . {characterised by their shape}

**WARNING**

Group [H10H 20/8582](#) is impacted by reclassification into group [H10H 29/8582](#).  
Groups [H10H 20/8582](#) and [H10H 29/8582](#) should be considered in order to perform a complete search.

20/8583 . . . . {not being in contact with the bodies}

**WARNING**

Group [H10H 20/8583](#) is impacted by reclassification into group [H10H 29/8583](#).  
Groups [H10H 20/8583](#) and [H10H 29/8583](#) should be considered in order to perform a complete search.

20/8584 . . . . {electrically controlled, e.g. Peltier elements}

**WARNING**

Group [H10H 20/8584](#) is impacted by reclassification into group [H10H 29/8584](#).  
Groups [H10H 20/8584](#) and [H10H 29/8584](#) should be considered in order to perform a complete search.

20/8585 . . . . {being an interconnection}

**WARNING**

Group [H10H 20/8585](#) is impacted by reclassification into group [H10H 29/8585](#).  
Groups [H10H 20/8585](#) and [H10H 29/8585](#) should be considered in order to perform a complete search.

20/8586 . . . . {comprising fluids, e.g. heat-pipes}

**WARNING**

Group [H10H 20/8586](#) is impacted by reclassification into group [H10H 29/8586](#).  
Groups [H10H 20/8586](#) and [H10H 29/8586](#) should be considered in order to perform a complete search.

20/862 . . {Resonant cavity structures (formed by reflecting means in the bodies [H10H 20/8142](#))}

**WARNING**

Group [H10H 20/862](#) is impacted by reclassification into group [H10H 29/862](#).  
Groups [H10H 20/862](#) and [H10H 29/862](#) should be considered in order to perform a complete search.

20/872 . . {Periodic patterns for optical field-shaping, e.g. photonic bandgap structures}

**WARNING**

Group [H10H 20/872](#) is impacted by reclassification into group [H10H 29/872](#).  
Groups [H10H 20/872](#) and [H10H 29/872](#) should be considered in order to perform a complete search.

20/882 . . {Scattering means ([H10H 20/82](#) takes precedence)}

**WARNING**

Group [H10H 20/882](#) is impacted by reclassification into group [H10H 29/882](#).  
Groups [H10H 20/882](#) and [H10H 29/882](#) should be considered in order to perform a complete search.

29/00 **Integrated devices, or assemblies of multiple devices, comprising at least one light-emitting semiconductor element covered by group [H10H 20/00](#)**

29/01 . Manufacture or treatment

**WARNING**

Groups [H10H 29/01](#), [H10H 29/012](#), [H10H 29/02](#) and [H10H 29/03](#) are incomplete pending reclassification of documents from group [H10H 20/01](#).

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

29/011 . . {of integrated devices comprising at least one light-emitting semiconductor component covered by group [H10H 20/00](#)}

**WARNING**

Group [H10H 29/011](#) is incomplete pending reclassification of documents from groups [H10H 20/01](#), [H10H 29/10](#), [H10H 29/14](#) and [H10H 29/142](#).

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

29/012 . . {of active-matrix LED displays}

29/02 . . using pick-and-place processes

29/03 . . using mass transfer of LEDs, e.g. by using liquid suspensions

29/032 . . {of electrodes}

**WARNING**

Group [H10H 29/032](#) is incomplete pending reclassification of documents from groups [H10H 20/01](#) and [H10H 20/032](#).

Groups [H10H 20/01](#), [H10H 20/032](#) and [H10H 29/032](#) should be considered in order to perform a complete search.



29/034 . . {of coatings}

**WARNING**

Group [H10H 29/034](#) is incomplete pending reclassification of documents from groups [H10H 20/01](#) and [H10H 20/034](#).

Groups [H10H 20/01](#), [H10H 20/034](#) and [H10H 29/034](#) should be considered in order to perform a complete search.

29/036 . . {of packages}

**WARNING**

Group [H10H 29/036](#) is incomplete pending reclassification of documents from groups [H10H 20/01](#) and [H10H 20/036](#).

Groups [H10H 20/01](#), [H10H 20/036](#) and [H10H 29/036](#) should be considered in order to perform a complete search.

