Symbol	Typ	Titel
H	**Sektion**	**SECTION H — ELECTRICITY**
H03	**Klasse**	**BASIC ELECTRONIC CIRCUITRY**
H03K	**Unterklasse**	**PULSE TECHNIQUE (measuring pulse characteristics G01R; mechanical counters having an electrical input G06M; information storage devices in general G11; sample-and-hold arrangements in electric analogue stores G11C 27/02; construction of switches involving contact making and breaking for generation of pulses, e.g. by using a moving magnet, H01H; static conversion of electric power H02M; generation of oscillations by circuits employing active elements which operate in a non-switching manner H03B; modulating sinusoidal oscillations with pulses H03C, H04L; discriminator circuits involving pulse counting H03D; automatic control of generators H03L; starting, synchronisation, or stabilisation of generators where the type of generator is irrelevant or unspecified H03L; coding, decoding or code conversion, in general H03M) [4]**
H03K 3/00	**Hauptgruppe**	**Circuits for generating electric pulses; Monostable, bistable or multistable circuits (H03K 4/00 takes precedence; for digital computers G06F 1/025) [5]**
H03K 3/01	1-Punkt Untergruppe	. Details [3]
H03K 3/011	2-Punkt Untergruppe	. . Modifications of generator to compensate for variations in physical values, e.g. voltage, temperature [6]
H03K 3/012	2-Punkt Untergruppe	. . Modifications of generator to improve response time or to decrease power consumption [6]
H03K 3/013	2-Punkt Untergruppe	. . Modifications of generator to prevent operation by noise or interference [3]
H03K 3/014	2-Punkt Untergruppe	. . Modifications of generator to ensure starting of oscillations [6]
H03K 3/015	2-Punkt Untergruppe	. . Modifications of generator to maintain energy constant [6]
H03K 3/017	2-Punkt Untergruppe	. . Adjustment of width or dutycycle of pulses (pulse width modulation H03K 7/08) [3]
H03K 3/02	1-Punkt Untergruppe	. Generators characterised by the type of circuit or by the means used for producing pulses (H03K 3/64-H03K 3/84 take precedence)
H03K 3/021	2-Punkt Untergruppe	. . by the use, as active elements, of more than one type of element or means, e.g. BIMOS, composite devices such as IGBT [6]
H03K 3/023	2-Punkt Untergruppe	. . by the use of differential amplifiers or comparators, with internal or external positive feedback [3]
H03K 3/0231	3-Punkt Untergruppe	. . . Astable circuits [6]
H03K 3/0232	3-Punkt Untergruppe	. . . Monostable circuits [6]
H03K 3/0233	3-Punkt Untergruppe	. . . Bistable circuits [6]
H03K 3/0234	3-Punkt Untergruppe	. . . Multistable circuits [6]
H03K 3/027	2-Punkt Untergruppe	. . by the use of logic circuits, with internal or external positive feedback [3]
H03K 3/03	3-Punkt Untergruppe	. . . Astable circuits [3]
H03K 3/033	3-Punkt Untergruppe	. . . Monostable circuits [3]
H03K 3/037	3-Punkt Untergruppe	. . . Bistable circuits [3]
H03K 3/038	3-Punkt Untergruppe	. . . Multistable circuits [6]
H03K 3/04	2-Punkt Untergruppe	. . by the use, as active elements, of vacuum tubes only, with positive feedback (H03K 3/023, H03K 3/027 take precedence) [3]

Symbol	Typ	Titel
H03K 3/05	3-Punkt Untergruppe	. . . using means other than a transformer for feedback
H03K 3/06	4-Punkt Untergruppe	. . . . using at least two tubes so coupled that the input of one is derived from the output of another, e.g. multivibrator
H03K 3/08	5-Punkt Untergruppe	. . . . . astable
H03K 3/09	6-Punkt Untergruppe	. . . . . Stabilisation of output [2]
H03K 3/10	5-Punkt Untergruppe	. . . . . monostable
H03K 3/12	5-Punkt Untergruppe	. . . . . bistable
H03K 3/13	6-Punkt Untergruppe	. . . . . Bistables with hysteresis, e.g. Schmitt trigger [6]
H03K 3/14	5-Punkt Untergruppe	. . . . . multistable
H03K 3/16	3-Punkt Untergruppe	. . . using a transformer for feedback, e.g. blocking oscillator with saturable core
H03K 3/22	4-Punkt Untergruppe	. . . . specially adapted for amplitude comparison, i.e. Multiar
H03K 3/26	2-Punkt Untergruppe	. . by the use, as active elements, of bipolar transistors with internal or external positive feedback (H03K 3/023, H03K 3/027 take precedence) [2]
H03K 3/28	3-Punkt Untergruppe	. . . using means other than a transformer for feedback
H03K 3/281	4-Punkt Untergruppe	. . . . using at least two transistors so coupled that the input of one is derived from the output of another, e.g. multivibrator
H03K 3/282	5-Punkt Untergruppe	. . . . . astable
H03K 3/283	6-Punkt Untergruppe	. . . . . Stabilisation of output [2]
H03K 3/284	5-Punkt Untergruppe	. . . . . monostable
H03K 3/286	5-Punkt Untergruppe	. . . . . bistable [3]
H03K 3/287	6-Punkt Untergruppe	. . . . . using additional transistors in the feedback circuit (H03K 3/289 takes precedence) [3]
H03K 3/288	6-Punkt Untergruppe	. . . . . using additional transistors in the input circuit (H03K 3/289 takes precedence) [3]
H03K 3/2885	7-Punkt Untergruppe	. . . . . the input circuit having a differential configuration [5]
H03K 3/289	6-Punkt Untergruppe	. . . . . of the master-slave type [3]
