

1	<b>SPECIFIC SIGNAL DISCRIMINATING (E.G., COMPARING, SELECTING, ETC.) WITHOUT SUBSEQUENT CONTROL</b>	39	.By frequency
2	.By phase	40	..Comparison between plural inputs
3	..Comparison between plural inputs (e.g., phase angle indication, lead-lag discriminator, etc.)	41	...With synchronous detection
4	...With transducer	42	...Fixed frequency reference signal
5	..With input derived from feedback	43	...With logic or bistable circuit
6	..With electron space discharge	44	..With predetermined frequency selection
7	..With reference signal	45	...Including sampling or reference frequency
8	...With varying frequency	46	...Including plural frequency detection
9	...With sampling	47	..Frequency detection
10	...Uniform pulse waveform	48	...With counting
11	...With transformer	49	...With logic or bistable circuit
12	..With logic or bistable circuit	50	.By amplitude
13	.By shape	51	..With sensing amplifier
14	..Slope	52	..Differential amplifier
15	..With direction (i.e., positive or negative)	53	...Current mirror
16	..Having feedback	54	...Having feedback
17	..With reference signal	55	....Cross-coupled
18	.By presence or absence pulse detection	56	...With reference signal
19	..Arbitration	57	...With latching type element (e.g., flip-flop, etc.)
20	..Monitoring (e.g., failure detection, etc.)	58	..Maximum or minimum amplitude
21	..With variable frequency source	59	..Employing input compared to output
22	.By pulse noncoincidence	60	...Employing input compared to reference derived therefrom
23	.By pulse coincidence	61	...By diode-capacitor network
24	..Edge sensing	62	..Maximum and minimum amplitude
25	..With uniform spacing	63	..Comparison between plural varying inputs
26	..With pulse width detecting	64	...With logic or bistable circuit
27	..With reference	65	..Differential input
28	.By polarity	66	...Current mirror
29	..Selection of a particular polarity	67	...Having feedback
30	..Opposite polarity	68	...Input provides varying reference signal
31	.By pulse width or spacing	69	...With plural paths
32	..With shock-excited circuit	70	...With single output
33	..With sampling	71	...Three or more inputs
34	..Narrow pulse elimination or suppression	72	..Input signal compared to reference derived therefrom
35	..Separating by duration or gap (e.g., duty cycle, etc.)	73	...Reference derived by feedback
36	..Selection of a particular pulse width	74	..Input signal compared to plural fixed references
37	..Comparison by threshold or reference	75	...Three or more
38	..With plural paths	76	...With logic or bistable circuit
		77	..Input signal compared to single fixed reference

