

Symbol	Typ	Titel
G	Sektion	PHYSICS
G11	Klasse	INFORMATION STORAGE
G11C	Unterklasse	STATIC STORES (information storage based on relative movement between record carrier and transducer G11B; semiconductor devices for storage H01L , e.g. H01L 27/108 to H01L 27/115; pulse technique in general H03K , e.g. electronic switches H03K 17/00)
G11C 5/00	Hauptgruppe	Details of stores covered by group G11C 11/00
G11C 5/02	1-Punkt Untergruppe	. Disposition of storage elements, e.g. in the form of a matrix array
G11C 5/04	2-Punkt Untergruppe	. . Supports for storage elements; Mounting or fixing of storage elements on such supports
G11C 5/05	3-Punkt Untergruppe	. . . Supporting of cores in matrix [2]
G11C 5/06	1-Punkt Untergruppe	. Arrangements for interconnecting storage elements electrically, e.g. by wiring
G11C 5/08	2-Punkt Untergruppe	. . for interconnecting magnetic elements, e.g. toroidal cores
G11C 5/10	2-Punkt Untergruppe	. . for interconnecting capacitors
G11C 5/12	1-Punkt Untergruppe	. Apparatus or processes for interconnecting storage elements, e.g. for threading magnetic cores
G11C 5/14	1-Punkt Untergruppe	. <i>Power supply arrangements (auxiliary circuits for stores using semiconductor devices G11C 11/4063 , G11C 11/413 , G11C 11/4193; in general G05F , H02J , H02M) [5, 7]</i>
G11C 7/00	Hauptgruppe	Arrangements for writing information into, or reading information out from, a digital store (G11C 5/00 takes precedence; auxiliary circuits for stores using semiconductor devices G11C 11/4063 , G11C 11/413 , G11C 11/4193) [2, 5]
G11C 7/02	1-Punkt Untergruppe	. with means for avoiding parasitic signals
G11C 7/04	1-Punkt Untergruppe	. with means for avoiding disturbances due to temperature effects
G11C 7/06	1-Punkt Untergruppe	. <i>Sense amplifiers; Associated circuits (amplifiers per se H03F , H03K) [1, 7]</i>
G11C 7/08	2-Punkt Untergruppe	. . <i>Control thereof [7]</i>
G11C 7/10	1-Punkt Untergruppe	. <i>Input/output (I/O) data interface arrangements, e.g. I/O data control circuits, I/O data buffers (level conversion circuits in general H03K 19/0175) [7]</i>
G11C 7/12	1-Punkt Untergruppe	. <i>Bit line control circuits, e.g. drivers, boosters, pull-up circuits, pull-down circuits, precharging circuits, equalising circuits, for bit lines [7]</i>
G11C 7/14	1-Punkt Untergruppe	. <i>Dummy cell management; Sense reference voltage generators [7]</i>
G11C 7/16	1-Punkt Untergruppe	. <i>Storage of analogue signals in digital stores using an arrangement comprising analogue/digital (A/D) converters, digital memories and digital/analogue (D/A) converters [7]</i>
G11C 7/18	1-Punkt Untergruppe	. <i>Bit line organisation; Bit line lay-out [7]</i>
G11C 7/20	1-Punkt Untergruppe	. <i>Memory cell initialisation circuits, e.g. when powering up or down, memory clear, latent image memory [7]</i>
G11C 7/22	1-Punkt Untergruppe	. <i>Read-write (R-W) timing or clocking circuits; Read-write (R-W) control signal generators or management [7]</i>
G11C 7/24	1-Punkt Untergruppe	. <i>Memory cell safety or protection circuits, e.g. arrangements for preventing inadvertent reading or writing; Status cells; Test cells [7]</i>
G11C 8/00	Hauptgruppe	Arrangements for selecting an address in a digital store (auxiliary circuits for stores using semiconductor devices G11C 11/4063 , G11C 11/413 , G11C 11/4193) [2, 5]

Symbol	Typ	Titel
G11C 8/02	1-Punkt Untergruppe	. using selecting matrix [2]
