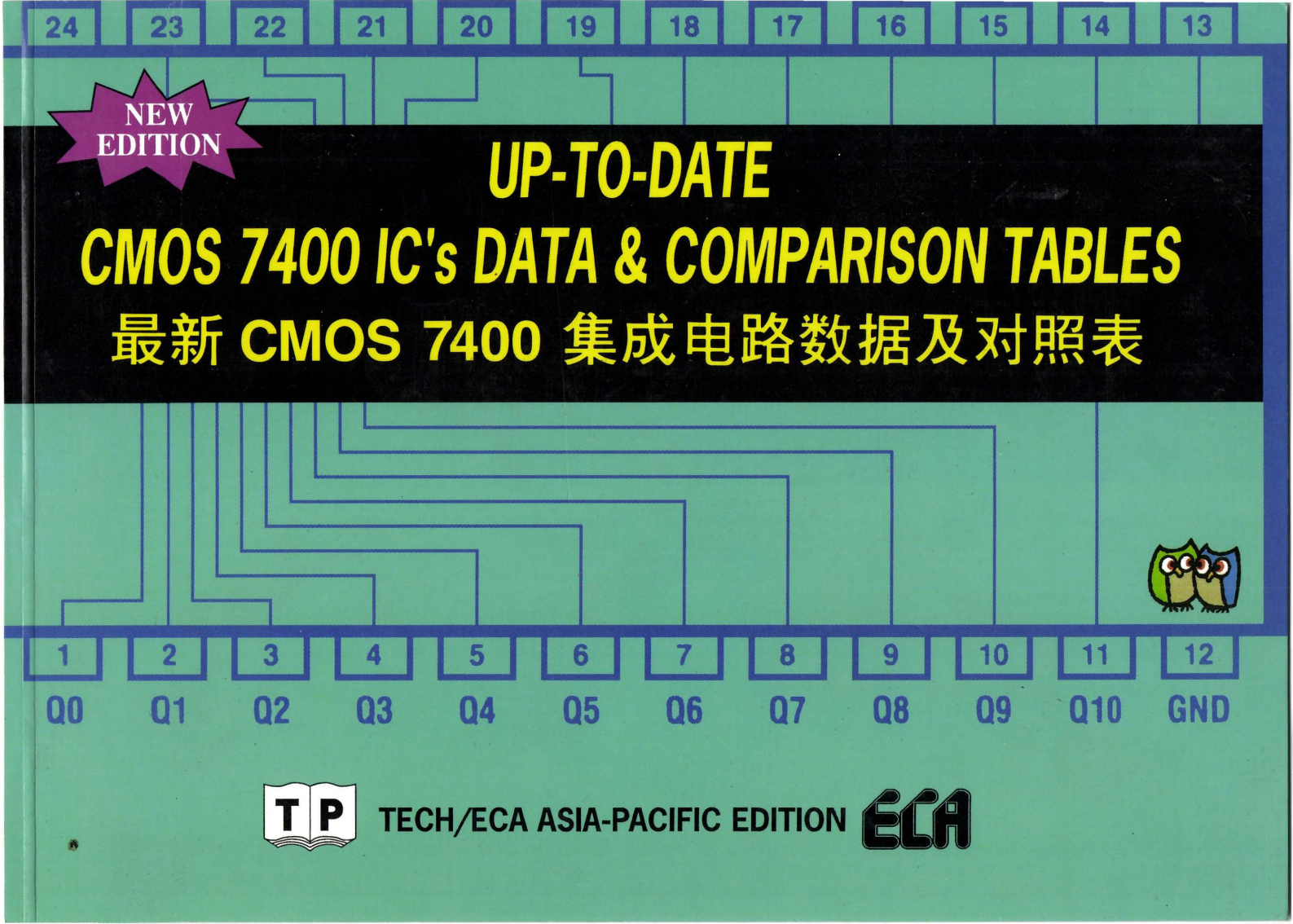
24 23 22 21 20 19 18 17 16 15 14 13
NEW EDITION
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CMOS 7400 IC's DATA & COMPARISON TABLES
最新 CMOS 7400 集成电路数据及对照表
1 2 3 4 5 6 7 8 9 10 11 12
Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 GND
TP
TECH/ECA ASIA-PACIFIC EDITION
ECA

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table of contents

GB PREFACE

Even when the "ttl 74's digital" last went into print it was obvious that this would be the last attempt to combine both TTL and pin-identical CMOS ICs of the 74 series in a single compilation. With more than 7000 "new entries" and the new AC and ACT technologies the compilation had to be split into "ttl 74's" and "cmos 74's". The "Owl" series of the digital ICs of ECA Publishers is thus listed as follows:

Series	Technology	ECA Compilation	
40xx	CMOS	cmos 4000	
45xx	CMOS	cmos 4000	
47xx	CMOS	cmos 4000	
74xx	TTL normal	ttl 74's	
74ACxx	Advanced CMOS	cmos 74's	NEW!
74ACTxx	Advanced CMOS/TTL-Interface	cmos 74's	NEW!
74ALSxx	Advanced Low-Power Schottky TTL	ttl 74's	
74ASxx	Advanced Schottky TTL	ttl 74's	
74Cxx	CMOS, 74's pin assignment	cmos 74's	
74Fxx	FAST-TTL	ttl 74's	
74Hxx	High Speed TTL	ttl 74's	
74HCxx	High Speed CMOS, 74's assignment	cmos 74's	
74HC40xx	High Speed CMOS, 4000's assignment	cmos 4000*	
74HC70xx	High Speed CMOS, 7000's assignment	cmos 74's	NEW!
74HCTxx	High Speed CMOS/TTL-Interface, 74's assignment	cmos 74's	
74HCT40xx	ditto with 4000's assignment	cmos 4000*	
74HCT70xx	ditto with 7000's assignment	cmos 74's	NEW!
74HCUxx	High Speed CMOS, non-buffered	cmos 74's	
74Lxx	Low-Power TTL	ttl 74's	
74LSxx	Low-Power Schottky TTL	ttl 74's	
74Sxx	Schottky TTL	ttl 74's	

You will find memories such as static, dynamic and bipolar RAMs, video RAMs, eprom, eeprom, prom and fifo memories in the "mem" (unless incorporated in the above series).

* new print

Sectioning has been retained as follows:

Section 1 "Functional Contents": In this section you can locate the families suitable for handling a specific problem. The **Explanations** have been supplemented by symbology as recognized by the new DIN 407000 and IEEE Std 91 standards. The **List of Manufacturers** has been completely revised and supplemented by indications as to sales openings and distributors throughout Europe.

Section 2: Here, we have kept to the accepted concept of combining all salient data such as abbreviations, data, comparisons, manufacturers, pin assignments, logic tables and – where necessary – notes too, all on a single page.
However, this has made it necessary to sacrifice all special-application data which is required by development engineers, in any case, only in extreme conditions. Nevertheless, Section 2 is more than just a short-form data compilation since it covers all salient aspects such as current consumption, input and output load factors, all of the important transition times and cut-off frequencies. The text of the tabulation is based on the 74...series since this is the one which is most popular. The sequence is listed ascending numerically starting with 7400.

Section 3 "Case Outlines": This section now incorporates the new more-representative presentation as already used in the "cmos 4000" compilation.

Section 4 "RAM": This lists random access memories.

Section 5 "PROMS": This lists programmable read-only memories.

Section 6 "FPLA": This lists field-programmable logic assemblies.

We would be pleased to hear that this "cmos 7400's tabulation" has become an indispensible tool in your data compilation. Within the framework of this comparative tabulation we cannot be held responsible for any deviations, however.

