

Symbol	Typ	Titel
H	Sektion	ELECTRICITY
H01	Klasse	BASIC ELECTRIC ELEMENTS
H01L	Unterklasse	SEMICONDUCTOR DEVICES; ELECTRIC SOLID STATE DEVICES NOT OTHERWISE PROVIDED FOR (use of semiconductor devices for measuring G01; resistors in general H01C; magnets, inductors, transformers H01F; capacitors in general H01G; electrolytic devices H01G 9/00; batteries, accumulators H01M; waveguides, resonators, or lines of the waveguide type H01P; line connectors, 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, <u>see</u> the subclass for the application) [2]
H01L 21/00	Hauptgruppe	Processes or apparatus specially adapted for the manufacture or treatment of semiconductor or solid state devices or of parts thereof [2, 2006.01]
H01L 21/02	1-Punkt Untergruppe	. Manufacture or treatment of semiconductor devices or of parts thereof [2, 2006.01]
H01L 21/027	2-Punkt Untergruppe	. . Making masks on semiconductor bodies for further photolithographic processing, not provided for in group H01L 21/18 or H01L 21/34 [5, 2006.01]
H01L 21/033	3-Punkt Untergruppe	. . . comprising inorganic layers [5, 2006.01]
H01L 21/04	2-Punkt Untergruppe	. . the devices having at least one potential-jump barrier or surface barrier, e.g. PN junction, depletion layer, carrier concentration layer [2, 2006.01]
H01L 21/06	3-Punkt Untergruppe	. . . the devices having semiconductor bodies comprising selenium or tellurium in uncombined form other than as impurities in semiconductor bodies of other materials [2, 2006.01]
H01L 21/08	4-Punkt Untergruppe	 Preparation of the foundation plate [2, 2006.01]
H01L 21/10	4-Punkt Untergruppe	 Preliminary treatment of the selenium or tellurium, its application to the foundation plate, or the subsequent treatment of the combination [2, 2006.01]
H01L 21/103	5-Punkt Untergruppe	 Conversion of the selenium or tellurium to the conductive state [2, 2006.01]
H01L 21/105	5-Punkt Untergruppe	 Treatment of the surface of the selenium or tellurium layer after having been made conductive [2, 2006.01]
H01L 21/108	5-Punkt Untergruppe	 Provision of discrete insulating layers, i.e. non-genetic barrier layers [2, 2006.01]
H01L 21/12	4-Punkt Untergruppe	 Application of an electrode to the exposed surface of the selenium or tellurium after the selenium or tellurium has been applied to the foundation plate [2, 2006.01]
H01L 21/14	4-Punkt Untergruppe	 Treatment of the complete device, e.g. by electroforming to form a barrier [2, 2006.01]
H01L 21/145	5-Punkt Untergruppe	 Ageing [2, 2006.01]
H01L 21/16	3-Punkt Untergruppe	. . . the devices having semiconductor bodies comprising cuprous oxide or cuprous iodide [2, 2006.01]
H01L 21/18	3-Punkt Untergruppe	. . . the devices having semiconductor bodies comprising elements of group IV of the Periodic System or A _{III} B _V compounds with or without impurities, e.g. doping materials [2, 6, 7, 2006.01]
H01L 21/20	4-Punkt Untergruppe	 Deposition of semiconductor materials on a substrate, e.g. epitaxial growth [2, 2006.01]
H01L 21/203	5-Punkt Untergruppe	 using physical deposition, e.g. vacuum deposition, sputtering [2, 2006.01]
H01L 21/205	5-Punkt Untergruppe	 using reduction or decomposition of a gaseous compound yielding a solid condensate, i.e. chemical deposition [2, 2006.01]

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H01L 21/208	5-Punkt Untergruppe	 using liquid deposition [2, 2006.01]
H01L 21/22	4-Punkt Untergruppe	 Diffusion of impurity materials, e.g. doping materials, electrode materials, into, or out of, a semiconductor body, or between semiconductor regions; Redistribution of impurity materials, e.g. without introduction or removal of further dopant [2, 2006.01]
H01L 21/223	5-Punkt Untergruppe	 using diffusion into, or out of, a solid from or into a gaseous phase [2, 2006.01]
H01L 21/225	5-Punkt Untergruppe	 using diffusion into, or out of, a solid from or into a solid phase, e.g. a doped oxide layer [2, 2006.01]
H01L 21/228	5-Punkt Untergruppe	 using diffusion into, or out of, a solid from or into a liquid phase, e.g. alloy diffusion processes [2, 2006.01]
H01L 21/24	4-Punkt Untergruppe	 Alloying of impurity materials, e.g. doping materials, electrode materials, with a semiconductor body [2, 2006.01]
H01L 21/26	4-Punkt Untergruppe	 Bombardment with wave or particle radiation [2, 2006.01]
H01L 21/261	5-Punkt Untergruppe	 to produce a nuclear reaction transmuting chemical elements [6, 2006.01]
H01L 21/263	5-Punkt Untergruppe	 with high-energy radiation (H01L 21/261 takes precedence) [2, 6, 2006.01]
H01L 21/265	6-Punkt Untergruppe	 producing ion implantation [2, 2006.01]
H01L 21/266	7-Punkt Untergruppe	 using masks [5, 2006.01]
H01L 21/268	6-Punkt Untergruppe	 using electromagnetic radiation, e.g. laser radiation [2, 2006.01]
H01L 21/28	4-Punkt Untergruppe	 Manufacture of electrodes on semiconductor bodies using processes or apparatus not provided for in groups H01L 21/20-H01L 21/268 [2, 2006.01]
H01L 21/283	5-Punkt Untergruppe	 Deposition of conductive or insulating materials for electrodes [2, 2006.01]
H01L 21/285	6-Punkt Untergruppe	 from a gas or vapour, e.g. condensation [2, 2006.01]
H01L 21/288	6-Punkt Untergruppe	 from a liquid, e.g. electrolytic deposition [2, 2006.01]
H01L 21/30	4-Punkt Untergruppe	 Treatment of semiconductor bodies using processes or apparatus not provided for in groups H01L 21/20-H01L 21/26 (manufacture of electrodes thereon H01L 21/28) [2, 2006.01]
H01L 21/301	5-Punkt Untergruppe	 to subdivide a semiconductor body into separate parts, e.g. making partitions (cutting H01L 21/304) [6, 2006.01]
H01L 21/302	5-Punkt Untergruppe	 to change the physical characteristics of their surfaces, or to change their shape, e.g. etching, polishing, cutting [2, 2006.01]
H01L 21/304	6-Punkt Untergruppe	 Mechanical treatment, e.g. grinding, polishing, cutting [2, 2006.01]
H01L 21/306	6-Punkt Untergruppe	 Chemical or electrical treatment, e.g. electrolytic etching (to form insulating layers H01L 21/31; after-treatment of insulating layers H01L 21/3105) [2, 2006.01]
H01L 21/3063	7-Punkt Untergruppe	 Electrolytic etching [6, 2006.01]
H01L 21/3065	7-Punkt Untergruppe	 Plasma etching; Reactive-ion etching [6, 2006.01]
H01L 21/308	7-Punkt Untergruppe	 using masks (H01L 21/3063, H01L 21/3065, take precedence) [2, 6, 2006.01]
H01L 21/31	5-Punkt Untergruppe	 to form insulating layers thereon, e.g. for masking or by using photolithographic techniques (encapsulating layers H01L 21/56); After-treatment of these layers; Selection of materials for these layers [2, 5, 2006.01]
H01L 21/3105	6-Punkt Untergruppe	 After-treatment [5, 2006.01]
H01L 21/311	7-Punkt Untergruppe	 Etching the insulating layers [5, 2006.01]

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H01L 21/3115	7-Punkt Untergruppe	 Doping the insulating layers [5, 2006.01]
H01L 21/312	6-Punkt Untergruppe	 Organic layers, e.g. photoresist (H01L 21/3105, H01L 21/32 take precedence) [2, 5, 2006.01]
H01L 21/314	6-Punkt Untergruppe	 Inorganic layers (H01L 21/3105, H01L 21/32 take precedence) [2, 5, 2006.01]
H01L 21/316	7-Punkt Untergruppe	 composed of oxides or glassy oxides or oxide-based glass [2, 2006.01]
H01L 21/318	7-Punkt Untergruppe	 composed of nitrides [2, 2006.01]
H01L 21/32	6-Punkt Untergruppe	 using masks [2, 5, 2006.01]
H01L 21/3205	6-Punkt Untergruppe	 Deposition of non-insulating-, e.g. conductive- or resistive-, layers, on insulating layers; After-treatment of these layers (manufacture of electrodes H01L 21/28) [5, 2006.01]
H01L 21/321	7-Punkt Untergruppe	 After-treatment [5, 2006.01]
H01L 21/3213	8-Punkt Untergruppe	 Physical or chemical etching of the layers, e.g. to produce a patterned layer from a pre-deposited extensive layer [6, 2006.01]
H01L 21/3215	8-Punkt Untergruppe	 Doping the layers [5, 2006.01]
H01L 21/322	5-Punkt Untergruppe	 to modify their internal properties, e.g. to produce internal imperfections [2, 2006.01]
H01L 21/324	5-Punkt Untergruppe	 Thermal treatment for modifying the properties of semiconductor bodies, e.g. annealing, sintering (H01L 21/20-H01L 21/288, H01L 21/302-H01L 21/322 take precedence) [2, 2006.01]
H01L 21/326	5-Punkt Untergruppe	 Application of electric currents or fields, e.g. for electroforming (H01L 21/20-H01L 21/288, H01L 21/302-H01L 21/324 take precedence) [2, 2006.01]
H01L 21/328	4-Punkt Untergruppe	 Multistep processes for the manufacture of devices of the bipolar type, e.g. diodes, transistors, thyristors [5, 2006.01]
H01L 21/329	5-Punkt Untergruppe	 the devices comprising one or two electrodes, e.g. diodes [5, 2006.01]
H01L 21/33	5-Punkt Untergruppe	 the devices comprising three or more electrodes [5, 2006.01]
H01L 21/331	6-Punkt Untergruppe	 Transistors [5, 2006.01]
H01L 21/332	6-Punkt Untergruppe	 Thyristors [5, 2006.01]
H01L 21/334	4-Punkt Untergruppe	 Multistep processes for the manufacture of devices of the unipolar type [5, 2006.01]
H01L 21/335	5-Punkt Untergruppe	 Field-effect transistors [5, 2006.01]
H01L 21/336	6-Punkt Untergruppe	 with an insulated gate [5, 2006.01]
H01L 21/337	6-Punkt Untergruppe	 with a PN junction gate [5, 2006.01]
H01L 21/338	6-Punkt Untergruppe	 with a Schottky gate [5, 2006.01]
H01L 21/339	5-Punkt Untergruppe	 Charge transfer devices [5, 6, 2006.01]
H01L 21/34	3-Punkt Untergruppe	. . . the devices having semiconductor bodies not provided for in groups H01L 21/06, H01L 21/16, and H01L 21/18 with or without impurities, e.g. doping materials [2, 2006.01]
H01L 21/36	4-Punkt Untergruppe	 Deposition of semiconductor materials on a substrate, e.g. epitaxial growth [2, 2006.01]
H01L 21/363	5-Punkt Untergruppe	 using physical deposition, e.g. vacuum deposition, sputtering [2, 2006.01]
H01L 21/365	5-Punkt Untergruppe	 using reduction or decomposition of a gaseous compound yielding a solid condensate, i.e. chemical deposition [2, 2006.01]