78	...Reference level crossover detecting	114	..Of output rectangular waveform
79	...Zero crossover	115	...Frequency division
80	..Reference determined by threshold of single circuit element	116	...Frequency multiplication
81	...With transistor	117	..Frequency division
82	..Plural sources of input signal	118	...Having discrete active device (e.g., transistor, triode, etc.)
83	..Temperature compensation	119	..Frequency multiplication (e.g., harmonic generation, etc.)
84	..With bridge circuit	120	...With plural outputs
85	..Inverting input or output	121	...Selective
86	..With transformer	122	...Doubling
87	..Having feedback	123	...With particular tube or distributed parameter element
88	..With source as reference	124	.By periodic switching (e.g., chopper, etc.)
89	..With differential amplifier	125	.Generating parabolic or hyperbolic output
90	..Comparison between two characteristics of an input signal	126	.Generating staircase output
91	..Including details of sampling or holding	127	..With differential amplifier
92	..With bridge circuit	128	..With rectifying element
93	..With reference source	129	.Generating sinusoidal output
94	...Sample and hold	130	.Generating trapezoidal output
95	...Having feedback	131	.Generating sawtooth or triangular output
96	...With differential amplifier	132	..With current source or current mirror
97	..With logic or bistable circuit	133	..With distortion control (e.g., linearization, etc.)
98	.By separating composite signal	134	..With slope or duration control
99	.Having selection between plural continuous waveforms	135	..Having digital element
100	<b>SIGNAL CONVERTING, SHAPING, OR GENERATING</b>	136	..Having particular delay or sync
101	.Converting input current or voltage to output frequency	137	..Having feedback
102	.Converting input frequency to output current or voltage	138	..Having temperature compensation
103	.Converting input voltage to output current or vice versa	139	..Having inductive load
104	.Converting, per se, of an AC input to corresponding DC at an unloaded output	140	..With amplitude control
105	.Synthesizer	141	.Synchronizing
106	..Having stored waveform data (e.g., in ROM, etc.)	142	..Reset (e.g., initializing, starting, stopping, etc.)
107	..Having digital device (e.g., logic gate, flip-flop, etc.)	143	...Responsive to power supply
108	.Current driver	144	..Using multiple clocks
109	..Having semiconductive load	145	...Having different frequencies
110	..Having inductive load (e.g., coil, etc.)	146	...With feedback
111	..Having capacitive load	147	....Phase lock loop
112	...Push-pull	148	....With charge pump
113	.Frequency or repetition rate conversion or control	149	....With variable delay means
		150	....With digital element
		151	...With counter
		152	..With choice between multiple delayed clocks
		153	..With delay means
		154	..With feedforward
		155	..With feedback

156	...Phase lock loop	183	.Delay line or capacitor storage element charges or discharges through a tube to form pulse
157	...With charge pump		
158	...With variable delay means		
159	...With digital element	184	.Rectangular (e.g., clock, etc.) or pulse waveform generating by conversion from input AC (e.g., sine, etc.) wave
160	..With counter		
161	..With delay means		
162	..Having reference source		
163	...By phase	185	.Particular stable state circuit (e.g., tristable, etc.)
164	.Generating rectangular (e.g., clock, etc.) or pulse waveform having random characteristic (e.g., random width, etc.)	186	..Superconductive (e.g., cryogenic, etc.)
165	.Regenerating or restoring rectangular (e.g., clock, etc.) or pulse waveform	187	..External effect device (e.g., light, heat, magnetic, or mechanical force sensitive devices, etc.)
166	..Having digital device (e.g., logic gate, flip-flop, etc.)	188	..Minority carrier storage effect
167	..Having network providing particular mathematical function (e.g., integrator, etc.)	189	...Storage diode (e.g., step recovery, etc.)
168	..Having inductive device (e.g., transformer, etc.)	190	..With transformer or saturable core device
169	..Having negative resistance device (e.g., tunnel diode, etc.)	191	...Blocking oscillator
170	.Slope control of leading or trailing edge of rectangular (e.g., clock, etc.) or pulse waveform	192	..Negative resistance transistor (e.g., unijunction, etc.)
171	.Output pulses having opposite polarities	193	...Four or more layer device, (e.g., trigistor, etc.)
172	.Rectangular (e.g., clock, etc.) or pulse waveform width control	194	..Zener or capacitive diode
173	..Pulse narrowing	195	..Negative resistance diode having "N"-shape characteristic on I-V plot (e.g., tunnel diode, backward diode, etc.)
174	..Pulse broadening	196	..Negative resistance diode having "S"-shape characteristic on I-V plot (e.g., four or more layer semiconductor device, etc.)
175	..Duty cycle control	197	..Convertible circuit (e.g., bistable to monostable, D-type to T-type, etc.)
176	..Having digital device (e.g., logic gate, flip-flop, etc.)	198	..Initializing, resetting, or protecting a steady state condition
177	..Having inductive device (e.g., transformer, etc.)	199	..Circuit having only two stable states (i.e., bistable)
178	.Rectangular (e.g., clock, etc.) or pulse waveform amplitude control	200	...Dynamic bistable
179	..Gain	201	...Complementary clock inputs
180	..Limiting, clipping, or clamping	202	...Master-slave bistable latch
181	.Electromagnetic pulse forming	203	...Including field-effect transistor
182	.Delay line or capacitor storage element charged or discharged through or by a relaxation oscillator type circuit to form pulse	204	...Including multi-emitter or multi-collector bipolar transistor
		205	...Using hysteresis (e.g., Schmitt trigger, etc.)

