

EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 726

DATE: AUGUST 1, 2019

PROJECT RP0474

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

<u>Action</u>	<u>Subclass</u>	<u>Group(s)</u>
SCHEME:		
Symbols New:	H01S	3/1001, 3/10013, 3/13013, 3/13017
		5/04252, 5/04253, 5/04254, 5/04256, 5/04257, 5/320225, 5/32025, 5/320275
Titles Changed:	H01S	3/1003
		5/0425, 5/20, 5/2009, 5/2036,
Warnings New:	H01S	3/10007, 3/1001, 3/10013, 3/1301, 3/13013, 3/13017
		5/0425, 5/04252, 5/04253, 5/04254, 5/04256, 5/04257, 5/3202, 5/320225, 5/32025, 5/320275
DEFINITIONS:		
Definitions New:	H01S	5/04254, 5/04256, 5/20, 5/2004, 5/2009

No other subclasses/groups are impacted by this Notice of Changes.

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

1. CLASSIFICATION SCHEME CHANGES

- A. New, Modified or Deleted Group(s)
- B. New, Modified or Deleted Warning(s)
- C. New, Modified or Deleted Note(s)
- D. New, Modified or Deleted Guidance Heading(s)

2. DEFINITIONS

- A. New or Modified Definitions (Full definition template)
- B. Modified or Deleted Definitions (Definitions Quick Fix)

3. REVISION CONCORDANCE LIST (RCL)

4. CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

5. CHANGES TO THE CROSS-REFERENCE LIST (CRL)

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1. CLASSIFICATION SCHEME CHANGES

A. New, Modified or Deleted Group(s)

SUBCLASS H01S – DEVICES USING THE PROCESS OF LIGHT AMPLIFICATION BY STIMULATED EMISSION OF RADIATION [LASER] TO AMPLIFY OR GENERATE LIGHT; DEVICES USING STIMULATED EMISSION OF ELECTROMAGNETIC RADIATION IN WAVE RANGES OTHER THAN OPTICAL

<u>Type*</u>	<u>Symbol</u>	<u>Indent Level Number of dots (e.g. 0, 1, 2)</u>	<u>Title</u> “CPC only” text should normally be enclosed in {curly brackets}**	<u>Transferred to#</u>
U	H01S 3/0979	3	Gas dynamic lasers, i.e. with expansion of the laser gas medium to supersonic flow speeds	
U	H01S 3/10	1	Controlling the intensity, frequency, phase, polarisation or direction of the emitted radiation, e.g. switching, gating, modulating or demodulating	
C	H01S 3/10007	2	{in optical amplifiers}	H01S3/10007, H01S3/1001, H01S3/10013
N	H01S 3/1001	3	{by controlling the optical pumping}	
N	H01S 3/10013	3	{by controlling the temperature of the active medium}	
U	H01S 3/10023	3	{by functional association of additional optical elements, e.g. filters, gratings, reflectors}	
M	H01S 3/1003	4	{tunable optical elements, e.g. acousto-optic filters, tunable gratings}	
U	H01S 3/13	2	Stabilisation of laser output parameters, e.g. frequency, amplitude	
C	H01S 3/1301	3	{in optical amplifiers}	H01S3/1301, H01S3/13013, H01S3/13017
N	H01S 3/13013	4	{by controlling the optical pumping}	
N	H01S 3/13017	4	{by controlling the temperature of the active medium}	
U	H01S 5/0424	5	{lateral current injection}	