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H01L 21/368	5-Punkt Untergruppe	 using liquid deposition [2, 2006.01]
H01L 21/38	4-Punkt Untergruppe	 Diffusion of impurity materials, e.g. doping materials, electrode materials, into, or out of, a semiconductor body, or between semiconductor regions [2, 2006.01]
H01L 21/383	5-Punkt Untergruppe	 using diffusion into, or out of, a solid from or into a gaseous phase [2, 2006.01]
H01L 21/385	5-Punkt Untergruppe	 using diffusion into, or out of, a solid from or into a solid phase, e.g. a doped oxide layer [2, 2006.01]
H01L 21/388	5-Punkt Untergruppe	 using diffusion into, or out of, a solid from or into a liquid phase, e.g. alloy diffusion processes [2, 2006.01]
H01L 21/40	4-Punkt Untergruppe	 Alloying of impurity materials, e.g. doping materials, electrode materials, with a semiconductor body [2, 2006.01]
H01L 21/42	4-Punkt Untergruppe	 Bombardment with radiation [2, 2006.01]
H01L 21/423	5-Punkt Untergruppe	 with high-energy radiation [2, 2006.01]
H01L 21/425	6-Punkt Untergruppe	 producing ion implantation [2, 2006.01]
H01L 21/426	7-Punkt Untergruppe	 using masks [5, 2006.01]
H01L 21/428	6-Punkt Untergruppe	 using electromagnetic radiation, e.g. laser radiation [2, 2006.01]
H01L 21/44	4-Punkt Untergruppe	 Manufacture of electrodes on semiconductor bodies using processes or apparatus not provided for in groups H01L 21/36-H01L 21/428 [2, 2006.01]
H01L 21/441	5-Punkt Untergruppe	 Deposition of conductive or insulating materials for electrodes [2, 2006.01]
H01L 21/443	6-Punkt Untergruppe	 from a gas or vapour, e.g. condensation [2, 2006.01]
H01L 21/445	6-Punkt Untergruppe	 from a liquid, e.g. electrolytic deposition [2, 2006.01]
H01L 21/447	5-Punkt Untergruppe	 involving the application of pressure, e.g. thermo-compression bonding (H01L 21/607 takes precedence) [2, 2006.01]
H01L 21/449	5-Punkt Untergruppe	 involving the application of mechanical vibrations, e.g. ultrasonic vibrations [2, 2006.01]
H01L 21/46	4-Punkt Untergruppe	 Treatment of semiconductor bodies using processes or apparatus not provided for in groups H01L 21/36-H01L 21/428 (manufacture of electrodes thereon H01L 21/44) [2, 2006.01]
H01L 21/461	5-Punkt Untergruppe	 to change their surface-physical characteristics or shape, e.g. etching, polishing, cutting [2, 2006.01]
H01L 21/463	6-Punkt Untergruppe	 Mechanical treatment, e.g. grinding, ultrasonic treatment [2, 2006.01]
H01L 21/465	6-Punkt Untergruppe	 Chemical or electrical treatment, e.g. electrolytic etching (to form insulating layers H01L 21/469) [2, 2006.01]
H01L 21/467	7-Punkt Untergruppe	 using masks [2, 2006.01]
H01L 21/469	6-Punkt Untergruppe	 to form insulating layers thereon, e.g. for masking or by using photolithographic techniques (encapsulating layers H01L 21/56); After-treatment of these layers [2, 5, 2006.01]
H01L 21/47	7-Punkt Untergruppe	 Organic layers, e.g. photoresist (H01L 21/475, H01L 21/4757 take precedence) [2, 5, 2006.01]
H01L 21/471	7-Punkt Untergruppe	 Inorganic layers (H01L 21/475, H01L 21/4757 take precedence) [2, 5, 2006.01]
H01L 21/473	8-Punkt Untergruppe	 composed of oxides or glassy oxides or oxide-based glass [2, 2006.01]
H01L 21/475	7-Punkt Untergruppe	 using masks [2, 5, 2006.01]
H01L 21/4757	7-Punkt Untergruppe	 After-treatment [5, 2006.01]

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H01L 21/4763	6-Punkt Untergruppe	 Deposition of non-insulating-, e.g. conductive-, resistive-, layers on insulating layers; After-treatment of these layers (manufacture of electrodes H01L 21/28) [5, 2006.01]
H01L 21/477	5-Punkt Untergruppe	 Thermal treatment for modifying the properties of semiconductor bodies, e.g. annealing, sintering (H01L 21/36-H01L 21/449, H01L 21/461-H01L 21/475 take precedence) [2, 2006.01]
H01L 21/479	5-Punkt Untergruppe	 Application of electric currents or fields, e.g. for electroforming (H01L 21/36-H01L 21/449, H01L 21/461-H01L 21/477 take precedence) [2, 2006.01]
H01L 21/48	3-Punkt Untergruppe	. . . Manufacture or treatment of parts, e.g. containers, prior to assembly of the devices, using processes not provided for in a single one of the groups H01L 21/06-H01L 21/326 [2, 2006.01]
H01L 21/50	3-Punkt Untergruppe	. . . Assembly of semiconductor devices using processes or apparatus not provided for in a single one of the groups H01L 21/06-H01L 21/326 [2, 2006.01]
H01L 21/52	4-Punkt Untergruppe	 Mounting semiconductor bodies in containers [2, 2006.01]
H01L 21/54	4-Punkt Untergruppe	 Providing fillings in containers, e.g. gas fillings [2, 2006.01]
H01L 21/56	4-Punkt Untergruppe	 Encapsulations, e.g. encapsulating layers, coatings [2, 2006.01]
H01L 21/58	4-Punkt Untergruppe	 Mounting semiconductor devices on supports [2, 2006.01]
H01L 21/60	4-Punkt Untergruppe	 Attaching leads or other conductive members, to be used for carrying current to or from the device in operation [2, 2006.01]
H01L 21/603	5-Punkt Untergruppe	 involving the application of pressure, e.g. thermo-compression bonding (H01L 21/607 takes precedence) [2, 2006.01]
H01L 21/607	5-Punkt Untergruppe	 involving the application of mechanical vibrations, e.g. ultrasonic vibrations [2, 2006.01]
H01L 21/62	2-Punkt Untergruppe	. . the devices having no potential-jump barriers or surface barriers [2, 2006.01]
H01L 21/64	1-Punkt Untergruppe	. Manufacture or treatment of solid state devices other than semiconductor devices, or of parts thereof, not specially adapted for a single type of device provided for in groups H01L 31/00-H01L 51/00 [2, 2006.01]
H01L 21/66	1-Punkt Untergruppe	. Testing or measuring during manufacture or treatment [2, 2006.01]
H01L 21/67	1-Punkt Untergruppe	. Apparatus specially adapted for handling semiconductor or electric solid state devices during manufacture or treatment thereof; Apparatus specially adapted for handling wafers during manufacture or treatment of semiconductor or electric solid state devices or components [2006.01]
H01L 21/673	2-Punkt Untergruppe	. . using specially adapted carriers [2006.01]
H01L 21/677	2-Punkt Untergruppe	. . for conveying, e.g. between different work stations [2006.01]
H01L 21/68	2-Punkt Untergruppe	. . for positioning, orientation or alignment [2, 2006.01]
H01L 21/683	2-Punkt Untergruppe	. . for supporting or gripping (for positioning, orientation or alignment H01L 21/68) [2006.01]
H01L 21/687	3-Punkt Untergruppe	. . . using mechanical means, e.g. chucks, clamps or pinches [2006.01]
H01L 21/70	1-Punkt Untergruppe	. Manufacture or treatment of devices consisting of a plurality of solid state components or integrated circuits formed in or on a common substrate or of specific parts thereof; Manufacture of integrated circuit devices or of specific parts thereof (manufacture of assemblies consisting of preformed electrical components H05K 3/00, H05K 13/00) [2, 2006.01]
H01L 21/71	2-Punkt Untergruppe	. . Manufacture of specific parts of devices defined in group H01L 21/70 (H01L 21/28, H01L 21/44, H01L 21/48 take precedence) [6, 2006.01]
H01L 21/74	3-Punkt Untergruppe	. . . Making of buried regions of high impurity concentration, e.g. buried collector layers, internal connections [2, 2006.01]
H01L 21/76	3-Punkt Untergruppe	. . . Making of isolation regions between components [2, 2006.01]

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H01L 21/761	4-Punkt Untergruppe	 PN junctions [6, 2006.01]
H01L 21/762	4-Punkt Untergruppe	 Dielectric regions [6, 2006.01]
H01L 21/763	4-Punkt Untergruppe	 Polycrystalline semiconductor regions [6, 2006.01]
H01L 21/764	4-Punkt Untergruppe	 Air gaps [6, 2006.01]
H01L 21/765	4-Punkt Untergruppe	 by field-effect [6, 2006.01]
H01L 21/768	3-Punkt Untergruppe	. . . Applying interconnections to be used for carrying current between separate components within a device [6, 2006.01]
<i>H01L 21/77</i>	<i>2-Punkt Untergruppe</i>	<i>. . Manufacture or treatment of devices consisting of a plurality of solid state components or integrated circuits formed in, or on, a common substrate (electrically programmable read-only memories or multistep manufacturing processes therefor H01L 27/115) [6, 2006.01, 2017.01]</i>
H01L 21/78	3-Punkt Untergruppe	. . . with subsequent division of the substrate into plural individual devices (cutting to change the surface-physical characteristics or shape of semiconductor bodies H01L 21/304) [2, 6, 2006.01]
H01L 21/782	4-Punkt Untergruppe	 to produce devices, each consisting of a single circuit element (H01L 21/82 takes precedence) [6, 2006.01]
H01L 21/784	5-Punkt Untergruppe	 the substrate being a semiconductor body [6, 2006.01]
H01L 21/786	5-Punkt Untergruppe	 the substrate being other than a semiconductor body, e.g. insulating body [6, 2006.01]
H01L 21/82	4-Punkt Untergruppe	 to produce devices, e.g. integrated circuits, each consisting of a plurality of components [2, 2006.01]
H01L 21/822	5-Punkt Untergruppe	 the substrate being a semiconductor, using silicon technology (H01L 21/8258 takes precedence) [6, 2006.01]
H01L 21/8222	6-Punkt Untergruppe	 Bipolar technology [6, 2006.01]
H01L 21/8224	7-Punkt Untergruppe	 comprising a combination of vertical and lateral transistors [6, 2006.01]
H01L 21/8226	7-Punkt Untergruppe	 comprising merged transistor logic or integrated injection logic [6, 2006.01]
H01L 21/8228	7-Punkt Untergruppe	 Complementary devices, e.g. complementary transistors [6, 2006.01]
H01L 21/8229	7-Punkt Untergruppe	 Memory structures [6, 2006.01]
H01L 21/8232	6-Punkt Untergruppe	 Field-effect technology [6, 2006.01]
H01L 21/8234	7-Punkt Untergruppe	 MIS technology [6, 2006.01]
H01L 21/8236	8-Punkt Untergruppe	 Combination of enhancement and depletion transistors [6, 2006.01]
H01L 21/8238	8-Punkt Untergruppe	 Complementary field-effect transistors, e.g. CMOS [6, 2006.01]
H01L 21/8239	8-Punkt Untergruppe	 Memory structures [6, 2006.01]
H01L 21/8242	9-Punkt Untergruppe	 Dynamic random access memory structures (DRAM) [6, 2006.01]
H01L 21/8244	9-Punkt Untergruppe	 Static random access memory structures (SRAM) [6, 2006.01]
H01L 21/8246	9-Punkt Untergruppe	 Read-only memory structures (ROM) [6, 2006.01]
H01L 21/8247	Gelöscht	(transferred to H01L 27/115-H01L 27/11597)
H01L 21/8248	6-Punkt Untergruppe	 Combination of bipolar and field-effect technology [6, 2006.01]
H01L 21/8249	7-Punkt Untergruppe	 Bipolar and MOS technology [6, 2006.01]