G11C 8/04	1-Punkt Untergruppe	. using a sequential addressing device, e.g. shift register, counter (using first in first out (FIFO) registers for changing speed of digital data flow G06F 5/06; using last in first out (LIFO) registers for processing digital data by operating upon their order G06F 7/00) [5]
G11C 8/06	1-Punkt Untergruppe	. Address interface arrangements, e.g. address buffers (level conversion circuits in general H03K 19/0175) [7]
G11C 8/08	1-Punkt Untergruppe	. Word line control circuits, e.g. drivers, boosters, pull-up circuits, pull-down circuits, precharging circuits, for word lines [7]
G11C 8/10	1-Punkt Untergruppe	. Decoders [7]
G11C 8/12	1-Punkt Untergruppe	. Group selection circuits, e.g. for memory block selection, chip selection, array selection [7]
G11C 8/14	1-Punkt Untergruppe	. Word line organisation ; Word line lay-out [7]
G11C 8/16	1-Punkt Untergruppe	. Multiple access memory array, e.g. addressing one storage element via at least two independent addressing line groups [7]
G11C 8/18	1-Punkt Untergruppe	. Address timing or clocking circuits ; Address control signal generation or management, e.g. for row address strobe (RAS) or column address strobe (CAS) signals [7]
G11C 8/20	1-Punkt Untergruppe	. Address safety or protection circuits, i.e. arrangements for preventing unauthorized or accidental access [7]
G11C 11/00	Hauptgruppe	Digital stores characterised by the use of particular electric or magnetic storage elements; Storage elements therefor (G11C 14/00 to G11C 21/00 take precedence) [5]
G11C 11/02	1-Punkt Untergruppe	. using magnetic elements
G11C 11/04	2-Punkt Untergruppe	. . using storage elements having cylindrical form, e.g. rod, wire (G11C 11/12 , G11C 11/14 take precedence) [2]
G11C 11/06	2-Punkt Untergruppe	. . using single-aperture storage elements, e.g. ring core; using multi-aperture plates in which each individual aperture forms a storage element
G11C 11/061	3-Punkt Untergruppe	. . . using elements with single aperture or magnetic loop for storage, one element per bit, and for destructive read-out [2]
G11C 11/063	4-Punkt Untergruppe	 bit-organized, such as, 2L/2D-, 3D-organization, i.e. for selection of an element by means of at least two coincident partial currents both for reading and for writing [2]
G11C 11/065	4-Punkt Untergruppe	 word-organized, such as 2D-organization, or linear selection, i.e. for selection of all the elements of a word by means of a single full current for reading [2]
G11C 11/067	3-Punkt Untergruppe	. . . using elements with single aperture or magnetic loop for storage, one element per bit, and for non-destructive read-out [2]
G11C 11/08	2-Punkt Untergruppe	. . using multi-aperture storage elements, e.g. using transfluxors; using plates incorporating several individual multi-aperture storage elements (G11C 11/10 takes precedence; using multi-aperture plates in which each individual aperture forms a storage element G11C 11/06) [2]
G11C 11/10	2-Punkt Untergruppe	. . using multi-axial storage elements
G11C 11/12	2-Punkt Untergruppe	. . using tensors; using twistors, i.e. elements in which one axis of magnetisation is twisted
G11C 11/14	2-Punkt Untergruppe	. . using thin-film elements
G11C 11/15	3-Punkt Untergruppe	. . . using multiple magnetic layers (G11C 11/155 takes precedence) [2]
G11C 11/155	3-Punkt Untergruppe	. . . with cylindrical configuration [2]

Symbol	Typ	Titel