H03K 3/2893	6-Punkt Untergruppe	. . . . . Bistables with hysteresis, e.g. Schmitt trigger [6]
H03K 3/2897	7-Punkt Untergruppe	. . . . . with an input circuit of differential configuration [6]
H03K 3/29	5-Punkt Untergruppe	. . . . . multistable
H03K 3/30	3-Punkt Untergruppe	. . . using a transformer for feedback, e.g. blocking oscillator
H03K 3/313	2-Punkt Untergruppe	. . by the use, as active elements, of semiconductor devices with two electrodes, one or two potential-jump barriers, and exhibiting a negative resistance characteristic [3]
H03K 3/315	3-Punkt Untergruppe	. . . the devices being tunnel diodes
H03K 3/33	2-Punkt Untergruppe	. . by the use, as active elements, of semiconductor devices exhibiting hole storage or enhancement effect
H03K 3/335	2-Punkt Untergruppe	. . by the use, as active elements, of semiconductor devices with more than two electrodes and exhibiting avalanche effect

Symbol	Typ	Titel
H03K 3/35	2-Punkt Untergruppe	. . by the use, as active elements, of bipolar semiconductor devices with more than two PN junctions, or more than three electrodes, or more than one electrode connected to the same conductivity region (H03K 3/023, H03K 3/027 take precedence) [3]
H03K 3/351	3-Punkt Untergruppe	. . . the devices being unijunction transistors (H03K 3/352 takes precedence) [3]
H03K 3/352	3-Punkt Untergruppe	. . . the devices being thyristors [3]
H03K 3/3525	4-Punkt Untergruppe	. . . . Anode gate thyristors or programmable unijunction transistors [6]
H03K 3/353	2-Punkt Untergruppe	. . by the use, as active elements, of field-effect transistors with internal or external positive feedback (H03K 3/023, H03K 3/027 take precedence) [2, 3]
H03K 3/354	3-Punkt Untergruppe	. . . Astable circuits [3]
H03K 3/355	3-Punkt Untergruppe	. . . Monostable circuits [3]
H03K 3/356	3-Punkt Untergruppe	. . . Bistable circuits [3]
H03K 3/3562	4-Punkt Untergruppe	. . . . of the master-slave type [6]
H03K 3/3565	4-Punkt Untergruppe	. . . . Bistables with hysteresis, e.g. Schmitt trigger [6]
H03K 3/3568	3-Punkt Untergruppe	. . . Multistable circuits [6]
H03K 3/357	2-Punkt Untergruppe	. . by the use, as active elements, of bulk negative resistance devices, e.g. Gunn-effect devices [2]
H03K 3/36	2-Punkt Untergruppe	. . by the use, as active elements, of semiconductors, not otherwise provided for [2]
H03K 3/37	2-Punkt Untergruppe	. . by the use, as active elements, of gas-filled tubes, e.g. astable trigger circuits (H03K 3/55 takes precedence)
H03K 3/38	2-Punkt Untergruppe	. . by the use, as active elements, of superconductive devices [3]
H03K 3/40	2-Punkt Untergruppe	. . by the use, as active elements, of electrochemical cells
H03K 3/42	2-Punkt Untergruppe	. . by the use, as active elements, of opto-electronic devices, i.e. light-emitting and photoelectric devices electrically- or optically-coupled
H03K 3/43	2-Punkt Untergruppe	. . by the use, as active elements, of beam deflection tubes
H03K 3/45	2-Punkt Untergruppe	. . by the use, as active elements, of non-linear magnetic or dielectric devices
H03K 3/47	3-Punkt Untergruppe	. . . the devices being parametrons
H03K 3/49	3-Punkt Untergruppe	. . . the devices being ferro-resonant
H03K 3/51	3-Punkt Untergruppe	. . . the devices being multi-aperture magnetic cores, e.g. transfluxors
H03K 3/53	2-Punkt Untergruppe	. . by the use of an energy-accumulating element discharged through the load by a switching device controlled by an external signal and not incorporating positive feedback (H03K 3/335 takes precedence)
H03K 3/537	3-Punkt Untergruppe	. . . the switching device being a spark gap [3]
H03K 3/543	3-Punkt Untergruppe	. . . the switching device being a vacuum tube [3]
H03K 3/55	3-Punkt Untergruppe	. . . the switching device being a gas-filled tube having a control electrode
H03K 3/57	3-Punkt Untergruppe	. . . the switching device being a semiconductor device
H03K 3/59	2-Punkt Untergruppe	. . by the use of galvano-magnetic devices, e.g. Hall-effect devices [2]
H03K 3/64	1-Punkt Untergruppe	. Generators producing trains of pulses, i.e. finite sequences of pulses

Symbol	Typ	Titel
H03K 3/66	2-Punkt Untergruppe	. . by interrupting the output of a generator
H03K 3/70	3-Punkt Untergruppe	. . . time intervals between all adjacent pulses of one train being equal
H03K 3/72	2-Punkt Untergruppe	. . with means for varying repetition rate of trains
H03K 3/78	1-Punkt Untergruppe	. Generating a single train of pulses having a predetermined pattern, e.g. a predetermined number
H03K 3/80	1-Punkt Untergruppe	. Generating trains of sinusoidal oscillations (by interrupting H03C, H04L)
H03K 3/84	1-Punkt Untergruppe	. Generating pulses having a predetermined statistical distribution of a parameter, e.g. random pulse generators [2]
H03K 3/86	1-Punkt Untergruppe	. Generating pulses by means of delay lines and not covered by the preceding subgroups [2]
H03K 4/00	**Hauptgruppe**	**Generating pulses having essentially a finite slope or stepped portions (generation of supply voltages from deflection waveforms H04N 3/18)**