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H01L 21/8252	5-Punkt Untergruppe	 the substrate being a semiconductor, using III-V technology (H01L 21/8258 takes precedence) [6, 2006.01]
H01L 21/8254	5-Punkt Untergruppe	 the substrate being a semiconductor, using II-VI technology (H01L 21/8258 takes precedence) [6, 2006.01]
H01L 21/8256	5-Punkt Untergruppe	 the substrate being a semiconductor, using technologies not covered by one of groups H01L 21/822, H01L 21/8252 or H01L 21/8254 (H01L 21/8258 takes precedence) [6, 2006.01]
H01L 21/8258	5-Punkt Untergruppe	 the substrate being a semiconductor, using a combination of technologies covered by H01L 21/822, H01L 21/8252, H01L 21/8254 or H01L 21/8256 [6, 2006.01]
H01L 21/84	5-Punkt Untergruppe	 the substrate being other than a semiconductor body, e.g. being an insulating body [2, 6, 2006.01]
H01L 21/86	6-Punkt Untergruppe	 the insulating body being sapphire, e.g. silicon on sapphire structure, i.e. SOS [2, 6, 2006.01]
H01L 21/98	2-Punkt Untergruppe	. . Assembly of devices consisting of solid state components formed in or on a common substrate; Assembly of integrated circuit devices (H01L 21/50 takes precedence) [2, 5, 2006.01]
H01L 23/00	Hauptgruppe	Details of semiconductor or other solid state devices (H01L 25/00 takes precedence) [2, 5, 2006.01]
H01L 23/02	1-Punkt Untergruppe	. Containers; Seals (H01L 23/12, H01L 23/34, H01L 23/48, H01L 23/552 take precedence) [2, 5, 2006.01]
H01L 23/04	2-Punkt Untergruppe	. . characterised by the shape [2, 2006.01]
H01L 23/043	3-Punkt Untergruppe	. . . the container being a hollow construction and having a conductive base as a mounting as well as a lead for the semiconductor body [5, 2006.01]
H01L 23/045	4-Punkt Untergruppe	 the other leads having an insulating passage through the base [5, 2006.01]
H01L 23/047	4-Punkt Untergruppe	 the other leads being parallel to the base [5, 2006.01]
H01L 23/049	4-Punkt Untergruppe	 the other leads being perpendicular to the base [5, 2006.01]
H01L 23/051	4-Punkt Untergruppe	 another lead being formed by a cover plate parallel to the base plate, e.g. sandwich type [5, 2006.01]
H01L 23/053	3-Punkt Untergruppe	. . . the container being a hollow construction and having an insulating base as a mounting for the semiconductor body [5, 2006.01]
H01L 23/055	4-Punkt Untergruppe	 the leads having a passage through the base [5, 2006.01]
H01L 23/057	4-Punkt Untergruppe	 the leads being parallel to the base [5, 2006.01]
H01L 23/06	2-Punkt Untergruppe	. . characterised by the material of the container or its electrical properties [2, 2006.01]
H01L 23/08	3-Punkt Untergruppe	. . . the material being an electrical insulator, e.g. glass [2, 2006.01]
H01L 23/10	2-Punkt Untergruppe	. . characterised by the material or arrangement of seals between parts, e.g. between cap and base of the container or between leads and walls of the container [2, 2006.01]
H01L 23/12	1-Punkt Untergruppe	. Mountings, e.g. non-detachable insulating substrates [2, 2006.01]
H01L 23/13	2-Punkt Untergruppe	. . characterised by the shape [5, 2006.01]
H01L 23/14	2-Punkt Untergruppe	. . characterised by the material or its electrical properties [2, 2006.01]
H01L 23/15	3-Punkt Untergruppe	. . . Ceramic or glass substrates [5, 2006.01]
H01L 23/16	1-Punkt Untergruppe	. Fillings or auxiliary members in containers, e.g. centering rings (H01L 23/42, H01L 23/552 take precedence) [2, 5, 2006.01]
H01L 23/18	2-Punkt Untergruppe	. . Fillings characterised by the material, its physical or chemical properties, or its arrangement within the complete device [2, 2006.01]

Symbol	Typ	Titel
H01L 23/20	3-Punkt Untergruppe	. . . gaseous at the normal operating temperature of the device [2, 2006.01]
H01L 23/22	3-Punkt Untergruppe	. . . liquid at the normal operating temperature of the device [2, 2006.01]
H01L 23/24	3-Punkt Untergruppe	. . . solid or gel, at the normal operating temperature of the device [2, 2006.01]
H01L 23/26	3-Punkt Untergruppe	. . . including materials for absorbing or reacting with moisture or other undesired substances [2, 2006.01]
H01L 23/28	1-Punkt Untergruppe	. Encapsulation, e.g. encapsulating layers, coatings (H01L 23/552 takes precedence) [2, 5, 2006.01]
H01L 23/29	2-Punkt Untergruppe	. . characterised by the material [5, 2006.01]
H01L 23/31	2-Punkt Untergruppe	. . characterised by the arrangement [5, 2006.01]
H01L 23/32	1-Punkt Untergruppe	. Holders for supporting the complete device in operation, i.e. detachable fixtures (H01L 23/40 takes precedence) [2, 5, 2006.01]
H01L 23/34	1-Punkt Untergruppe	. Arrangements for cooling, heating, ventilating or temperature compensation [2, 5, 2006.01]
H01L 23/36	2-Punkt Untergruppe	. . Selection of materials, or shaping, to facilitate cooling or heating, e.g. heat sinks [2, 2006.01]
H01L 23/367	3-Punkt Untergruppe	. . . Cooling facilitated by shape of device [5, 2006.01]
H01L 23/373	3-Punkt Untergruppe	. . . Cooling facilitated by selection of materials for the device [5, 2006.01]
H01L 23/38	2-Punkt Untergruppe	. . Cooling arrangements using the Peltier effect [2, 2006.01]
H01L 23/40	2-Punkt Untergruppe	. . Mountings or securing means for detachable cooling or heating arrangements [2, 2006.01]
H01L 23/42	2-Punkt Untergruppe	. . Fillings or auxiliary members in containers selected or arranged to facilitate heating or cooling [2, 5, 2006.01]
H01L 23/427	3-Punkt Untergruppe	. . . Cooling by change of state, e.g. use of heat pipes [5, 2006.01]
H01L 23/433	3-Punkt Untergruppe	. . . Auxiliary members characterised by their shape, e.g. pistons [5, 2006.01]
H01L 23/44	2-Punkt Untergruppe	. . the complete device being wholly immersed in a fluid other than air (H01L 23/427 takes precedence) [2, 5, 2006.01]
H01L 23/46	2-Punkt Untergruppe	. . involving the transfer of heat by flowing fluids (H01L 23/42, H01L 23/44 take precedence) [2, 2006.01]
H01L 23/467	3-Punkt Untergruppe	. . . by flowing gases, e.g. air [5, 2006.01]
H01L 23/473	3-Punkt Untergruppe	. . . by flowing liquids [5, 2006.01]
H01L 23/48	1-Punkt Untergruppe	. Arrangements for conducting electric current to or from the solid state body in operation, e.g. leads or terminal arrangements [2, 2006.01]
H01L 23/482	2-Punkt Untergruppe	. . consisting of lead-in layers inseparably applied to the semiconductor body [5, 2006.01]
H01L 23/485	3-Punkt Untergruppe	. . . consisting of layered constructions comprising conductive layers and insulating layers, e.g. planar contacts [5, 2006.01]
H01L 23/488	2-Punkt Untergruppe	. . consisting of soldered or bonded constructions [5, 2006.01]
H01L 23/49	3-Punkt Untergruppe	. . . wire-like [5, 2006.01]
H01L 23/492	3-Punkt Untergruppe	. . . Bases or plates [5, 2006.01]
H01L 23/495	3-Punkt Untergruppe	. . . Lead-frames [5, 2006.01]
H01L 23/498	3-Punkt Untergruppe	. . . Leads on insulating substrates [5, 2006.01]

Symbol	Typ	Titel
H01L 23/50	2-Punkt Untergruppe	. . for integrated circuit devices (H01L 23/482-H01L 23/498 take precedence) [2, 5, 2006.01]
H01L 23/52	1-Punkt Untergruppe	. Arrangements for conducting electric current within the device in operation from one component to another [2, 2006.01]
H01L 23/522	2-Punkt Untergruppe	. . including external interconnections consisting of a multilayer structure of conductive and insulating layers inseparably formed on the semiconductor body [5, 2006.01]
H01L 23/525	3-Punkt Untergruppe	. . . with adaptable interconnections [5, 2006.01]
H01L 23/528	3-Punkt Untergruppe	. . . Layout of the interconnection structure [5, 2006.01]
H01L 23/532	3-Punkt Untergruppe	. . . characterised by the materials [5, 2006.01]
H01L 23/535	2-Punkt Untergruppe	. . including internal interconnections, e.g. cross-under constructions [5, 2006.01]
H01L 23/538	2-Punkt Untergruppe	. . the interconnection structure between a plurality of semiconductor chips being formed on, or in, insulating substrates [5, 2006.01]
H01L 23/544	1-Punkt Untergruppe	. Marks applied to semiconductor devices, e.g. registration marks, test patterns [5, 2006.01]
H01L 23/552	1-Punkt Untergruppe	. Protection against radiation, e.g. light [5, 2006.01]
H01L 23/556	2-Punkt Untergruppe	. . against alpha rays [5, 2006.01]
H01L 23/58	1-Punkt Untergruppe	. Structural electrical arrangements for semiconductor devices not otherwise provided for [5, 2006.01]
H01L 23/60	2-Punkt Untergruppe	. . Protection against electrostatic charges or discharges, e.g. Faraday shields [5, 2006.01]
H01L 23/62	2-Punkt Untergruppe	. . Protection against overcurrent or overload, e.g. fuses, shunts [5, 2006.01]
H01L 23/64	2-Punkt Untergruppe	. . Impedance arrangements [5, 2006.01]
H01L 23/66	3-Punkt Untergruppe	. . . High-frequency adaptations [5, 2006.01]
H01L 25/00	Hauptgruppe	Assemblies consisting of a plurality of individual semiconductor or other solid state devices (devices consisting of a plurality of solid state components formed in or on a common substrate H01L 27/00; photovoltaic modules or arrays of photovoltaic cells H01L 31/042) [2, 5, 2006.01]
H01L 25/03	1-Punkt Untergruppe	. all the devices being of a type provided for in the same subgroup of groups H01L 27/00-H01L 51/00, e.g. assemblies of rectifier diodes [5, 2006.01]
H01L 25/04	2-Punkt Untergruppe	. . the devices not having separate containers [2, 2006.01, 2014.01]
H01L 25/065	3-Punkt Untergruppe	. . . the devices being of a type provided for in group H01L 27/00 [5, 2006.01]
H01L 25/07	3-Punkt Untergruppe	. . . the devices being of a type provided for in group H01L 29/00 [5, 2006.01]
H01L 25/075	3-Punkt Untergruppe	. . . the devices being of a type provided for in group H01L 33/00 [5, 2006.01]
H01L 25/10	2-Punkt Untergruppe	. . the devices having separate containers [2, 2006.01]
H01L 25/11	3-Punkt Untergruppe	. . . the devices being of a type provided for in group H01L 29/00 [5, 2006.01]
H01L 25/13	3-Punkt Untergruppe	. . . the devices being of a type provided for in group H01L 33/00 [5, 2006.01]
H01L 25/16	1-Punkt Untergruppe	. the devices being of types provided for in two or more different main groups of groups H01L 27/00-H01L 51/00, e.g. forming hybrid circuits [2, 2006.01]
H01L 25/18	1-Punkt Untergruppe	. the devices being of types provided for in two or more different subgroups of the same main group of groups H01L 27/00-H01L 51/00 [5, 2006.01]
H01L 27/00	Hauptgruppe	Devices consisting of a plurality of semiconductor or other solid-state components formed in or on a common substrate (details thereof H01L 23/00, H01L 29/00-H01L 51/00; assemblies consisting of a plurality of individual solid state devices H01L 25/00) [2, 2006.01]