G11C 11/16	2-Punkt Untergruppe	. . using elements in which the storage effect is based on magnetic spin effect
G11C 11/18	1-Punkt Untergruppe	. using Hall-effect devices
G11C 11/19	1-Punkt Untergruppe	. using non-linear reactive devices in resonant circuits [2]
G11C 11/20	2-Punkt Untergruppe	. . using parametrons [2]
G11C 11/21	1-Punkt Untergruppe	. using electric elements [2]
G11C 11/22	2-Punkt Untergruppe	. . using ferroelectric elements [2]
G11C 11/23	2-Punkt Untergruppe	. . using electrostatic storage on a common layer, e.g. Forrester-Haeff tubes (G11C 11/22 takes precedence) [2]
G11C 11/24	2-Punkt Untergruppe	. . using capacitors (G11C 11/22 takes precedence; using a combination of semiconductor devices and capacitors G11C 11/34 , e.g. G11C 11/40) [2, 5]
G11C 11/26	2-Punkt Untergruppe	. . using discharge tubes [2]
G11C 11/28	3-Punkt Untergruppe	. . . using gas-filled tubes [2]
G11C 11/30	3-Punkt Untergruppe	. . . using vacuum tubes (G11C 11/23 takes precedence) [2]
G11C 11/34	2-Punkt Untergruppe	. . using semiconductor devices [2]
<i>G11C 11/35</i>	<i>3-Punkt Untergruppe</i>	<i>. . . with charge storage in a depletion layer, e.g. charge coupled devices [7]</i>
G11C 11/36	3-Punkt Untergruppe	. . . using diodes, e.g. as threshold elements [2]
G11C 11/38	4-Punkt Untergruppe	 using tunnel diodes [2]
G11C 11/39	3-Punkt Untergruppe	. . . using thyristors [5]
G11C 11/40	3-Punkt Untergruppe	. . . using transistors [2]
G11C 11/401	4-Punkt Untergruppe	 forming cells needing refreshing or charge regeneration, i.e. dynamic cells [5]
G11C 11/402	5-Punkt Untergruppe	 with charge regeneration individual to each memory cell, i.e. internal refresh [5]
G11C 11/403	5-Punkt Untergruppe	 with charge regeneration common to a multiplicity of memory cells, i.e. external refresh [5]
G11C 11/404	6-Punkt Untergruppe	 with one charge-transfer gate, e.g. MOS transistor, per cell [5]
G11C 11/405	6-Punkt Untergruppe	 with three charge-transfer gates, e.g. MOS transistors, per cell [5]
G11C 11/406	5-Punkt Untergruppe	 Management or control of the refreshing or charge-regeneration cycles [5]
<i>G11C 11/4063</i>	<i>5-Punkt Untergruppe</i>	<i>. Auxiliary circuits, e.g. for addressing, decoding, driving, writing, sensing or timing [7]</i>
<i>G11C 11/4067</i>	<i>6-Punkt Untergruppe</i>	<i>. for memory cells of the bipolar type [7]</i>
G11C 11/407	6-Punkt Untergruppe	 for memory cells of the field-effect type [5]
<i>G11C 11/4072</i>	<i>7-Punkt Untergruppe</i>	<i>. Circuits for initialization, powering up or down, clearing memory or presetting [7]</i>
<i>G11C 11/4074</i>	<i>7-Punkt Untergruppe</i>	<i>. Power supply or voltage generation circuits, e.g. bias voltage generators, substrate voltage generators, back-up power, power control circuits [7]</i>
<i>G11C 11/4076</i>	<i>7-Punkt Untergruppe</i>	<i>. Timing circuits (for regeneration management G11C 11/406) [7]</i>
<i>G11C 11/4078</i>	<i>7-Punkt Untergruppe</i>	<i>. Safety or protection circuits, e.g. for preventing inadvertent or unauthorised reading or writing ; Status cells ; Test cells [7]</i>

Symbol	Typ	Titel
G11C 11/408	7-Punkt Untergruppe	 Address circuits [5]
G11C 11/409	7-Punkt Untergruppe	 Read-write (R-W) circuits [5]
<i>G11C 11/4091</i>	<i>8-Punkt Untergruppe</i>	<i>. Sense or sense/refresh amplifiers, or associated sense circuitry, e.g. for coupled bit-line precharging, equalising or isolating [7]</i>
