EUROPEAN PATENT OFFICE U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 1414

DATE: FEBRUARY 1, 2023

PROJECT RP11760

The following classification changes will be effected by this Notice of Changes:

Action	Subclass	Group(s)
SCHEME:		
Symbols New:	H10	CLASS
Titles Changed:	H01L	SUBCLASS
Warnings Modified:	H01L	SUBCLASS
Notes Modified:	H01L	SUBCLASS
DEFINITIONS:		
Definitions Modified:	H01L	SUBCLASS

The following subclasses/groups are also impacted by this Notice of Changes (indicate subclasses/groups outside of the project scope, such as those listed in the CRL):

B65B 57/00, B81B, C23C, C30B, F21K 9/00, G01S 7/486, G09G, G11C, H02M, H02N, H03B 9/00

This Notice of Changes includes the following [Check the ones included]:

1. (CLA	SSIF	ICATION SCHEME CHANGES
			A. New, Modified or Deleted Group(s)
			B. New, Modified or Deleted Warning(s)
		\boxtimes	C. New, Modified or Deleted Note(s)
			D. New, Modified or Deleted Guidance Heading(s)
2.]	DEF	INITI	ONS
		\boxtimes	A. New or Modified Definitions (Full definition template)
			B. Modified or Deleted Definitions (Definitions Quick Fix)
3. [REV	ISION CONCORDANCE LIST (RCL)
4. [СНА	NGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)
5.	\boxtimes	СНА	NGES TO THE CROSS-REFERENCE LIST (CRL)

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1. CLASSIFICATION SCHEME CHANGES

A. New, Modified or Deleted Group(s)

SUBCLASS H01L - SEMICONDUCTOR DEVICES NOT COVERED BY CLASS H10

Type*	<u>Symbol</u>	Indent Level Number of dots	Title "CPC only" text should normally be	Transferred to#
		$(e.g.\ 0,1,2)$	enclosed in {curly brackets}	
M	H01L	Subclass	SEMICONDUCTOR DEVICES NOT COVERED BY CLASS H10 (use of semiconductor devices for measuring G01; resistors in general H01C; magnets, inductors or transformers H01F; capacitors in general H01G; electrolytic devices H01G 9/00; batteries or accumulators H01M; waveguides, resonators or lines of the waveguide type H01P; line connectors or current collectors H01R; stimulated-emission devices H01S; electromechanical resonators H03H; loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers H04R; electric light sources in general H05B; printed circuits, hybrid circuits, casings or constructional details of electrical apparatus, manufacture of assemblages of electrical components H05K; use of semiconductor devices in circuits having a particular application, see the subclass for the application)	

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

Type*	Symbol	<u>Indent Level</u> <u>Number of dots</u> <u>(e.g. 0, 1, 2)</u>	Title "CPC only" text should normally be enclosed in {curly brackets}	Transferred to#
N	H10	Class	SEMICONDUCTOR DEVICES; ELECTRIC SOLID-STATE DEVICES NOT OTHERWISE PROVIDED FOR	

^{*}N = new entries where reclassification into entries is involved; C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; T = existing entries with enlarged file scope, which receive documents from C or D entries, e.g. when a limiting reference is removed from the entry title; M = entries with no change to the file scope (no reclassification); D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed; U = entries that are unchanged.

NOTES:

**No {curly brackets} are used for titles in CPC only <u>subclasses</u>, e.g. C12Y, A23Y; 2000 series symbol titles of groups found at the end of schemes (orthogonal codes); or the Y section titles. The {curly brackets} <u>are</u> used for 2000 series symbol titles found interspersed throughout the main trunk schemes (breakdown codes).