H03K 4/02	1-Punkt Untergruppe	. having stepped portions, e.g. staircase waveform
H03K 4/04	1-Punkt Untergruppe	. having parabolic shape
H03K 4/06	1-Punkt Untergruppe	. having triangular shape
H03K 4/08	2-Punkt Untergruppe	. . having sawtooth shape
H03K 4/10	3-Punkt Untergruppe	. . . using as active elements vacuum tubes only
H03K 4/12	4-Punkt Untergruppe	. . . . in which a sawtooth voltage is produced across a capacitor
H03K 4/14	5-Punkt Untergruppe	. . . . . using two tubes so coupled that the input of each one is derived from the output of the other, e.g. multivibrator
H03K 4/16	5-Punkt Untergruppe	. . . . . using a single tube with positive feedback through transformer, e.g. blocking oscillator
H03K 4/18	5-Punkt Untergruppe	. . . . . using a single tube exhibiting negative resistance between two of its electrodes, e.g. transitron, dynatron
H03K 4/20	5-Punkt Untergruppe	. . . . . using a tube with negative feedback by capacitor, e.g. Miller integrator
H03K 4/22	6-Punkt Untergruppe	. . . . . combined with transitron, e.g. phantastron, sanatron
H03K 4/24	5-Punkt Untergruppe	. . . . . Boot-strap generators
H03K 4/26	4-Punkt Untergruppe	. . . . in which a sawtooth current is produced through an inductor
H03K 4/28	5-Punkt Untergruppe	. . . . . using a tube operating as a switching device [3]
H03K 4/32	6-Punkt Untergruppe	. . . . . combined with means for generating the driving pulses
H03K 4/34	7-Punkt Untergruppe	. . . . . using a single tube with positive feedback through a transformer
H03K 4/36	7-Punkt Untergruppe	. . . . . using a single tube exhibiting negative resistance between two of its electrodes, e.g. transitron, dynatron
H03K 4/38	8-Punkt Untergruppe	. . . . . combined with Miller integrator
H03K 4/39	5-Punkt Untergruppe	. . . . . using a tube operating as an amplifier [3]
H03K 4/41	6-Punkt Untergruppe	. . . . . with negative feedback through a capacitor, e.g. Miller integrator [3]
H03K 4/43	6-Punkt Untergruppe	. . . . . combined with means for generating the driving pulses [3]
H03K 4/48	3-Punkt Untergruppe	. . . using as active elements semiconductor devices (H03K 4/787-H03K 4/84 take precedence)

Symbol	Typ	Titel
H03K 4/50	4-Punkt Untergruppe	. . . . in which a sawtooth voltage is produced across a capacitor
H03K 4/501	5-Punkt Untergruppe	. . . . . the starting point of the flyback period being determined by the amplitude of the voltage across the capacitor, e.g. by a comparator [6]
H03K 4/502	6-Punkt Untergruppe	. . . . . the capacitor being charged from a constant-current source [6]
H03K 4/52	5-Punkt Untergruppe	. . . . . using two semiconductor devices so coupled that the input of each one is derived from the output of the other, e.g. multivibrator
H03K 4/54	5-Punkt Untergruppe	. . . . . using a single semiconductor device with positive feedback through a transformer, e.g. blocking oscillator
H03K 4/56	5-Punkt Untergruppe	. . . . . using a semiconductor device with negative feedback through a capacitor, e.g. Miller integrator
H03K 4/58	5-Punkt Untergruppe	. . . . . Boot-strap generators
H03K 4/60	4-Punkt Untergruppe	. . . . in which a sawtooth current is produced through an inductor
H03K 4/62	5-Punkt Untergruppe	. . . . . using a semiconductor device operating as a switching device [3]
H03K 4/64	6-Punkt Untergruppe	. . . . . combined with means for generating the driving pulses
H03K 4/66	7-Punkt Untergruppe	. . . . . using a single device with positive feedback, e.g. blocking oscillator
H03K 4/68	6-Punkt Untergruppe	. . . . . Generators in which the switching device is conducting during the fly-back part of the cycle
H03K 4/69	5-Punkt Untergruppe	. . . . . using a semiconductor device operating as an amplifier [3]
H03K 4/71	6-Punkt Untergruppe	. . . . . with negative feedback through a capacitor, e.g. Miller integrator [3]
H03K 4/72	6-Punkt Untergruppe	. . . . . combined with means for generating the driving pulses
H03K 4/787	3-Punkt Untergruppe	. . . using as active elements semiconductor devices with two electrodes and exhibiting a negative resistance characteristic [2]
H03K 4/793	4-Punkt Untergruppe	. . . . using tunnel diodes [2]
H03K 4/80	3-Punkt Untergruppe	. . . using as active elements multi-layer diodes
H03K 4/83	3-Punkt Untergruppe	. . . using as active elements semiconductor devices with more than two PN junctions or with more than three electrodes or more than one electrode connected to the same conductivity region [2]
H03K 4/84	4-Punkt Untergruppe	. . . . Generators in which the semiconductor device is conducting during the fly-back part of the cycle
H03K 4/86	3-Punkt Untergruppe	. . . using as active elements gas-filled tubes
H03K 4/88	3-Punkt Untergruppe	. . . using as active elements electrochemical cells
H03K 4/90	3-Punkt Untergruppe	. . . Linearisation of ramp (modifying slopes of pulses H03K 6/04; scanning correction for television receivers H04N 3/16); Synchronisation of pulses (in pictorial communication systems H04N 1/36, H04N 5/04; colour synchronisation H04N 9/44) [2]