And, of course, errors excepted applies to such comprehensive data compilations as this.

alphanumeric list of contents

Typ	s. Serien-Nr.	Typ	s. Serien-Nr.	Typ	s. Serien-Nr.	Typ	s. Serien-Nr.
AN74...	74...	FJJ151	7491	FLH205S	7401-S1	FLH391T	7409-S1
BU74...	74...	FJJ181	7475	FLH201T	7401-S3	FLH395T	7409-S1
CD54...	74...	FJJ191	7476	FLH205T	7401-S3	FLH401	74181
CD74...	74...	FJJ211	7493	FLH211	7404	FLH405	74181
D1...	74...	FJJ241	7496	FLH215	7404	FLH411	74182
D2...	74...	FJJ251	7492	FLH221	7480	FLH415	74182
DM54...	74...	FJJ261	74107	FLH225	7480	FLH421	74180
DM74...	74...	FJK101	74121	FLH231	7482	FLH425	74180
E1...	74...	FJL101	7441	FLH235	7482	FLH431	7485
FJH101	7430	FJL131	7413	FLH271	7405	FLH435	7485
FJH111	7420	FJQ111	7489	FLH275	7405	FLH441	7487
FJH121	7410	FJY101	7460	FLH271S	7405-S1	FLH445	7487
FJH131	7400	FLH101	7400	FLH275S	7405-S3	FLH451	74183
FJH141	7440	FLH105	7400	FLH271T	7405-S3	FLH455	74183
FJH151	7450	FLH111	7410	FLH275T	7405-S3	FLH481	7406
FJH161	7451	FLH115	7410	FLH281	7442	FLH485	7406
FJH171	7453	FLH121	7420	FLH285	7442	FLH481T	7416
FJH181	7454	FLH125	7420	FLH291	7403	FLH485T	7416
FJH191	7480	FLH131	7430	FLH295	7403	FLH491	7407
FJH201	7482	FLH135	7430	FLH291S	7403-S1	FLH495	7407
FJH211	7483	FLH141	7440	FLH295S	7403-S1	FLH491T	7417
FJH221	7402	FLH145	7440	FLH291T	7403-S3	FLH495T	7417
FJH231	7401-S3	FLH151	7450	FLH295T	7403-S3	FLH501	7412
FJH241	7404	FLH155	7450	FLH291U	7426	FLH505	7412
FJH251	7405-S3	FLH161	7451	FLH295U	7426	FLH511	7423
FJH261	7442	FLH165	7451	FLH341	7486	FLH515	7423
FJH271	7486	FLH171	7453	FLH345	7486	FLH521	7425
FJH281	74180	FLH175	7453	FLH351	7413	FLH525	7425
FJH291	7403-S3	FLH181	7454	FLH355	7413	FLH531	7437
FJH301	7403-S1	FLH185	7454	FLH361	7443	FLH535	7437
FJH311	7401-S1	FLH191	7402	FLH365	7443	FLH541	7438
FJH321	7405-S1	FLH195	7402	FLH371	7444	FLH545	7438
FJJ101	7470	FLH191S	7402-S1	FLH375	7444	FLH551	7448
FJJ111	7472	FLH195S	7402-S1	FLH381	7408	FLH555	7448
FJJ121	7473	FLH201	7401	FLH385	7408	FLH561	74184
FJJ131	7474	FLH205	7401	FLH391	7409	FLH565	74184
FJJ141	7490	FLH201S	7401-S1	FLH395	7409	FLH571	74185

Typ	s. Serien-Nr.	Typ	s. Serien-Nr.	Typ	s. Serien-Nr.	Typ	s. Serien-Nr.
FLH575	74185	FLJ231	7494	FLJ421	74162	FLL171	74143
FLH601	74132	FLJ235	7494	FLJ425	74162	FLL175	74143
FLH605	74132	FLJ241	74192	FLJ431	74163	FLL171T	74144
FLH611	7422	FLJ245	74192	FLJ435	74163	FLL175T	74144
FLH615	7422	FLJ251	74193	FLJ441	74164	FLQ101	7489
FLH621	7427	FLJ255	74193	FLJ445	74164	FLQ105	7489
FLH625	7427	FLJ261	7496	FLJ451	74165	FLQ111	7481
FLH631	7432	FLJ265	7496	FLJ455	74165	FLQ115	7481
FLH635	7432	FLJ271	74107	FLJ461	74166	FLQ121	7484
FLH661	7428	FLJ275	74107	FLJ465	74166	FLQ125	7484
FLH665	7428	FLJ281	74104	FLJ471	74167	FLQ131	74170
FLJ101	7470	FLJ285	74104	FLJ521	74115	FLQ135	74170
FLJ105	7470	FLJ291	74105	FLJ525	74115	FLQ141	74200
FLJ111	7472	FLJ295	74105	FLJ531	74174	FLY101	7460
FLJ115	7472	FLJ301	74100	FLJ535	74174	FLY105	7460
FLJ121	7473	FLJ305	74100	FLJ541	74175	FLY111	74150
FLJ125	7473	FLJ311	74198	FLJ545	74175	FLY115	74150
FLJ131	7476	FLJ315	74198	FLJ551	74194	FLY121	74151
FLJ135	7476	FLJ321	74199	FLJ555	74194	FLY125	74151
FLJ141	7474	FLJ325	74199	FLJ561	74195	FLY131	74153
FLJ145	7474	FLJ331	7497	FLJ565	74195	FLY135	74153
FLJ151	7475	FLJ341	74110	FLK101	74121	FLY141	74154
FLJ155	7475	FLJ345	74110	FLK105	74121	FLY145	74154
FLJ161	7490	FLJ351	74111	FLK111	74122	FLY151	74155
FLJ165	7490	FLJ355	74111	FLK115	74122	FLY155	74155
FLJ171	7492	FLJ361	74118	FLK121	74123	FLY161	74156
FLJ175	7492	FLJ365	74118	FLK125	74123	FLY165	74156
FLJ181	7493	FLJ371	74119	FLL101	74141	FLY171	74157
FLJ185	7493	FLJ375	74119	FLL111	7445	FLY175	74157
FLJ191	7495	FLJ381	74196	FLL115	7445	FLY181	74120
FLJ195	7495	FLJ385	74196	FLL111T	74145	FLY185	74120
FLJ201	74190	FLJ391	74197	FLL115T	74145	GFB74...	74...
FLJ205	74190	FLJ395	74197	FLL121U	7446	GJB74...	74...
FLJ211	74191	FLJ401	74160	FLL125U	7446	GTB74...	74...
FLJ215	74191	FLJ405	74160	FLL121V	7447	HD74...	74...
FLJ221	7491	FLJ411	74161	FLL125V	7447	IDT74...	74...
FLJ225	7491	FLJ415	74161	FLL151	74142	ITT54...	74...

Typ	s. Serien-Nr.
ITT74...	74...
ITT84...	74...
JRC74...	74...
LC74...	74...
LR74...	74...
M5S...	74...
M532...	74...
M533...	741...
M74...	74...
MB400	7400
MB402	7420
MB403	7430
MB404	7440
MB405	7450
MB407	7471
MB408	7480
MB410	74107
MB411	7453
MB416	7401
MB417	7402
MB418	7404
MB420	7474
MB433	7438
MB435	7437
MB440	74123
MB442	7442
MB443	74145
MB447	74180
MB448	7485
MB449	7486
MB450	74160
MB451	74162
MB456	74191
MB460	74170
MB461	7489
MB74...	74...
MC54...	74...

Typ	s. Serien-Nr.
MC74...	74...
MCB54...	74...
MIC54...	74...
MIC64...	74...
MIC74...	74...
MH74...	74...
MM54...	74...
MM74...	74...
MN74...	74...
MSM74...	74...
N74...	74...
NC74...	74...
PC74...	74...
S54...	74...
S84...	74...
SFC4...	74...
SFC41...	741...
SN54...	74...
SN64...	74...
SN74...	74...
SN84...	74...
SW54...	74...
SW74...	74...
T54...	74...
T74...	74...
TD34...	74...
TL74...	74...
TL84...	74...
TRW74...	74...
U3I54...	74...
U3I74...	74...
U6A54...	74...
U6A74...	74...
U7A74...	74...
US54...	74...
US74...	74...
ZN54...	74...

