MOTOROLA

MC74AC14
MC74ACT14

Product Preview

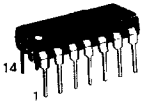
Hex Inverter Schmitt Trigger

HEX INVERTER SCHMITT TRIGGER

The MC74AC14/74ACT14 contains six logic inverters which accept standard CMOS input signals (TTL levels for MC74ACT14) 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 MC74AC14/74ACT14 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.

- Outputs Source/Sink 24 mA
- 'ACT14 Has TTL Compatible Inputs

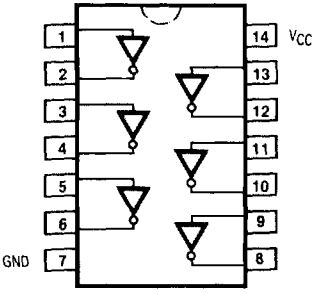


N SUFFIX
CASE 646-06
PLASTIC

D SUFFIX
CASE 751A-02
PLASTIC

FUNCTION TABLE

Input	Output
A	O
L	H
H	L



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This document contains information on a product under development. Motorola reserves the right to change or discontinue this product without notice.

DC CHARACTERISTICS (unless otherwise specified)

Symbol	Parameter	V_{CC} (V)	74AC	74ACT	Units	Test Conditions
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_{CCT}	Maximum Additional I_{CC}/Input ('ACT14)			1.5	mA	$V_{IN} = V_{CC} - 2.1$ V $V_{CC} = 5.5$ V, T_A = Worst Case
V_{t+}	Maximum Positive Threshold	3.0 4.5 5.5	2.2 3.2 3.9	2.0	V	T_A = Worst Case
V_{t-}	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 (Figures and Waveforms — See Section 3)

Symbol	Parameter	V_{CC}* (V)	74AC $T_A = +25°C$, $C_L = 50$ pF			74AC $T_A = -40°C$ to $+85°C$, $C_L = 50$ pF		Units	Fig. No.
			Min	Typ	Max	Min	Max		
t_{PLH}	Propagation Delay	3.3 5.0	1.0 1.0	9.5 7.0	13.5 10	1.0 1.0	15 11	ns	3-5
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 9.5	ns	3-5

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

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AC CHARACTERISTICS (Figures and Waveforms — See Section 3)

Symbol	Parameter	V_{CC}* (V)	74ACT $T_A = +25°C$, $C_L = 50$ pF			74ACT $T_A = -40°C$ to $+85°C$, $C_L = 50$ pF		Units	Fig. No.
			Min	Typ	Max	Min	Max		
t_{PLH}	Propagation Delay	5.0		7.4				ns	3-5
t_{PHL}	Propagation Delay	5.0		8.6				ns	3-5

*Voltage Range 5.0 is 5.0 V ± 0.5 V

CAPACITANCE

Symbol	Parameter	Value Typ	Units	Test Conditions
C_{IN}	Input Capacitance	4.5	pF	$V_{CC} = 5.0$ V
C_{PD}	Power Dissipation Capacitance	25	pF	$V_{CC} = 5.0$ V