H03K 4/92	1-Punkt Untergruppe	. having a waveform comprising a portion of a sinusoid (generating sinusoidal oscillations H03B) [2]
H03K 4/94	1-Punkt Untergruppe	. having trapezoidal shape [2]
H03K 5/00	**Hauptgruppe**	**Manipulating pulses not covered by one of the other main groups in this subclass (circuits with regenerative action H03K 3/00, H03K 4/00; by the use of non-linear magnetic or dielectric devices H03K 3/45)**
H03K 5/003	1-Punkt Untergruppe	. Changing the DC level (television signals H04N 3/00) [6]
H03K 5/007	2-Punkt Untergruppe	. . Base line stabilisation (thresholding H03K 5/08) [6]

Symbol	Typ	Titel
H03K 5/01	1-Punkt Untergruppe	. Shaping pulses (discrimination against noise or interference H03K 5/125)
H03K 5/02	2-Punkt Untergruppe	. . by amplifying (H03K 5/04 takes precedence; wide-band amplifiers in general H03F)
H03K 5/04	2-Punkt Untergruppe	. . by increasing duration; by decreasing duration
H03K 5/05	3-Punkt Untergruppe	. . . by the use of clock signals or other time reference signals [3]
H03K 5/06	3-Punkt Untergruppe	. . . by the use of delay lines or other analogue delay elements [3]
H03K 5/07	3-Punkt Untergruppe	. . . by the use of resonant circuits [3]
H03K 5/08	2-Punkt Untergruppe	. . by limiting, by thresholding, by slicing, i.e. combined limiting and thresholding (H03K 5/07 takes precedence; comparing one pulse with another H03K 5/22; providing a determined threshold for switching H03K 17/30) [3]
H03K 5/12	2-Punkt Untergruppe	. . by steepening leading or trailing edges
H03K 5/125	1-Punkt Untergruppe	. Discriminating pulses (measuring or indicating G01R 19/00, G01R 23/00, G01R 25/00, G01R 29/00; separation of synchronising signals in television systems H04N 5/08) [6]
H03K 5/1252	2-Punkt Untergruppe	. . Suppression or limitation of noise or interference (specially adapted for transmission systems H04B 15/00, H04L 25/08) [6]
H03K 5/1254	3-Punkt Untergruppe	. . . specially adapted for pulses generated by closure of switches, i.e. anti-bouncing devices (debouncing circuits for electronic time-pieces G04G 5/00) [6]
H03K 5/13	1-Punkt Untergruppe	. Arrangements having a single output and transforming input signals into pulses delivered at desired time intervals
H03K 5/135	2-Punkt Untergruppe	. . by the use of time reference signals, e.g. clock signals [3]
H03K 5/14	2-Punkt Untergruppe	. . by the use of delay lines [3]
H03K 5/145	2-Punkt Untergruppe	. . by the use of resonant circuits [3]
H03K 5/15	1-Punkt Untergruppe	. Arrangements in which pulses are delivered at different times at several outputs, i.e. pulse distributors (distributing, switching, or gating arrangements H03K 17/00) [2]
H03K 5/151	2-Punkt Untergruppe	. . with two complementary outputs [6]
H03K 5/153	1-Punkt Untergruppe	. Arrangements in which a pulse is delivered at the instant when a predetermined characteristic of an input signal is present or at a fixed time interval after this instant (switching at zero crossing H03K 17/13)
H03K 5/1532	2-Punkt Untergruppe	. . Peak detectors (measuring characteristics of individual pulses G01R 29/02) [6]
H03K 5/1534	2-Punkt Untergruppe	. . Transition or edge detectors [6]
H03K 5/1536	2-Punkt Untergruppe	. . Zero-crossing detectors (in measuring circuits G01R 19/175) [6]
H03K 5/156	1-Punkt Untergruppe	. Arrangements in which a continuous pulse train is transformed into a train having a desired pattern
H03K 5/159	1-Punkt Untergruppe	. Applications of delay lines not covered by the preceding subgroups
H03K 5/19	1-Punkt Untergruppe	. Monitoring patterns of pulse trains (indicating amplitude G01R 19/00; indicating frequency G01R 23/00; measuring characteristics of individual pulses G01R 29/02) [3]
H03K 5/22	1-Punkt Untergruppe	. Circuits having more than one input and one output for comparing pulses or pulse trains with each other according to input signal characteristics, e.g. slope, integral (indicating phase difference of two cyclic pulse trains G01R 25/00) [3]
H03K 5/24	2-Punkt Untergruppe	. . the characteristic being amplitude [3]
H03K 5/26	2-Punkt Untergruppe	. . the characteristic being duration, interval, position, frequency, or sequence [3]

Symbol	Typ	Titel
H03K 6/00	**Hauptgruppe**	**Manipulating pulses having a finite slope and not covered by one of the other main groups of this subclass (circuits with regenerative action H03K 4/00)**
H03K 6/02	1-Punkt Untergruppe	. Amplifying pulses
H03K 6/04	1-Punkt Untergruppe	. Modifying slopes of pulses, e.g. S-correction (S-correction in television H04N 3/23)
H03K 7/00	**Hauptgruppe**	**Modulating pulses with a continuously-variable modulating signal**
H03K 7/02	1-Punkt Untergruppe	. Amplitude modulation, i.e. PAM
H03K 7/04	1-Punkt Untergruppe	. Position modulation, i.e. PPM
H03K 7/06	1-Punkt Untergruppe	. Frequency or rate modulation, i.e. PFM or PRM
H03K 7/08	1-Punkt Untergruppe	. Duration or width modulation
H03K 7/10	1-Punkt Untergruppe	. Combined modulation, e.g. rate modulation and amplitude modulation