Typ	s. Serien-Nr.
ZN74...	74...
μPB2S...	74...
μPB201	7400
μPB202	7410
μPB203	7420
μPB204	7430
μPB205	7440
μPB206	7450
μPB207	7451
μPB208	7453
μPB209	7454
μPB210	7460
μPB211	7470
μPB213	7413
μPB214	7474
μPB215	7401
μPB217	7475
μPB219	7490
μPB222	7492
μPB223	7493
μPB224	7476
μPB225	7473
μPB226	7495
μPB230	7483
μPB233	7411
μPB234	7408
μPB235	7404
μPB236	7405
μPB237	7437
μPB238	7438
μPB20...	74...
μPB21...	74...
1LB311	7420
1LB312	7430
1LB316	7440
1LB551	7420
1LB552	7430

Typ	s. Serien-Nr.
1LB553	7400
1LB554	7410
1LB556	7440
1LB558	7403
1LP551	7460
1LR551	7450
1LR553	7453
1TK551	7472
1TK552	7474
1TR551	7495
54...	74...
74...	74...

section 1

GB Explanations

I. Common absolute maximum ratings

			74AC	74ACT	74C	74HC	74HCT	74HCU	
Supply voltage	V_{CC}	min.	−0,5	−0,5	−0,3	−0,5	−0,5	−0,5	V
		max.	6	6	18	7	7	7	V
Recommended	V_{CC}	min.	1,5	4,5	3	2	4,5	2	V
		max.	5,5	5,5	15	6	5,5	6	V
Input voltage	V_E	min.	0	0	−0,3	−0,5	−0,5	−0,5	V
		max.	V_{CC}	V_{CC}	V_{CC}+0,3	V_{CC}+0,5	V_{CC}+0,5	V_{CC}+0,5	V
Input current	I_E	min.	−20	−20		−20	−20	−20	mA
		max.	20	20		20	20	20	mA
Output voltage	V_Q	min.	0	0	−0,3	−0,5	−0,5	−0,5	V
		max.	V_{CC}	V_{CC}	V_{CC}+0,3	V_{CC}+0,5	V_{CC}+0,5	V_{CC}+0,5	V

II. Common electrical characteristics (at V_{CC} = 5V, T_U = 25°C)

		74AC	74ACT	74C	74HC	74HCT	74HCU	
L input voltage	max.	1,5	0,8	1,5	1	0,8	1	V
H input voltage	min.	3,5	2	3,5	3,5	2	4	V
L output voltage	max.	0,1	0,1	0,5	0,1[1])	0,26[2])	0,1[1])	V
H output voltage	min.	4,9	4,9	4,5	4,4[1])	3,98[2])	4,4[1])	V
L noise margin		1,4	0,7	1	0,9[1])	0,4[2])	0,9[1])	V
H noise margin		1,4	2,9	1	1,4[1])	1,7[2])	1,4[1])	V
L input current (FI = 1)		−1	−1	−5n	−1	−1	−1	μA
H input current (FI = 1)		1	1	5n	1	1	1	μA
L output current		24	24	1,75	20μ[1])	4[2])	20μ[1])	mA
H output current		−24	−24	−1,75	−20μ[1])	−4[2])	−20μ[1])	mA
Fan out on L[3])		2400	2400	*	*[1])	10[2])	*[1])	
Fan out on H[3])		2400	2400	*	*[1])	10[2])	*[1])	

[1]) Wired to HC/HCU.
[2]) Wired to LS.
[3]) Unless stated otherwise in the data tables: FI and FQ relate only to circuits within a family, e.g. LS output to LS input.
* Restricted only by desired transition time (t_R) and load capacity: $t_R = 2{,}2 \cdot R_L \cdot C_L$

III. Characteristics given in tables

Output	TP = totem pole, OC = open collector, TS = tri-state, X = expander, OD = open drain, MS = Multi-State (see pin assignments)
Type	Type designations in noted temperature ranges
Manufacturer	See List of Manufacturers
Fig.	Case outline; see section 3 and last page: Pins - Art - Nr.
I_S	Average IC current consumption.
I_R	Quiescent current
t_{PD}	Propagation delay time from each stated input or pin number to the (→) corresponding outputs:
↓	for a change of the output signal from H to L,
↑	for a change of output signal from L to H, or
↕	arithmetic mean of both values.
f_T	max. clock frequency, typical or minimal value.
f_Z	max. count frequency, typical or minimal value.
f_E	max. input frequency, typical or minimal value.

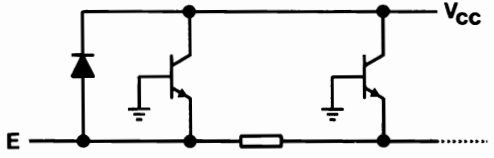
All delay times and frequency apply under the following conditions unless stated otherwise:

		74AC	74ACT	74C	74HC	74HCT	74HCU	
Load resistance	R_L			∞	1k	1k	1k	Ω
Load capacity	C_L	50	50	50	50	50	50	pF
Supply voltage	V_{CC}	*5	*5	5	*4,5	*4,5	*4,5	V
Temperatur	T_U	*25	*25	25	*25	*25	*25	°C

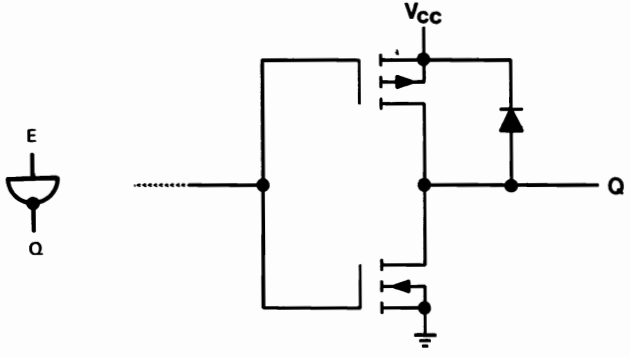
*25: Typical values at 25° C, maximum values and frequencies for full T_U range.
*4,5: Frequencies and quiescent current at 6V.
*5: Typical values at 5V, maximum values at 5.5 V.

IV. Input and output configurations HCMOS

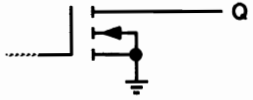
1. Inputs



2.1. Totem-pole outputs (TP)

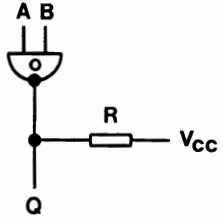


2.2. Open collector outputs (OC) or open drain (OD)

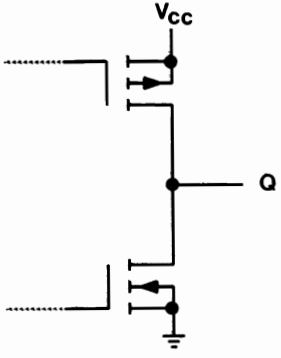


$V_Q < V_{CC}$

$R \geqslant 390\Omega$



2.3. Tri-state outputs

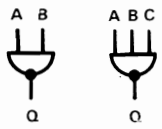


V. Explanations to the function groups

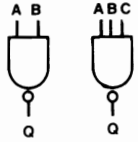
1. Gates

NAND

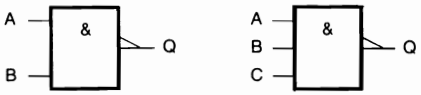
DIN 40700 old



US - ASA



DIN 40700 new / IEEE Std. 91



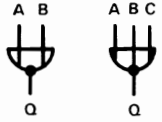
Logic table:

A	B	C	Q
H	H	H	L
L	X	X	H
X	L	X	H
X	X	L	H

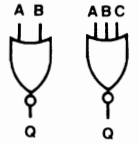
Logical function (Boolean equation): $Q = \overline{A \cdot B \cdot C^*}$

NOR

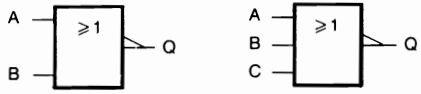
DIN 40700 old



US - ASA



DIN 40700 new / IEEE Std. 91



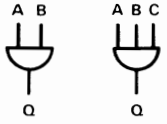
Logic table:

A	B	C	Q
L	L	L	H
H	X	X	L
X	H	X	L
X	X	H	L

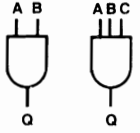
Logical function (Boolean equation): $Q = \overline{A + B + C^*}$

AND

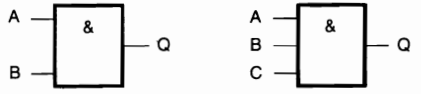
DIN 40700 old



US - ASA



DIN 40700 new / IEEE Std. 91



Logic table:

A	B	C	Q
H	H	H	H
L	X	X	L
X	L	X	L
X	X	L	L

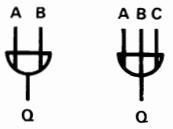
Logical function (Boolean equation): $Q = A \cdot B \cdot C^*$

---

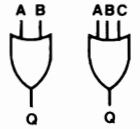
* where provided, L = 0 = Low level, H = 1 = High level, X = L or H