206	....Including field-effect transistor	239	...Non-overlapping multiple outputs
207	...Including diverse solid state devices (e.g., FET/bipolar, etc.)	240	...Maintaining invariant amplitude
208	...Including field-effect transistor	241	...With counter or shift register
209	....Including enhancement and depletion devices	242	....Having multiple outputs
210	....CMOS	243	...With feedback
211	....With clock input	244	....With phase comparator or detector
212	....With clock input	245	....Having multiple outputs
213	....Plural independent clock inputs (i.e., non complementary )	246	..With differential amplifier
214	...Complementary transistors	247	....Having multiple outputs
215	...Having at least two cross-coupling paths	248	...With adder
216	....JK type input	249	....Having multiple outputs
217	....RS or RST type input	250	...With active time delay element
218	....D type input	251	....Having multiple outputs
219	...Particular device at input, output, or in cross-coupling path	252	...With passive time delay element
220	....With diode	253	....Having multiple outputs
221	....Parallel RC network in cross-coupling path	254	..Quadrature related (i.e., 90 degrees)
222	....Resistor in cross-coupling path	255	...90 degrees between input and output
223	...Plural transistors of same conductivity type	256	..Phase inversion (i.e., 180 degrees between input and output)
224	...With single semiconductor device	257	...Multiple outputs
225	...With logic element (e.g., NOR gate, etc.)	258	..Multiple outputs
226	...With single electron tube	259	...Non-overlapping
227	..Monostable	260	..Producing AC power control
228	...Having cross-coupled paths	261	.Having specific delay in producing output waveform
229	...Having differential circuitry	262	..Including significant compensation (e.g., temperature compensated delay, etc.)
230	..With external feedback (i.e., output to input)	263	..Delay interval set by rising or falling edge
231	..Phase shift by less than period of input	264	...Having specific active circuit element or structure (e.g., FET, complementary transistors, etc.)
232	..Dependent on frequency	265	....With counter
233	..Correction to specific phase shift	266	....Differential amplifier
234	...Dependent on variable controlled phase shifts	267	....Electron tube
235	...Dependent on multiple fixed phase shifts	268	...Having specific passive circuit element or structure (e.g., RLC circuit, etc.)
236	...By phase comparator or detector	269	..Multiple outputs with plurality of delay intervals
237	..Variable or adjustable	270	...Variable or adjustable
238	...Quadrature related (i.e., 90 degrees)	271	...Including delay line or charge transfer device