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- U groups: it is obligatory to display the required "anchor" symbol (U group), i.e. the entry immediately preceding a new group or an array of new groups to be created (in case new groups are not clearly subgroups of C-type groups). Always include the symbol, indent level and title of the U group in the table above.
- All entry types should be included in the scheme changes table above for better understanding of the overall scheme change picture. Symbol, indent level, and title are required for all types.
- "Transferred to" column <u>must</u> be completed for all C, D, F, and Q type entries. F groups will be deleted once reclassification is completed.
- When multiple symbols are included in the "Transferred to" column, avoid using ranges of symbols in order to be as precise as possible.
- For administrative transfer of documents, the following text should be used: "<administrative transfer to XX>", "<administrative transfer to XX and YY simultaneously>", or "<administrative transfer to XX, YY, ...and ZZ simultaneously>" when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be "additional information".
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations "ADD" or "INV": <administrative transfer to XX ADD>, <administrative transfer to XX INV>, or <administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.
- In certain situations, the "D" entries of 2000-series or Y-series groups may not require a destination ("Transferred to") symbol, however it is required to specify "<no transfer>" in the "Transferred to" column for such cases.
- For finalization projects, the deleted "F" symbols should have <no transfer> in the "Transferred to" column.
- For more details about the types of scheme change, see CPC Guide.

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B. New, Modified or Deleted Warning(s)

SUBCLASS H01L - SEMICONDUCTOR DEVICES NOT COVERED BY CLASS H10

Type*	Location	Old Warning	New/Modified Warning
Type* M	H01L	1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups: H01L 21/301 covered by H01L 21/30 H01L 21/328 covered by H01L 29/66075 H01L 21/329 covered by H01L 29/66083 H01L 21/331 covered by H01L 29/66227 H01L 21/331 covered by H01L 29/66234 H01L 21/332 covered by H01L 29/66363 H01L 21/334 covered by H01L 29/66075 H01L 21/335 covered by H01L 29/66409 H01L 21/336 covered by H01L 29/66477 H01L 21/337 covered by H01L 29/66893 H01L 21/338 covered by H01L 29/66848 H01L 21/339 covered by H01L 29/66946 H01L 21/36-H01L 21/368 covered by H01L 21/02107 H01L 21/58 covered by H01L 24/80 H01L 21/66 covered by H01L 22/00 H01L 21/8242 covered by H01L 27/108	Replace: the existing Old Warning with the following new: 1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups: H01L 21/301 covered by H01L 21/30 H01L 21/328 covered by H01L 29/66075 H01L 21/329 covered by H01L 29/66083 H01L 21/332 covered by H01L 29/66227 H01L 21/331 covered by H01L 29/66234 H01L 21/332 covered by H01L 29/66363 H01L 21/334 covered by H01L 29/66409 H01L 21/335 covered by H01L 29/66409 H01L 21/336 covered by H01L 29/66893 H01L 21/338 covered by H01L 29/66848 H01L 21/339 covered by H01L 29/66946 H01L 21/36-H01L 21/368 covered by H01L 21/366946
		H01L 21/8242 covered by H01L 27/108 H01L 21/8244 covered by H01L 27/11 H01L 21/8246 covered by H01L 27/112 H01L 21/98 covered by H01L 25/50 H01L 29/38 covered by H01L 29/04-H01L	H01L 21/02107 H01L 21/58 covered by H01L 24/80 H01L 21/66 covered by H01L 22/00 H01L 21/98 covered by H01L 25/50 H01L 29/38 covered by H01L 29/04-H01L
		29/365 H01L 29/96 covered by H01L 29/68-H01L 29/945 H01L 51/30 covered by H01L 51/0032 H01L 51/40 covered by H01L 51/0001	29/365 H01L 29/96 covered by H01L 29/68-H01L 29/945
		H01L 51/46 covered by H01L 51/0032 H01L 51/48 covered by H01L 51/0001 H01L 51/54 covered by H01L 51/0032	

^{*}N = new warning, M = modified warning, D = deleted warning

NOTE: The "Location" column only requires the symbol PRIOR to the location of the warning. No further directions such as "before" or "after" are required.

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C. New, Modified or Deleted Note(s)