OR

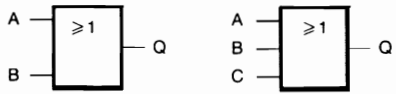
DIN 40700 old



US - ASA



DIN 40700 new / IEEE Std. 91



Logic table:

A	B	C	Q
L	L	L	L
H	X	X	H
X	H	X	H
X	X	H	H

Logical function (Boolean equation): $Q = A + B + C^*$

EX-NOR

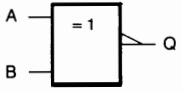
Siemens / ECA

Valvo

DIN 40700 old

US - ASA

DIN 40700 new IEEE Std. 91



Logic table:

A	B	Q
L	L	H
L	H	L
H	L	L
H	H	H

Logical function (Boolean equation): $Q = \overline{(\overline{A} \cdot B) + (A \cdot \overline{B})}$ resp. $Q = \overline{A \oplus B}$

EX-OR

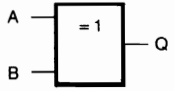
Siemens / ECA

Valvo

DIN 40700 old

US - ASA

DIN 40700 new IEEE Std. 91



Logic table:

A	B	Q
L	L	L
L	H	H
H	L	H
H	H	L

Logical function (Boolean equation): $Q = \overline{(\overline{A} \cdot B) + (A \cdot \overline{B})}$ resp. $Q = A \oplus B$

---

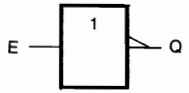
* where provided, L = 0 = Low level, H = 1 = High level, X = L or H

INVERTER

DIN 40700 old

US - ASA

DIN 40700 new



Logic table:

E	Q
L	H
H	L

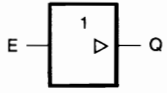
Logical function (Boolean equation): $Q = \overline{E}$

DRIVER/BUFFER

DIN 40700 old

US - ASA

DIN 40700 new



Logic table:

E	Q
L	L
H	H

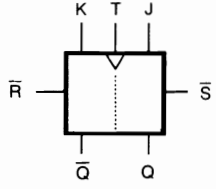
Logical function (Boolean equation): $Q = E$

---

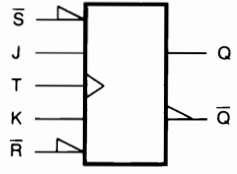
2. Flipflops

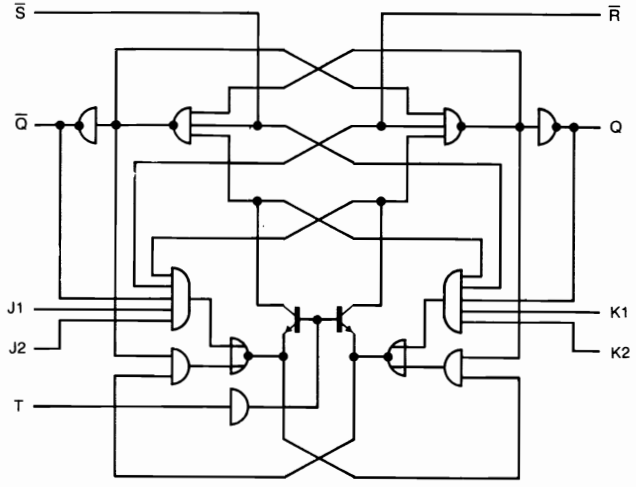
2.1. JK-flipflops (edge triggered)

DIN 40700 old



DIN 40700 new/IEEE Std. 91

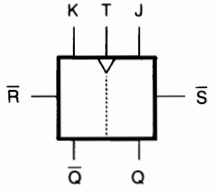




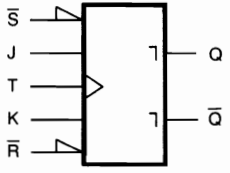
The data applied at Pins J and K is transferred to the output when the clock signal changes from L to H (positive edge triggered) or from H to L (negative edge triggered). R and S work independent from clock signal (asynchronous). For logic tables of the various types, see section 2.

2.2. JK master-slave flipflops

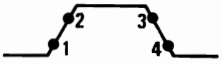
DIN 40700 old



DIN 40700 new / IEEE Std. 91



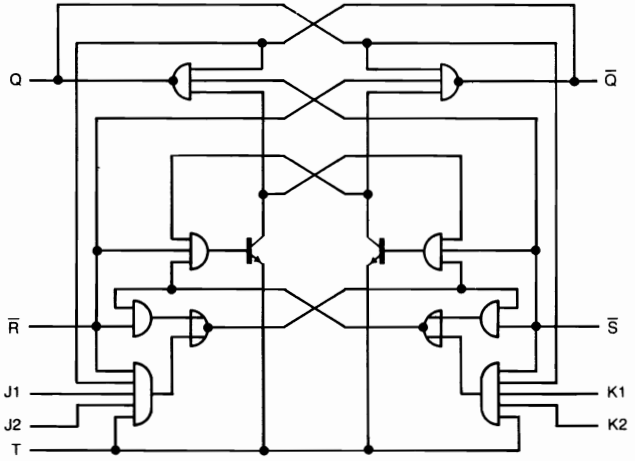
Clock pulse:



1 = separate slave from master
2 = enter J and K input signals in master
3 = reverse J and K inputs
4 = transfer data from master to slave

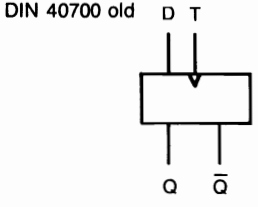
R and S also operate in these arrangements independent of the clock.
See section 2 for logic tables.

Two-stage configuration makes for response uncritical with time on a change of the JK input signals during the clock pulse.
1st stage = master, 2nd stage = slave



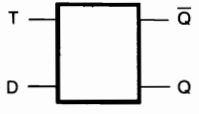
2.3. D-type flipflops / D-latches

DIN 40700 old

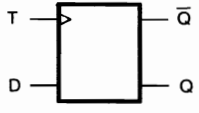


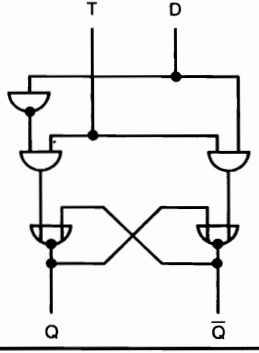
DIN 40700 new / IEEE Std. 91

latch



flipflop

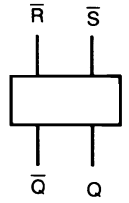




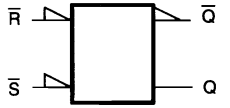
Data input D is transferred to Q whenever the clock pulse changes (↓ or ↑) or as long as it is applied (H or L) – see corresponding logic table for case in question.

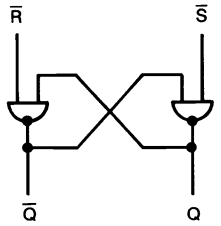
2.4. RS flipflops

DIN 40700 old



DIN 40700 new / IEEE Std. 91



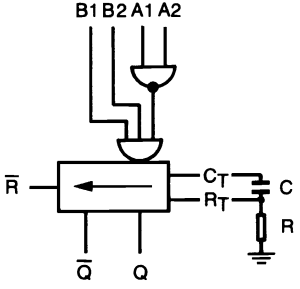


Bistable flipflops triggered by L pulses applied to R̄ or S̄.

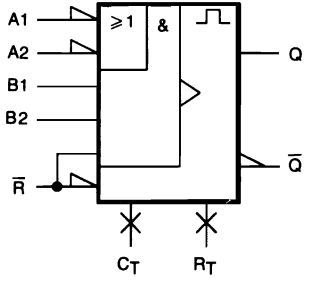
2.5. Monoflops

The change from H to L at A or from L to H at B produces a positive pulse at Q and a negative pulse at Q̄. The length of this pulse is determined by the external values of C and R. R̄ returns the flipflop to the stable state irrespective of the state of the inputs A and B. Arrow indicates output carrying a H potential in the stable state.

