

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	Individual inorganic light-emitting semiconductor devices having potential barriers, e.g. light-emitting diodes [LED]	20/014	. . . {having light-emitting regions comprising only Group IV materials}
20/01	. Manufacture or treatment		WARNING Group H10H 20/014 is impacted by reclassification into group H10H 20/0145 . Groups H10H 20/014 and H10H 20/0145 should be considered in order to perform a complete search.
	WARNING Group H10H 20/01 is impacted by reclassification into groups H10H 20/011 , H10H 20/016 , H10H 20/0165 , H10H 20/017 , H10H 20/021 , H10H 20/032 , H10H 20/034 , H10H 20/036 , H10H 20/0362 , H10H 20/0363 , H10H 20/0364 , H10H 20/0365 , H10H 29/01 , H10H 29/011 , H10H 29/012 , H10H 29/02 , H10H 29/03 , H10H 29/032 , H10H 29/034 , H10H 29/036 , H10H 29/0361 , H10H 29/0362 , H10H 29/0363 , H10H 29/0364 and H10H 29/0365 . 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}
			WARNING Group H10H 20/0145 is incomplete pending reclassification of documents from group H10H 20/014 . Groups H10H 20/014 and H10H 20/0145 should be considered in order to perform a complete search.
20/011	. . {of bodies, e.g. forming semiconductor layers}	20/016	. . . {Thermal treatments}
	WARNING Groups H10H 20/011 , H10H 20/016 , H10H 20/0165 and H10H 20/017 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.	20/0165	. . . . {for recrystallisation}
		20/017	. . . {Etching}
		20/018	. . . {Bonding of wafers}
			WARNING Group H10H 20/018 is impacted by reclassification into group H10H 20/019 . Groups H10H 20/018 and H10H 20/019 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}		WARNING Group H10H 20/019 is incomplete pending reclassification of documents from group H10H 20/018 . Groups H10H 20/018 and H10H 20/019 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
WARNING		NOTE	
Group H10H 20/811 is impacted by reclassification into group H10H 20/812 .		When classifying in this group, classification is also made in group H10H 20/822 in order to identify the chemical composition of the light-emitting region.	
Groups H10H 20/811 and H10H 20/812 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
WARNING		20/82	. . . . Roughened surfaces, e.g. at the interface between epitaxial layers
Group H10H 20/812 is incomplete pending reclassification of documents from group H10H 20/811 .		20/821	. . . . of the light-emitting regions, e.g. non-planar junctions
Groups H10H 20/811 and H10H 20/812 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
WARNING		NOTE	
Group H10H 20/813 is impacted by reclassification into groups H10H 20/8131 , H10H 20/8132 and H10H 20/8133 .		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.		20/823	. . . . comprising only Group II-VI materials, e.g. ZnO
20/8131	. . . . {Stacked light-emitting regions}	20/8232	. . . . . {characterised by the dopants}
WARNING		20/824	. . . . comprising only Group III-V materials, e.g. GaP
Group H10H 20/8131 is incomplete pending reclassification of documents from group H10H 20/813 .		20/8242	. . . . . {characterised by the dopants}
Groups H10H 20/813 and H10H 20/8131 should be considered in order to perform a complete search.		20/825	. . . . . containing nitrogen, e.g. GaN
20/8132	. . . . {Laterally arranged light-emitting regions, e.g. nano-rods}	20/8252	. . . . . {characterised by the dopants}
WARNING		20/826	. . . . comprising only Group IV materials
Groups H10H 20/8132 and H10H 20/8133 are incomplete pending reclassification of documents from group H10H 20/813 .		WARNING	
Groups H10H 20/813 , H10H 20/8132 and H10H 20/8133 should be considered in order to perform a complete search.		Group H10H 20/826 is impacted by reclassification into group H10H 20/8264 .	
20/8133	. . . . . {having core-shell structures}	Groups H10H 20/826 and H10H 20/8264 should be considered in order to perform a complete search.	
20/814	. . . having reflecting means, e.g. semiconductor Bragg reflectors	20/8262	. . . . . {characterised by the dopants}
20/8142	. . . . {forming resonant cavity structures}	20/8264	. . . . . {comprising polycrystalline, amorphous or porous Group IV materials}
20/815	. . . having stress relaxation structures, e.g. buffer layers	WARNING	
20/816	. . . having carrier transport control structures, e.g. highly-doped semiconductor layers or current-blocking structures	Group H10H 20/8264 is incomplete pending reclassification of documents from group H10H 20/826 .	
20/8162	. . . . {Current-blocking structures}	Groups H10H 20/826 and H10H 20/8264 should be considered in order to perform a complete search.	
		20/83	. . Electrodes
		WARNING	
		Group H10H 20/83 is impacted by reclassification into group H10H 29/832 .	
		Groups H10H 20/83 and H10H 29/832 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](#))

WARNING

Groups [H10H 29/20](#) and [H10H 29/24](#) are incomplete pending reclassification of documents from group [H10W 90/00](#).

Groups [H10W 90/00](#), [H10H 29/20](#) and [H10H 29/24](#) should be considered in order to perform a complete search.

- 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 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](#), [H10H 29/45](#) and [H10H 29/49](#) are incomplete pending reclassification of documents from group [H10W 90/00](#).

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