Symbol	Typ	Titel
H01L 27/01	1-Punkt Untergruppe	. comprising only passive thin-film or thick-film elements formed on a common insulating substrate [3, 2006.01]
H01L 27/02	1-Punkt Untergruppe	. including semiconductor components specially adapted for rectifying, oscillating, amplifying or switching and having at least one potential-jump barrier or surface barrier; including integrated passive circuit elements with at least one potential-jump barrier or surface barrier [2, 2006.01]
H01L 27/04	2-Punkt Untergruppe	. . the substrate being a semiconductor body [2, 2006.01]
H01L 27/06	3-Punkt Untergruppe	. . . including a plurality of individual components in a non-repetitive configuration [2, 2006.01]
H01L 27/07	4-Punkt Untergruppe	 the components having an active region in common [5, 2006.01]
H01L 27/08	3-Punkt Untergruppe	. . . including only semiconductor components of a single kind [2, 2006.01]
H01L 27/082	4-Punkt Untergruppe	 including bipolar components only [5, 2006.01]
H01L 27/085	4-Punkt Untergruppe	 including field-effect components only [5, 2006.01]
H01L 27/088	5-Punkt Untergruppe	 the components being field-effect transistors with insulated gate [5, 2006.01]
H01L 27/092	6-Punkt Untergruppe	 complementary MIS field-effect transistors [5, 2006.01]
H01L 27/095	5-Punkt Untergruppe	 the components being Schottky barrier gate field-effect transistors [5, 2006.01]
H01L 27/098	5-Punkt Untergruppe	 the components being PN junction gate field-effect transistors [5, 2006.01]
H01L 27/10	3-Punkt Untergruppe	. . . including a plurality of individual components in a repetitive configuration [2, 2006.01]
H01L 27/102	4-Punkt Untergruppe	 including bipolar components [5, 2006.01]
H01L 27/105	4-Punkt Untergruppe	 including field-effect components [5, 2006.01]
H01L 27/108	5-Punkt Untergruppe	 Dynamic random access memory structures [5, 2006.01]
H01L 27/11	5-Punkt Untergruppe	 Static random access memory structures [5, 2006.01]
H01L 27/112	5-Punkt Untergruppe	 Read-only memory structures [5, 2006.01]
<i>H01L 27/115</i>	<i>6-Punkt Untergruppe</i>	<i>. Electrically programmable read-only memories ; Multistep manufacturing processes therefor [5, 2006.01, 2017.01]</i>
<i>H01L 27/11502</i>	<i>7-Punkt Untergruppe</i>	<i>. with ferroelectric memory capacitors [2017.01]</i>
<i>H01L 27/11504</i>	<i>8-Punkt Untergruppe</i>	<i>. characterised by the top-view layout [2017.01]</i>
<i>H01L 27/11507</i>	<i>8-Punkt Untergruppe</i>	<i>. characterised by the memory core region [2017.01]</i>
<i>H01L 27/11509</i>	<i>8-Punkt Untergruppe</i>	<i>. characterised by the peripheral circuit region [2017.01]</i>
<i>H01L 27/11512</i>	<i>8-Punkt Untergruppe</i>	<i>. characterised by the boundary region between the core and peripheral circuit regions [2017.01]</i>
<i>H01L 27/11514</i>	<i>8-Punkt Untergruppe</i>	<i>. characterised by the three-dimensional arrangements, e.g. with cells on different height levels [2017.01]</i>
<i>H01L 27/11517</i>	<i>7-Punkt Untergruppe</i>	<i>. with floating gate [2017.01]</i>
<i>H01L 27/11519</i>	<i>8-Punkt Untergruppe</i>	<i>. characterised by the top-view layout [2017.01]</i>
<i>H01L 27/11521</i>	<i>8-Punkt Untergruppe</i>	<i>. characterised by the memory core region (three-dimensional arrangements H01L 27/11551) [2017.01]</i>
<i>H01L 27/11524</i>	<i>9-Punkt Untergruppe</i>	<i>. with cell select transistors, e.g. NAND [2017.01]</i>

Symbol	Type	Titel
H01L 27/11526	8-Punkt Untergruppe	 characterised by the peripheral circuit region [2017.01]
H01L 27/11529	9-Punkt Untergruppe	 of memory regions comprising cell select transistors, e.g. NAND [2017.01]
H01L 27/11531	9-Punkt Untergruppe	 Simultaneous manufacturing of periphery and memory cells [2017.01]
H01L 27/11534	10-Punkt Untergruppe	 including only one type of peripheral transistor [2017.01]
H01L 27/11536	11-Punkt Untergruppe	 with a control gate layer also being used as part of the peripheral transistor [2017.01]
H01L 27/11539	11-Punkt Untergruppe	 with an inter-gate dielectric layer also being used as part of the peripheral transistor [2017.01]
H01L 27/11541	11-Punkt Untergruppe	 with a floating-gate layer also being used as part of the peripheral transistor [2017.01]
H01L 27/11543	11-Punkt Untergruppe	 with a tunnel dielectric layer also being used as part of the peripheral transistor [2017.01]
H01L 27/11546	10-Punkt Untergruppe	 including different types of peripheral transistor [2017.01]
H01L 27/11548	8-Punkt Untergruppe	 characterised by the boundary region between the core and peripheral circuit regions [2017.01]
H01L 27/11551	8-Punkt Untergruppe	 characterised by three-dimensional arrangements, e.g. with cells on different height levels [2017.01]
H01L 27/11553	9-Punkt Untergruppe	 with source and drain on different levels, e.g. with sloping channels [2017.01]
H01L 27/11556	10-Punkt Untergruppe	 the channels comprising vertical portions, e.g. U-shaped channels [2017.01]
H01L 27/11558	8-Punkt Untergruppe	 the control gate being a doped region, e.g. single-poly memory cells [2017.01]
H01L 27/1156	8-Punkt Untergruppe	 the floating gate being an electrode shared by two or more components [2017.01]
H01L 27/11563	7-Punkt Untergruppe	 with charge-trapping gate insulators, e.g. MNOS or NROM [2017.01]
H01L 27/11565	8-Punkt Untergruppe	 characterised by the top-view layout [2017.01]
H01L 27/11568	8-Punkt Untergruppe	 characterised by the memory core region (three-dimensional arrangements H01L 27/11578) [2017.01]
H01L 27/1157	9-Punkt Untergruppe	 with cell select transistors, e.g. NAND [2017.01]
H01L 27/11573	8-Punkt Untergruppe	 characterised by the peripheral circuit region [2017.01]
H01L 27/11575	8-Punkt Untergruppe	 characterised by the boundary region between the core and peripheral circuit regions [2017.01]
H01L 27/11578	8-Punkt Untergruppe	 characterised by three-dimensional arrangements, e.g. with cells on different height levels [2017.01]
H01L 27/1158	9-Punkt Untergruppe	 with source and drain on different levels, e.g. with sloping channels [2017.01]
H01L 27/11582	10-Punkt Untergruppe	 the channels comprising vertical portions, e.g. U-shaped channels [2017.01]
H01L 27/11585	7-Punkt Untergruppe	 with the gate electrodes comprising a layer used for its ferroelectric memory properties, e.g. metal-ferroelectric-semiconductor [MFS] or metal-ferroelectric-metal-insulator-semiconductor [MFMIS] [2017.01]
H01L 27/11587	8-Punkt Untergruppe	 characterised by the top-view layout [2017.01]

Symbol	Typ	Titel
H01L 27/1159	8-Punkt Untergruppe	 characterised by the memory core region [2017.01]
H01L 27/11592	8-Punkt Untergruppe	 characterised by the peripheral circuit region [2017.01]
H01L 27/11595	8-Punkt Untergruppe	 characterised by the boundary region between core and peripheral circuit regions [2017.01]
H01L 27/11597	8-Punkt Untergruppe	 characterised by three-dimensional arrangements, e.g. cells on different height levels [2017.01]
H01L 27/118	4-Punkt Untergruppe	 Masterslice integrated circuits [5, 2006.01]
H01L 27/12	2-Punkt Untergruppe	. . the substrate being other than a semiconductor body, e.g. an insulating body [2, 2006.01]
H01L 27/13	3-Punkt Untergruppe	. . . combined with thin-film or thick-film passive components [3, 2006.01]
H01L 27/14	1-Punkt Untergruppe	. including semiconductor components sensitive to infra-red radiation, light, electromagnetic radiation of shorter wavelength or corpuscular radiation and specially adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation (radiation-sensitive components structurally associated with one or more electric light sources only H01L 31/14; couplings of light guides with optoelectronic elements G02B 6/42) [2, 2006.01]
H01L 27/142	2-Punkt Untergruppe	. . Energy conversion devices (photovoltaic modules or arrays of single photovoltaic cells comprising bypass diodes integrated or directly associated with the devices H01L 31/0443; photovoltaic modules composed of a plurality of thin film solar cells deposited on the same substrate H01L 31/046) [5, 2006.01, 2014.01]
H01L 27/144	2-Punkt Untergruppe	. . Devices controlled by radiation [5, 2006.01]
H01L 27/146	3-Punkt Untergruppe	. . . Imager structures [5, 2006.01]
H01L 27/148	4-Punkt Untergruppe	 Charge coupled imagers [5, 2006.01]
H01L 27/15	1-Punkt Untergruppe	. including semiconductor components with at least one potential-jump barrier or surface barrier, specially adapted for light emission [2, 2006.01]
H01L 27/16	1-Punkt Untergruppe	. including thermoelectric components with or without a junction of dissimilar materials; including thermomagnetic components (using the Peltier effect only for cooling of semiconductor or other solid state devices H01L 23/38) [2, 2006.01]
H01L 27/18	1-Punkt Untergruppe	. including components exhibiting superconductivity [2, 2006.01]
H01L 27/20	1-Punkt Untergruppe	. including piezo-electric components; including electrostrictive components; including magnetostrictive components [2, 7, 2006.01]
H01L 27/22	1-Punkt Untergruppe	. including components using galvano-magnetic effects, e.g. Hall effect; using similar magnetic field effects [2, 2006.01]
H01L 27/24	1-Punkt Untergruppe	. including solid state components for rectifying, amplifying, or switching without a potential-jump barrier or surface barrier [2, 2006.01]
H01L 27/26	1-Punkt Untergruppe	. including bulk negative resistance effect components [2, 2006.01]
H01L 27/28	1-Punkt Untergruppe	. including components using organic materials as the active part, or using a combination of organic materials with other materials as the active part [2006.01]
H01L 27/30	2-Punkt Untergruppe	. . with components specially adapted for sensing infra-red radiation, light, electromagnetic radiation of shorter wavelength, or corpuscular radiation; with components specially adapted for either the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation [2006.01]
H01L 27/32	2-Punkt Untergruppe	. . with components specially adapted for light emission, e.g. flat-panel displays using organic light-emitting diodes [2006.01]
H01L 29/00	Hauptgruppe	Semiconductor devices specially adapted for rectifying, amplifying, oscillating or switching and having at least one potential-jump barrier or surface barrier; Capacitors or resistors with at least one potential-jump barrier or surface barrier, e.g. PN-junction depletion layer or carrier concentration layer; Details of semiconductor bodies or of electrodes thereof (H01L 31/00-H01L