DIN 40700 old



DIN 40700 new / IEEE Std. 91



VI. Abbreviations used in the connection drawings

A, B, C...	Inputs on counters, shift registers, decoders etc. A = least significant bit (LSB)
AB	A... B... Enable
a, b, c...	Outputs of 7-segment decoders
A0, A1...	Address inputs (from memories or data bus A)
BA	Mode select input
BER	Range control input on oscillators
BI	Digit blanking input
C	Check input, general
C_E	Carry input
C_{ext}	Connection for external capacitor
C_n, C_{n+1}	Carry input/output, according to arrow
C_Q	Carry output
CASC	Cascade input/output
CLK	Clock
CLR	Clear
CLKEN	Clock enable
CS	Chip select
D	Data input/output, general
DIR	Direction
D0, D1...	Data inputs, D0 = least significant bit (LSB)
dp	Decimal point output of 7 segment decoders
E	Input, general
EE	Expansion input
EMPTY	FIFO empty
EN	Enable
even	Even number preselect input
F0, F1...	Bidirection data pins/outputs, F0 = LSB
FE	Enable input
FEp	Enable input, parallel
FEs	enable input, serial
FQ	Enable output
FULL	FIFO full
G...	Enable...
GAB	Enable A to B data flow
GBA	Enable B to A data flow
GND	Ground
J, J1, J2...	J inputs on flipflops
JK	JK inputs on flipflops
K, K1, K2...	K inputs on flipflops
LDCK	Load clock
LT	Lamp test input on 7-segment decoders
M0, M1...	Multiplier inputs
MEM	Memory
MR	Master Reset
OE	Output enable
OERB	Output Enable Read Back
odd	Odd number preselect input
Osc.U_S	Supply voltage for oscillator only
OV	Overflow
PE	Parallel Enable
Q	Output, general
Q_{even}	Parity output, even
Q_{odd}	Parity output, odd
Q0, Q1...	Data outputs on decimal decoders
QA, QB...	Data outputs, QA = least significant bit (LSB)
R	Reset input, general
R0	Input set to 0
R9	Input set to 9
R_{ext}	Connection for external resistance
R_{int}	Connection of internal resistance
RBI	Ripple blanking input
RBQ	Ripple blanking output
RC_{ext}	Connection for external resistance and capacitance
RD	Read enable input
R/W	Read/write
S	Set input, general
S...	Select...
SE	Serial input on shift registers
SEl	Serial input for shift left
SEr	Serial input for shift right
SER	Serial
SEL	Selection input
SI	Shift in
SO	Shift out
SQ	Serial output on shift registers

SQl	Serial output for shift left
SQr	Serial output for shift right
ST	Strobe input
S0, S1...	Mode select inputs
T	Clock input
TL	Clock input for shift left
TR	Clock input for shift right
Ü	Carry output
U/D	Up/down
UNCK	Unload clock
V	Positive supply voltage
V_{CC}	Connection for supply voltage
V/R	Mode input count up/count down
W/R	Read/write enable input
WR	Write enable input
X, $\overline{X}$	Inputs for expandable gates and expander outputs
X1, X2...	Adress inputs matrix line
Y1, Y2...	Adress inputs matrix column
Σ	Sum output
$\overline{...}$	Pin is low active
④	Circled number indicates number of pins of associated chip

VII. Special abbreviations in the ligic tables

A, B...	Logic status at A, B...
A·B	A AND B (not A times B)
A+B	A OR B (not A plus B)
A→B	A to B data flow
H	Logic HIGH
L	Logic LOW
Q1n, Q2n...	Logic status of Q1, Q2... prior to clock pulse
shift →	Data in the corresponding column shifted right
shift ←	Data shifted left
t_n	Time before clock pulse
$t_{n+...}$	Time after ... clock pulses
X	Irrelevant logic level (L or H)
Z	Logic level is high impedance (Tri-State outputs only)
⎍	Transition from L to H level
⎏	Transition from H to L level
⎍⎏	Positive pulse
⎏⎍	Negative pulse
Σ	Sum
?	Logic level depends on other conditions

Note that abbreviations found neither here nor in the pin drawings are too complex to permit explanation within the framework of this document.

Short description	Type	Pins	Output	AC	ACT	C	HC	HCT	HCU
1. GATES									
1.1. NAND									
1x13 NAND	74133	16	TP				x		
1x8 NAND	7430	14	TP			x	x	x	
2x4 NAND	7420	14	TP	x	x	x	x	x	
3x3 NAND	7410	14	TP	x	x	x	x	x	
3x3 NAND	7412	14	TP				x		
4x2 NAND	7400	14	TP	x	x	x	x	x	
4x2 NAND	7401	14	OC				x		
4x2 NAND	7403	14	OC				x	x	
6x2 NAND	74804	20	TP				x		
1.2. NOR									
3x3 NOR	7427	14	TP				x	x	
4x2 NOR	7402	14	TP	x	x	x	x	x	
4x2 NOR	7436	14	TP				x		
6x2 NOR drivers	74805	20	TP				x		
1.3. AND									
2x4 AND	7421	14	TP				x	x	
3x3 AND	7411	14	TP	x			x	x	
4x2 AND	7408	14	TP	x	x	x	x	x	
4x2 AND	7409	14	OC				x		
4x2 AND drivers (15V)	74131	14	OC				x		
6x2 AND drivers	74808	20	TP				x		
1.4. OR									
4x2 OR	7432	14	TP	x	x	x	x	x	
6x2 OR drivers	74832	20	TP				x		
1.5. EX-NOR									
4x2 EX-NOR	74266	14	OC				x		
4x2 EX-NOR	747266	14	TP				x	x	
1.6. EX-OR									
4x2 EX-OR	7486	14	TP	x	x	x	x	x	
4x2 EX-OR	74386	14	TP				x		

Short description	Type	Pins	Output	AC	ACT	C	HC	HCT	HCU
1.7. Inverters									
6 Inverters	7404	14	TP	x	x	x	x	x	x
6 Inverters	7405	14	OC	x	x		x	x	
6 Inverters	74366	16	TS				x	x	
6 Inverters	74368	16	TS				x	x	
6 Inverters (30V)	7406	14	OC				x		
1.8. Combination gates									
NAND/NOR + Inverters	747006	24	TP				x		
NAND/NOR + Inverters	747008	24	TP				x		
AND/NOR	7451	14	TP				x		
AND/OR	7458	14	TP				x		
div. Gates + flip-flops	747074	24	TP				x		
div. Gates + flip-flops	747075	24	TP				x		
div. Gates + flip-flops	747076	24	TP				x		
1.9. Schmitt Triggers									
2x4 NAND Schmitt triggers	7413	14	TP				x		
4x2 NAND Schmitt triggers	74132	14	TP				x	x	
4x2 AND Schmitt triggers	747001	14	TP				x		
4x2 NOR Schmitt triggers	747002	14	TP				x		
6 inverting Schmitt triggers	7414	14	TP	x	x	x	x	x	
2. FLIP-FLOPS									
2.1. Edge-triggered									
2.1.1. With Preset, J and K									
2 flip-flops	74113	14	TP				x		
2.1.2. With Clear, J and K									
2 flip-flops	7473	14	TP			x	x	x	
2 flip-flops	74107	14	TP			x	x	x	

Short description	Type	Pins	Output	AC	ACT	C	HC	HCT	HCU
2.1.3. With Preset, Clear, J and K									
2 flip-flops	7476	16	TP			x	x	x	
2 flip-flops	7478	14	TP				x		
2 flip-flops	74109	16	TP	x	x		x	x	
2 flip-flops	74112	16	TP	x	x		x	x	
2 flip-flops	74114	14	TP				x		
2.2. Pulse-triggered									
2.2.1. With Clear, J and K									
2 flip-flops	7473	14	TP			x	x	x	
2 flip-flops	74107	14	TP			x	x	x	
2.2.2. With Preset, Clear, J and K									
2 flip-flops	7476	16	TP			x	x	x	
2 flip-flops	7478	14	TP				x		
2.3. RS-Latches									
4 latches	74279	16	TP				x		
2.4. D-type Latches									
2.4.1. Non inverting									
4 latches	7477	14	TP				x		
8 latches	74373	20	TS	x	x	x	x	x	
8-bit bus interface	74573	20	TS	x	x		x	x	
8-bit bus interface	74845	24	TS	x	x				
9-bit bus interface	74843	24	TS	x	x				
10-bit bus interface	74841	24	TS	x	x				
2.4.2. Inverting									
8-bit	74580	20	TS				x	x	
8-bit bus interface	74533	20	TS	x	x		x	x	
8-bit bus interface	74563	20	TS	x	x		x	x	
8-bit bus interface	74846	24	TS	x	x				
9-bit bus interface	74844	24	TS	x	x				
9-bit bus interface	74844	24	TS	x	x				
10-bit bus interface	74842	24	TS	x	x				
2.4.3. Complementary outputs									
4 latches	7475	16	TP				x	x	
4 latches	74375	16	TP				x		