272	...Having specific active circuit element or structure (e.g., FET, complementary transistors, etc.)	305	..With gas tube
		306	.Amplitude control
		307	..Baseline or DC offset correction
273	...With counter	308	..Variable attenuator
274	...Differential amplifier	309	..By limiting, clipping, or clamping
275	...Electron tube		
276	..Single output with variable or selectable delay	310	...Transient or signal noise reduction
			...By filtering
277	..Including delay line or charge transfer device	311	...By feedback limiting-clamping
		312	...Using 3 or more terminal type nonlinear devices only
278	...Having specific active circuit element or structure (e.g., complementary transistors, etc.)	313	...Using diode type nonlinear devices only
		314	...Providing constant input/output amplitude level ratio
279	...With counter	315	...By feedback control
280	...Differential amplifier		...Distortion compensation
281	...Field-effect transistor	316	...In input or output circuit
282	...Electron tube	317	...For interstage coupling
283	..Having specific passive circuit element or structure (e.g., RLC circuit, etc.)	318	....Using diode
		319	....Clamping of output to voltage level
284	..Including delay line or charge transfer device	320	....Of output current
		321	...Feedback
285	..Having specific active circuit element or structure (e.g., complementary transistors, etc.)	322	...By using diverse-type nonlinear devices
		323	...Using only diode active elements
286	..With counter	324	...Avalanche or negative resistance device (e.g., zener diode, tunnel diode, etc.)
287	..Differential amplifier	325	...Using only transistor active elements
288	..Field-effect transistor	326	...Field-effect type device
289	..Electron tube	327	...With tuned circuit
290	..Having specific passive circuit element or structure (e.g., RLC circuit, etc.)	328	...With rectifier or nonlinear impedance
		329	..Maintaining constant level output
291	.Clock or pulse waveform generating	330	...With feedback
		331	..Interstage coupling (e.g., level shift, etc.)
292	..Clock fault compensation or redundant clocks		
293	..With plural paths in network	332	<b>SPECIFIC INPUT TO OUTPUT FUNCTION</b>
294	..With common output	333	.By differentiating
295	..Plural outputs	334	.By integrating
296	...Plural clock outputs with multiple inputs	335	..Having switched capacitance
		336	..With thermionic tube
297	...Clock bus	337	..With summing or counting
298	..Single clock output with multiple inputs	338	..Single vacuum tube
		339	..With compensation
299	..Single clock output with single clock input or data input	340	..With transducer
		341	..With rectifier circuit
300	..With saturable inductance	342	
301	..With electron beam type tube	343	
302	..With storage diode		
303	..With rectifier		
304	..With inductive device (e.g., transformer, etc.)		

344	..Including RC circuit	387	..Control signal derived from or responsive to input signal
345	..Having feedback	388	...Additional external control signal
346	.Exponential	389	..Insulated gate FET (e.g., MOSFET, etc.)
347	..Square root	390	...With capacitive bootstrapping
348	...RMS	391	...Complementary metal-oxide semiconductor (CMOS)
349	..Square function	392	.Delay controlled switch (e.g., fixed, single time of delay control, etc.)
350	.Logarithmic	393	..With variable or multiple adjustable time of delay control (e.g., variable charge-discharge, on-delay/off-delay control, etc.)
351	..With cascade network	394	...With field-effect device
352	..With summing	395	...Propagation through plural delay devices or paths
353	..With vacuum tube	396	...With plural switching elements (e.g., sequential, etc.)
354	.Absolute value	397	...Including negative resistance device in delay circuit (e.g., unijunction transistor, etc.)
355	.Combining of plural signals	398	..For predetermined time period
356	..Product	399	..With field-effect device
357	...Quadrant	400	..Propagation through plural delay devices or paths
358	...Having feedback	401	..With plural switching elements (e.g., sequential, etc.)
359	...Differential amplifier	402	..Including negative resistance device in delay circuit (e.g., unijunction transistor, etc.)
360	..Quotient	403	.Parallel controlled paths
361	..Summing	404	..Field-effect transistor
362	..With compensation	405	..Bipolar transistor
363	..Having feedback	406	..Electron tube
364	..With vacuum tube	407	.Converging with plural inputs and single output
365	<b>GATING (I.E., SWITCHING INPUT TO OUTPUT)</b>	408	..Field-effect transistor
366	..Superconductive (e.g., cryogenic, etc.) device	409	...Push-pull circuit
367	..Josephson junction	410	...With complementary transistor devices
368	..Critical current control	411	..Bipolar transistor
369	..External control (e.g., piezoelectric, light, etc.)	412	...Push-pull circuit
370	..Magnetic field control	413	...With complementary transistor devices
371	..Temperature control	414	..Electron tube
372	..Inductive effect	415	.Diverging with single input and plural outputs
373	..Layout	416	..Field-effect transistor
374	.Accelerating switching	417	..Bipolar transistor
375	..Saturation prevention	418	..Electron tube
376	..Turn-on		
377	..Turn-off		
378	.Compensation for variations in external physical values (e.g., temperature, etc.)		
379	.Signal transmission integrity or spurious noise override		
380	..Preventing quick rise gating current (i.e., di/dt)		
381	..Preventing quick rise gating voltage (i.e., dv/dt)		
382	..Parasitic prevention or compensation (e.g., parasitic capacitance, etc.)		
383	..Ensuring fully conducting state		
384	..Switch noise signal		
385	...Contact bounce from mechanical switch		
386	....With clock input		