29/0361 . . . {of wavelength conversion means}

**WARNING**

Group [H10H 29/0361](#) is incomplete pending reclassification of documents from groups [H10H 20/01](#) and [H10H 20/0361](#).

Groups [H10H 20/01](#), [H10H 20/0361](#) and [H10H 29/0361](#) should be considered in order to perform a complete search.

29/0362 . . . {of encapsulations}

**WARNING**

Group [H10H 29/0362](#) is incomplete pending reclassification of documents from groups [H10H 20/01](#) and [H10H 20/0362](#).

Groups [H10H 20/01](#), [H10H 20/0362](#) and [H10H 29/0362](#) should be considered in order to perform a complete search.

29/0363 . . . {of optical field-shaping means}

**WARNING**

Group [H10H 29/0363](#) is incomplete pending reclassification of documents from groups [H10H 20/01](#) and [H10H 20/0363](#).

Groups [H10H 20/01](#), [H10H 20/0363](#) and [H10H 29/0363](#) should be considered in order to perform a complete search.

29/0364 . . . {of interconnections}

**WARNING**

Group [H10H 29/0364](#) is incomplete pending reclassification of documents from groups [H10H 20/01](#) and [H10H 20/0364](#).

Groups [H10H 20/01](#), [H10H 20/0364](#) and [H10H 29/0364](#) should be considered in order to perform a complete search.

29/0365 . . . {of means for heat extraction or cooling}

**WARNING**

Group [H10H 29/0365](#) is incomplete pending reclassification of documents from groups [H10H 20/01](#) and [H10H 20/0365](#).

Groups [H10H 20/01](#), [H10H 20/0365](#) and [H10H 29/0365](#) should be considered in order to perform a complete search.

29/10 . Integrated devices comprising at least one light-emitting semiconductor component covered by group [H10H 20/00](#) (active-matrix LED displays [H10H 29/30](#))

**WARNING**

Group [H10H 29/10](#) is impacted by reclassification into group [H10H 29/011](#).

Groups [H10H 29/10](#) and [H10H 29/011](#) should be considered in order to perform a complete search.

29/14 . . comprising multiple light-emitting semiconductor components

**WARNING**

Group [H10H 29/14](#) is incomplete pending reclassification of documents from group [H10H 29/142](#).

Group [H10H 29/14](#) is also impacted by reclassification into groups [H10H 29/011](#), [H10H 29/922](#), [H10H 29/942](#) and [H10H 29/962](#).

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

29/142 . . . {Two-dimensional arrangements, e.g. asymmetric LED layout}

**WARNING**

Group [H10H 29/142](#) is impacted by reclassification into groups [H10H 29/011](#), [H10H 29/14](#), [H10H 29/30](#), [H10H 29/32](#), [H10H 29/34](#), [H10H 29/345](#), [H10H 29/352](#), [H10H 29/362](#), [H10H 29/37](#), [H10H 29/39](#), [H10H 29/41](#), [H10H 29/45](#), [H10H 29/49](#), [H10H 29/8517](#), [H10H 29/8552](#), [H10H 29/922](#), [H10H 29/942](#) and [H10H 29/962](#).

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

29/20 . Assemblies of multiple devices comprising at least one light-emitting semiconductor device covered by group [H10H 20/00](#) (active-matrix LED displays [H10H 29/30](#))

29/24 . . comprising multiple light-emitting semiconductor devices

29/30 . Active-matrix LED displays

**NOTE**

This group covers active-matrix displays where the emphasis of the invention concerns the LEDs, the layers closely related to the LEDs or constructional details closely related to the

## H10H

H10H 29/30  
(continued)

LEDs, e.g. interconnections between the LEDs or their encapsulations.

### **WARNING**

Groups [H10H 29/30](#), [H10H 29/32](#), [H10H 29/34](#), [H10H 29/345](#), [H10H 29/352](#), [H10H 29/362](#), [H10H 29/37](#), [H10H 29/39](#), [H10H 29/41](#) and [H10H 29/45](#) are incomplete pending reclassification of documents from group [H10H 29/142](#).