H03K 9/00	**Hauptgruppe**	**Demodulating pulses which have been modulated with a continuously-variable signal**
H03K 9/02	1-Punkt Untergruppe	. of amplitude-modulated pulses
H03K 9/04	1-Punkt Untergruppe	. of position-modulated pulses
H03K 9/06	1-Punkt Untergruppe	. of frequency- or rate-modulated pulses
H03K 9/08	1-Punkt Untergruppe	. of duration- or width-modulated pulses
H03K 9/10	1-Punkt Untergruppe	. of pulses having combined modulation
H03K 11/00	**Hauptgruppe**	**Transforming types of modulation, e.g. position-modulated pulses into duration-modulated pulses**
H03K 12/00	**Hauptgruppe**	**Producing pulses by distorting or combining sinusoidal waveforms (shaping pulses H03K 5/01; combining sinewaves using elements operating in a non-switching manner H03B) [3]**
H03K 17/00	**Hauptgruppe**	**Electronic switching or gating, i.e. not by contact-making and -breaking (selection of the stylus or auxiliary electrode in electric printing B41J 2/405; sample-and-hold arrangements G11C 27/02; switching or interrupting devices in waveguides H01P; gated amplifiers H03F 3/72; switching arrangements for exchange systems using static devices H04Q 3/52)**
H03K 17/04	1-Punkt Untergruppe	. Modifications for accelerating switching [3]
H03K 17/041	2-Punkt Untergruppe	. . without feedback from the output circuit to the control circuit [6]
H03K 17/0412	3-Punkt Untergruppe	. . . by measures taken in the control circuit [6]
H03K 17/0414	4-Punkt Untergruppe	. . . . Anti-saturation measures [6]
H03K 17/0416	3-Punkt Untergruppe	. . . by measures taken in the output circuit [6]
H03K 17/042	2-Punkt Untergruppe	. . by feedback from the output circuit to the control circuit [6]
H03K 17/0422	3-Punkt Untergruppe	. . . Anti-saturation measures [6]
H03K 17/0424	3-Punkt Untergruppe	. . . by the use of a transformer [6]
H03K 17/06	1-Punkt Untergruppe	. Modifications for ensuring a fully conducting state [3]
H03K 17/08	1-Punkt Untergruppe	. Modifications for protecting switching circuit against overcurrent or overvoltage [3]
H03K 17/081	2-Punkt Untergruppe	. . without feedback from the output circuit to the control circuit [6]
H03K 17/0812	3-Punkt Untergruppe	. . . by measures taken in the control circuit [6]
H03K 17/0814	3-Punkt Untergruppe	. . . by measures taken in the output circuit [6]
H03K 17/082	2-Punkt Untergruppe	. . by feedback from the output to the control circuit [6]

Symbol	Typ	Titel
H03K 17/10	1-Punkt Untergruppe	. Modifications for increasing the maximum permissible switched voltage [3]
H03K 17/12	1-Punkt Untergruppe	. Modifications for increasing the maximum permissible switched current [3]
H03K 17/13	1-Punkt Untergruppe	. Modifications for switching at zero crossing (generating an impulse at zero crossing H03K 5/1536) [3]
H03K 17/14	1-Punkt Untergruppe	. Modifications for compensating variations of physical values, e.g. of temperature [3]
H03K 17/16	1-Punkt Untergruppe	. Modifications for eliminating interference voltages or currents [3]
H03K 17/18	1-Punkt Untergruppe	. Modifications for indicating state of switch [3]
H03K 17/20	1-Punkt Untergruppe	. Modifications for resetting core switching units to a predetermined state [3]
H03K 17/22	1-Punkt Untergruppe	. Modifications for ensuring a predetermined initial state when the supply voltage has been applied (bi-stable generators H03K 3/12) [3]
H03K 17/24	2-Punkt Untergruppe	. . Storing the actual state when the supply voltage fails [3]
H03K 17/26	1-Punkt Untergruppe	. Modifications for temporary blocking after receipt of control pulses [3]
H03K 17/28	1-Punkt Untergruppe	. Modifications for introducing a time delay before switching (modifications to provide a choice of time-intervals for executing more than one switching action H03K 17/296) [3]
H03K 17/284	2-Punkt Untergruppe	. . in field-effect transistor switches [3]
H03K 17/288	2-Punkt Untergruppe	. . in tube switches [3]
H03K 17/292	2-Punkt Untergruppe	. . in thyristor, unijunction transistor or programmable unijunction transistor switches [3]
H03K 17/296	1-Punkt Untergruppe	. Modifications to provide a choice of time-intervals for executing more than one switching action and automatically terminating their operation after the programme is completed (electronic clocks comprising means to be operated at preselected times or after preselected time-intervals G04G 15/00) [3]
H03K 17/30	1-Punkt Untergruppe	. Modifications for providing a predetermined threshold before switching (shaping pulses by thresholding H03K 5/08) [3]
H03K 17/51	1-Punkt Untergruppe	. characterised by the use of specified components (H03K 17/04-H03K 17/30, H03K 17/94 take precedence) [3]
H03K 17/52	2-Punkt Untergruppe	. . by the use, as active elements, of gas-filled tubes [3]
H03K 17/54	2-Punkt Untergruppe	. . by the use, as active elements, of vacuum tubes (using diodes H03K 17/74) [3]
H03K 17/56	2-Punkt Untergruppe	. . by the use, as active elements, of semiconductor devices (using diodes H03K 17/74) [3]