Symbol	Typ	Titel
		47/00, H01L 51/05 take precedence; details other than of semiconductor bodies or of electrodes thereof H01L 23/00; devices consisting of a plurality of solid state components formed in or on a common substrate H01L 27/00) [2, 6, 2006.01]
H01L 29/02	1-Punkt Untergruppe	. Semiconductor bodies [2, 2006.01]
H01L 29/04	2-Punkt Untergruppe	. . characterised by their crystalline structure, e.g. polycrystalline, cubic or particular orientation of crystalline planes (characterised by physical imperfections H01L 29/30) [2, 2006.01]
H01L 29/06	2-Punkt Untergruppe	. . characterised by their shape; characterised by the shapes, relative sizes, or dispositions of the semiconductor regions [2, 2006.01]
H01L 29/08	3-Punkt Untergruppe	. . . with semiconductor regions connected to an electrode carrying current to be rectified, amplified, or switched and such electrode being part of a semiconductor device which comprises three or more electrodes [2, 2006.01]
H01L 29/10	3-Punkt Untergruppe	. . . with semiconductor regions connected to an electrode not carrying current to be rectified, amplified, or switched and such electrode being part of a semiconductor device which comprises three or more electrodes [2, 2006.01]
H01L 29/12	2-Punkt Untergruppe	. . characterised by the materials of which they are formed [2, 2006.01]
H01L 29/15	3-Punkt Untergruppe	. . . Structures with periodic or quasi periodic potential variation, e.g. multiple quantum wells, superlattices (such structures applied for the control of light G02F 1/017; applied in semiconductor lasers H01S 5/34) [6, 2006.01]
H01L 29/16	3-Punkt Untergruppe	. . . including, apart from doping materials or other impurities, only elements of Group IV of the Periodic System in uncombined form [2, 2006.01]
H01L 29/161	4-Punkt Untergruppe	 including two or more of the elements provided for in group H01L 29/16 [2, 2006.01]
H01L 29/165	5-Punkt Untergruppe	 in different semiconductor regions [2, 2006.01]
H01L 29/167	4-Punkt Untergruppe	 further characterised by the doping material [2, 2006.01]
H01L 29/18	3-Punkt Untergruppe	. . . Selenium or tellurium only, apart from doping materials or other impurities [2, 2006.01]
H01L 29/20	3-Punkt Untergruppe	. . . including, apart from doping materials or other impurities, only $A_{III}B_V$ compounds [2, 6, 2006.01]
H01L 29/201	4-Punkt Untergruppe	 including two or more compounds [2, 2006.01]
H01L 29/205	5-Punkt Untergruppe	 in different semiconductor regions [2, 2006.01]
H01L 29/207	4-Punkt Untergruppe	 further characterised by the doping material [2, 2006.01]
H01L 29/22	3-Punkt Untergruppe	. . . including, apart from doping materials or other impurities, only $A_{III}B_{VI}$ compounds [2, 2006.01]
H01L 29/221	4-Punkt Untergruppe	 including two or more compounds [2, 2006.01]
H01L 29/225	5-Punkt Untergruppe	 in different semiconductor regions [2, 2006.01]
H01L 29/227	4-Punkt Untergruppe	 further characterised by the doping material [2, 2006.01]
H01L 29/24	3-Punkt Untergruppe	. . . including, apart from doping materials or other impurities, only inorganic semiconductor materials not provided for in groups H01L 29/16, H01L 29/18, H01L 29/20 or H01L 29/22 [2, 2006.01]
H01L 29/26	3-Punkt Untergruppe	. . . including, apart from doping materials or other impurities, elements provided for in two or more of the groups H01L 29/16, H01L 29/18, H01L 29/20, H01L 29/22, H01L 29/24 [2, 2006.01]
H01L 29/267	4-Punkt Untergruppe	 in different semiconductor regions [2, 2006.01]
H01L 29/30	2-Punkt Untergruppe	. . characterised by physical imperfections; having polished or roughened surface [2, 2006.01]
H01L 29/32	3-Punkt Untergruppe	. . . the imperfections being within the semiconductor body [2, 2006.01]

Symbol	Typ	Titel
H01L 29/34	3-Punkt Untergruppe	. . . the imperfections being on the surface [2, 2006.01]
H01L 29/36	2-Punkt Untergruppe	. . characterised by the concentration or distribution of impurities [2, 2006.01]
H01L 29/38	2-Punkt Untergruppe	. . characterised by combination of features provided for in two or more of the groups H01L 29/04, H01L 29/06, H01L 29/12, H01L 29/30, H01L 29/36 [2, 2006.01]
H01L 29/40	1-Punkt Untergruppe	. Electrodes [2, 2006.01]
H01L 29/41	2-Punkt Untergruppe	. . characterised by their shape, relative sizes or dispositions [6, 2006.01]
H01L 29/417	3-Punkt Untergruppe	. . . carrying the current to be rectified, amplified or switched [6, 2006.01]
H01L 29/423	3-Punkt Untergruppe	. . . not carrying the current to be rectified, amplified or switched [6, 2006.01]
H01L 29/43	2-Punkt Untergruppe	. . characterised by the materials of which they are formed [6, 2006.01]
H01L 29/45	3-Punkt Untergruppe	. . . Ohmic electrodes [6, 2006.01]
H01L 29/47	3-Punkt Untergruppe	. . . Schottky barrier electrodes [6, 2006.01]
H01L 29/49	3-Punkt Untergruppe	. . . Metal-insulator semiconductor electrodes [6, 2006.01]
H01L 29/51	4-Punkt Untergruppe	 Insulating materials associated therewith [6, 2006.01]
H01L 29/66	1-Punkt Untergruppe	. Types of semiconductor device [2, 2006.01]
H01L 29/68	2-Punkt Untergruppe	. . controllable by only the electric current supplied, or only the electric potential applied, to an electrode which does not carry the current to be rectified, amplified, or switched (H01L 29/96 takes precedence) [2, 2006.01]
H01L 29/70	3-Punkt Untergruppe	. . . Bipolar devices [2, 2006.01]
H01L 29/72	4-Punkt Untergruppe	 Transistor-type devices, i.e. able to continuously respond to applied control signals [2, 2006.01]
H01L 29/73	5-Punkt Untergruppe	 Bipolar junction transistors [5, 2006.01]
H01L 29/732	6-Punkt Untergruppe	 Vertical transistors [6, 2006.01]
H01L 29/735	6-Punkt Untergruppe	 Lateral transistors [6, 2006.01]
H01L 29/737	6-Punkt Untergruppe	 Hetero-junction transistors [6, 2006.01]
H01L 29/739	5-Punkt Untergruppe	 controlled by field effect [6, 2006.01]
H01L 29/74	4-Punkt Untergruppe	 Thyristor-type devices, e.g. having four-zone regenerative action [2, 2006.01]
H01L 29/744	5-Punkt Untergruppe	 Gate-turn-off devices [6, 2006.01]
H01L 29/745	6-Punkt Untergruppe	 with turn-off by field effect [6, 2006.01]
H01L 29/747	5-Punkt Untergruppe	 Bidirectional devices, e.g. triacs [2, 2006.01]
H01L 29/749	5-Punkt Untergruppe	 with turn-on by field effect [6, 2006.01]
H01L 29/76	3-Punkt Untergruppe	. . . Unipolar devices [2, 2006.01]
H01L 29/762	4-Punkt Untergruppe	 Charge transfer devices [6, 2006.01]
H01L 29/765	5-Punkt Untergruppe	 Charge-coupled devices [6, 2006.01]
H01L 29/768	6-Punkt Untergruppe	 with field effect produced by an insulated gate [6, 2006.01]

Symbol	Typ	Titel
H01L 29/772	4-Punkt Untergruppe	 Field-effect transistors [6, 2006.01]
H01L 29/775	5-Punkt Untergruppe	 with one-dimensional charge carrier gas channel, e.g. quantum wire FET [6, 2006.01]
H01L 29/778	5-Punkt Untergruppe	 with two-dimensional charge carrier gas channel, e.g. HEMT [6, 2006.01]
H01L 29/78	5-Punkt Untergruppe	 with field effect produced by an insulated gate [2, 2006.01]
H01L 29/786	6-Punkt Untergruppe	 Thin-film transistors [6, 2006.01]
H01L 29/788	6-Punkt Untergruppe	 with floating gate [5, 2006.01]
H01L 29/792	6-Punkt Untergruppe	 with charge trapping gate insulator, e.g. MNOS-memory transistor [5, 2006.01]
H01L 29/80	5-Punkt Untergruppe	 with field effect produced by a PN or other rectifying junction gate [2, 2006.01]
H01L 29/808	6-Punkt Untergruppe	 with a PN junction gate [5, 2006.01]
H01L 29/812	6-Punkt Untergruppe	 with a Schottky gate [5, 2006.01]
H01L 29/82	2-Punkt Untergruppe	. . controllable by variation of the magnetic field applied to the device (H01L 29/96 takes precedence) [2, 6, 2006.01]
H01L 29/84	2-Punkt Untergruppe	. . controllable by variation of applied mechanical force, e.g. of pressure (H01L 29/96 takes precedence) [2, 6, 2006.01]
H01L 29/86	2-Punkt Untergruppe	. . controllable only by variation of the electric current supplied, or only the electric potential applied, to one or more of the electrodes carrying the current to be rectified, amplified, oscillated, or switched (H01L 29/96 takes precedence) [2, 2006.01]
H01L 29/8605	3-Punkt Untergruppe	. . . Resistors with PN junction [6, 2006.01]
H01L 29/861	3-Punkt Untergruppe	. . . Diodes [6, 2006.01]
H01L 29/862	4-Punkt Untergruppe	 Point contact diodes [6, 2006.01]
H01L 29/864	4-Punkt Untergruppe	 Transit-time diodes, e.g. IMPATT, TRAPATT diodes [6, 2006.01]
H01L 29/866	4-Punkt Untergruppe	 Zener diodes [6, 2006.01]
H01L 29/868	4-Punkt Untergruppe	 PIN diodes [6, 2006.01]
H01L 29/87	4-Punkt Untergruppe	 Thyristor diodes, e.g. Shockley diodes, break-over diodes [6, 2006.01]
H01L 29/872	4-Punkt Untergruppe	 Schottky diodes [6, 2006.01]
H01L 29/88	4-Punkt Untergruppe	 Tunnel-effect diodes [2, 2006.01]
H01L 29/885	5-Punkt Untergruppe	 Esaki diodes [6, 2006.01]
H01L 29/92	3-Punkt Untergruppe	. . . Capacitors with potential-jump barrier or surface barrier [2, 2006.01]
H01L 29/93	4-Punkt Untergruppe	 Variable-capacitance diodes, e.g. varactors [2, 2006.01]
H01L 29/94	4-Punkt Untergruppe	 Metal-insulator-semiconductors, e.g. MOS [2, 2006.01]
H01L 29/96	2-Punkt Untergruppe	. . of a type covered by more than one of groups H01L 29/68, H01L 29/82, H01L 29/84 or H01L 29/86 [2, 2006.01]
H01L 31/00	Hauptgruppe	Semiconductor devices sensitive to infra-red radiation, light, electromagnetic radiation of shorter wavelength, or corpuscular radiation and specially adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof; Details thereof (H01L 51/42 takes precedence; devices consisting of a plurality