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

- 29/32 . . characterised by the geometry or arrangement of elements within a subpixel, e.g. arrangement of the transistor within its RGB subpixel
- 29/34 . . characterised by the geometry or arrangement of subpixels within a pixel, e.g. relative disposition of the RGB subpixels
- 29/345 . . . {the area of the subpixels being different}
- 29/352 . . {characterised by differences in geometry or arrangement of elements, subpixels or pixels in different regions of the display, e.g. at the central and peripheral regions}
- 29/362 . . {comprising more than three subpixels, e.g. red-green-blue-white [RGBW]}
- 29/37 . . Pixel-defining structures, e.g. banks between the LEDs
- 29/39 . . Connection of the pixel electrodes to the driving transistors
- 29/41 . . Insulating layers formed between the driving transistors and the LEDs
- 29/45 . . comprising two substrates, each having active devices thereon, e.g. displays comprising LED arrays and driving circuitry on different substrates
- 29/49 . . Interconnections, e.g. wiring lines or terminals (connection of the pixel electrodes to the driving transistors [H10H 29/39](#))

### **WARNING**

Group [H10H 29/49](#) is incomplete pending reclassification of documents from groups [H10H 20/857](#) and [H10H 29/142](#).

Groups [H10H 20/857](#), [H10H 29/142](#) and [H10H 29/49](#) should be considered in order to perform a complete search.

- 29/80 . Constructional details

### **NOTE**

Classification is made in group [H10H 29/80](#) when the constructional detail is relevant to integrated devices or assemblies comprising multiple devices. When the constructional detail is relevant to individual devices, then classification is made in group [H10H 20/80](#).

### **WARNING**

Group [H10H 29/80](#) is incomplete pending reclassification of documents from group [H10H 20/80](#).

Groups [H10H 20/80](#) and [H10H 29/80](#) should be considered in order to perform a complete search.

- 29/832 . . {Electrodes}

### **WARNING**

Group [H10H 29/832](#) is incomplete pending reclassification of documents from group [H10H 20/83](#).

Groups [H10H 20/83](#) and [H10H 29/832](#) should be considered in order to perform a complete search.

- 29/8321 . . . {characterised by their shape}

### **WARNING**

Group [H10H 29/8321](#) is incomplete pending reclassification of documents from group [H10H 20/831](#).

Groups [H10H 20/831](#) and [H10H 29/8321](#) should be considered in order to perform a complete search.

- 29/8322 . . . {characterised by their materials}

### **WARNING**

Group [H10H 29/8322](#) is incomplete pending reclassification of documents from group [H10H 20/832](#).

Groups [H10H 20/832](#) and [H10H 29/8322](#) should be considered in order to perform a complete search.

- 29/8323 . . . . {Transparent materials}

### **WARNING**

Group [H10H 29/8323](#) is incomplete pending reclassification of documents from group [H10H 20/833](#).

Groups [H10H 20/833](#) and [H10H 29/8323](#) should be considered in order to perform a complete search.

- 29/8325 . . . . {Reflective materials}

### **WARNING**

Group [H10H 29/8325](#) is incomplete pending reclassification of documents from group [H10H 20/835](#).

Groups [H10H 20/835](#) and [H10H 29/8325](#) should be considered in order to perform a complete search.

- 29/842 . . {Coatings, e.g. passivation layers or antireflective coatings}

### **WARNING**

Group [H10H 29/842](#) is incomplete pending reclassification of documents from group [H10H 20/84](#).

Groups [H10H 20/84](#) and [H10H 29/842](#) should be considered in order to perform a complete search.



29/8421 . . . {Reflective coatings, e.g. dielectric Bragg reflectors}

**WARNING**

Group [H10H 29/8421](#) is incomplete pending reclassification of documents from group [H10H 20/841](#).

Groups [H10H 20/841](#) and [H10H 29/8421](#) should be considered in order to perform a complete search.

29/85 . . Packages

**WARNING**

Group [H10H 29/85](#) is incomplete pending reclassification of documents from group [H10H 20/85](#).

Groups [H10H 20/85](#) and [H10H 29/85](#) should be considered in order to perform a complete search.

29/8506 . . . {Containers}

**WARNING**

Group [H10H 29/8506](#) is incomplete pending reclassification of documents from group [H10H 20/8506](#).

Groups [H10H 20/8506](#) and [H10H 29/8506](#) should be considered in order to perform a complete search.

29/8508 . . . {Package substrates, e.g. submounts}

**WARNING**

Group [H10H 29/8508](#) is incomplete pending reclassification of documents from groups [H10H 20/85](#) and [H10H 20/8506](#).

