

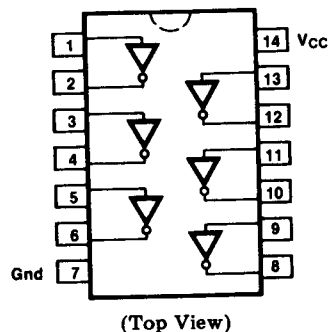
HD74AC14/HD74ACT14 • Hex Inverter Schmitt Trigger

Description

The HD74AC14/HD74ACT14 contains six logic inverters which accept standard CMOS input signals (TTL levels for HD74ACT14) and provide standard CMOS output levels. They are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals. In addition, they have a greater noise margin than conventional inverters.

The HD74AC14/HD74ACT14 has hysteresis between the positive-going and negative-going input thresholds (typically 1.0 V) which is determined internally by transistor ratios and is essentially insensitive to temperature and supply voltage variations.

Pin Assignment



- Outputs Source/Sink 24 mA
- HD74ACT14 has TTL-Compatible Inputs

Function Table

Input	Output
A	O
L	H
H	L

DC Characteristics (unless otherwise specified)

Symbol	Parameter	V _{CC} (V)	HD74AC14	HD74ACT14	Unit	Condition
I _{CC}	Maximum Quiescent Supply Current		40	40	μA	V _{IN} = V _{CC} or Ground, V _{CC} = 5.5 V, T _a = Worst Case
I _{CC}	Maximum Quiescent Supply Current		4.0	4.0	μA	V _{IN} = V _{CC} or Ground, V _{CC} = 5.5 V, T _a = 25°C
I _{CC(T)}	Maximum Additional I _{CC} /Input(HD74ACT14)			1.5	mA	V _{IN} = V _{CC} - 2.1 V, V _{CC} = 5.5 V, T _a = Worst Case
V _{I+}	Maximum Positive Threshold	3.0 4.5 5.5	2.2 3.2 3.9	2.0	V	T _a = Worst Case
V _{I-}	Minimum Negative Threshold	3.0 4.5 5.5	0.5 0.9 1.1	0.8	V	T _a = Worst Case
V _{H(max)}	Maximum Hysteresis	3.0 4.5 5.5	1.2 1.4 1.6	1.2	V	T _a = Worst Case
V _{H(min)}	Minimum Hysteresis	3.0 4.5 5.5	0.3 0.4 0.5	0.4	V	T _a = Worst Case

AC Characteristics: HD74AC14

Symbol	Parameter	V _{CC} * (V)	T _a = +25°C C _L = 50 pF			T _a = -40°C to +85°C C _L = 50 pF		Unit
			Min	Typ	Max	Min	Max	
t _{PLH}	Propagation Delay	3.3 5.0	1.0 1.0	9.5 7.0	13.5 10.0	1.0 1.0	15.0 11.0	ns
t _{PHL}	Propagation Delay	3.3 5.0	1.0 1.0	7.5 6.0	11.5 8.5	1.0 1.0	13.0 9.5	ns

*Voltage Range 3.3 is 3.3 V ± 0.3 V
Voltage Range 5.0 is 5.0 V ± 0.5 V

AC Characteristics: HD74ACT14 PRELIMINARY

Symbol	Parameter	V _{CC} * (V)	T _a = +25°C C _L = 50 pF			T _a = -40°C to +85°C C _L = 50 pF		Unit
			Min	Typ	Max	Min	Max	
t _{PLH}	Propagation Delay	5.0		7.4				ns
t _{PHL}	Propagation Delay	5.0		8.6				ns

*Voltage Range 5.0 is 5.0 V ± 0.5 V

Capacitance

Symbol	Parameter	Typ	Unit	Condition
C _{IN}	Input Capacitance	4.5	pF	V _{CC} = 5.5 V
C _{PD}	Power Dissipation Capacitance	25.0	pF	V _{CC} = 5.0V

Package Information

In the HD74AC series of Advanced CMOS logic, either plastic DIP and small outline packages can be selected.

To order, please refer to the following package code.