Symbol	Typ	Titel
		of solid state components formed in, or on, a common substrate, other than combinations of radiation-sensitive components with one or more electric light sources, H01L 27/00) [2, 6, 2006.01]
H01L 31/02	1-Punkt Untergruppe	. Details [2, 2006.01]
H01L 31/0203	2-Punkt Untergruppe	. . Containers; Encapsulations (for photovoltaic devices H01L 31/048; for organic photosensitive devices H01L 51/44) [5, 2006.01, 2014.01]
H01L 31/0216	2-Punkt Untergruppe	. . Coatings (H01L 31/041 takes precedence) [5, 2006.01, 2014.01]
H01L 31/0224	2-Punkt Untergruppe	. . Electrodes [5, 2006.01]
H01L 31/0232	2-Punkt Untergruppe	. . Optical elements or arrangements associated with the device (H01L 31/0236 takes precedence; for photovoltaic cells H01L 31/054; for photovoltaic modules H02S 40/20) [5, 2006.01, 2014.01]
H01L 31/0236	2-Punkt Untergruppe	. . Special surface textures [5, 2006.01]
H01L 31/024	2-Punkt Untergruppe	. . Arrangements for cooling, heating, ventilating or temperature compensation (for photovoltaic devices H01L 31/052) [5, 2006.01, 2014.01]
H01L 31/0248	1-Punkt Untergruppe	. characterised by their semiconductor bodies [5, 2006.01]
H01L 31/0256	2-Punkt Untergruppe	. . characterised by the material [5, 2006.01]
H01L 31/0264	3-Punkt Untergruppe	. . . Inorganic materials [5, 2006.01]
H01L 31/0272	4-Punkt Untergruppe	 Selenium or tellurium [5, 2006.01]
H01L 31/028	4-Punkt Untergruppe	 including, apart from doping material or other impurities, only elements of Group IV of the Periodic System [5, 2006.01]
H01L 31/0288	5-Punkt Untergruppe	 characterised by the doping material [5, 2006.01]
H01L 31/0296	4-Punkt Untergruppe	 including, apart from doping material or other impurities, only $A_{III}B_{VI}$ compounds, e.g. CdS, ZnS, HgCdTe [5, 2006.01]
H01L 31/0304	4-Punkt Untergruppe	 including, apart from doping materials or other impurities, only $A_{III}B_V$ compounds [5, 2006.01]
H01L 31/0312	4-Punkt Untergruppe	 including, apart from doping materials or other impurities, only $A_{IV}B_{IV}$ compounds, e.g. SiC [5, 2006.01]
H01L 31/032	4-Punkt Untergruppe	 including, apart from doping materials or other impurities, only compounds not provided for in groups H01L 31/0272-H01L 31/0312 [5, 2006.01]
H01L 31/0328	4-Punkt Untergruppe	 including, apart from doping materials or other impurities, semiconductor materials provided for in two or more of groups H01L 31/0272-H01L 31/032 [5, 2006.01]
H01L 31/0336	5-Punkt Untergruppe	 in different semiconductor regions, e.g. Cu_2X/CdX hetero-junctions, X being an element of Group VI of the Periodic System [5, 2006.01]
H01L 31/0352	2-Punkt Untergruppe	. . characterised by their shape or by the shapes, relative sizes or disposition of the semiconductor regions [5, 2006.01]
H01L 31/036	2-Punkt Untergruppe	. . characterised by their crystalline structure or particular orientation of the crystalline planes [5, 2006.01]
H01L 31/0368	3-Punkt Untergruppe	. . . including polycrystalline semiconductors (H01L 31/0392 takes precedence) [5, 2006.01]
H01L 31/0376	3-Punkt Untergruppe	. . . including amorphous semiconductors (H01L 31/0392 takes precedence) [5, 2006.01]
H01L 31/0384	3-Punkt Untergruppe	. . . including other non-monocrystalline materials, e.g. semiconductor particles embedded in an insulating material (H01L 31/0392 takes precedence) [5, 2006.01]
H01L 31/0392	3-Punkt Untergruppe	. . . including thin films deposited on metallic or insulating substrates [5, 2006.01]

Symbol	Typ	Titel
H01L 31/04	1-Punkt Untergruppe	. adapted as photovoltaic [PV] conversion devices (testing thereof during manufacture H01L 21/66; testing thereof after manufacture H02S 50/10) [2, 2006.01, 2014.01]
H01L 31/041	2-Punkt Untergruppe	. . Provisions for preventing damage caused by corpuscular radiation, e.g. for space applications [2014.01]
H01L 31/042	2-Punkt Untergruppe	. . PV modules or arrays of single PV cells (supporting structures for PV modules H02S 20/00) [5, 2006.01, 2014.01]
H01L 31/043	3-Punkt Untergruppe	. . . Mechanically stacked PV cells [2014.01]
H01L 31/044	3-Punkt Untergruppe	. . . including bypass diodes (bypass diodes in the junction box H02S 40/34) [2014.01]
H01L 31/0443	4-Punkt Untergruppe	 comprising bypass diodes integrated or directly associated with the devices, e.g. bypass diodes integrated or formed in or on the same substrate as the photovoltaic cells [2014.01]
H01L 31/0445	3-Punkt Untergruppe	. . . including thin film solar cells, e.g. single thin film a-Si, CIS or CdTe solar cells [2014.01]
H01L 31/046	4-Punkt Untergruppe	 PV modules composed of a plurality of thin film solar cells deposited on the same substrate [2014.01]
H01L 31/0463	5-Punkt Untergruppe	 characterised by special patterning methods to connect the PV cells in a module, e.g. laser cutting of the conductive or active layers [2014.01]
H01L 31/0465	5-Punkt Untergruppe	 comprising particular structures for the electrical interconnection of adjacent PV cells in the module (H01L 31/0463 takes precedence) [2014.01]
H01L 31/0468	5-Punkt Untergruppe	 comprising specific means for obtaining partial light transmission through the module, e.g. partially transparent thin film solar modules for windows [2014.01]
H01L 31/047	3-Punkt Untergruppe	. . . PV cell arrays including PV cells having multiple vertical junctions or multiple V-groove junctions formed in a semiconductor substrate [2014.01]
H01L 31/0475	3-Punkt Untergruppe	. . . PV cell arrays made by cells in a planar, e.g. repetitive, configuration on a single semiconductor substrate; PV cell microarrays (PV modules composed of a plurality of thin film solar cells deposited on the same substrate H01L 31/046) [2014.01]
H01L 31/048	3-Punkt Untergruppe	. . . Encapsulation of modules [5, 2006.01, 2014.01]
H01L 31/049	4-Punkt Untergruppe	 Protective back sheets [2014.01]
H01L 31/05	3-Punkt Untergruppe	. . . Electrical interconnection means between PV cells inside the PV module, e.g. series connection of PV cells (electrodes H01L 31/0224; electrical interconnection of thin film solar cells formed on a common substrate H01L 31/046; particular structures for electrical interconnecting of adjacent thin film solar cells in the module H01L 31/0465; electrical interconnection means specially adapted for electrically connecting two or more PV modules H02S 40/36) [5, 2006.01, 2014.01]
H01L 31/052	2-Punkt Untergruppe	. . Cooling means directly associated or integrated with the PV cell, e.g. integrated Peltier elements for active cooling or heat sinks directly associated with the PV cells (cooling means in combination with the PV module H02S 40/42) [5, 2006.01, 2014.01]
H01L 31/0525	3-Punkt Untergruppe	. . . including means to utilise heat energy directly associated with the PV cell, e.g. integrated Seebeck elements [2014.01]
H01L 31/053	2-Punkt Untergruppe	. . Energy storage means directly associated or integrated with the PV cell, e.g. a capacitor integrated with a PV cell (energy storage means associated with the PV module H02S 40/38) [2014.01]
H01L 31/054	2-Punkt Untergruppe	. . Optical elements directly associated or integrated with the PV cell, e.g. light-reflecting means or light-concentrating means [2014.01]
H01L 31/055	3-Punkt Untergruppe	. . . where light is absorbed and re-emitted at a different wavelength by the optical element directly associated or integrated with the PV cell, e.g. by using luminescent material, fluorescent concentrators or up-conversion arrangements [5, 2006.01, 2014.01]
H01L 31/056	3-Punkt Untergruppe	. . . the light-reflecting means being of the back surface reflector [BSR] type [2014.01]

Symbol	Typ	Titel
H01L 31/06	2-Punkt Untergruppe	. . characterised by at least one potential-jump barrier or surface barrier [2, 2006.01, 2012.01]
H01L 31/061	3-Punkt Untergruppe	. . . the potential barriers being of the point-contact type (H01L 31/07 takes precedence) [2012.01]
H01L 31/062	3-Punkt Untergruppe	. . . the potential barriers being only of the metal-insulator-semiconductor type [5, 2006.01, 2012.01]
H01L 31/065	3-Punkt Untergruppe	. . . the potential barriers being only of the graded gap type [5, 2006.01, 2012.01]
H01L 31/068	3-Punkt Untergruppe	. . . the potential barriers being only of the PN homojunction type, e.g. bulk silicon PN homojunction solar cells or thin film polycrystalline silicon PN homojunction solar cells [5, 2006.01, 2012.01]
H01L 31/0687	4-Punkt Untergruppe	 Multiple junction or tandem solar cells [2012.01]
H01L 31/0693	4-Punkt Untergruppe	 the devices including, apart from doping material or other impurities, only $A_{III}B_V$ compounds, e.g. GaAs or InP solar cells [2012.01]
H01L 31/07	3-Punkt Untergruppe	. . . the potential barriers being only of the Schottky type [5, 2006.01, 2012.01]
H01L 31/072	3-Punkt Untergruppe	. . . the potential barriers being only of the PN heterojunction type [5, 2006.01, 2012.01]
H01L 31/0725	4-Punkt Untergruppe	 Multiple junction or tandem solar cells [2012.01]
H01L 31/073	4-Punkt Untergruppe	 comprising only $A_{II}B_{VI}$ compound semiconductors, e.g. CdS/CdTe solar cells [2012.01]
H01L 31/0735	4-Punkt Untergruppe	 comprising only $A_{III}B_V$ compound semiconductors, e.g. GaAs/AlGaAs or InP/GaInAs solar cells [2012.01]
H01L 31/074	4-Punkt Untergruppe	 comprising a heterojunction with an element of Group IV of the Periodic System, e.g. ITO/Si, GaAs/Si or CdTe/Si solar cells [2012.01]
H01L 31/0745	4-Punkt Untergruppe	 comprising a $A_{IV}B_{IV}$ heterojunction, e.g. Si/Ge, SiGe/Si or Si/SiC solar cells [2012.01]
H01L 31/0747	5-Punkt Untergruppe	 comprising a heterojunction of crystalline and amorphous materials, e.g. heterojunction with intrinsic thin layer or HIT® solar cells [2012.01]
H01L 31/0749	4-Punkt Untergruppe	 including a $A_B C_{VI}$ compound, e.g. CdS/CuInSe2 [CIS] heterojunction solar cells [2012.01]
H01L 31/075	3-Punkt Untergruppe	. . . the potential barriers being only of the PIN type, e.g. amorphous silicon PIN solar cells [5, 2006.01, 2012.01]
H01L 31/076	4-Punkt Untergruppe	 Multiple junction or tandem solar cells [2012.01]
H01L 31/077	4-Punkt Untergruppe	 the devices comprising monocrystalline or polycrystalline materials [2012.01]
H01L 31/078	3-Punkt Untergruppe	. . . including different types of potential barriers provided for in two or more of groups H01L 31/061-H01L 31/075 [5, 2006.01, 2012.01]
H01L 31/08	1-Punkt Untergruppe	. in which radiation controls flow of current through the device, e.g. photoresistors [2, 2006.01]
H01L 31/09	2-Punkt Untergruppe	. . Devices sensitive to infra-red, visible or ultra- violet radiation (H01L 31/101 takes precedence) [5, 2006.01]
H01L 31/10	2-Punkt Untergruppe	. . characterised by at least one potential-jump barrier or surface barrier, e.g. phototransistors [2, 2006.01]
H01L 31/101	3-Punkt Untergruppe	. . . Devices sensitive to infra-red, visible or ultra-violet radiation [5, 2006.01]
H01L 31/102	4-Punkt Untergruppe	 characterised by only one potential barrier or surface barrier [5, 2006.01]
H01L 31/103	5-Punkt Untergruppe	 the potential barrier being of the PN homojunction type [5, 2006.01]
H01L 31/105	5-Punkt Untergruppe	 the potential barrier being of the PIN type [5, 2006.01]
H01L 31/107	5-Punkt Untergruppe	 the potential barrier working in avalanche mode, e.g. avalanche photodiode [5, 2006.01]
H01L 31/108	5-Punkt Untergruppe	 the potential barrier being of the Schottky type [5, 2006.01]