H03K 17/567	3-Punkt Untergruppe	. . . Circuits characterised by the use of more than one type of semiconductor device, e.g. BIMOS, composite devices such as IGBT [6]
H03K 17/58	3-Punkt Untergruppe	. . . the devices being tunnel diodes [3]
H03K 17/60	3-Punkt Untergruppe	. . . the devices being bipolar transistors (bipolar transistors having four or more electrodes H03K 17/72) [3]
H03K 17/605	4-Punkt Untergruppe	. . . . with galvanic isolation between the control circuit and the output circuit (H03K 17/78 takes precedence) [5]
H03K 17/61	5-Punkt Untergruppe	. . . . . using transformer coupling [5]
H03K 17/615	4-Punkt Untergruppe	. . . . in a Darlington configuration [5]
H03K 17/62	4-Punkt Untergruppe	. . . . Switching arrangements with several input- or output-terminals, e.g. multiplexers, distributors (logic circuits H03K 19/00; code converters H03M 5/00, H03M 7/00) [3]
H03K 17/64	4-Punkt Untergruppe	. . . . having inductive loads [3]

Symbol	Typ	Titel
H03K 17/66	4-Punkt Untergruppe	. . . . Switching arrangements for passing the current in either direction at will; Switching arrangements for reversing the current at will [3]
H03K 17/68	4-Punkt Untergruppe	. . . . specially adapted for switching ac currents or voltages [3]
H03K 17/687	3-Punkt Untergruppe	. . . the devices being field-effect transistors [3]
H03K 17/689	4-Punkt Untergruppe	. . . . with galvanic isolation between the control circuit and the output circuit (H03K 17/78 takes precedence) [5]
H03K 17/691	5-Punkt Untergruppe	. . . . . using transformer coupling [5]
H03K 17/693	4-Punkt Untergruppe	. . . . Switching arrangements with several input- or output-terminals, e.g. multiplexers, distributors (logic circuits H03K 19/00; code converters H03M 5/00, H03M 7/00) [3]
H03K 17/695	4-Punkt Untergruppe	. . . . having inductive loads (protecting switching circuit against inductive flyback voltage H03K 17/08) [6]
H03K 17/70	3-Punkt Untergruppe	. . . the devices having only two electrodes and exhibiting negative resistance (the devices being tunnel diodes H03K 17/58) [3]
H03K 17/72	3-Punkt Untergruppe	. . . Bipolar semiconductor devices with more than two PN junctions, e.g. thyristors, programmable unijunction transistors, or with more than three electrodes, e.g. silicon controlled switches, or with more than one electrode connected to the same conductivity region, e.g. unijunction transistors [3]
H03K 17/722	4-Punkt Untergruppe	. . . . with galvanic isolation between the control circuit and the output circuit (H03K 17/78 takes precedence) [5]
H03K 17/723	5-Punkt Untergruppe	. . . . . using transformer coupling [5]
H03K 17/725	4-Punkt Untergruppe	. . . . for ac voltages or currents (H03K 17/722, H03K 17/735 take precedence) [3, 5]
H03K 17/73	4-Punkt Untergruppe	. . . . for dc voltages or currents (H03K 17/722, H03K 17/735 take precedence) [3, 5]
H03K 17/732	5-Punkt Untergruppe	. . . . . Measures for enabling turn-off [5]
H03K 17/735	4-Punkt Untergruppe	. . . . Switching arrangements with several input- or output-terminals, e.g. multiplexers, distributors (H03K 17/722 takes precedence; logic circuits H03K 19/00; code converters H03M 5/00, H03M 7/00) [3, 5]
H03K 17/74	2-Punkt Untergruppe	. . by the use, as active elements, of diodes (by the use of more than one type of semiconductor device H03K 17/567; by the use of tunnel diodes H03K 17/58; by the use of negative resistance diodes H03K 17/70) [3]
H03K 17/76	3-Punkt Untergruppe	. . . Switching arrangements with several input- or output-terminals, e.g. multiplexers, distributors (logic circuits H03K 19/00; code H03M 5/00, H03M 7/00) [3]
H03K 17/78	2-Punkt Untergruppe	. . by the use, as active elements, of opto-electronic devices, i.e. light-emitting and photoelectric devices electrically- or optically-coupled [3]
H03K 17/785	3-Punkt Untergruppe	. . . controlling field-effect transistor switches [5]
H03K 17/79	3-Punkt Untergruppe	. . . controlling semiconductor switches with more than two PN-junctions, or more than three electrodes, or more than one electrode connected to the same conductivity region [5]
H03K 17/795	3-Punkt Untergruppe	. . . controlling bipolar transistors [5]
H03K 17/80	2-Punkt Untergruppe	. . by the use, as active elements, of non-linear magnetic or dielectric devices [3]
H03K 17/81	3-Punkt Untergruppe	. . . Switching arrangements with several input- or output-terminals, e.g. multiplexers, distributors (logic circuits H03K 19/00; code converters H03M 5/00, H03M 7/00) [3]
H03K 17/82	3-Punkt Untergruppe	. . . the devices being transfluxors [3]
H03K 17/84	3-Punkt Untergruppe	. . . the devices being thin-film devices [3]
H03K 17/86	3-Punkt Untergruppe	. . . the devices being twistors [3]

Symbol	Typ	Titel
H03K 17/88	2-Punkt Untergruppe	. . by the use, as active elements, of beam-deflection tubes [3]
H03K 17/90	2-Punkt Untergruppe	. . by the use, as active elements, of galvano-magnetic devices, e.g. Hall-effect devices (H03K 17/95, H03K 17/97 take precedence) [2, 3]
