

92D 10449

D T-51-19
Preliminary**HD74HC221A** • Dual Monostable Multivibrators (with Schmitt Trigger Input)

Each multivibrator features both a negative, A, and a positive, B, transition triggered input, either of which can be used as an inhibit. Also included is a clear input that when taken low resets the one shot. The HD74HC221A can be triggered on the positive transition of the clear while A is held low and B is held high.

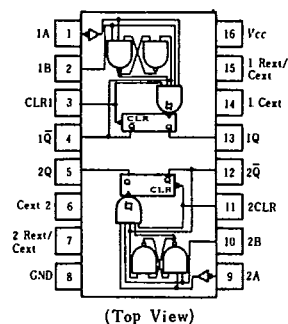
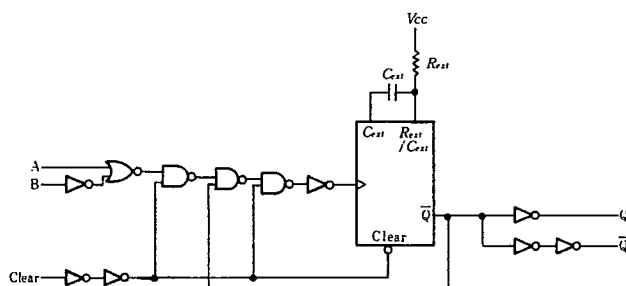
This device is a non-retriggerable, and therefore cannot be retriggered until the output pulse times out.

The output pulse equation is simply:

$$t_W = (R_{EXT}) \cdot (C_{EXT})$$

FEATURES

- High Speed Operation
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC}=2\sim 6V$
- Low Input Current: $1\mu A$ max.
- Low Quiescent Supply Current

PIN ARRANGEMENT**BLOCK DIAGRAM****FUNCTION TABLE**

Inputs			Outputs	
Clear	A	B	Q	$\bar{Q}$
L	X	X	L	H
X	H	X	L	H
X	X	L	L	H
H	L	—	—	—
H	—	H	—	—
—	L	H	—	—

DC CHARACTERISTICS

Item	Symbol	V _{CC} (V)	Test Conditions		T _a = 25°C			T _a = -40~+85°C		Unit	
					min	typ	max	min	max		
Input Voltage	V _{IH}	2.0			1.5	—	—	1.5	—	V	
		4.5			3.15	—	—	3.15	—		
		6.0			4.2	—	—	4.2	—		
	V _{IL}	2.0			—	—	0.5	—	0.5	V	
		4.5			—	—	1.35	—	1.35		
		6.0			—	—	1.8	—	1.8		
Output Voltage	V _{OH}	2.0	V _{ix} = V _{IH} or V _{IL}	I _{OH} = -20μA	1.9	2.0	—	1.9	—	V	
		4.5			4.4	4.5	—	4.4	—		
		6.0			5.9	6.0	—	5.9	—		
		4.5		I _{OH} = -4mA	4.18	—	—	4.13	—		
		6.0			I _{OH} = -5.2mA	5.68	—	—	5.63		—
		6.0				—	—	—	—		
	V _{OL}	2.0	V _{ix} = V _{IH} or V _{IL}	I _{OL} = 20μA	—	0.0	0.1	—	0.1	V	
		4.5			—	0.0	0.1	—	0.1		
		6.0			—	0.0	0.1	—	0.1		
		4.5		I _{OL} = 4mA	—	—	0.26	—	0.33		
		6.0			I _{OL} = 5.2mA	—	—	0.26	—		0.33
		6.0				—	—	—	—		
Input Current	I _{ix}	6.0	V _{ix} = V _{CC} or GND		—	—	±0.1	—	±1.0	μA	
Quiescent Supply Current	I _{CC}	6.0	V _{ix} = V _{CC} or GND, I _{ix} = 0μA		—	—	TBD	—	TBD	μA	

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HD74HC221A

■ AC CHARACTERISTICS ($C_L=50\text{pF}$, Input $t_r=t_f=6\text{ns}$)

Item	Symbol	$V_{CC}(\text{V})$	Test Conditions	$T_a=25^\circ\text{C}$			$T_a=-40\sim+85^\circ\text{C}$		Unit
				min	typ	max	min	max	
Trigger Propagation Delay Time	t_{PLH}	2.0	A, B or Clear to Q	—	—	210	—	265	ns
		4.5		—	—	42	—	53	
		6.0		—	—	36	—	45	
	t_{PHL}	2.0	A, B or Clear to $\bar{Q}$	—	—	240	—	300	ns
		4.5		—	—	48	—	60	
		6.0		—	—	41	—	51	
Propagation Delay Time	t_{PLH}	2.0	Clear to Q	—	—	170	—	215	ns
		4.5		—	—	34	—	43	
		6.0		—	—	29	—	37	
	t_{PHL}	2.0	Clear to $\bar{Q}$	—	—	180	—	225	ns
		4.5		—	—	36	—	45	
		6.0		—	—	31	—	38	
Pulse Width	t_w	2.0	A, B, Clear	80	—	—	100	—	ns
		4.5		16	—	—	20	—	
		6.0		14	—	—	17	—	
Removal Time	t_{rem}	2.0		0	—	—	0	—	ns
		4.5		0	—	—	0	—	
		6.0		0	—	—	0	—	
Minimum Output Pulse Width	$t_{WQ(min)}$	2.0	$C_{ext}=28\text{pF}$	—	1.5	—	—	—	μs
		4.5		—	450	—	—	—	ns
		6.0		—	380	—	—	—	
Output Pulse Width	t_{WQ}	4.5	$C_{ext}=0.1\mu\text{F}$ $R_{ext}=10\text{k}\Omega$	0.9	1.0	1.1	—	—	ms
Output Rise / Fall Time	t_{TLH} t_{THL}	2.0		—	—	75	—	95	ns
		4.5		—	—	15	—	19	
		6.0		—	—	13	—	16	
Input Capacitance	C_{in}	—		—	5	10	—	10	pF