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<u>Type*</u>	<u>Symbol</u>	<u>Indent Level Number of dots (e.g. 0, 1, 2)</u>	<u>Title</u> <u>“CPC only” text should normally be enclosed in {curly brackets}**</u>	<u>Transferred to[#]</u>
C	H01S 5/0425	3	{Electrodes, e.g. characterised by the structure }	H01S5/0425, H01S5/04252, H01S5/04253, H01S5/04254, H01S5/04256, H01S5/04257
N	H01S 5/04252	4	{characterised by the material }	
N	H01S 5/04253	5	{having specific optical properties, e.g. transparent electrodes }	
N	H01S 5/04254	4	{characterised by the shape }	
N	H01S 5/04256	4	{characterised by the configuration }	
N	H01S 5/04257	5	{having positive and negative electrodes on the same side of the substrate }	
U	H01S 5/187	3	using a distributed Bragg reflector [SE-DBR-lasers] (H01S 5/183 takes precedence)	
M	H01S 5/20	1	Structure or shape of the semiconductor body to guide the optical wave {;Confining structures perpendicular to the optical axis, e.g. index or gain guiding, stripe geometry, broad area lasers, gain tailoring, transverse or lateral reflectors, special cladding structures, MQW barrier reflection layers }	
U	H01S 5/2004	2	{Confining in the direction perpendicular to the layer structure }	
M	H01S 5/2009	3	{by using electron barrier layers }	
U	H01S 5/2031	4	{characterized by special waveguide layers, e.g. asymmetric waveguide layers or defined bandgap discontinuities }	
M	H01S 5/2036	2	{Broad area lasers }	
U	H01S 5/3201	3	{incorporating bulkstrain effects, e.g. strain compensation, strain related to polarisation }	

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<u>Type*</u>	<u>Symbol</u>	<u>Indent Level Number of dots (e.g. 0, 1, 2)</u>	<u>Title</u> <u>“CPC only” text should normally be enclosed in {curly brackets}**</u>	<u>Transferred to#</u>
C	H01S 5/3202	3	{grown on specifically orientated substrates, or using orientation dependent growth}	H01S5/3202, H01S5/320225, H01S5/32025, H01S5/320275
N	H01S 5/320225	4	{polar orientation}	
N	H01S 5/32025	4	{non-polar orientation}	
N	H01S 5/320275	4	{semi-polar orientation}	

*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 subclasses, 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} are used for 2000 series symbol titles found interspersed throughout the main trunk schemes (breakdown codes).
- 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 must 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 finalisation 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 H01S – DEVICES USING THE PROCESS OF LIGHT AMPLIFICATION BY STIMULATED EMISSION OF RADIATION [LASER] TO AMPLIFY OR GENERATE LIGHT; DEVICES USING STIMULATED EMISSION OF ELECTROMAGNETIC RADIATION IN WAVE RANGES OTHER THAN OPTICAL

<u>Type*</u>	<u>Location</u>	<u>Old Warning</u>	<u>New/Modified Warning</u>
N	H01S 3/10007		Group H01S 3/10007 is impacted by reclassification into groups H01S 3/1001 and H01S 3/10013. Groups H01S 3/10007, H01S 3/1001, and H01S 3/10013 should be considered in order to perform a complete search.
N	H01S 3/1001		Group H01S 3/1001 is incomplete pending reclassification of documents from group H01S 3/10007. Groups H01S 3/10007 and H01S 3/1001 should be considered in order to perform a complete search.
N	H01S 3/10013		Group H01S 3/10013 is incomplete pending reclassification of documents from group H01S 3/10007. Groups H01S 3/10007 and H01S 3/10013 should be considered in order to perform a complete search.
N	H01S 3/1301		Group H01S 3/1301 is impacted by reclassification into groups H01S 3/13013 and H01S 3/13017. Groups H01S 3/1301, H01S 3/13013, and H01S 3/13017 should be considered in order to perform a complete search.
N	H01S 3/13013		Group H01S 3/13013 is incomplete pending reclassification of documents from group H01S 3/1301. Groups H01S 3/1301 and H01S 3/13013 should be considered in order to perform a complete search.