SUBCLASS H01L - SEMICONDUCTOR DEVICES NOT COVERED BY CLASS H10

M H01L 1. This subclass covers: • electric solid state devices which are not covered by any other subclass and details thereof, and includes: semiconductor devices adapted for rectifying, amplifying, oscillating or switching; semiconductor devices sensitive to radiation; electric solid state devices using thermoelectric, superconductive, piezo-electric, electrostrictive, magnetostrictive, galvano-magnetic or bulk negative resistance effects and integrated circuit devices; • photoresistors, magnetic field dependent resistors, field effect resistors, capacitors with potential-jump barrier or surface barrier, incoherent light emitting diodes and thin-film or thick-film circuits; • processes and apparatus adapted for the manufacture or treatment of such devices, except where such processes relate to single-step processes for which provision exists elsewhere. 2. In this subclass, the following terms or expressions are used with the meaning indicated: • waafer' means a slice of semiconductor or crystalline substrate material, which can be modified by impurity diffusion (doping), ion implantation or epitaxy, and whose active surface can be processed into arrays of discrete components or integrated circuits; • solid state body" means the body of material within which, or at the surface of which, the physical
substrate material, which can be effects characteristic of the device occur. In thermoelectric devices, it substrate material, which can be modified by impurity diffusion (doping), ion implantation or

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includes all materials in the current path.

Regions in or on the body of the device (other than the solid state body itself), which exert an influence on the solid state body electrically, are considered to be "electrodes" whether or not an external electrical connection is made thereto. An electrode may include several portions and the term includes metallic regions which exert influence on the solid state body through an insulating region (e.g. capacitive coupling) and inductive coupling arrangements to the body. The dielectric region in a capacitive arrangement is regarded as part of the electrode. In arrangements including several portions, only those portions which exert an influence on the solid state body by virtue of their shape, size, or disposition or the material of which they are formed are considered to be part of the electrode. The other portions are considered to be "arrangements for conducting electric current to or from the solid state body" or "interconnections between solid state components formed in or on a common substrate", i .e. leads;

- "device" means an electric circuit element; where an electric circuit element is one of a plurality of elements formed in or on a common substrate it is referred to as a "component";
- "complete device" is a device in its fully assembled state which may or may not require further treatment, e.g. electroforming, before it is ready for use but which does not require the addition of further structural units:
- "parts" includes all structural units which are included in a complete device;
- "container" is an enclosure forming part of the complete device and is essentially a solid construction in which the body of the device is

- epitaxy, and whose active surface can be processed into arrays of discrete components or integrated circuits;
- "solid state body" means the body of material within which, or at the surface of which, the physical effects characteristic of the device occur;
- "electrode" is a region in or on the body of the device (other than the solid state body itself), which exerts an electrical influence on the solid state body, irrespective of whether or not an external electrical connection is made thereto. An electrode may include several portions and the term includes metallic regions which exert influence on the solid state body through an insulating region (e.g. capacitive coupling) and inductive coupling arrangements to the body. The dielectric region in a capacitive arrangement is regarded as part of the electrode. In arrangements including several portions, only those portions which exert an influence on the solid state body by virtue of their shape, size, or disposition or the material of which they are formed are considered to be part of the electrode. The other portions are considered to be "arrangements for conducting electric current to or from the solid state body" or "interconnections between solid state components formed in or on a common substrate", i.e. leads;
- "device" means an electric circuit element; where an electric circuit element is one of a plurality of elements formed in or on a common substrate it is referred to as a "component";
- "complete device" is a device in its fully assembled state which may or may not require further treatment, e.g. electroforming, before it is ready for use but which does not require the

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placed, or which is formed around
the body without forming an
intimate layer thereon. An enclosure
which consists of one or more layers
formed on the body and in intimate
contact therewith is referred to as an
"encapsulation";
"integrated circuit" is a device
ε

- "integrated circuit" is a device where all components, e.g. diodes, resistors, are built up on a common substrate and form the device including interconnections between the components;
- "assembly" of a device is the building up of the device from its component constructional units and includes the provision of fillings in containers.
- 3. In this subclass, both the process or apparatus for the manufacture or treatment of a device and the device itself are classified, whenever both of these are described sufficiently to be of interest.
- 4. Attention is drawn to Note (3) after the title of section C, which Note indicates to which version of the periodic table of chemical elements the IPC refers. In this subclass, the Periodic System used is the 8 group system indicated by Roman numerals in the Periodic Table thereunder.