Short description	Type	Pins	Output	AC	ACT	C	HC	HCT	HCU
2.5. D-type flip-flops									
2.5.1. Non-inverting									
4 flip-flops	74173	16	TS			x	x	x	
6 flip-flops	74174	16	TP	x	x	x	x	x	
6 flip-flops	74378	16	TP	x	x		x		
8 flip-flops	74273	20	TP	x	x		x	x	
8 flip-flops	74374	20	TS	x	x	x	x	x	
8 flip-flops	74377	20	TP	x	x		x	x	
8-bit bus interface	74574	20	TS	x	x		x	x	
8-bit bus interface	74825	24	TS	x	x				
9-bit bus interface	74823	24	TS	x	x				
10-bit bus interface	74821	24	TS	x	x				
2.5.2. Inverting									
8-bit bus interface	74534	20	TS	x	x		x	x	
8-bit bus interface	74564	20	TS	x	x		x	x	
8-bit bus interface	74576	20	TS				x	x	
8-bit bus interface	74826	24	TS	x	x				
9-bit bus interface	74824	24	TS	x	x				
10-bit bus interface	74822	24	TS	x	x				
2.5.3. Complementary outputs									
2 flip-flops	7474	14	TP	x	x	x	x	x	
4 flip-flops	74175	16	TP	x	x	x	x	x	
4 flip-flops	74379	16	TP	x	x		x		
2.6. Monostable multivibrators									
With Schmitt-Trigger inputs	74221	16	TP			x	x	x	
2 retriggerable monostable multivibrators	74123	16	TP				x	x	
2 retriggerable monostable multivibrators	74423	16	TP				x	x	
2.7. Other									
8-bit diagnostic register	74818	24	TP	x	x				

Short description	Type	Pins	Output	AC	ACT	C	HC	HCT	HCU
3. COUNTERS									
3.1. Binary counters									
3.1.1. Count up									
2x4-bit	74393	14	TP				x	x	
4-bit	7493	14	TP			x	x	x	
4-bit	74293	14	TP				x		
4-bit with preset	74569	20	TS	x					
4-bit with preset	74161	16	TP	x	x	x	x	x	
4-bit with preset	74163	16	TP	x	x	x	x	x	
4-bit with preset and register	74691	20	TP				x		
4-bit with preset and register	74693	20	TP				x		
8-bit	74590	16	TS				x	x	
8-bit with preset	74592	16	TP				x	x	
8-bit with preset	74593	20	TP				x	x	
14-bit	747060	20	TP	x	x				
14-bit	747061	20	TP	x	x				
3.1.2. Count up/down									
4-bit	74169	16	TP	x			x	x	
4-bit with preset	74191	16	TP	x	x		x	x	
4-bit with preset	74193	16	TP	x	x	x	x	x	
4-bit with preset	74669	16	TP				x		
4-bit with preset and register	74697	20	TP				x		
4-bit with preset and register	74699	20	TP				x		
3.2. Decimal counters									
3.2.1. Count up									
2x4-bit	74390	16	TP				x	x	
2x4-bit	74490	16	TP				x		
4-bit	7490	14	TP			x	x		
4-bit with preset	74160	16	TP	x	x	x	x	x	
4-bit with preset	74162	16	TP	x	x	x	x	x	
4-bit with preset	74568	20	TS	x					
4-bit with preset and register	74690	20	TP				x		
4-bit with preset and register	74692	20	TP				x		
4-bit with preset and register	74696	20	TP				x		

Short description	Type	Pins	Output	AC	ACT	C	HC	HCT	HCU
3.2.2. Count up/down									
4-bit	74168	16	TP	x					
4-bit with preset	74190	16	TP	x			x	x	
4-bit with preset	74192	16	TP	x		x	x	x	
4-bit with preset	74668	16	TP				x		
4-bit with preset and register	74698	20	TP				x		
4. SHIFT REGISTERS									
4.1. Serial									
8-bit	7491	14	TP				x		
4.2. Parallel inputs									
8-bit	74165	16	TP			x	x	x	
8-bit	74166	16	TP				x	x	
8-bit with latch	74589	16	TS				x		
8-bit with latch	74597	16	TP				x	x	
16-bit	74674	24	TP				x		
4.3. Parallel outputs									
8-bit	74164	14	TP	x	x	x	x	x	
8-bit with latch	74594	16	TP				x		
8-bit with latch	74595	16	TS				x		
16-bit	74673	24	TP				x		
4.4. Parallel inputs and outputs									
4-bit	7495	14	TP			x	x		
4-bit left/right shift	74194	16	TP				x	x	
4-bit universal	74195	16	TP			x	x	x	
8-bit left/right	74299	20	TS	x	x		x	x	
8-bit universal	74323	20	TS	x	x		x	x	
5. MULTIPLEXERS									
8 to 1	74151	16	TP	x	x	x	x	x	
8 to 1	74152	14	TP				x		
8 to 1	74251	16	TS	x	x		x	x	

Short description	Type	Pins	Output	AC	ACT	C	HC	HCT	HCU
8 to 1	74354	20	TS				x	x	
8 to 1	74356	20	TS				x	x	
16 to 1	74150	24	TP			x			
2x4 to 1	74153	16	TP	x	x		x	x	
2x4 to 1	74253	16	TS	x	x		x	x	
2x4 to 1	74352	16	TP	x	x		x		
2x4 to 1	74353	16	OC	x	x		x		
4x2 to 1	74157	16	TP	x	x	x	x	x	
4x2 to 1	74158	16	TP	x	x		x	x	
4x2 to 1	74257	16	TS	x	x		x	x	
4x2 to 1	74258	16	TS	x	x		x	x	
4x2 to 1	74398	20	TP	x	x				
4x2 to 1	74399	16	TP		x				
4x2 to 1 with register	74298	16	TP				x		
8x2 to 1 with latch	74604	28	TS				x		
6. DEMULTIPLEXERS									
3 to 8	74131	14	OC				x		
3 to 8	74238	16	TP	x	x		x	x	
3 to 8 with latch	74137	16	TP				x	x	
4 to 16	74154	24	TP			x	x	x	
2x2 to 4	74155	16	TP				x	x	
2x2 to 4	74156	16	OC				x		
2x2 to 4	74239	16	TP				x		
7. ARITHMETIC OPERATORS									
7.1. Adders									
2x1-bit	74183	14	TP				x		
4-bit	7483	16	TP			x	x		
4-bit	74283	16	TP	x	x		x	x	
4-bit BCD	74583	16	TP				x	x	
7.2. Multipliers									
8-bit by 1-bit 2's complement	74384	16	TP				x	x	
7.3. Parity checkers									
9-bit	74180	14	TP				x		
9-bit	74280	14	TP	x	x		x	x	
7.4. ALU (Arithmetic/logic units)									
4-bit	74181	24	TP				x	x	
4-bit	74381	20	TP				x		
7.5. Comparators									
4-bit	7485	16	TP			x	x	x	
8-bit	74520	20	TP	x	x				
8-bit	74521	20	TP	x	x		x	x	
8-bit	74684	20	TP				x		
8-bit	74688	20	TP				x	x	
8-bit with pull-up resistors	74682	20	TP				x		
12-bit address comparator	74679	20	TP				x		
12-bit address comparator with latch	74680	20	TP				x		
16-bit address comparator	74677	24	TP				x		
16-bit address comparator with latch	74678	24	TP				x		
7.6. Other									
Carry generator for counter	74182	16	TP				x	x	
8. CODE CONVERTERS									
8.1. BCD-to-decimal									
4-bit	7442	16	TP			x	x	x	
4-bit (15V)	74145	16	OC				x		
8.2. BCD-to-7-segment									
4-bit negativ logic	7448	16	OC			x			
8.3. Binary-to-decimal									
2x2-bit	74139	16	TP	x	x		x	x	
3-bit	74138	16	TP	x	x		x	x	
3-bit	74237	16	TP				x	x	
3 to 8	74131	14	OC				x		
3 to 8 with latch	74137	16	TP				x	x	
4 to 16	74154	24	TP			x	x	x	
2x2 to 4	74155	16	TP				x	x	
2x2 to 4	74156	16	OC				x		