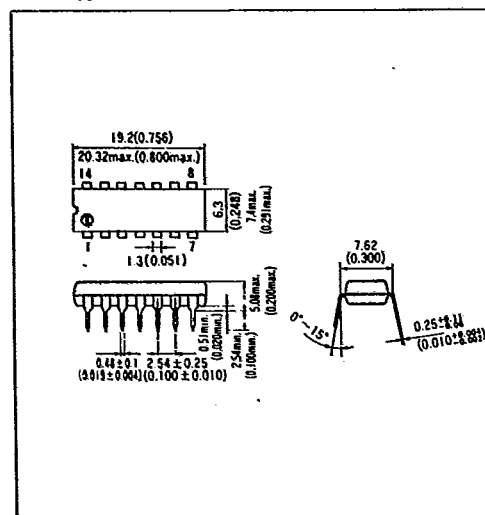
• Package code of Advanced CMOS Logic

HD74AC XXXX P

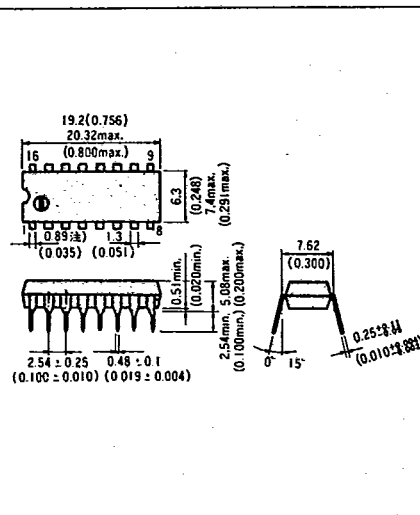
Package code
 P: Plastic DIP,
 FP: Small outline package
 Individual device code
 74AC: Commercial FACT
 74ACT: Commercial
 TTL-Compatible
 Advanced CMOS
 Initial cad of Hitachi
 digital IC

Plastic DIP Package [Unit: mm (inch)]

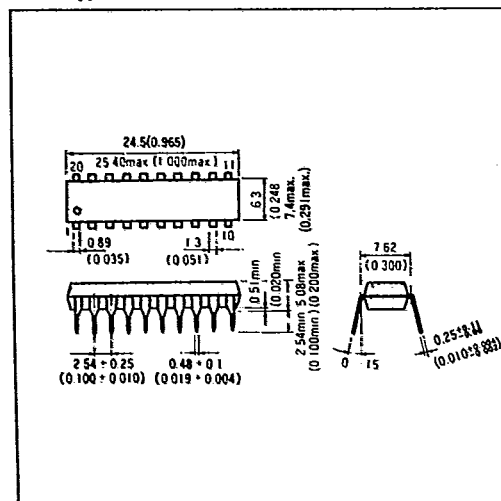
14 Pin type



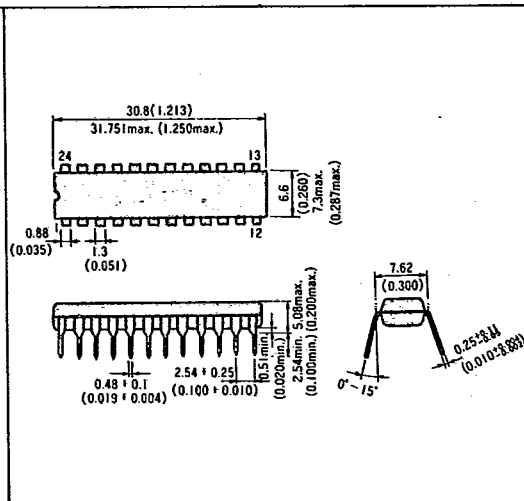
16 Pin type



20 Pin type



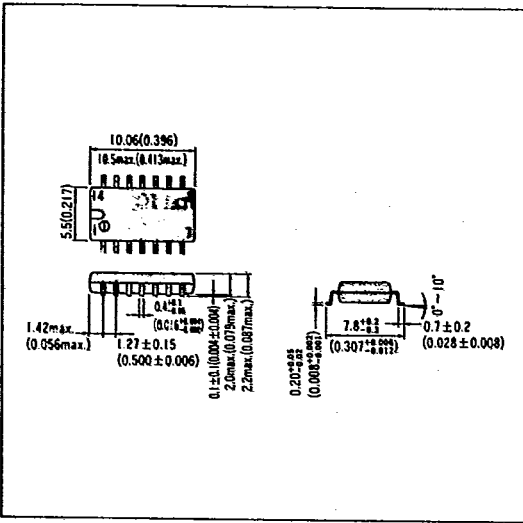
24 Pin type



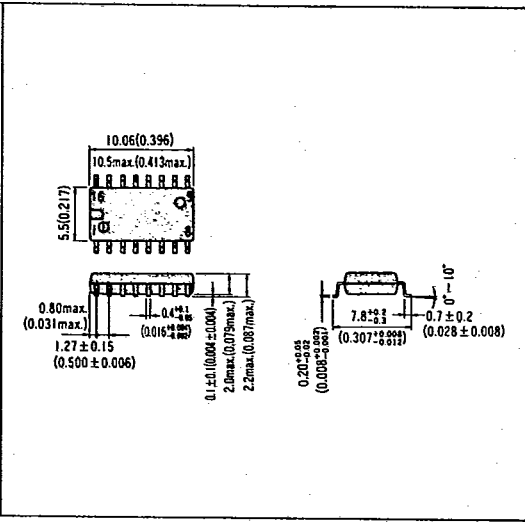
Package Information

Small Outline Package [Unit: mm (inch)]

14 Pin type



16 Pin type



20 Pin type