- addition of further structural units:
- "parts" includes all structural units which are included in a complete device;
- "container" is an enclosure
 forming part of the complete
 device and is essentially a solid
 construction in which the body of
 the device is placed, or which is
 formed around the body without
 forming an intimate layer thereon.
 An enclosure which consists of
 one or more layers formed on the
 body and in intimate contact
 therewith is referred to as an
 "encapsulation";
- "integrated circuit" is a device where all components, e.g. diodes or resistors, are built up on a common substrate and form the device including interconnections between the components;
- "assembly" of a device is the building up of the device from its constructional units; the term covers the provision of fillings in containers.
- 4. In this subclass, both the process or apparatus for the manufacture or treatment of a device and the device itself are classified, whenever both of these are described sufficiently to be of interest.

NOTE: The "Location" column only requires the symbol PRIOR to the location of the note. No further directions such as "before" or "after" are required.

^{*}N = new note, M = modified note, D = deleted note

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2. A. DEFINITIONS (modified)

<u>Insert</u>: The following definition modifications.

H01L

Relationships with other classification places

Replace: The entire text in the *Relationships with other classification places* section

with the following new paragraphs:

Microstructural devices or systems are classified in subclass B81B, and the processes and apparatus specially adapted for the manufacture or treatment thereof are classified in subclass B81C. So, by way of example, microelectro-mechanical devices (MEMS), containing microelectronic and mechanical components, are classified in group B81B7/02, and their manufacture, treatment or assembling in the relevant groups of B81C. Microstructural devices or systems working purely electrically or electronically, or related processes or apparatus for the manufacture or treatment thereof are, however, not covered by B81B or B81C and are classified in section H, for example in the groups of the current subclass H01L.

Microstructural devices or systems being of other than purely electrical or electronically type, and apparatus or processes for the manufacture or treatment thereof, which are normally classified in the subclasses B81B and B81C, may be also classified in those groups of H01L providing for their structural or functional features, whenever such features are of interest per se.

Nanostructures, which are normally classified in subclass B82B, may be also classified in those groups of H01L providing for their structural or functional features, whenever such features are of interest per se.

References

Limiting references

<u>Delete</u>: The following references from the *Limiting reference* table.

Micromechanical Devices (MEMS)	B81B
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B81C
G01H
G01J
G01P
G01S
G01T
G03G
G05F
G06F
G11C
H01B
H03F
H04N

<u>Insert</u>: The following new references into the *Limiting reference* table.

Use of semiconductor devices for measuring	G01
Electrolytic devices	H01G 9/00

Application-oriented references

<u>Delete</u>: The entire *Application-oriented references* section and table.

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Informative references

Replace: The following reference row

wafers except during manufacture or finishing devices	B65D 85/30, B65D 85/86
thereon	

with the following reference:

Containers merely intended for transport or storage of wafers except during manufacture or finishing devices	B65D 85/30
thereon	

<u>Insert</u>: The following new references into the *Informative reference* table.

Processes and apparatus specially adapted for the manufacture or treatment of microstructural devices or systems	B81C
Measurement of Mechanical Vibrations or Ultrasonic, Sonic or Infrasonic Waves	G01H
Measurement of Intensity, velocity, Spectral, Content, Polarization, Phase or Pulse Characteristic of Infra-red, Visible or Ultra-Violet Light	G01J
Measuring Electrical or Magnetic Variables	G01P
Radio Direction-Finding; Radio Navigation; Determining Distance or Velocity by Use of Radio Waves; Locating or Presence-Detecting by Use of the Reflection or Reradiation of Radio Waves; Analogous Arrangements Using Other Waves	G01S
Measuring Nuclear or X-Radiation	G01T
Electro photography	G03G
Systems for Regulating Electrical or Magnetic Variables	G05F
Digital Computers	G06F

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Static Stores	G11C
Conductive and Insulating Materials	H01B
Amplifiers	H03F
Pictorial Communication, e.g. Television	H04N

<u>Delete</u>: The following reference from the *Informative reference* table.

Use of semiconductor devices in circuits having a particular	
application: see particular subclass for the application	

Glossary of terms

Replace: The existing descriptions for the following terms with the new description.