Symbol	Typ	Titel
H01L 31/109	5-Punkt Untergruppe	 the potential barrier being of the PN heterojunction type [5, 2006.01]
H01L 31/11	4-Punkt Untergruppe	 characterised by two potential barriers or surface barriers, e.g. bipolar phototransistor [5, 2006.01]
H01L 31/111	4-Punkt Untergruppe	 characterised by at least three potential barriers, e.g. photothyristor [5, 2006.01]
H01L 31/112	4-Punkt Untergruppe	 characterised by field-effect operation, e.g. junction field-effect photo- transistor [5, 2006.01]
H01L 31/113	5-Punkt Untergruppe	 being of the conductor-insulator- semiconductor type, e.g. metal- insulator-semiconductor field-effect transistor [5, 2006.01]
H01L 31/115	3-Punkt Untergruppe	. . . Devices sensitive to very short wavelength, e.g. X-rays, gamma-rays or corpuscular radiation [5, 2006.01]
H01L 31/117	4-Punkt Untergruppe	 of the bulk effect radiation detector type, e.g. Ge-Li compensated PIN gamma-ray detectors [5, 2006.01]
H01L 31/118	4-Punkt Untergruppe	 of the surface barrier or shallow PN junction detector type, e.g. surface barrier alpha-particle detectors [5, 2006.01]
H01L 31/119	4-Punkt Untergruppe	 characterised by field-effect operation, e.g. MIS type detectors [5, 2006.01]
H01L 31/12	1-Punkt Untergruppe	. structurally associated with, e.g. formed in or on a common substrate with, one or more electric light sources, e.g. electroluminescent light sources, and electrically or optically coupled thereto (electroluminescent light sources <u>per se</u> H05B 33/00) [2, 5, 2006.01]
H01L 31/14	2-Punkt Untergruppe	. . the light source or sources being controlled by the semiconductor device sensitive to radiation, e.g. image converters, image amplifiers, image storage devices [2, 2006.01]
H01L 31/147	3-Punkt Untergruppe	. . . the light sources and the devices sensitive to radiation all being semiconductor devices characterised by at least one potential or surface barrier [5, 2006.01]
H01L 31/153	4-Punkt Untergruppe	 formed in, or on, a common substrate [5, 2006.01]
H01L 31/16	2-Punkt Untergruppe	. . the semiconductor device sensitive to radiation being controlled by the light source or sources [2, 2006.01]
H01L 31/167	3-Punkt Untergruppe	. . . the light sources and the devices sensitive to radiation all being semiconductor devices characterised by at least one potential or surface barrier [5, 2006.01]
H01L 31/173	4-Punkt Untergruppe	 formed in, or on, a common substrate [5, 2006.01]
H01L 31/18	1-Punkt Untergruppe	. Processes or apparatus specially adapted for the manufacture or treatment of these devices or of parts thereof [2, 2006.01]
H01L 31/20	2-Punkt Untergruppe	. . such devices or parts thereof comprising amorphous semiconductor material [5, 2006.01]
H01L 33/00	Hauptgruppe	Semiconductor devices with at least one potential-jump barrier or surface barrier specially adapted for light emission; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof; Details thereof (H01L 51/50 takes precedence; devices consisting of a plurality of semiconductor components formed in or on a common substrate and including semiconductor components with at least one potential-jump barrier or surface barrier, specially adapted for light emission H01L 27/15; semiconductor lasers H01S 5/00) [2, 2006.01, 2010.01]
H01L 33/02	1-Punkt Untergruppe	. characterised by the semiconductor bodies [2010.01]
H01L 33/04	2-Punkt Untergruppe	. . with a quantum effect structure or superlattice, e.g. tunnel junction [2010.01]
H01L 33/06	3-Punkt Untergruppe	. . . within the light emitting region, e.g. quantum confinement structure or tunnel barrier [2010.01]
H01L 33/08	2-Punkt Untergruppe	. . with a plurality of light emitting regions, e.g. laterally discontinuous light emitting layer or photoluminescent region integrated within the semiconductor body (H01L 27/15 takes precedence) [2010.01]
H01L 33/10	2-Punkt Untergruppe	. . with a light reflecting structure, e.g. semiconductor Bragg reflector [2010.01]

Symbol	Typ	Titel
H01L 33/12	2-Punkt Untergruppe	. . with a stress relaxation structure, e.g. buffer layer [2010.01]
H01L 33/14	2-Punkt Untergruppe	. . with a carrier transport control structure, e.g. highly-doped semiconductor layer or current-blocking structure [2010.01]
H01L 33/16	2-Punkt Untergruppe	. . with a particular crystal structure or orientation, e.g. polycrystalline, amorphous or porous [2010.01]
H01L 33/18	3-Punkt Untergruppe	. . . within the light emitting region [2010.01]
H01L 33/20	2-Punkt Untergruppe	. . with a particular shape, e.g. curved or truncated substrate [2010.01]
H01L 33/22	3-Punkt Untergruppe	. . . Roughened surfaces, e.g. at the interface between epitaxial layers [2010.01]
H01L 33/24	3-Punkt Untergruppe	. . . of the light emitting region, e.g. non-planar junction [2010.01]
H01L 33/26	2-Punkt Untergruppe	. . Materials of the light emitting region [2010.01]
H01L 33/28	3-Punkt Untergruppe	. . . containing only elements of group II and group VI of the periodic system [2010.01]
H01L 33/30	3-Punkt Untergruppe	. . . containing only elements of group III and group V of the periodic system [2010.01]
H01L 33/32	4-Punkt Untergruppe	 containing nitrogen [2010.01]
H01L 33/34	3-Punkt Untergruppe	. . . containing only elements of group IV of the periodic system [2010.01]
H01L 33/36	1-Punkt Untergruppe	. characterised by the electrodes [2010.01]
H01L 33/38	2-Punkt Untergruppe	. . with a particular shape [2010.01]
H01L 33/40	2-Punkt Untergruppe	. . Materials therefor [2010.01]
H01L 33/42	3-Punkt Untergruppe	. . . Transparent materials [2010.01]
H01L 33/44	1-Punkt Untergruppe	. characterised by the coatings, e.g. passivation layer or anti-reflective coating [2010.01]
H01L 33/46	2-Punkt Untergruppe	. . Reflective coating, e.g. dielectric Bragg reflector [2010.01]
H01L 33/48	1-Punkt Untergruppe	. characterised by the semiconductor body packages [2010.01]
H01L 33/50	2-Punkt Untergruppe	. . Wavelength conversion elements [2010.01]
H01L 33/52	2-Punkt Untergruppe	. . Encapsulations [2010.01]
H01L 33/54	3-Punkt Untergruppe	. . . having a particular shape [2010.01]
H01L 33/56	3-Punkt Untergruppe	. . . Materials, e.g. epoxy or silicone resin [2010.01]
H01L 33/58	2-Punkt Untergruppe	. . Optical field-shaping elements [2010.01]
H01L 33/60	3-Punkt Untergruppe	. . . Reflective elements [2010.01]
H01L 33/62	2-Punkt Untergruppe	. . Arrangements for conducting electric current to or from the semiconductor body, e.g. leadframe, wire-bond or solder balls [2010.01]
H01L 33/64	2-Punkt Untergruppe	. . Heat extraction or cooling elements [2010.01]
H01L 35/00	Hauptgruppe	Thermoelectric devices comprising a junction of dissimilar materials, i.e. exhibiting Seebeck or Peltier effect with or without other thermoelectric effects or thermomagnetic effects; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof; Details thereof (devices consisting of a plurality of solid state components formed in or on a common substrate H01L 27/00) [2, 2006.01]
H01L 35/02	1-Punkt Untergruppe	. Details [2, 2006.01]

Symbol	Typ	Titel
H01L 35/04	2-Punkt Untergruppe	. . Structural details of the junction; Connections of leads [2, 2006.01]
H01L 35/06	3-Punkt Untergruppe	. . . detachable, e.g. using a spring [2, 2006.01]
H01L 35/08	3-Punkt Untergruppe	. . . non-detachable, e.g. cemented, sintered, soldered [2, 2006.01]
H01L 35/10	3-Punkt Untergruppe	. . . Connections of leads [2, 2006.01]
H01L 35/12	1-Punkt Untergruppe	. Selection of the material for the legs of the junction [2, 2006.01]
H01L 35/14	2-Punkt Untergruppe	. . using inorganic compositions [2, 2006.01]
H01L 35/16	3-Punkt Untergruppe	. . . comprising tellurium or selenium or sulfur [2, 2006.01]
H01L 35/18	3-Punkt Untergruppe	. . . comprising arsenic or antimony or bismuth (H01L 35/16 takes precedence) [2, 2006.01]
H01L 35/20	3-Punkt Untergruppe	. . . comprising metals only (H01L 35/16, H01L 35/18 take precedence) [2, 2006.01]
H01L 35/22	3-Punkt Untergruppe	. . . comprising compounds containing boron, carbon, oxygen, or nitrogen [2, 2006.01]
H01L 35/24	2-Punkt Untergruppe	. . using organic compositions [2, 2006.01]
H01L 35/26	2-Punkt Untergruppe	. . using compositions changing continuously or discontinuously inside the material [2, 2006.01]
H01L 35/28	1-Punkt Untergruppe	. operating with Peltier or Seebeck effect only [2, 2006.01]
H01L 35/30	2-Punkt Untergruppe	. . characterised by the heat-exchanging means at the junction [2, 2006.01]
H01L 35/32	2-Punkt Untergruppe	. . characterised by the structure or configuration of the cell or thermo-couple forming the device [2, 2006.01]
H01L 35/34	1-Punkt Untergruppe	. Processes or apparatus specially adapted for the manufacture or treatment of these devices or of parts thereof [2, 2006.01]
H01L 37/00	Hauptgruppe	Thermoelectric devices without a junction of dissimilar materials; Thermomagnetic devices, e.g. using Nernst-Ettinghausen effect; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof (devices consisting of a plurality of solid state components formed in or on a common substrate H01L 27/00) [2, 2006.01]
H01L 37/02	1-Punkt Untergruppe	. using thermal change of dielectric constant, e.g. working above and below the Curie point [2, 2006.01]
H01L 37/04	1-Punkt Untergruppe	. using thermal change of magnetic permeability, e.g. working above and below the Curie point [2, 2006.01]
H01L 39/00	Hauptgruppe	Devices using superconductivity or hyperconductivity; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof (devices consisting of a plurality of solid state components formed in or on a common substrate H01L 27/00; superconductors characterised by the ceramic-forming technique or the ceramic composition C04B 35/00; superconductive or hyperconductive conductors, cables, or transmission lines H01B 12/00; superconductive coils or windings H01F; amplifiers using superconductivity H03F 19/00) [2, 4, 2006.01]
H01L 39/02	1-Punkt Untergruppe	. Details [2, 2006.01]
H01L 39/04	2-Punkt Untergruppe	. . Containers; Mountings [2, 2006.01]
H01L 39/06	2-Punkt Untergruppe	. . characterised by the current path [2, 2006.01]
H01L 39/08	2-Punkt Untergruppe	. . characterised by the shape of the element [2, 2006.01]
H01L 39/10	2-Punkt Untergruppe	. . characterised by the means for switching [2, 2006.01]
H01L 39/12	2-Punkt Untergruppe	. . characterised by the material [2, 2006.01]
H01L 39/14	1-Punkt Untergruppe	. Permanent superconductor devices [2, 2006.01]
H01L 39/16	1-Punkt Untergruppe	. Devices switchable between superconductive and normal states [2, 2006.01]