Short description	Type	Pins	Output	AC	ACT	C	HC	HCT	HCU
8.4. Priority encoders									
8 channel	74149	20	TP				x	x	
8 to 3 bit	74148	16	TP				x		
9 to 4 bit	74147	16	TP				x	x	
9. MEMORIES									
9.1. RAM									
4x4-bit	74670	16	TS				x	x	
16x4-bit	7489	16	OC			x			
256x1-bit	74200	16	TS			x			
9.2. FIFO (first-in first-out memory)									
64x9-bit	74708	28	TS	x	x				
64x9-bit	74723	28	TS	x	x				
64x9-bit	747030	28	TS				x	x	
512x9-bit	74725	28	TP	x	x				
9.3. Other									
8-bit latch	74259	16	TP				x	x	
10. DIVIDERS									
1:12	7492	14	TP				x		
16-bit programmable	74294	16	TP				x		
30-bit programmable	74292	16	TP				x		
11. DRIVERS									
11.1. Non-inverting									
2x4-bit	74241	20	TS	x	x		x	x	
2x4-bit	74244	20	TS	x	x	x	x	x	

Short description	Type	Pins	Output	AC	ACT	C	HC	HCT	HCU
4+2-bit	74367	16	TS				x	x	
4+2-bit	74368	16	TS				x	x	
4-bit	74125	14	TS	x	x		x	x	
4-bit	74126	14	TS				x	x	
4-bit bi-directional	74243	14	TS				x	x	
4-bit tri-directional	74442	20	TS				x		
6-bit	7407	14	OC				x	x	
6-bit	7434	14	TP					x	
6-bit	74365	16	TS				x	x	
8-bit	74541	20	TS	x	x		x	x	
8-bit bi-directional	74245	20	TS	x	x		x	x	
8-bit bi-directional	74623	20	TS	x	x		x	x	
8-bit bi-directional	74645	20	TS				x	x	
8-bit bi-directional with OC/TS-output	747623	20	SS	x	x				
8-bit bi-directional with latch	74543	24	TS				x	x	
8-bit bi-directional with latch	74550	28	TS				x	x	
8-bit bi-directional with latch	74646	24	TS	x	x		x	x	
8-bit bi-directional with latch	74647	24	OC	x	x				
8-bit bi-directional with latch	74652	24	TS	x	x		x	x	
8-bit bi-directional with latch	74654	24	SS	x	x				
11.2. Inverting									
2x4-bit	74240	20	TS	x	x	x	x	x	
4-bit bi-directional	74242	14	TS	x			x	x	
4-bit tri-directional	74443	20	TS				x		
6-bit	7406	14	OC				x		
6-bit	74366	16	TS				x	x	
8-bit	74540	20	TS	x	x		x	x	
8-bit with latch	747651	24	TS	x	x				
8-bit bi-directional	74620	20	TS				x	x	
8-bit bi-directional	74640	20	TS	x	x		x	x	
8-bit bi-directional with latch	74544	24	TS				x	x	
8-bit bi-directional with latch	74551	28	TS				x	x	
8-bit bi-directional with latch	74648	24	TS	x	x		x	x	
8-bit bi-directional with latch	74649	24	OC	x	x				
8-bit bi-directional with latch	74651	24	TS	x	x		x	x	
8-bit bi-directional with latch	74653	24	SS	x	x				

Short description	Type	Pins	Output	AC	ACT	C	HC	HCT	HCU
11.3. Inverting and non-inverting									
4-bit tri-directional	74444	20	TS				x		
8-bit bi-directional	74643	20	TS	x	x		x	x	
12. MICROCOMPONENTS									
IEEE-488 bus interface	74488	48	TP		x				
13. OTHER									
Digital PLL filter	74297	16	TP	x	x		x	x	

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Postfach 1109, 7100 Heilbronn, BRD

Amd **Advanced Micro Devices Inc.**
901 Thompson Place, Sunnyvale, A 94086, USA
BRD: Herzog-Heinrich-Straße 3, 8000 München 2

Fch **Fairchild Camera and Instrument Corp.**
464 Ellis Street, Mountain View, California 94042
BRD: Fairchild Camera and Instrument GmbH
3000 Hannover, Königsworther Str. 23
6202 Wiesbaden-Bierbrich, Hagenauer Str. 38
7250 Leonberg, Poststr. 37
8046 Garching, Daimlerstr. 15
8500 Nürnberg, Waldluststr. 1

Fer **Ferranti Electronics, Ltd.**
Fields New Road, Chadderton, Oldham OL9 8NP, England
BRD: Ferranti GmbH, Widenmayerstraße 5, 8000 München 22

Fui **Fujitsu Ltd.** (Components Group)
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BRD: Comtec GmbH, Widenmayerstraße 1, 8000 München 22

Hfo **VEB Halbleiterwerk Frankfurt (Oder)**
Markendorf, 1201 Frankfurt (Oder)
Export: Heim-Electric, Alexanderplatz 6, 1026 Berlin

Hit **Hitachi, Ltd.** (Electronic Devices Group)
1450 Josuihonmachi, Kodaire City, Tokyo, Japan
BRD: Hitachi Ltd., Immermannstraße 15, 4000 Düsseldorf 1

Int **Intel Group**
Intel Corp., 3065 Bowers Av., Santa Clara, CA 95051, USA
Intel Semiconductor GmbH, Dornacher Straße 1,
8016 Feldkirchen, BRD

Itt **ITT Semiconductors (Intermetall)**
748 Commerce Way, Woburn, MA 01801, USA
BRD: Intermetall GmbH, Hans-Bunte-Straße 19, 7800 Freiburg

Mat **Matsuhita Electronics Corp.**
Kotari Yakemachi 1, Nagaokakyo City, Kyoto, Japan

Mit **Mitsubishi Electric Corporation**
Kita-Itami Works, 4-1 Mizuhara, Itami-Shi, Hyogo-Ken,
Post Code 664, Japan

Mot **Motorola Semiconductor Products**
5005 E.McDowell Rd., M370, Phoenix, Arizona 85008
BRD: Motorola GmbH, Geschäftsbereich Halbleiter
6204 Taunusstein-Neuhof 5, Heinrich-Hertz-Str. 1 (Zentrale)
3012 Langenhagen, Hans-Böckler-Str. 30 (Verkaufsbüro)

Mul **Mullard, Ltd.**
Torrington Place, London WC1E 7HD, England
BRD: Valvo GmbH, Burchardstraße 19, 2000 Hamburg 1

Nec **Nippon Electric Co., Ltd. (NEC)**
1753 Shimonumabe, Nakahara-ku, Kawasaki City, Japan
BRD: NEC Electronics GmbH, Karlstr.123 – 127, 4 Düsseldorf

Njr **New Japan Radio Co. Ltd.**
1-22-14 Toranomon, Minato-Ku, Tokyo 105, Japan

Nsc **National Semiconductor Corporation**
2900 Semiconductor Drive, Santa Clara, CA 95051, USA
BRD: National Semiconductor GmbH, Industriestraße 10,
8080 Fürstenfeldbruck

Nuc **Nucleonic Products Co., Inc.**
6660 Variel Avenue, Canoga Park, CA 91303, USA

Oki **Oki Electric Industry Co. Ltd.**
10-3 Shibarra 4-Chome, Minato-Ku, Tokyo 108, Japan
BRD: Oki Electric Europe GmbH, Emanuel-Leutze-Straße 8,
4000 Düsseldorf 11

Phi **Philips Gloeillampen-Fabrieken N.V.**
Building BA, Einhoven, Niederlande
BRD: Valvo GmbH, Burchardstraße 19, 2000 Hamburg 1

Ray **Raytheon Semiconductor Co.**
350 Ellis Street, Mountain View, CA 94042, USA
BRD: Raytheon Halbleiter GmbH, Thalkirchner Straße 74,
8000 München 2

Rca **RCA Corporation** (Solid State Division)
Route 202, Somerville, NJ 08876, USA
BRD: RCA GmbH, Schillerstraße 14, 2085 Quickborn

Riz **RIZ Radio Industrie Zagreb/Iskra Ljubljana**
Trg revolucije 3, 61000 Ljubljana, Jugoslawia
BRD: Alfred Neye, Schillerstraße 14, 2085 Quickborn