Device	The term "device" refers to an electric circuit element; where an electric circuit element is one of a plurality of elements formed in or on a common substrate it is referred to as a "component".
Electrodes	"Electrodes" are regions in or on the body of the device (other than the solid-state body itself), which exert an influence on the solid-state body electrically, whether or not an external electrical connection is made thereto. An electrode may include several portions and the term includes metallic regions which exert influence on the solid-state body through an insulating region (e.g. capacitive coupling) and inductive coupling arrangements to the body. The dielectric region in a capacitive arrangement is regarded as part of the electrode. In arrangements including several portions only those portions which exert an influence on the solid-state body by virtue of their shape, size or disposition or the material of which they are formed are considered to be part of the electrode. The other portions are considered to be "arrangements for conducting electric current to or from the solid-state body" or "interconnections between solid state components formed in or on a common substrate", i.e. leads.

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5. CROSS-REFERENCE LIST (CRL)

Scheme references impacted by this revision project

Location of reference to be changed	Referenced subclass or group to be changed	Action; New reference symbol; New text
B81B – Note #1	subclass H01L	Replace "subclass H01L" with:
		subclass H01L or class H10
C30B	for producing semiconductor devices or parts thereof H01L	Replace with:
		for producing semiconductor devices or parts thereof H01L, H10
F21K 9/00 – Note #2	"subclass H01L, e.g. H01L 33/00 or H01L 51/50, or by	Replace with:
	subclass H01S"	subclasses H01L (e.g. H01L 33/00), H01S (e.g. H01S 5/00) or class H10 and subclass H10K (e.g. H10K 50/00 and H10K 59/00)
G09G – Note #2	"H01J, H01K, H01L, G02F, G09F, H05B"	Replace with:
0110		H01J, H01K, H01L, H10K, G02F, G09F, H05B
G11C	semiconductor devices for storage H01L, e.g. H01L	Replace with:
	27/108 – H01L 27/11597	semiconductor memory devices H10B
H02M – Note #1	"semiconductor devices H01L"	Replace with:
		semiconductor devices H01L, H10
H02N – Note #2	subclasses H01L, H01M, H02K, H04R	Replace with:
		class H10 and subclasses H01L, H01M, H02K, H04R

Definitions references impacted by this revision project

Location of	Referenced subclass or group	Section of	Action; New reference
<u>reference</u>	to be changed	<u>definition</u>	symbol; New text
to be changed			
B65B 57/00	Photoelectric cells	Informative	Replace with:
	H01J, H01L	References	
			Photoelectric cells
			H01J, H01L 31/00, H10K
			30/00, H10K 39/00
C23C	Manufacture of semiconductor	Informative	Replace with:
	devices	References	
	H01L		Manufacture of
			semiconductor devices
			H01L, H10

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Location of reference to be changed	Referenced subclass or group to be changed	Section of definition	Action; New reference symbol; New text
C30B	Production of semiconductor devices or parts thereof; semiconductor devices characterized by their crystalline structure or particular orientation of the crystalline planes H01L	Limiting References	Replace with: Production of semiconductor devices or parts thereof; semiconductor devices characterized by their crystalline structure or particular orientation of the crystalline planes H01L, H10
G01S 7/486	Details of photo sensitive detectors including semiconductor devices per se G01J, H01L	Informative References	Replace with: Details of photo sensitive detectors including semiconductor devices per se G01J, H01L 31/00, H10K 30/00, H10K 39/00
G01S 7/486	Light transforming elements per se H01J, H01L	Informative References	Replace with: Light transforming elements per se H01J, H01L 31/00, H10K 30/00, H10K 39/00
G11C	Semiconductor devices for storage H01L, H01L 27/108 – H01L 27/11597	Limiting References	Replace with: Semiconductor memory devices H10B
H02M	semiconductor devices H01L	Relationships with other classification places (1 st paragraph)	Replace with: semiconductor devices H01L, H10
H03B 9/00	Semiconductor devices per se H01L	Informative References	Replace with: Semiconductor devices per se H01L, H10

NOTES:

- The CRL tables above are used for changes to locations <u>outside</u> of the project scope. Changes to references in scheme
 titles or definitions <u>inside</u> the project scope will be reflected in the "scheme change" template or one of the "definition"
 templates.
- In addition to other changes proposed in the tables above, in the column titled "Referenced subclass or group to be changed," <u>referenced</u> D symbols should indicate an action of "delete" or should indicate a replacement symbol and <u>referenced</u> F symbols should indicate a replacement symbol.
- When a reference is deleted, text related to that reference will also be deleted unless other references or a range of references associated with the same text remain.