Symbol	Typ	Titel
H01L 39/18	2-Punkt Untergruppe	. . Cryotrons [2, 2006.01]
H01L 39/20	3-Punkt Untergruppe	. . . Power cryotrons [2, 2006.01]
H01L 39/22	1-Punkt Untergruppe	. Devices comprising a junction of dissimilar materials, e.g. Josephson-effect devices [2, 2006.01]
H01L 39/24	1-Punkt Untergruppe	. Processes or apparatus specially adapted for the manufacture or treatment of devices provided for in group H01L 39/00 or of parts thereof [2, 2006.01]
H01L 41/00	Hauptgruppe	Piezo-electric devices in general; Electrostrictive devices in general; Magnetostrictive devices in general; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof; Details thereof (devices consisting of a plurality of solid-state components formed in or on a common substrate H01L 27/00) [2, 2006.01, 2013.01]
H01L 41/02	1-Punkt Untergruppe	. Details [2, 2006.01]
H01L 41/04	2-Punkt Untergruppe	. . of piezo-electric or electrostrictive elements [2, 2006.01]
H01L 41/047	3-Punkt Untergruppe	. . . Electrodes [6, 2006.01]
H01L 41/053	3-Punkt Untergruppe	. . . Mounts, supports, enclosures or casings [6, 2006.01]
H01L 41/06	2-Punkt Untergruppe	. . of magnetostrictive elements [2, 2006.01]
H01L 41/08	1-Punkt Untergruppe	. Piezo-electric or electrostrictive elements [2, 2006.01]
H01L 41/083	2-Punkt Untergruppe	. . having a stacked or multilayer structure [6, 2006.01]
H01L 41/087	2-Punkt Untergruppe	. . formed as coaxial cables [6, 2006.01]
H01L 41/09	2-Punkt Untergruppe	. . with electrical input and mechanical output [5, 2006.01]
H01L 41/107	2-Punkt Untergruppe	. . with electrical input and electrical output [5, 2006.01]
H01L 41/113	2-Punkt Untergruppe	. . with mechanical input and electrical output [5, 2006.01]
H01L 41/12	1-Punkt Untergruppe	. Magnetostrictive elements [2, 2006.01]
H01L 41/16	1-Punkt Untergruppe	. Selection of materials [2, 2006.01]
H01L 41/18	2-Punkt Untergruppe	. . for piezo-electric or electrostrictive elements [2, 2006.01]
H01L 41/187	3-Punkt Untergruppe	. . . Ceramic compositions [5, 2006.01]
H01L 41/193	3-Punkt Untergruppe	. . . Macromolecular compositions [5, 2006.01]
H01L 41/20	2-Punkt Untergruppe	. . for magnetostrictive elements [2, 2006.01]
H01L 41/22	1-Punkt Untergruppe	. Processes or apparatus specially adapted for the assembly, manufacture or treatment of piezo-electric or electrostrictive devices or of parts thereof [2, 2006.01, 2013.01]
H01L 41/23	2-Punkt Untergruppe	. . Forming enclosures or casings [2013.01]
H01L 41/25	2-Punkt Untergruppe	. . Assembling devices that include piezo-electric or electrostrictive parts [2013.01]
H01L 41/253	2-Punkt Untergruppe	. . Treating devices or parts thereof to modify a piezo-electric or electrostrictive property, e.g. polarisation characteristics, vibration characteristics or mode tuning [2013.01]
H01L 41/257	3-Punkt Untergruppe	. . . by polarising [2013.01]
H01L 41/27	2-Punkt Untergruppe	. . Manufacturing multilayered piezo-electric or electrostrictive devices or parts thereof, e.g. by stacking piezo-electric bodies and electrodes [2013.01]
H01L 41/273	3-Punkt Untergruppe	. . . by integrally sintering piezo-electric or electrostrictive bodies and electrodes [2013.01]

Symbol	Typ	Titel
H01L 41/277	3-Punkt Untergruppe	. . . by stacking bulk piezo-electric or electrostrictive bodies and electrodes [2013.01]
H01L 41/29	2-Punkt Untergruppe	. . Forming electrodes, leads or terminal arrangements [2013.01]
H01L 41/293	3-Punkt Untergruppe	. . . Connection electrodes of multilayered piezo-electric or electrostrictive parts [2013.01]
H01L 41/297	3-Punkt Untergruppe	. . . Individual layer electrodes of multilayered piezo-electric or electrostrictive parts [2013.01]
H01L 41/31	2-Punkt Untergruppe	. . Applying piezo-electric or electrostrictive parts or bodies onto an electrical element or another base [2013.01]
H01L 41/311	3-Punkt Untergruppe	. . . Mounting of piezo-electric or electrostrictive parts together with semiconductor elements, or other circuit elements, on a common substrate [2013.01]
H01L 41/312	3-Punkt Untergruppe	. . . by laminating or bonding of piezo-electric or electrostrictive bodies [2013.01]
H01L 41/313	4-Punkt Untergruppe	 by metal fusing or with adhesives [2013.01]
H01L 41/314	3-Punkt Untergruppe	. . . by depositing piezo-electric or electrostrictive layers, e.g. aerosol or screen printing [2013.01]
H01L 41/316	4-Punkt Untergruppe	 by vapour phase deposition [2013.01]
H01L 41/317	4-Punkt Untergruppe	 by liquid phase deposition [2013.01]
H01L 41/318	5-Punkt Untergruppe	 by sol-gel deposition [2013.01]
H01L 41/319	4-Punkt Untergruppe	 using intermediate layers, e.g. for growth control [2013.01]
H01L 41/33	2-Punkt Untergruppe	. . Shaping or machining of piezo-electric or electrostrictive bodies [2013.01]
H01L 41/331	3-Punkt Untergruppe	. . . by coating or depositing using masks, e.g. lift-off [2013.01]
H01L 41/332	3-Punkt Untergruppe	. . . by etching, e.g. lithography [2013.01]
H01L 41/333	3-Punkt Untergruppe	. . . by moulding or extrusion [2013.01]
H01L 41/335	3-Punkt Untergruppe	. . . by machining [2013.01]
H01L 41/337	4-Punkt Untergruppe	 by polishing or grinding [2013.01]
H01L 41/338	4-Punkt Untergruppe	 by cutting or dicing [2013.01]
H01L 41/339	4-Punkt Untergruppe	 by punching [2013.01]
H01L 41/35	2-Punkt Untergruppe	. . Forming piezo-electric or electrostrictive materials [2013.01]
H01L 41/37	3-Punkt Untergruppe	. . . Composite materials [2013.01]
H01L 41/39	3-Punkt Untergruppe	. . . Inorganic materials [2013.01]
H01L 41/41	4-Punkt Untergruppe	 by melting [2013.01]
H01L 41/43	4-Punkt Untergruppe	 by sintering [2013.01]
H01L 41/45	3-Punkt Untergruppe	. . . Organic materials [2013.01]
H01L 41/47	1-Punkt Untergruppe	. Processes or apparatus specially adapted for the assembly, manufacture or treatment of magnetostrictive devices or of parts thereof [2013.01]
H01L 43/00	Hauptgruppe	Devices using galvano-magnetic or similar magnetic effects; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof (devices consisting of a plurality of solid state components formed in or on a common substrate H01L 27/00) [2, 2006.01]
H01L 43/02	1-Punkt Untergruppe	. Details [2, 2006.01]

Symbol	Typ	Titel
H01L 43/04	2-Punkt Untergruppe	. . of Hall-effect devices [2, 2006.01]
H01L 43/06	1-Punkt Untergruppe	. Hall-effect devices [2, 2006.01]
H01L 43/08	1-Punkt Untergruppe	. Magnetic-field-controlled resistors [2, 2006.01]
H01L 43/10	1-Punkt Untergruppe	. Selection of materials [2, 2006.01]
H01L 43/12	1-Punkt Untergruppe	. Processes or apparatus specially adapted for the manufacture or treatment of these devices or of parts thereof [2, 2006.01]
H01L 43/14	2-Punkt Untergruppe	. . for Hall-effect devices [2, 2006.01]
H01L 45/00	Hauptgruppe	Solid state devices specially adapted for rectifying, amplifying, oscillating, or switching without a potential-jump barrier or surface barrier, e.g. dielectric triodes; Ovshinsky-effect devices; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof (devices consisting of a plurality of solid state components formed in or on a common substrate H01L 27/00; devices using superconductivity or hyperconductivity H01L 39/00; piezo-electric elements H01L 41/00; bulk negative resistance effect devices H01L 47/00) [2, 2006.01]
H01L 45/02	1-Punkt Untergruppe	. Solid state travelling-wave devices [2, 2006.01]
H01L 47/00	Hauptgruppe	Bulk negative resistance effect devices, e.g. Gunn-effect devices; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof (devices consisting of a plurality of solid state components formed in or on a common substrate H01L 27/00) [2, 2006.01]
H01L 47/02	1-Punkt Untergruppe	. Gunn-effect devices [2, 2006.01]
H01L 49/00	Hauptgruppe	Solid state devices not provided for in groups H01L 27/00-H01L 47/00 and H01L 51/00 and not provided for in any other subclass; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof [2, 2006.01]
H01L 49/02	1-Punkt Untergruppe	. Thin-film or thick-film devices [2, 2006.01]
H01L 51/00	Hauptgruppe	Solid state devices using organic materials as the active part, or using a combination of organic materials with other materials as the active part; Processes or apparatus specially adapted for the manufacture or treatment of such devices, or of parts thereof (devices consisting of a plurality of components formed in or on a common substrate H01L 27/28; thermoelectric devices using organic material H01L 35/00, H01L 37/00; piezo-electric, electrostrictive or magnetostrictive elements using organic material H01L 41/00) [6, 2006.01]
H01L 51/05	1-Punkt Untergruppe	. specially adapted for rectifying, amplifying, oscillating or switching and having at least one potential-jump barrier or surface barrier; Capacitors or resistors with at least one potential-jump barrier or surface barrier [2006.01]
H01L 51/10	2-Punkt Untergruppe	. . Details of devices [6, 2006.01]
H01L 51/30	2-Punkt Untergruppe	. . Selection of materials [6, 2006.01]
H01L 51/40	2-Punkt Untergruppe	. . Processes or apparatus specially adapted for the manufacture or treatment of such devices or of parts thereof [6, 2006.01]
H01L 51/42	1-Punkt Untergruppe	. specially adapted for sensing infra-red radiation, light, electromagnetic radiation of shorter wavelength, or corpuscular radiation; specially adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation [2006.01]
H01L 51/44	2-Punkt Untergruppe	. . Details of devices [2006.01]
H01L 51/46	2-Punkt Untergruppe	. . Selection of materials [2006.01]
H01L 51/48	2-Punkt Untergruppe	. . Processes or apparatus specially adapted for the manufacture or treatment of such devices or of parts thereof [2006.01]
H01L 51/50	1-Punkt Untergruppe	. specially adapted for light emission, e.g. organic light emitting diodes (OLED) or polymer light emitting devices (PLED) (organic semiconductor lasers H01S 5/36) [2006.01]

Symbol	Typ	Titel
H01L 51/52	2-Punkt Untergruppe	. . Details of devices [2006.01]
H01L 51/54	2-Punkt Untergruppe	. . Selection of materials [2006.01]
H01L 51/56	2-Punkt Untergruppe	. . Processes or apparatus specially adapted for the manufacture or treatment of such devices or of parts thereof [2006.01]