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<u>Type*</u>	<u>Location</u>	<u>Old Warning</u>	<u>New/Modified Warning</u>
N	H01S 3/13017		Group H01S 3/13017 is incomplete pending reclassification of documents from group H01S 3/1301. Groups H01S 3/1301 and H01S 3/13017 should be considered in order to perform a complete search.
N	H01S 5/0425		Group H01S 5/0425 is impacted by reclassification into groups H01S 5/04252, H01S 5/04253, H01S 5/04254, H01S 5/04256, and H01S 5/04257. All groups listed in this Warning should be considered in order to perform a complete search.
N	H01S 5/04252		Group H01S 5/04252 is incomplete pending reclassification of documents from group H01S 5/0425. Groups H01S 5/0425 and H01S 5/04252 should be considered in order to perform a complete search.
N	H01S 5/04253		Group H01S 5/04253 is incomplete pending reclassification of documents from group H01S 5/0425. Groups H01S 5/0425 and H01S 5/04253 should be considered in order to perform a complete search.
N	H01S 5/04254		Group H01S 5/04254 is incomplete pending reclassification of documents from group H01S 5/0425. Groups H01S 5/0425 and H01S 5/04254 should be considered in order to perform a complete search.
N	H01S 5/04256		Group H01S 5/04256 is incomplete pending reclassification of documents from group H01S 5/0425. Groups H01S 5/0425 and H01S 5/04256 should be considered in order to perform a complete search.
N	H01S 5/04257		Group H01S 5/04257 is incomplete pending reclassification of documents from group H01S 5/0425. Groups H01S 5/0425 and H01S 5/04257 should be considered in order to perform a complete search.

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<u>Type*</u>	<u>Location</u>	<u>Old Warning</u>	<u>New/Modified Warning</u>
N	H01S 5/3202		Group H01S 5/3202 is impacted by reclassification into groups H01S 5/320225, H01S 5/32025 and H01S 5/320275. All groups listed in this Warning should be considered in order to perform a complete search.
N	H01S 5/320225		Group H01S 5/320225 is incomplete pending reclassification of documents from group H01S 5/3202. Groups H01S 5/3202 and H01S 5/320225 should be considered in order to perform a complete search.
N	H01S 5/32025		Group H01S 5/32025 is incomplete pending reclassification of documents from group H01S 5/3202. Groups H01S 5/3202 and H01S 5/32025 should be considered in order to perform a complete search.
N	H01S 5/320275		Group H01S 5/320275 is incomplete pending reclassification of documents from group H01S 5/3202. Groups H01S 5/3202 and H01S 5/320275 should be considered in order to perform a complete search.

*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.

2. A. DEFINITIONS (new)

H01S 5/04254

Definition statement

This place covers:

- Electrodes of a semiconductor laser with at least one electrode having a specific shape.
- Electrodes having a geometrical shape like a square, triangular or a circular shape for specific reasons given in the document.
- Electrodes having defined dimensions, e.g. a specific electrode diameter is disclosed.

Relationships with other classification places

Additional symbols may be allocated if appropriate for further specific aspects of electrodes from the following places H01S5/04252, H01S5/04253, H01S5/04256 and H01S5/04257.

H01S 5/04256

Definition statement

This place covers:

- Electrodes of a semiconductor laser with at least one electrode having a specific configuration, e.g. the placement of the electrode within an electric circuit.
- Electrodes having specific geometric arrangement, e.g. electrodes with specific distances or specific geometric arrangements between/among them, e.g. an array of VCSEL with the electrodes arranged in the shape of a honeycomb or concentric circles.

Relationships with other classification places

Additional symbols may be allocated if appropriate for further specific aspects of electrodes from the following places H01S5/04252, H01S5/04253, H01S5/04254 and H01S5/04257.

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H01S 5/20

Definition statement

This place covers:

Specific layers of the laser diode chip or materials provided therein or structures manufactured into the semiconductor body that have an impact on the wave-guiding properties of the laser diode. Both alternatives are covered here: index guiding or anti-guiding as well as gain guiding. See the corresponding entries for the correct classification of a document.

Relationships with other classification places

The range H01S5/2004 - H01S5/205 restricts itself to structures having a wave-guiding effect in a direction being perpendicular to the layer structure, which equals in most cases a wave-guiding impact along the growth direction.