419	.Utilizing three or more electrode solid-state device	456	.....Plural
420	..Breakdown characteristic (e.g., punch-through, tunneling, etc.)	457	.....Combined with diac
421	...Zener	458	.....Combined with diverse four or more layer device
422	..Avalanche	459	.....With bipolar transistor
423	..Bridge circuit	460	.....Plural SCRs
424	...Field-effect transistor	461	.....Inverse parallel connection
425	..Bilateral transistor	462	.....With bipolar transistor
426	...Plural	463	....With bipolar transistor
427	..Field-effect transistor	464	...Having plural four or more layer devices
428	..With silicon controlled rectifier (SCR)	465	...DC supply
429	...Four or more electrode solid-state device	466	...PUT (i.e., programmable unijunction transistor)
430	...JFET (i.e., junction field-effect transistor)	467	...Four electrodes
431	....MESFET (i.e., metal semiconductor field-effect transistor)	468	...SCR and unijunction transistor
432	...With bipolar transistor	469	....Triac
433	....Bi-CMOS	470	....Plural devices
434	...Insulated gate FET (e.g., MOSFET, etc.)	471	....Series anode-cathode connection
435	....GaAs	472	.....Plural paths
436	....Plural devices in series	473	.....Parallel connection
437	....Complementary metal-oxide semiconductor (CMOS)	474	....With bipolar transistor
438	..Four or more layer device (e.g., thyristor, etc.)	475	...SCR and bipolar transistor
439	...Bipolar transistor circuit configuring SCR device	476	...Triac
440	...GTO (i.e., gate turnoff)	477	..Unijunction transistor (UJT)
441	....Plural or combined with other four or more layer device	478	..Bipolar transistor
442	....Separate ON and OFF control circuit	479	...Special four or more electrode device (e.g., multiple bases, three electrode bipolar with FET gate, etc.)
443	....Transformer or inductor in control circuit	480	...Multiple emitter transistor
444	...Complex wave supply	481	...Multiple collector transistor
445	....Silicon controlled rectifier (SCR)	482	...Plural
446	.....Triac	483	...Darlington connection
447	...AC supply	484	...Opposite conductively (i.e., complementary)
448	....Device in bridge	485	....Control circuit in cascade
449	....PUT (i.e., programmable unijunction transistor)	486	....Control circuit in totem pole
450	....Four electrodes	487	...Control circuit in cascade
451	....Zero point switching	488	...Control circuit in totem pole
452	.....With triac	489	...Control circuit with common emitter
453	....Silicon controlled rectifier (SCR)	490	....With current mirror
454	.....With unijunction transistor	491	....With emitter follower
455	.....Triac	492	...Control circuit with common collector
		493	.Utilizing two electrode solid-state device
		494	..Bridge circuit
		495	...Combined with diverse device in at least one arm

