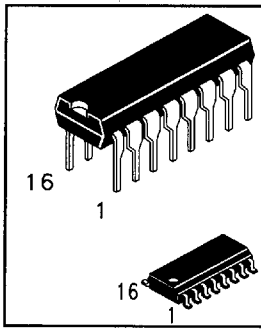
Available Q2, 1995

Quad Set-Reset Latch

DV74HC279
DV74HCT279

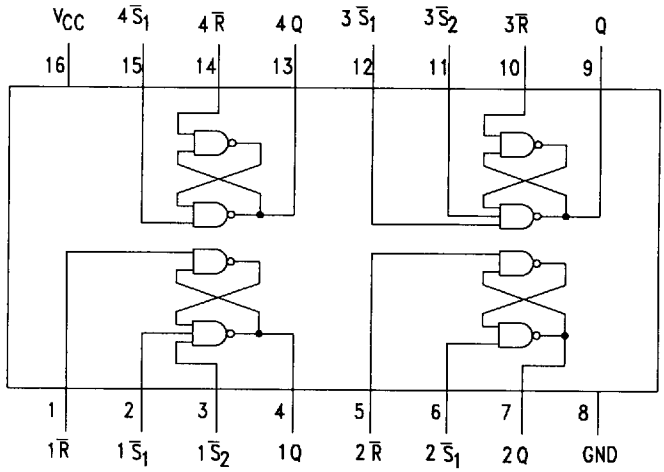
This device consists of four independent set-reset input latches. Each latch has its normal output available. Two latches have two seperate sets available.

- **Output Drive Capability: 10 LSTTL Loads**
- **Outputs Directly Interface to CMOS, NMOS, and TTL**
- **Operating Voltage Range: 2 to 6 V for HC devices**
- **Low Input Current: 1 μA**
- **DC, AC parameters guaranteed from -55°C to 125°C**



N Suffix
Plastic DIP
AVG-003 Case

D Suffix
Plastic SOP
AVG-004 Case



TRUTH TABLE

Inputs			Outputs
S1	**S2**	**$\overline{R}$**	**Q**
L	L	L	h
L	X	H	H
X	L	H	H
H	H	L	L
H	H	H	No Change

H = High logic Level

L= Low Logic Level

X = Don't Care

h = The Output is HIGH as long as may change, depending which is removed first

279

ABSOLUTE MAXIMUM RATINGS

Maximum ratings are those values beyond which damage to the device may occur.

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage (Referenced to GND)	–0.5 to +7.0	V
V_{IN}	DC Input Voltage (Referenced to GND)	–1.5 to V_{CC} +1.5	V
V_{OUT}	DC Output Voltage (Referenced to GND)	–0.5 to V_{CC} +0.5	V
I_{IN}	DC Input Current, per Pin	± 20	mA
I_{OUT}	DC Output Current, per Pin	± 25	mA
I_{CC}	DC Supply Current, V_{CC} and GND Pins	± 50	mA
P_D	Power Dissipation in Still Air, Plastic DIP SOP Package	750 500	mW
T_{STG}	Storage Temperature Range	–65 to +150	°C
TL	Lead Temperature, 1mm from Case for 10 Seconds	260	°C

GUARANTEED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V_{CC}	DC Supply Voltage HC(HCT), Referenced to GND	2.0(4.5)	6.0(5.5)	V
V_{IN}, V_{OUT}	DC Input Voltage, Output Voltage ,Referenced to GND	0	V_{CC}	V
T_A	Ambient Temperature	–55	+125	°C
t_r, t_f	Input Rise and Fall Time: HC: V_{CC}=2.0V HCT: V_{CC}=5.5V / HC: V_{CC}=4.5V HC: V_{CC}=6.0V	0 0 0	1000 500 400	ns

HC - 279

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	Vcc V	Guaranteed Limits			Unit
				25°C to –55°C	≤85°C	≤125°C	
V_{IH}	Minimum High-Level Input Voltage	V_{OUT} =0.1 V, $|I_{OUT}|\leq$20μA or V_{OUT} = V_{CC}–0.1V	2.0 4.5 6.0	1.5 3.15 4.2	1.5 3.15 4.2	1.5 3.15 4.2	V
V_{IL}	Maximum Low- Level Input Voltage	V_{OUT} =0.1 V, $|I_{OUT}|\leq$20μA or V_{OUT} = V_{CC}–0.1V	2.0 4.5 6.0	0.5 1.35 1.8	0.5 1.35 1.8	0.5 1.35 1.8	V
V_{OH}	Minimum High-Level Output Voltage	V_{IN} = V_{IH} or V_{IL} $\|I_{OUT}\|\leq$ 20 μA	2.0 4.5 6.0	1.9 4.4 5.9	1.9 4.4 5.9	1.9 4.4 5.9	V
		V_{IN} = V_{IH} or V_{IL}, $\|I_{OUT}\|\leq$ 4.0mA $\|I_{OUT}\|\leq$ 5.2 mA	4.5 6.0	3.98 5.48	3.84 5.34	3.7 5.2	
V_{OL}	Maximum Low Level Output Voltage	V_{IN} = V_{IH} or V_{IL} $\|I_{OUT}\|\leq$ 20 μA	2.0 4.5 6.0	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	V
		V_{IN} = V_{IH} or V_{IL}, $\|I_{OUT}\|\leq$ 4.0mA $\|I_{OUT}\|\leq$ 5.2 mA	4.5 6.0	0.26 0.26	0.33 0.33	0.40 0.40	V
I_{IN}	Maximum Input Leakage Current	V_{IN} = V_{CC} or GND	6.0	±0.1	±1.0	±1.0	μA
I_{CC}	Maximum Quiescent Supply Current (Per Package)	V_{IN} = V_{CC} or GND $\|I_{OUT}\|$=0 μA	6.0	8.0	80	160	μA