H03K 17/92	2-Punkt Untergruppe	. . by the use, as active elements, of superconductive devices [2, 3]
H03K 17/94	1-Punkt Untergruppe	. characterised by the way in which the control signals are generated (mechanical structural details of control members of switches or keyboards, such as keys, push-buttons, levers or other mechanisms for transferring force to the activated elements, not directly producing electronic effects H01H; keyboards for special applications, see the relevant places, e.g. B41J, G06F 3/023, H04L 15/00, H04L 17/00, H04M 1/00) [3, 4]
H03K 17/945	2-Punkt Untergruppe	. . Proximity switches (H03K 17/96 takes precedence) [3]
H03K 17/95	3-Punkt Untergruppe	. . . using a magnetic detector [3]
H03K 17/955	3-Punkt Untergruppe	. . . using a capacitive detector [3]
H03K 17/96	2-Punkt Untergruppe	. . Touch switches (specially adapted for electronic time-pieces with no moving parts G04G 1/10) [3]
H03K 17/965	2-Punkt Untergruppe	. . Switches controlled by moving an element forming part of the switch [3]
H03K 17/967	3-Punkt Untergruppe	. . . having a plurality of control members, e.g. keyboard (H03K 17/969, H03K 17/972, H03K 17/98 take precedence) [4]
H03K 17/968	3-Punkt Untergruppe	. . . using opto-electronic devices [4]
H03K 17/969	4-Punkt Untergruppe	. . . . having a plurality of control members, e.g. keyboard [4]
H03K 17/97	3-Punkt Untergruppe	. . . using a magnetic movable element [3]
H03K 17/972	4-Punkt Untergruppe	. . . . having a plurality of control members, e.g. keyboard [4]
H03K 17/975	3-Punkt Untergruppe	. . . using a capacitive movable element [3]
H03K 17/98	4-Punkt Untergruppe	. . . . having a plurality of control members, e.g. keyboard [4]
H03K 19/00	**Hauptgruppe**	**Logic circuits, i.e. having at least two inputs acting on one output (circuits for computer systems using fuzzy logic G06N 7/02); Inverting circuits**
H03K 19/003	1-Punkt Untergruppe	. Modifications for increasing the reliability [3]
H03K 19/007	1-Punkt Untergruppe	. Fail-safe circuits [3]
H03K 19/01	1-Punkt Untergruppe	. Modifications for accelerating switching [3]
H03K 19/013	2-Punkt Untergruppe	. . in bipolar transistor circuits [3]
H03K 19/017	2-Punkt Untergruppe	. . in field-effect transistor circuits [3]
H03K 19/0175	1-Punkt Untergruppe	. Coupling arrangements; Interface arrangements (interface arrangements for digital computers G06F 3/00, G06F 13/00) [5]
H03K 19/018	2-Punkt Untergruppe	. . using bipolar transistors only [5]
H03K 19/0185	2-Punkt Untergruppe	. . using field-effect transistors only [5]
H03K 19/02	1-Punkt Untergruppe	. using specified components (H03K 19/003-H03K 19/0175 take precedence) [3, 5]
H03K 19/04	2-Punkt Untergruppe	. . using gas-filled tubes
H03K 19/06	2-Punkt Untergruppe	. . using vacuum tubes (using diode rectifiers H03K 19/12)

Symbol	Typ	Titel
H03K 19/08	2-Punkt Untergruppe	. . using semiconductor devices (H03K 19/173 takes precedence; wherein the semiconductor devices are only diode rectifiers H03K 19/12) [3]
H03K 19/082	3-Punkt Untergruppe	. . . using bipolar transistors [3]
H03K 19/084	4-Punkt Untergruppe	. . . . Diode-transistor logic [3]
H03K 19/086	4-Punkt Untergruppe	. . . . Emitter coupled logic [3]
H03K 19/088	4-Punkt Untergruppe	. . . . Transistor-transistor logic [3]
H03K 19/09	4-Punkt Untergruppe	. . . . Resistor-transistor logic [3]
H03K 19/091	4-Punkt Untergruppe	. . . . Integrated injection logic or merged transistor logic [3]
H03K 19/094	3-Punkt Untergruppe	. . . using field-effect transistors [3]
H03K 19/0944	4-Punkt Untergruppe	. . . . using MOSFET (H03K 19/096 takes precedence) [5]
H03K 19/0948	5-Punkt Untergruppe	. . . . . using CMOS [5]
H03K 19/0952	4-Punkt Untergruppe	. . . . using Schottky type FET (H03K 19/096 takes precedence) [5]
H03K 19/0956	4-Punkt Untergruppe	. . . . Schottky diode FET logic (H03K 19/096 takes precedence) [5]
H03K 19/096	4-Punkt Untergruppe	. . . . Synchronous circuits, i.e. using clock signals [3]
H03K 19/098	3-Punkt Untergruppe	. . . using thyristors [3]
H03K 19/10	3-Punkt Untergruppe	. . . using tunnel diodes [3]
H03K 19/12	2-Punkt Untergruppe	. . using diode rectifiers
H03K 19/14	2-Punkt Untergruppe	. . using opto-electronic devices, i.e. light-emitting and photoelectric devices electrically- or optically-coupled (optical logic elements G02F 3/00)
H03K 19/16	2-Punkt Untergruppe	. . using saturable magnetic devices
H03K 19/162	3-Punkt Untergruppe	. . . using parametrons
H03K 19/164	3-Punkt Untergruppe	. . . using ferro-resonant devices
H03K 19/166	3-Punkt Untergruppe	. . . using transfluxors
H03K 19/168	3-Punkt Untergruppe	. . . using thin-film devices
H03K 19/17	2-Punkt Untergruppe	. . using twistors
H03K 19/173	2-Punkt Untergruppe	. . using elementary logic circuits as components [3]
H03K 19/177	3-Punkt Untergruppe	. . . arranged in matrix form [3]
H03K 19/18	2-Punkt Untergruppe	. . using galvano-magnetic devices, e.g. Hall-effect devices [2]
H03K 19/185	2-Punkt Untergruppe	. . using dielectric elements with variable dielectric constant, e.g. ferro-electric capacitors [2]