<i>G11C 11/4093</i>	<i>8-Punkt Untergruppe</i>	<i>. Input/output (I/O) data interface arrangements, e.g. data buffers (level conversion circuits in general H03K 19/0175) [7]</i>
<i>G11C 11/4094</i>	<i>8-Punkt Untergruppe</i>	<i>. Bit-line management or control circuits [7]</i>
<i>G11C 11/4096</i>	<i>8-Punkt Untergruppe</i>	<i>. Input/output (I/O) data management or control circuits, e.g. reading or writing circuits, I/O drivers, bit-line switches [7]</i>
<i>G11C 11/4097</i>	<i>8-Punkt Untergruppe</i>	<i>. Bit-line organisation, e.g. bit-line layout, folded bit lines [7]</i>
<i>G11C 11/4099</i>	<i>8-Punkt Untergruppe</i>	<i>. Dummy cell treatment ; Reference voltage generators [7]</i>
G11C 11/41	4-Punkt Untergruppe	 forming cells with positive feedback, i.e. cells not needing refreshing or charge regeneration, e.g. bistable multivibrator or Schmitt trigger [5]
G11C 11/411	5-Punkt Untergruppe	 using bipolar transistors only [5]
G11C 11/412	5-Punkt Untergruppe	 using field-effect transistors only [5]
G11C 11/413	5-Punkt Untergruppe	 Auxiliary circuits, e.g. for addressing, decoding, driving, writing, sensing, timing or power reduction [5]
G11C 11/414	6-Punkt Untergruppe	 for memory cells of the bipolar type [5]
G11C 11/415	7-Punkt Untergruppe	 Address circuits [5]
G11C 11/416	7-Punkt Untergruppe	 Read-write (R-W) circuits [5]
G11C 11/417	6-Punkt Untergruppe	 for memory cells of the field-effect type [5]
G11C 11/418	7-Punkt Untergruppe	 Address circuits [5]
G11C 11/419	7-Punkt Untergruppe	 Read-write (R-W) circuits [5]
<i>G11C 11/4193</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Auxiliary circuits specific to particular types of semiconductor storage devices, e.g. for addressing, driving, sensing, timing, power supply, signal propagation (G11C 11/4063 , G11C 11/413 take precedence) [7]</i>
<i>G11C 11/4195</i>	<i>4-Punkt Untergruppe</i>	<i>. . . . Address circuits [7]</i>
<i>G11C 11/4197</i>	<i>4-Punkt Untergruppe</i>	<i>. . . . Read-write (R-W) circuits [7]</i>
G11C 11/42	2-Punkt Untergruppe	. . using opto-electronic devices, i.e. light-emitting and photoelectric devices electrically- or optically-coupled
G11C 11/44	2-Punkt Untergruppe	. . using super-conductive elements, e.g. cryotron [2]
G11C 11/46	1-Punkt Untergruppe	. using thermoplastic elements
G11C 11/48	1-Punkt Untergruppe	. using displaceable coupling elements, e.g. ferromagnetic cores, to produce change between different states of mutual or self-inductance
G11C 11/50	1-Punkt Untergruppe	. using actuation of electric contacts to store the information (mechanical stores G11C 23/00; switches providing a selected number of consecutive operations of the contacts by a single manual actuation of the operating part H01H 41/00)
G11C 11/52	2-Punkt Untergruppe	. . using electromagnetic relays
G11C 11/54	1-Punkt Untergruppe	. using elements simulating biological cells, e.g. neuron

Symbol	Typ	Titel
G11C 11/56	1-Punkt Untergruppe	. using storage elements with more than two stable states represented by steps, e.g. of voltage, current, phase, frequency (counting arrangements comprising multi-stable elements of this type H03K 25/00 , H03K 29/00) [2]
G11C 13/00	Hauptgruppe	Digital stores characterised by the use of storage elements not covered by groups G11C 11/00 , G11C 23/00 , or G11C 25/00
G11C 13/02	1-Punkt Untergruppe	. using elements whose operation depends upon chemical change (using electrochemical charge G11C 11/00)
G11C 13/04	1-Punkt Untergruppe	. using optical elements