AC ELECTRICAL CHARACTERISTICS over full operating conditions(C_L=50pF, Input t_f=t_r=6ns)

Symbol	Parameter	Vcc V	Guaranteed Limit			Unit
			25°C to –55°C	≤85°C	≤125°C	
t_{PLH}	Maximum Propagation Dealy Time, S1-S2 to Q	2.0 4.5 6.0	130 26 22	165 34 28	195 46 34	MHz
t_{PLH}	Maximum Propagation Delay Time, S to Q	2.0 4.5 6.0	100 20 17	125 25 21	150 30 26	ns
t_{PHL}	Maximum Propagation Delay Time, R to Q	2.0 4.5 6.0	120 24 20	150 30 26	180 36 32	ns
t_{TLH}, t_{THL}	Maximum Output Transition Time	2.0 4.5 6.0	75 15 13	95 19 16	110 22 19	ns

279

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V_{CC} V	Guaranteed Limits			Unit
				25°C to −55°C	≤85°C	≤125°C	
V_{IH}	Minimum High-Level Input Voltage	V_{OUT} =0.1 V, $\|I_{OUT}\| \leq 20\mu A$ or $V_{out} = V_{CC}-0.1V$	4.5 5.5	2.0 2.0	2.0 2.0	2.0 2.0	V
V_{IL}	Maximum Low- Level Input Voltage	V_{OUT} =0.1 V, $\|I_{OUT}\| \leq 20\mu A$ or $V_{out} = V_{CC}-0.1V$	4.5 5.5	0.8 0.8	0.8 0.8	0.8 0.8	V
V_{OH}	Minimum High-Level Output Voltage	$V_{IN} = V_{IH}$ or V_{IL} $\|I_{OUT}\| \leq 20\ \mu A$	4.5 5.5	4.4 5.4	4.4 5.4	4.4 5.4	V
		$V_{IN} = V_{IH}$ or V_{IL} $\|I_{OUT}\| \leq 4.0mA$	4.5	3.98	3.84	3.7	
V_{OL}	Maximum Low Level Output Voltage	$V_{IN} = V_{IH}$ or V_{IL} $\|I_{OUT}\| \leq 20\ \mu A$	4.5 5.5	0.1 0.1	0.1 0.1	0.1 0.1	V
		$V_{IN} = V_{IH}$ or V_{IL} $\|I_{OUT}\| \leq 4.0mA$	4.5	0.26	0.33	0.40	V
I_{IN}	Maximum Input Leakage Current	$V_{IN} = V_{CC}$ or GND	6.0	±0.1	±1.0	±1.0	µA
I_{CC}	Maximum Quiescent Supply Current (Per Package)	$V_{IN} = V_{CC}$ or GND $\|I_{OUT}\| = 0\ \mu A$	6.0	4.0	40	160	µA

ΔI_{CC}	Additional Quiescent Suppy Current	V_{IN} =2.4 V, Any one Input $V_{IN}=V_{CC}$ or GND, Other Inputs I_{OUT}=0mA	5.5	> -55°C	25°C to 125°C	mA
				2.9	2.4	

AC ELECTRICAL CHARACTERISTICS over full operating conditions(CL=50 pF, Input $t_f=t_r$=6ns)

Symbol	Parameter	V_{CC} V	Guaranteed Limit			Unit
			25°C to −55°C	≤85°C	≤125°C	
t_{PLH}, t_{PHL}	Maximum Propagation Delay Time, Input A to Output Y	5.0 ±10%	30	38	45	ns
t_{PLH}, t_{PHL}	Maximum Propagation Delay Time, CS1 to OutputY	5.0 ±10%	27	34	41	ns
t_{PLH}, t_{PHL}	Maximum Propagation Delay Time, CS2 orCS3 to Output Y	5.0 ±10%	30	38	45	ns
t_{TLH}, t_{THL}	Maximum Output Transition Time Any Output	5.0 ±10%	15	19	22	ns
C_{IN}	Maximum Input Capacitance	—	10	10	10	pF

C_{PD}	Power Dissipation Capacitance (Per Gate) Used to determine the no-load dynamic power consumption, $P_D = C_{PD} V_{CC}^2 f + I_{CC} V_{CC}$	Typical @ 25°C, V_{CC} = 5 V	pF
		51	

Input and Output Threshold Voltage:
V_T =50% V_{CC} for HC,1.3V for HCT,
V_H = V_{CC} for HC, 3V for HCT