496	...Plural	534	..Having particular substrate biasing
497	..Active element in diagonal arm	535	...Having stabilized bias or power supply level
498	..Negative resistance	536	....Charge pump details
499	..."N"-shape curve on I-V plot (e.g., tunnel diode type, etc.)	537	....With field-effect transistor
500	..."S"-shape curve on I-V plot (e.g., pnpn diode type, etc.)	538	..Stabilized (e.g., compensated, regulated, maintained, etc.)
501	....Hyperconductive diode	539	...Using bandgap
502	..Breakdown characteristic (e.g., zener diode, etc.)	540	..With voltage source regulating
503	..PIN diode	541	...With field-effect transistor
504	..PN junction diode	542	..With diverse type transistor devices
505	...Inverse parallel connection	543	...Using field-effect transistor
506	..Three or more electrode electron tube	544	..Power conservation or pulse type
507	..Two electrode electron tube	545	..Including signal protection or bias preservation
508	..Bridge circuit	546	...With field-effect transistor
509	<b>EXTERNAL EFFECT</b>	547	..With selectively or alternately DC or AC input
510	..Magnetic	548	..With oscillator or interrupter
511	..Utilizing Hall effect	549	..With hum or interaction prevention
512	..Temperature	550	..With particular filament heating circuit
513	..With compensation for temperature fluctuations	551	..Unwanted signal suppression
514	..Light	552	..Active filter
515	..Elements forming an array	553	...Adjustable
516	..Utilizing conversion of mechanical variations into electrical variations (e.g., vibration sensitive, etc.)	554	....Switched capacitor filter
517	..Responsive to proximity or touch	555	....Selective type signal filtering (e.g., from low pass to high pass, etc.)
518	<b>WITH PARTICULAR CONTROL</b>	556	...Notch or bandreject
519	..Plurality of load devices	557	...Bandpass
520	..Plural active components included in a controlling circuit	558	...Lowpass
521	..Connected in inverse parallel	559	...Highpass
522	..Gaseous tube	560	..Nonlinear amplifying circuit
523	..Gaseous tube	561	..With operational amplifier
524	<b>SPECIFIC IDENTIFIABLE DEVICE, CIRCUIT, OR SYSTEM</b>	562	...With field-effect transistor
525	..Fusible link or intentional destruct circuit	563	..With differential amplifier
526	..Redundant	564	..Integrated structure
527	..Superconductive (e.g., cryogenic, etc.) device	565	..With specific layout or layout interconnections
528	..Josephson junction	566	...Having field-effect transistor device
529	..Impact ionization	567	..Thin film
530	..With specific source of supply or bias voltage	568	..Negative resistance type
531	..Fluctuating or AC source with rectifier or filter	569	..Unijunction transistor
532	...With particular filter circuit	570	..Having "N"-shape curve on I-V plot (e.g., tunnel diode type, etc.)
533	..With battery connected across rectifier	571	..Having "S"-shape curve on I-V plot (e.g., pnpn diode type, etc.)



- 572 ..Secondary emissive type
- 573 ...Electron multiplier type
- 574 .Utilizing a three or more  
     electrode solid-state device
- 575 ..Darlington connection
- 576 ..Complementary transistors
- 577 ..Multiple emitter transistor
- 578 ..Multiple collector transistor
- 579 ..Minority carrier storage
- 580 ..Transistor breakdown device  
     (e.g., avalanche, zener, punch  
     through, etc.)
- 581 ..Field-effect transistor
- 582 ..Four or more layer device  
     (e.g., silicon-controlled  
     rectifier, etc.)
- 583 .Utilizing two electrode solid-  
     state device
- 584 ..Breakdown diode (e.g., zener  
     diode, avalanche diode, etc.)
- 585 ..Minority carrier storage diode  
     (e.g., enhancement diode,  
     etc.)
- 586 ..Capacitive diode
- 587 ..Bridge circuit
- 588 .With bridge circuit
- 589 .With bootstrap circuit
- 590 .With particular feedback
- 591 .Tube performs plural functions
- 592 .With oscillation prevention
- 593 .With distributed parameter  
     circuit
- 594 .With particular coupling or  
     decoupling
- 595 .With particular connecting
- 596 .Including oscillatory or shock-  
     excited circuit
- 597 .With particular grid control
- 598 .With particular tube structure
- 599 ..Vacuum tube type
- 600 ...Beam tube structure
- 601 ..Gas tube
- 602 ..With particular electrode  
     arrangement
- 603 **MISCELLANEOUS**

**FOREIGN ART COLLECTIONS**

FOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**