Gain guiding in the perpendicular direction by shaping the active region by a thickness variation along the optical axis is in H01S5/106.

Wave-guiding in a direction being parallel to the layer structure can be found in for example:

- H01S5/1003 - H01S5/1017 (index guiding)
- H01S5/1064 (gain guiding)

H01S 5/2004

Definition statement

This place covers:

Structures or layers having a wave-guiding effect in a direction being perpendicular to the layer structure, which equals in most cases a wave-guiding impact along the growth direction. Often used for selecting or suppressing optical modes inside the laser diode chip.

Relationships with other classification places

The range H01S5/2004 - H01S5/205 restricts itself to structures having a wave-guiding effect in a direction being perpendicular to the layer structure, which equals in most cases a wave-guiding impact along the growth direction. Gain guiding in the

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perpendicular direction by shaping the active region by a thickness variation along the optical axis is in H01S5/106.

H01S 5/2009

Definition statement

This place covers:

Electron barrier layers that are used to confine the electrical charges into a certain zone comprising the active region. This confinement results in a confined gain region, which in turn is responsible for an impact of gain guiding on the modes propagating inside the laser diode chip. Electron barrier layers manifest themselves frequently by being a highly doped and thin semiconductor layer with a thickness in the few nanometer range.

Relationships with other classification places

Gain guiding in the perpendicular direction by shaping the active region by a thickness variation along the optical axis is in H01S5/106.

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3. REVISION CONCORDANCE LIST (RCL)

<u>Type*</u>	<u>From CPC Symbol (existing)</u>	<u>To CPC Symbol(s)</u>
C	H01S 3/10007	H01S3/10007, H01S3/1001, H01S3/10013
C	H01S 3/1301	H01S3/1301, H01S3/13013, H01S3/13017
C	H01S 5/0425	H01S5/0425, H01S5/04252, H01S5/04253, H01S5/04254, H01S5/04256, H01S5/04257
C	H01S 5/3202	H01S5/3202, H01S5/320225, H01S5/32025, H01S5/320275

* 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; D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed.

NOTES:

- Only C, D, F, and Q type entries are included in the table above.
- When multiple symbols are included in the “To” column, do not use ranges of symbols.
- 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 (“To”) symbol, however it is required to specify “<no transfer>” in the “To” column for such cases.
- RCL is not needed for finalisation projects.

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4. CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

<u>CPC</u>	<u>IPC</u>	<u>Action*</u>
H01S 3/1001	H01S 3/10	NEW
H01S 3/10013	H01S 3/10	NEW
H01S 3/13013	H01S 3/13	NEW
H01S 3/13017	H01S 3/13	NEW
H01S 5/04252	H01S 5/042	NEW
H01S 5/04253	H01S 5/042	NEW
H01S 5/04254	H01S 5/042	NEW
H01S 5/04256	H01S 5/042	NEW
H01S 5/04257	H01S 5/042	NEW
H01S 5/320225	H01S 5/32	NEW
H01S 5/32025	H01S 5/32	NEW
H01S 5/320275	H01S 5/32	NEW

*Action column:

- For an (N) or (Q) entry, provide an IPC symbol and complete the Action column with “NEW.”
- For an existing CPC main trunk entry or indexing entry where the existing IPC symbol needs to be changed, provide an updated IPC symbol and complete the Action column with “UPDATED.”
- For a (D) CPC entry or indexing entry complete the Action column with “DELETE.” IPC symbol does not need to be included in the IPC column.
- For an (N) 2000 series CPC entry which is positioned within the main trunk scheme (breakdown code) provide an IPC symbol and complete the action column with “NEW”.
- For an (N) 2000 series CPC entry positioned at the end of the CPC scheme (orthogonal code), with no IPC equivalent, complete the IPC column with “CPCONLY” and complete the action column with “NEW”.

NOTES:

- F symbols are not included in the CICL table above.
- T and M symbols are not included in the CICL table above unless a change to the existing IPC is desired.