Rtc **R.T.C. La Radiotechnique-Compelec**
130 Avenue Ledru-Rollin, 75540 Paris Cedex 11, France
BRD: Valvo GmbH, Burchardstraße 19, 2000 Hamburg 1

Say **Sanyo Electric Co. Ltd.**
2-Chome, Yushima, Bankyoko, Natsuma Bldg.,
Tokyo 113, Japan

Ses **Sescosem (Thomson CSF)**
23, Rue de Courcelles, 75362 Paris, France
BRD: Thomson-CSF GmbH, Perchtinger Str.3, 8 München 70

Sgs **SGS-ATES Componenti Elettronici SpA**
Via C. Olivetti 2, I-20041 Agrate Brianza
BRD: SGS-ATES Deutschland Halbleiter Bauelemente GmbH
8018 Grafing, Haidling 17 (Zentrale Deutschland)
3012 Langenhagen, Hubertusstr. 7 (Verkaufsbüro)
7000 Stuttgart 80, Kalifenweg 45 (Verkaufsbüro)
8000 München 21, Landsberger Str. 289 (Verkaufsbüro)
8500 Nürnberg 15, Parsifalstr. 10 (Verkaufsbüro)

Sha **Sharp Corporation Electronic Components Group**
22-22 Nagaike Cho, Abeno-Ku, Osaka 545, Japan

Sie **Siemens AG** (Bereich Bauelemente)
Balanstraße 73, 8000 München 80, BRD
Vertrieb Bauteile: Postfach 202109, 8000 München 2

Sig **Signetics Corporation**
811 E. Arques Avenue, Sunnyvale, CA 94086, USA

Spr **Sprague Electric Co.**
87 Marshall Street, North Adams, MA 01247, USA
BRD: Sprague Elektronik GmbH, Friedberger Anlage 24,
6000 Frankfurt 1

Stw **Stow Laboratories, Inc.**
Kane Industrial Drive, Hudson, MA 01749, USA

Su **UdSSR**

Tes **Tesla**
Roznov pod Rahdostem, CSSR

Tix **Texas Instruments, Inc.**
P.O.Box 225012, Dallas, TX 75265, USA
BRD: Texas Instruments Deutschland GmbH,
Haggertystraße 1, 8050 Freising

Tos **Toshiba - Tokyo Shibaura Electric Co., Ltd,**
72 Horikawa-cho, Saiwai-ku, Kawasaki-shi, Kanagawa-ken,
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BRD: Toshiba Deutschl., Hammer Landstr.115, 4040 Neuss

Toy **Toyo Denki Seizo Electronics Industry Corp.**
21, Sain-Misosaki-cho, P.O.-Box 103, Ukyo-Ku, Kyoto, Japan
BRD: R-ohm Electronics, Mühlenstraße 70,
4052 Korschenbroich

Trw **TRW Semiconductors, Inc.**
14520 Aviation Boulevard, Lawndale, CA 90260, USA
BRD: TRW GmbH, Konrad-Celtis-Str. 81, 8000 München 70

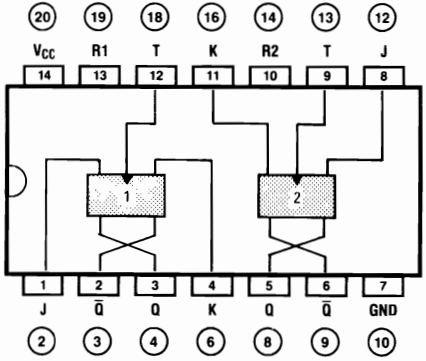
Tun **Tungsram**
Vaciut 77, Budapest IV, Ungarn
BRD: Tungsram GmbH, Hohenstaufenstr. 8, 6000 Frankfurt

Val **Valvo GmbH**
Burchardstr. 19, 2000 Hamburg 1
Zweigbüros BRD: Valvo GmbH
6000 Frankfurt/Main, Theodor-Heuss-Allee 106
7012 Fellbach, Höhenstr. 21
8000 München 2, Ridlerstr. 37

74107
Output: TP

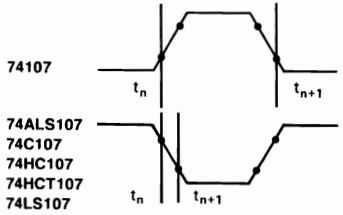
JK master slave flip-flops

Fl (R,T) = 2



Input t_n			Output t_{n+1}	
R	J	K	Q	$\bar{Q}$
L	X	X	L	H
H	L	L	Q_n	$\bar{Q}_n$
H	H	L	H	L
H	L	H	L	H
H	H	H	$\bar{Q}_n$	Q_n

Taktimpuls · L'impulsion d'horloge · Clock pulse
Impulso di cadenza · Pulso del reloj



74107	Type			Production	Bild Sec. 3	I_S &I_R	t_{PD} E→Q ns$_{typ}$		t_{PD} E→Q ns$_{max}$		Note f_T §f_Z &f_E
0…70°C §0…75°C	−40…85°C §−25…85°C	−55…125°C			Pins- Art-Nr.	mA	↓	↑	↓	↑	MHz
C											
	MM74C107J	MM54C107J	Nsc	14-dil-4	50n	180	180	300	300	2.5
	MM74C107N		Nsc	14-dil-1	50n	180	180	300	300	2.5
		MM54C107W	Nsc	14-flat-1	50n	180	180	300	300	2.5
HC											
	CD74HC107E		Rca	14-dil-1	&(4μ	14	14	43	43	25
		CD54HC107F	Rca	14-dil-4	&(4μ	14	14	51	51	20
		CD54HC107H	Rca	chip	&(4μ	14	14	51	51	20
	CD74HC107M		Rca	14-smd-1	&(4μ	14	14	43	43	25
HD74HC107			Hit	14-dil	&(4μ			39	39	21
LC74HC107			Say	14-dil	&(4μ			39	39	21
MB74HC107			Fui	14-dil	&(4μ			39	39	21
		MC54HC107J	Mot	14-dil-4	(4μ	17	17	21	21	31
		MC74HC107N	Mot	14-dil-1	(4μ	17	17	21	21	31
	MM74HC107J	MM54HC107J	Nsc	14-dil-4	(4μ	16	16	21	21	31
	MM74HC107N		Nsc	14-dil-1	(4μ	16	16	21	21	31
	MN74HC107		Mat	14-dil-1	&(4μ			39	39	21
	MN74HC107S		Mat	14-smd-1	&(4μ			39	39	21
	PC74HC107P		Phi,Val	14-dil-1	&(4μ	19	19	40	40	24
	PC74HC107T		Phi,Val	14-smd-1	&(4μ	19	19	40	40	24
SN74HC107D			Tix	14-smd-1	&(4μ	20	20	32	32	25
		SN54HC107FH	Tix	20-chip-3	&(4μ	20	20	37	37	21
	SN74HC107FH		Tix	20-chip-3	&(4μ	20	20	32	32	25
		SN54HC107FK	Tix	20-chip-2	&(4μ	20	20	37	37	21
	SN74HC107FN		Tix	20-chip-1	&(4μ	20	20	32	32	25
		SN54HC107J	Tix	14-dil-4	&(4μ	20	20	37	37	21
	SN74HC107J		Tix	14-dil-4	&(4μ	20	20	32	32	25
	SN74HC107N		Tix	14-dil-1	&(4μ	20	20	32	32	25
T74HC107			Sgs	14-dil	&(4μ			39	39	21
μPB74HC107			Nec	14-dil	&(4μ			39	39	21
HCT											
	CD74HCT107E		Rca	14-dil-1	&(4μ	18	18	54	54	22
		CD54HCT107F	Rca	14-dil-4	&(4μ	18	18	65	65	19
		CD54HCT107H	Rca	chip	&(4μ	18	18	65	65	19
	CD74HCT107M		Rca	14-smd-1	&(4μ	18	18	54	54	22
	MM74HCT107J	MM54HCT107J	Nsc	14-dil-4	(4μ	22	22	35	35	27
	MM74HCT107N		Nsc	14-dil-1	(4μ	22	22	35	35	27
	PC74HCT107P		Phi,Val	14-dil-1	&(4μ	19	19	45	45	24
	PC74HCT107T		Phi,Val	14-smd-1	&(4μ	19	19	45	45	24