Groups [H10H 20/85](#), [H10H 20/8506](#) and [H10H 29/8508](#) should be considered in order to perform a complete search.

29/851 . . . Wavelength conversion means

**WARNING**

Group [H10H 29/851](#) is incomplete pending reclassification of documents from group [H10H 20/851](#).

Groups [H10H 20/851](#) and [H10H 29/851](#) should be considered in order to perform a complete search.

29/8511 . . . . {characterised by their material, e.g. binder}

**WARNING**

Group [H10H 29/8511](#) is incomplete pending reclassification of documents from group [H10H 20/8511](#).

Groups [H10H 20/8511](#) and [H10H 29/8511](#) should be considered in order to perform a complete search.

29/8512 . . . . . {Wavelength conversion materials}

**WARNING**

Group [H10H 29/8512](#) is incomplete pending reclassification of documents from group [H10H 20/8512](#).

Groups [H10H 20/8512](#) and [H10H 29/8512](#) should be considered in order to perform a complete search.

29/8513 . . . . . {having two or more wavelength conversion materials}

**WARNING**

Group [H10H 29/8513](#) is incomplete pending reclassification of documents from group [H10H 20/8513](#).

Groups [H10H 20/8513](#) and [H10H 29/8513](#) should be considered in order to perform a complete search.

29/8514 . . . . {characterised by their shape, e.g. plate or foil}

**WARNING**

Group [H10H 29/8514](#) is incomplete pending reclassification of documents from group [H10H 20/8514](#).

Groups [H10H 20/8514](#) and [H10H 29/8514](#) should be considered in order to perform a complete search.

29/8515 . . . . {not being in contact with the bodies}

**WARNING**

Group [H10H 29/8515](#) is incomplete pending reclassification of documents from group [H10H 20/8515](#).

Groups [H10H 20/8515](#) and [H10H 29/8515](#) should be considered in order to perform a complete search.

29/8516 . . . . {having a non-uniform spatial arrangement or non-uniform concentration, e.g. patterned wavelength conversion layer, wavelength conversion layer with a concentration gradient}

**WARNING**

Group [H10H 29/8516](#) is incomplete pending reclassification of documents from group [H10H 20/8516](#).

Groups [H10H 20/8516](#) and [H10H 29/8516](#) should be considered in order to perform a complete search.

29/8517 . . . {Colour filters}

**WARNING**

Group [H10H 29/8517](#) is incomplete pending reclassification of documents from groups [H10H 20/80](#), [H10H 20/84](#), [H10H 20/85](#) and [H10H 29/142](#).

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

29/852 . . . Encapsulations

**WARNING**

Group [H10H 29/852](#) is incomplete pending reclassification of documents from group [H10H 20/852](#).

Groups [H10H 20/852](#) and [H10H 29/852](#) should be considered in order to perform a complete search.

29/853 . . . characterised by their shape

**WARNING**

Group [H10H 29/853](#) is incomplete pending reclassification of documents from group [H10H 20/853](#).

Groups [H10H 20/853](#) and [H10H 29/853](#) should be considered in order to perform a complete search.

29/854 . . . characterised by their material, e.g. epoxy or silicone resins

**WARNING**

Group [H10H 29/854](#) is incomplete pending reclassification of documents from group [H10H 20/854](#).

Groups [H10H 20/854](#) and [H10H 29/854](#) should be considered in order to perform a complete search.

29/855 . . . Optical field-shaping means, e.g. lenses

**WARNING**

Group [H10H 29/855](#) is incomplete pending reclassification of documents from group [H10H 20/855](#).

Groups [H10H 20/855](#) and [H10H 29/855](#) should be considered in order to perform a complete search.

29/8552 . . . {Light absorbing arrangements, e.g. black matrix}

**WARNING**

Group [H10H 29/8552](#) is incomplete pending reclassification of documents from groups [H10H 20/80](#), [H10H 20/84](#), [H10H 20/85](#), [H10H 20/855](#) and [H10H 29/142](#).

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

29/856 . . . Reflecting means

**WARNING**

Group [H10H 29/856](#) is incomplete pending reclassification of documents from group [H10H 20/856](#).