G11C 13/06	2-Punkt Untergruppe	. . using magneto-optical elements (magneto-optics in general G02F) [2]
G11C 14/00	Hauptgruppe	Digital stores characterised by arrangements of cells having volatile and non-volatile storage properties for back-up when the power is down [5]
G11C 15/00	Hauptgruppe	Digital stores in which information comprising one or more characteristic parts is written into the store and in which information is read-out by searching for one or more of these characteristic parts, i.e. associative or content-addressed stores (in which information is addressed to a specific location G11C 11/00) [2]
G11C 15/02	1-Punkt Untergruppe	. using magnetic elements [2]
G11C 15/04	1-Punkt Untergruppe	. using semiconductor elements [2]
G11C 15/06	1-Punkt Untergruppe	. using cryogenic elements [2]
G11C 16/00	Hauptgruppe	Erasable programmable read-only memories (G11C 14/00 takes precedence) [5]
G11C 16/02	1-Punkt Untergruppe	. electrically programmable [5]
G11C 16/04	2-Punkt Untergruppe	. . using variable threshold transistors, e.g. FAMOS [5]
G11C 16/06	2-Punkt Untergruppe	. . Auxiliary circuits, e.g. for writing into memory (in general G11C 7/00) [5]
<i>G11C 16/08</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Address circuits ; Decoders ; Word-line control circuits [7]</i>
<i>G11C 16/10</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Programming or data input circuits [7]</i>
<i>G11C 16/12</i>	<i>4-Punkt Untergruppe</i>	<i>. . . . Programming voltage switching circuits [7]</i>
<i>G11C 16/14</i>	<i>4-Punkt Untergruppe</i>	<i>. . . . Circuits for erasing electrically, e.g. erase voltage switching circuits [7]</i>
<i>G11C 16/16</i>	<i>5-Punkt Untergruppe</i>	<i>. for erasing blocks, e.g. arrays, words, groups [7]</i>
<i>G11C 16/18</i>	<i>4-Punkt Untergruppe</i>	<i>. . . . Circuits for erasing optically [7]</i>
<i>G11C 16/20</i>	<i>4-Punkt Untergruppe</i>	<i>. . . . Initialising ; Data preset ; Chip identification [7]</i>
<i>G11C 16/22</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Safety or protection circuits preventing unauthorised or accidental access to memory cells [7]</i>
<i>G11C 16/24</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Bit-line control circuits [7]</i>
<i>G11C 16/26</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Sensing or reading circuits ; Data output circuits [7]</i>
<i>G11C 16/28</i>	<i>4-Punkt Untergruppe</i>	<i>. . . . using differential sensing or reference cells, e.g. dummy cells [7]</i>
<i>G11C 16/30</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Power supply circuits [7]</i>
<i>G11C 16/32</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Timing circuits [7]</i>
<i>G11C 16/34</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Determination of programming status, e.g. threshold voltage, overprogramming or underprogramming, retention [7]</i>
G11C 17/00	Hauptgruppe	Read-only memories programmable only once; Semi-permanent stores, e.g. manually-replaceable information cards (erasable programmable read-only memories G11C 16/00; coding, decoding or code conversion, in general H03M) [2, 5]

Symbol	Typ	Titel
G11C 17/02	1-Punkt Untergruppe	. using magnetic or inductive elements (G11C 17/14 takes precedence) [2, 5]
G11C 17/04	1-Punkt Untergruppe	. using capacitive elements (G11C 17/06 , G11C 17/14 take precedence) [2, 5]
G11C 17/06	1-Punkt Untergruppe	. using diode elements (G11C 17/14 takes precedence) [2, 5]
