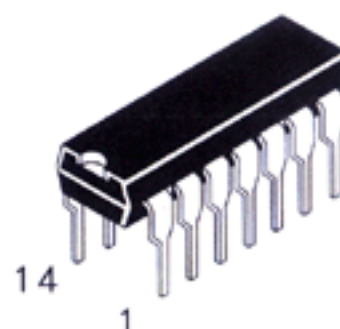


Hex Schmitt-Trigger Inverter

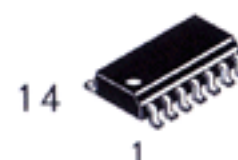
Each of the six circuits in the DV74LS14/ALS14 contain a logic gate/inverter which accepts standard TTL input signals and provides standard TTL output levels. Each circuit is capable of transforming slowly changing input signals into sharply defined, jitter-free output signals. Additionally, they have greater noise margin than conventional inverters.

- AVG's LS operates over extended Vcc from 4.5 to 5.5 V
- AVG's LS and ALS both have guaranteed DC and AC specification over full temperature and Vcc range
- Switching specifications for ALS at 50 pF
- AVG's ALS has the lowest speed power product (4pJ per gate typical) of all logic series

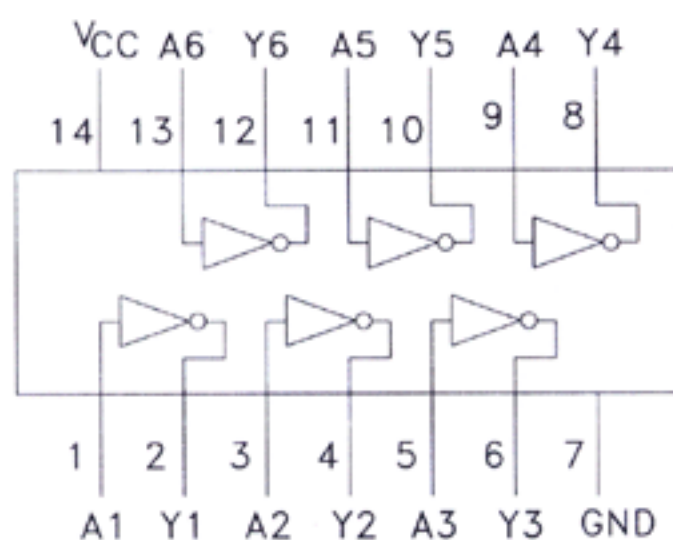
DV74LS14
DV74ALS14



N Suffix
Plastic DIP
AVG-001 Case



D Suffix
Plastic SOP
AVG-002 Case



TRUTH TABLE
 $Y = \bar{A}$

Inputs	Outputs
A	Y
L	H
H	L

H = High Logic Level
L = Low Logic Level

ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	LS14	ALS14	Unit
V _{CC}	Supply Voltage	7.0	7.0	V
V _{IN}	Input Voltage	7.0	7.0	V
T _{STG}	Storage Temperature Range	−65 to +150	−65 to + 150	°C

GUARANTEED OPERATING CONDITIONS

Symbol	Parameter	LS14		ALS14		Unit
		Min	Max	Min	Max	
V _{CC}	Supply Voltage	4.5	5.5	4.5	5.5	V
V _{T+}	Positive Going Threshold Voltage	1.5	2.0	1.5	2.0	V
V _{T−}	Negative Going Threshold Voltage	0.6	1.1	0.6	1.1	V
V _H	Input Hysteresis	0.4	0.9	0.4	0.9	V
I _{OH}	High Level Output Current		−0.4		−0.4	mA
I _{OL}	Low Level Output Current		8.0		8.0	mA
T _A	Ambient Temperature Range	−10 to +70		−10 to + 70		°C

DC ELECTRICAL CHARACTERISTICS over full operating conditions

Symbol	Parameter	Conditions	LS14			ALS14			Unit
			Min	Typ	Max	Min	Typ	Max	
V_{IK}	Input Clamp Voltage	$V_{CC} = \text{min}, I_{IN} = -18 \text{ mA}$			-1.5			-1.5	V
V_{OH}	High Level Output Voltage	$V_{CC} = \text{min}, I_{OH} = \text{max}$	$V_{CC} - 2$	3.5		$V_{CC} - 2$			V
V_{OL}	Low Level Output Voltage	$V_{CC} = \text{min}; I_{OL} = 4 \text{ mA}$ $V_{CC} = \text{min}; I_{OL} = 8 \text{ mA}$		0.25 0.35	0.4 0.5		0.25 0.35	0.4 0.5	V
I_{T+}	Input Current at Positive-Going Threshold Voltage	$V_{CC} = 5V, V_I = V_{T+}$			20			20	μA
I_{T-}	Input Current at Negative-Going Threshold Voltage	$V_{CC} = 5V, V_I = V_{T-}$			-100			-100	μA
I_{IH}	High Level Input Current	$V_{CC} = \text{max}, V_{IN} = 2.7V$ $V_{CC} = \text{max}, V_{IN} = 7V$			20 0.1			20 0.1	μA mA
I_{IL}	Low Level Input Current	$V_{CC} = \text{max}, V_{IN} = 0.4V$			-0.4			-0.1	mA
I_{OS}	Output Short Circuit Current	$V_{CC} = \text{max}, V_{OUT} = 2.25 \text{ V}$	-20		-110	-30		-112	mA
I_{CC}	Supply Current Outputs High Outputs Low	$V_{CC} = \text{max}$			16 21			12 12	mA

SWITCHING CHARACTERISTICS over full operating conditions

Symbol	Parameter	From	To	LS14 $CL = 15 \text{ pF}$		ALS14 $CL = 50 \text{ pF}$ $RL = 500 \Omega$		Unit
				Min	Max	Min	Max	
t_{PLH}	Propagation Delay Time, Low to High Level Output	Input	Output		22	2	12	ns
t_{PHL}	Propagation Delay Time, High to Low Level Output	Input	Output		22	2	10	ns

SWITCHING WAVEFORMS