H03K 19/19	3-Punkt Untergruppe	. . . using ferro-resonant devices [2]
H03K 19/195	2-Punkt Untergruppe	. . using superconductive devices [2, 3]
H03K 19/20	1-Punkt Untergruppe	. characterised by logic function, e.g. AND, OR, NOR, NOT circuits (H03K 19/003-H03K 19/01 take precedence)

Symbol	Typ	Titel
H03K 19/21	2-Punkt Untergruppe	. . EXCLUSIVE-OR circuits, i.e. giving output if input signal exists at only one input; COINCIDENCE circuits, i.e. giving output only if all input signals are identical [3]
H03K 19/23	2-Punkt Untergruppe	. . Majority or minority circuits, i.e. giving output having the state of the majority or the minority of the inputs [3]
H03K 21/00	**Hauptgruppe**	**Details of pulse counters or frequency dividers**
H03K 21/02	1-Punkt Untergruppe	. Input circuits [4]
H03K 21/08	1-Punkt Untergruppe	. Output circuits [4]
H03K 21/10	2-Punkt Untergruppe	. . comprising logic circuits
H03K 21/12	2-Punkt Untergruppe	. . with parallel read-out [4]
H03K 21/14	2-Punkt Untergruppe	. . with series read-out of number stored [4]
H03K 21/16	1-Punkt Untergruppe	. Circuits for carrying-over pulses between successive decades
H03K 21/17	2-Punkt Untergruppe	. . with field-effect transistors [4]
H03K 21/18	1-Punkt Untergruppe	. Circuits for visual indication of the result [4]
H03K 21/20	2-Punkt Untergruppe	. . using glow-discharge lamps
H03K 21/38	1-Punkt Untergruppe	. Starting, stopping, or resetting the counter (counters with a base other than a power of two H03K 23/48, H03K 23/66) [4]
H03K 21/40	1-Punkt Untergruppe	. Monitoring; Error detection; Preventing or correcting improper counter operation [4]
H03K 23/00	**Hauptgruppe**	**Pulse counters comprising counting chains; Frequency dividers comprising counting chains (H03K 29/00 takes precedence)**
H03K 23/40	1-Punkt Untergruppe	. Gating or clocking signals applied to all stages, i.e. synchronous counters [4]
H03K 23/42	2-Punkt Untergruppe	. . Out-of-phase gating or clocking signals applied to counter stages [4]
H03K 23/44	3-Punkt Untergruppe	. . . using field-effect transistors [4]
H03K 23/46	3-Punkt Untergruppe	. . . using charge transfer devices, i.e. bucket brigade or charge coupled devices [4]
H03K 23/48	2-Punkt Untergruppe	. . with a base or radix other than a power of two (H03K 23/42 takes precedence) [4]
H03K 23/50	2-Punkt Untergruppe	. . using bi-stable regenerative trigger circuits (H03K 23/42-H03K 23/48 take precedence) [4]
H03K 23/52	3-Punkt Untergruppe	. . . using field-effect transistors [4]
H03K 23/54	3-Punkt Untergruppe	. . . Ring counters, i.e. feedback shift register counters (H03K 23/52 takes precedence) [4]
H03K 23/56	3-Punkt Untergruppe	. . . Reversible counters (H03K 23/52 takes precedence) [4]
H03K 23/58	1-Punkt Untergruppe	. Gating or clocking signals not applied to all stages, i.e. asynchronous counters (H03K 23/74-H03K 23/84 take precedence) [4]
H03K 23/60	2-Punkt Untergruppe	. . with field-effect transistors [4]
H03K 23/62	2-Punkt Untergruppe	. . reversible [4]
H03K 23/64	1-Punkt Untergruppe	. with a base or radix other than a power of two (H03K 23/40-H03K 23/62 take precedence) [4]
H03K 23/66	2-Punkt Untergruppe	. . with a variable counting base, e.g. by presetting or by adding or suppressing pulses [4]
H03K 23/68	2-Punkt Untergruppe	. . with a base which is a non-integer [4]

Symbol	Typ	Titel
H03K 23/70	2-Punkt Untergruppe	. . with a base which is an odd number (H03K 23/66 takes precedence) [4]
H03K 23/72	2-Punkt Untergruppe	. . Decade counters (H03K 23/66 takes precedence) [4]
H03K 23/74	1-Punkt Untergruppe	. using relays [4]
H03K 23/76	1-Punkt Untergruppe	. using magnetic cores or ferro-electric capacitors [4]
H03K 23/78	1-Punkt Untergruppe	. using opto-electronic devices [4]
H03K 23/80	1-Punkt Untergruppe	. using semiconductor devices having only two electrodes, e.g. tunnel diode, multi-layer diode [4]
H03K 23/82	1-Punkt Untergruppe	. using gas-filled tubes [4]
H03K 23/84	1-Punkt Untergruppe	. using thyristors or unijunction transistors [4]
H03K 23/86	1-Punkt Untergruppe	. reversible (H03K 23/40-H03K 23/84 take precedence) [4]
H03K 25/00	**Hauptgruppe**	**Pulse counters with step-by-step integration and static storage; Analogous frequency dividers**
H03K 25/02	1-Punkt Untergruppe	. comprising charge storage, e.g. capacitor without polarisation hysteresis
H03K 25/04	2-Punkt Untergruppe	. . using auxiliary pulse generator triggered by the incoming pulses [4]
H03K 25/12	1-Punkt Untergruppe	. comprising hysteresis storage
H03K 27/00	**Hauptgruppe**	**Pulse counters in which pulses are continuously circulated in a closed loop; Analogous frequency dividers (feedback shift register counters H03K 23/54) [4]**
H03K 29/00	**Hauptgruppe**	**Pulse counters comprising multi-stable elements, e.g. for ternary scale, for decimal scale; Analogous frequency dividers**
H03K 29/04	1-Punkt Untergruppe	. using multi-cathode gas discharge tubes [4]
H03K 29/06	1-Punkt Untergruppe	. using beam-type tubes, e.g. magnetrons, cathode-ray tubes [4]