G11C 17/08	1-Punkt Untergruppe	. using semiconductor devices, e.g. bipolar elements (G11C 17/06 , G11C 17/14 take precedence) [5]
G11C 17/10	2-Punkt Untergruppe	. . in which contents are determined during manufacturing by a predetermined arrangement of coupling elements, e.g. mask-programmable ROM [5]
G11C 17/12	3-Punkt Untergruppe	. . . using field-effect devices [5]
G11C 17/14	1-Punkt Untergruppe	. in which contents are determined by selectively establishing, breaking or modifying connecting links by permanently altering the state of coupling elements, e.g. PROM [5]
G11C 17/16	2-Punkt Untergruppe	. . using electrically-fusible links [5]
G11C 17/18	2-Punkt Untergruppe	. . Auxiliary circuits, e.g. for writing into memory (in general G11C 7/00) [5]
G11C 19/00	Hauptgruppe	Digital stores in which the information is moved stepwise, e.g. shift registers (counting chains H03K 23/00)
G11C 19/02	1-Punkt Untergruppe	. using magnetic elements (G11C 19/14 takes precedence) [2]
G11C 19/04	2-Punkt Untergruppe	. . using cores with one aperture or magnetic loop [2]
G11C 19/06	2-Punkt Untergruppe	. . using structures with a number of apertures or magnetic loops, e.g. transfluxors [2]
G11C 19/08	2-Punkt Untergruppe	. . using thin films in plane structure [2]
G11C 19/10	2-Punkt Untergruppe	. . using thin films on rods; with twistors [2]
G11C 19/12	1-Punkt Untergruppe	. using non-linear reactive devices in resonant circuits [2]
<i>G11C 19/14</i>	<i>1-Punkt Untergruppe</i>	<i>. using magnetic elements in combination with active elements, e.g. discharge tubes, semiconductor elements (G11C 19/34 takes precedence) [2, 7]</i>
G11C 19/18	1-Punkt Untergruppe	. using capacitors as main elements of the stages [2]
G11C 19/20	1-Punkt Untergruppe	. using discharge tubes (G11C 19/14 takes precedence) [2]
<i>G11C 19/28</i>	<i>1-Punkt Untergruppe</i>	<i>. using semiconductor elements (G11C 19/14 , G11C 19/36 take precedence) [2, 7]</i>
G11C 19/30	1-Punkt Untergruppe	. using opto-electronic devices, i.e. light-emitting and photoelectric devices electrically- or optically-coupled [2]
G11C 19/32	1-Punkt Untergruppe	. using super-conductive elements [2]
<i>G11C 19/34</i>	<i>1-Punkt Untergruppe</i>	<i>. using storage elements with more than two stable states represented by steps, e.g. of voltage, current, phase, frequency [7]</i>
<i>G11C 19/36</i>	<i>2-Punkt Untergruppe</i>	<i>. . using semiconductor elements [7]</i>
<i>G11C 19/38</i>	<i>1-Punkt Untergruppe</i>	<i>. two-dimensional, e.g. horizontal and vertical shift registers [7]</i>
G11C 21/00	Hauptgruppe	Digital stores in which the information circulates (stepwise G11C 19/00)
G11C 21/02	1-Punkt Untergruppe	. using electromechanical delay lines, e.g. using a mercury tank
G11C 23/00	Hauptgruppe	Digital stores characterised by movement of mechanical parts to effect storage, e.g. using balls; Storage elements therefor (storing by actuating contacts G11C 11/48)
G11C 25/00	Hauptgruppe	Digital stores characterised by the use of flowing media; Storage elements therefor
G11C 27/00	Hauptgruppe	Electric analogue stores, e.g. for storing instantaneous values

Symbol	Typ	Titel
G11C 27/02	1-Punkt Untergruppe	. Sample-and-hold arrangements (G11C 27/04 takes precedence; sampling electrical signals, in general H03K) [2, 4]
G11C 27/04	1-Punkt Untergruppe	. Shift registers (charge coupled devices per se H01L 29/76) [4]
G11C 29/00	Hauptgruppe	Checking stores for correct operation