NOTE:

The specifications of this device are subject to change without notice.
Please contact your nearest Hitachi Sales Dept. regarding specifications.



PACKAGE INFORMATION

T-90-20

In the HD74HC series of HS-CMOS logic, either of plastic DIP and small outline packages can be selected.
For your ordering, please refer to the following package code.

● Package code of HS-CMOS Logic

HD74HC XXXXP

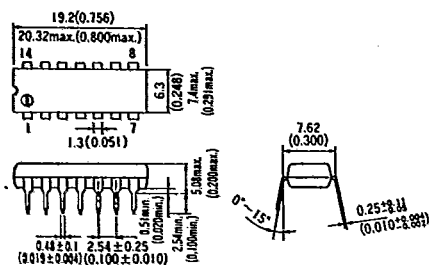
Package code (P : Plastic DIP, FP : Small outline package)
Individual device code
Series code of HS-CMOS logic
Initial code of Hitachi digital IC

■ PLASTIC DIP PACKAGE [Unit: mm (inch), scale: 1/1]

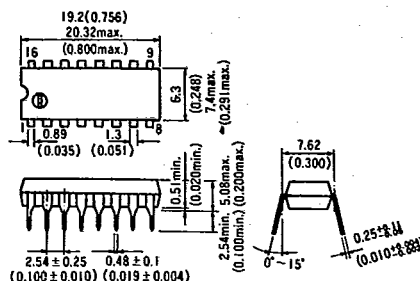
● 14-pin type

● 16-pin type

DP-14



DP-16

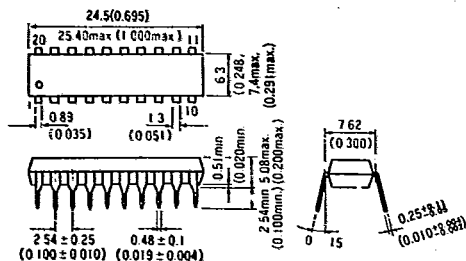


Note) For the present, both packages of 0.89 and 1.3 can be used. Please refer to the Technical Marketing Dept. for further details.

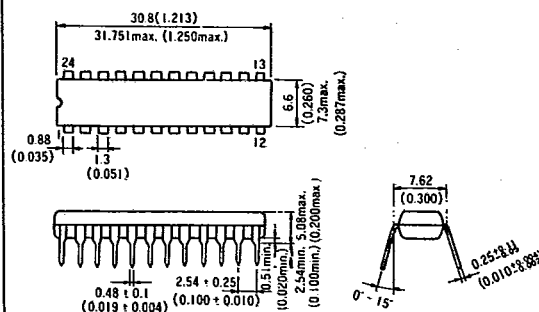
● 20-pin type

● 24-pin type

DP-20N



DP-24N



Note) Because this is under development, the dimensions may be changed partly.

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F-06



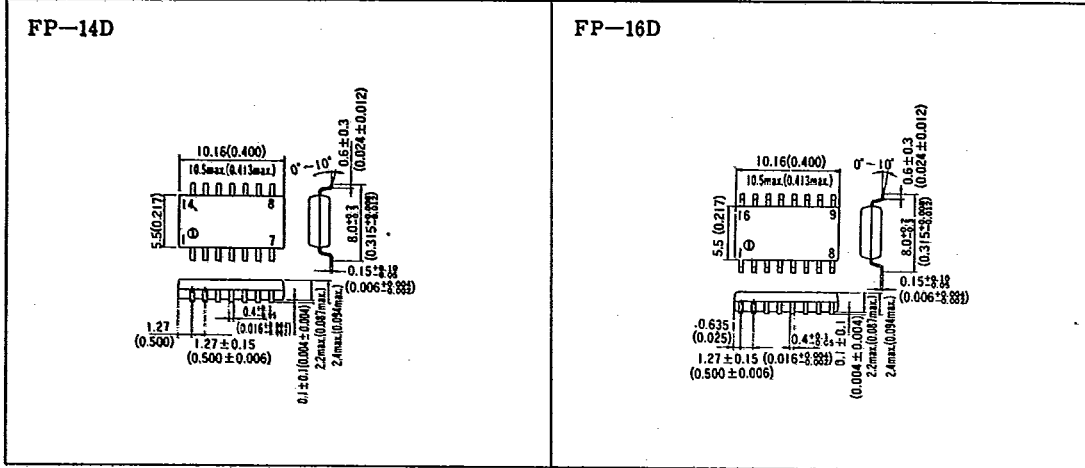
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■ SMALL OUTLINE PACKAGE [Unit: mm (inch), scale: 1½]

● 14-pin type

● 16-pin type



● 20-pin type

