54AC/74AC14 • 54ACT/74ACT14
Hex Inverter Schmitt Trigger

Description
The 'AC/'ACT14 contains six logic inverters which accept standard CMOS input signals (TTL levels for 'ACT14) 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 'AC/'ACT14 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.
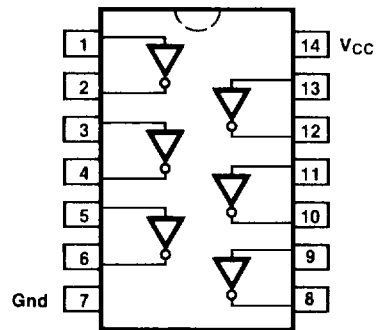
- Outputs Source/Sink 24 mA
- 'ACT14 has TTL-Compatible Inputs

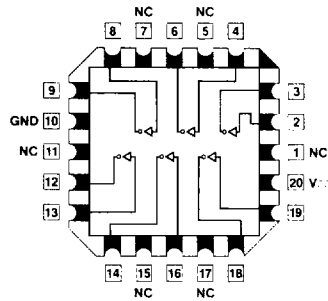**Ordering Code:** See Section 6

Function Table

Input	Output
A	O
L	H
H	L

Connection Diagrams

**Pin Assignment
for DIP, Flatpak and SOIC**

**Pin Assignment
for LCC**

AC14 • ACT14

DC Characteristics (unless otherwise specified)

Symbol	Parameter	Vcc (V)	54AC	54ACT	74AC	74ACT	Units	Conditions
Icc	Maximum Quiescent Supply Current		80	80	40	40	μA	V_{IN} = Vcc or Ground, Vcc = 5.5 V, T_A = Worst Case
Icc	Maximum Quiescent Supply Current		4.0	4.0	4.0	4.0	μA	V_{IN} = Vcc or Ground, Vcc = 5.5 V, T_A = 25°C
Icct	Maximum Additional Icc/Input ('ACT14)			1.6		1.5	mA	V_{IN} = Vcc − 2.1 V Vcc = 5.5 V, T_A = Worst Case
Vt+	Maximum Positive Threshold	3.0 4.5 5.5	2.2 3.2 3.9	2.0	2.2 3.2 3.9	2.0	V	T_A = Worst Case
Vt−	Minimum Negative Threshold	3.0 4.5 5.5	0.5 0.9 1.1	0.8	0.5 0.9 1.1	0.8	V	T_A = Worst Case
Vh(max)	Maximum Hysteresis	3.0 4.5 5.5	1.2 1.4 1.6	1.2	1.2 1.4 1.6	1.2	V	T_A = Worst Case
Vh(min)	Minimum Hysteresis	3.0 4.5 5.5	0.3 0.4 0.5	0.4	0.3 0.4 0.5	0.4	V	T_A = Worst Case

AC Characteristics

Symbol	Parameter	Vcc* (V)	74AC T_A = +25°C C_L = 50 pF			54AC T_A = −55°C to +125°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	Min	Max		
tPLH	Propagation Delay	3.3 5.0	1.0 1.0	9.5 7.0	13.5 10.0	1.0 1.0	16.0 12.0	1.0 1.0	15.0 11.0	ns	3-5
tPHL	Propagation Delay	3.3 5.0	1.0 1.0	7.5 6.0	11.5 8.5	1.0 1.0	14.0 10.0	1.0 1.0	13.0 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

Military parameters given herein are for general references only. For current military specifications and subgroup testing information please request Fairchild's Table I data sheet from your Fairchild sales engineer or account representative.

AC Characteristics

Symbol	Parameter	Vcc* (V)	74ACT TA = +25°C CL = 50 pF			54ACT TA = -55°C to +125°C CL = 50 pF		74ACT TA = -40°C to +85°C CL = 50 pF		Units	Fig. No.
			Min	Typ	Max	Min	Max	Min	Max		
tPLH	Propagation Delay	5.0		7.4						ns	3-5
tPHL	Propagation Delay	5.0		8.6						ns	3-5

*Voltage Range 5.0 is 5.0 V ± 0.5 V

Military parameters given herein are for general references only. For current military specifications and subgroup testing information please request Fairchild's Table I data sheet from your Fairchild sales engineer or account representative.

Capacitance

Symbol	Parameter	54/74AC/ACT Typ	Units	Conditions
CIN	Input Capacitance	4.5	pF	Vcc = 5.5 V
CPD	Power Dissipation Capacitance	25.0	pF	Vcc = 5.5 V