Groups [H10H 20/856](#) and [H10H 29/856](#) should be considered in order to perform a complete search.

29/857 . . . {Interconnections (of active-matrix LED displays [H10H 29/49](#))}

**WARNING**

Group [H10H 29/857](#) is incomplete pending reclassification of documents from group [H10H 20/857](#).

Groups [H10H 20/857](#) and [H10H 29/857](#) should be considered in order to perform a complete search.

29/858 . . . {Means for heat extraction or cooling}

**WARNING**

Group [H10H 29/858](#) is incomplete pending reclassification of documents from group [H10H 20/858](#).

Groups [H10H 20/858](#) and [H10H 29/858](#) should be considered in order to perform a complete search.

29/8581 . . . {characterised by their material}

**WARNING**

Group [H10H 29/8581](#) is incomplete pending reclassification of documents from group [H10H 20/8581](#).

Groups [H10H 20/8581](#) and [H10H 29/8581](#) should be considered in order to perform a complete search.

29/8582 . . . {characterised by their shape}

**WARNING**

Group [H10H 29/8582](#) is incomplete pending reclassification of documents from group [H10H 20/8582](#).

Groups [H10H 20/8582](#) and [H10H 29/8582](#) should be considered in order to perform a complete search.

29/8583 . . . {not being in contact with the bodies}

**WARNING**

Group [H10H 29/8583](#) is incomplete pending reclassification of documents from group [H10H 20/8583](#).

Groups [H10H 20/8583](#) and [H10H 29/8583](#) should be considered in order to perform a complete search.

- 29/8584 . . . . {electrically controlled, e.g. Peltier elements}

**WARNING**

Group [H10H 29/8584](#) is incomplete pending reclassification of documents from group [H10H 20/8584](#).

Groups [H10H 20/8584](#) and [H10H 29/8584](#) should be considered in order to perform a complete search.

- 29/8585 . . . . {being an interconnection}

**WARNING**

Group [H10H 29/8585](#) is incomplete pending reclassification of documents from group [H10H 20/8585](#).

Groups [H10H 20/8585](#) and [H10H 29/8585](#) should be considered in order to perform a complete search.

- 29/8586 . . . . {comprising fluids, e.g. heat-pipes}

**WARNING**

Group [H10H 29/8586](#) is incomplete pending reclassification of documents from group [H10H 20/8586](#).

Groups [H10H 20/8586](#) and [H10H 29/8586](#) should be considered in order to perform a complete search.

- 29/862 . . {Resonant cavity structures}

**WARNING**

Group [H10H 29/862](#) is incomplete pending reclassification of documents from group [H10H 20/862](#).

Groups [H10H 20/862](#) and [H10H 29/862](#) should be considered in order to perform a complete search.

- 29/872 . . {Periodic patterns for optical field-shaping, e.g. photonic bandgap structures}

**WARNING**

Group [H10H 29/872](#) is incomplete pending reclassification of documents from group [H10H 20/872](#).

Groups [H10H 20/872](#) and [H10H 29/872](#) should be considered in order to perform a complete search.

- 29/882 . . {Scattering means}

**WARNING**

Group [H10H 29/882](#) is incomplete pending reclassification of documents from group [H10H 20/882](#).

Groups [H10H 20/882](#) and [H10H 29/882](#) should be considered in order to perform a complete search.

- 29/922 . . {Parallel electrical configurations of multiple light-emitting semiconductor components or devices}

**WARNING**

Group [H10H 29/922](#) is incomplete pending reclassification of documents from groups [H10H 20/857](#), [H10H 29/14](#) and [H10H 29/142](#).

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

- 29/942 . . {Serial electrical configurations of multiple light-emitting semiconductor components or devices}

**WARNING**

Group [H10H 29/942](#) is incomplete pending reclassification of documents from groups [H10H 20/857](#), [H10H 29/14](#) and [H10H 29/142](#).

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

- 29/962 . . {Stacked configurations of light-emitting semiconductor components or devices, the components or devices emitting at different wavelengths}

**WARNING**

Group [H10H 29/962](#) is incomplete pending reclassification of documents from groups [H10H 29/14](#) and [H10H 29/142](#).

Groups [H10H 29/14](#), [H10H 29/142](#) and [H10H 29/962](#) should be considered in order to perform a complete search.

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