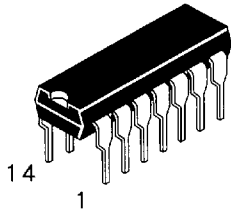


Hex Unbuffered Inverter

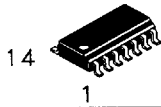
These devices contains six independent three-stage inverters, each of which performs the logic INVERT function. These devices are suited for oscillators and other applications requiring high impedance input.

- **Output Drive Capability:** 10 LSTTL Loads
- **Outputs Directly Interface to CMOS, NMOS, and TTL**
- **Operating Voltage Range:** 2 to 6 V
- **Low Input Current:** 1 μ A
- **DC, AC parameters guaranteed from -55°C to 125°C**

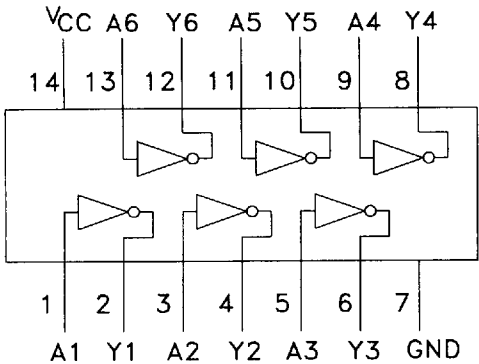
DV74HCU04



N Suffix
Plastic DIP
AVG-001 Case



D Suffix
Plastic SOP
AVG-002 Case



TRUTH TABLE
Y = 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	Value	Unit
V _{CC}	DC Supply Voltage (Referenced to GND)	-0.5 to +7.0	V
V _{IN}	DC Input Voltage (Referenced to GND)	-1.5 to V _{CC} +1.5	V
V _{OUT}	DC Output Voltage (Referenced to GND)	-0.5 to V _{CC} +0.5	V
I _{IN}	DC Input Current, per Pin	± 20	mA
I _{OUT}	DC Output Current, per Pin	± 25	mA
I _{CC}	DC Supply Current, V _{CC} and GND Pins	± 50	mA
P _D	Power Dissipation in Still Air, Plastic DIP SOP Package	750 500	mW
T _{STG}	Storage Temperature Range	-65 to +150	°C
TL	Lead Temperature, 1mm from Case for 10 Seconds	260	°C

GUARANTEED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V _{CC}	DC Supply Voltage (Referenced to GND)	2.0	6.0	V
V _{IN} -V _{OUT}	DC Input Voltage, Output Voltage (Referenced to GND)	0	V _{CC}	V
T _A	Ambient Temperature	-55	+125	°C
t _r - t _f	Input Rise and Fall Time		No limit	ns

DC ELECTRICAL CHARACTERISTICS

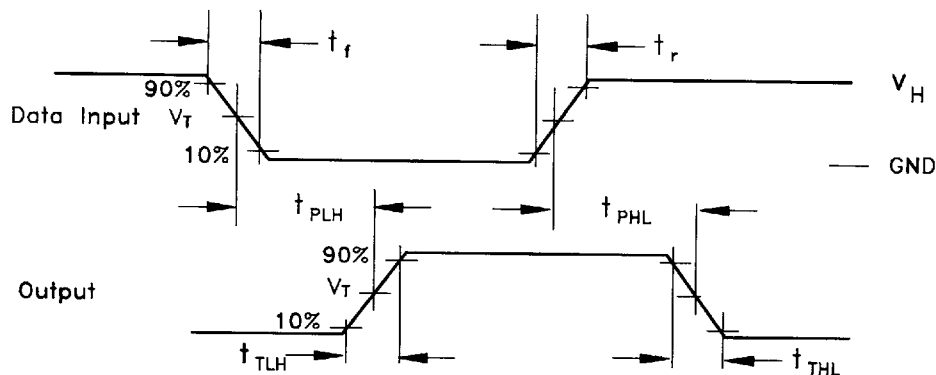
Symbol	Parameter	Conditions	V _{CC} V	Guaranteed Limits			Unit
				25°C to -55°C	≤85°C	≤125°C	
V _{IH}	High Level Input Voltage	I _{OUT} ≤ 20 μA V _{OUT} = 0.2V V _{OUT} = 0.5V V _{OUT} = 0.5V	2.0 4.5 6.0	1.7 3.6 4.8	1.7 3.6 4.8	1.7 3.6 4.8	V
V _{IL}	Low Level Input Voltage	I _{OUT} ≤ 20 μA V _{OUT} = 1.8V V _{OUT} = 4.0V V _{OUT} = 5.5V	2.0 4.5 6.0	0.3 0.8 1.1	0.3 0.8 1.1	0.3 0.8 1.1	V
V _{OH}	Minimum High Level Output Voltage	V _{IN} = GND I _{OUT} < 20 mA	2.0 4.5 6.0	1.8 4.0 5.5	1.8 4.0 5.5	1.8 4.0 5.5	V
		V _{IN} = GND, I _{OUT} < 4.0 mA I _{OUT} < 5.2 mA	4.5 6.0	3.86 5.36	3.76 5.26	3.70 5.20	V
V _{OL}	Maximum Low Level Output Voltage	V _{IN} = V _{CC} I _{OUT} ≤ 20 μA	2.0 4.5 6.0	0.2 0.5 0.5	0.2 0.5 0.5	0.2 0.5 0.5	V
		V _{IN} = V _{CC} I _{OUT} < 4.0 mA I _{OUT} < 5.2 mA	4.5 6.0	0.32 0.32	0.37 0.37	0.40 0.40	V
I _{IN}	Maximum Input Leakage Current	V _{IN} = V _{CC} or GND	6.0	± 0.1	± 1.0	± 1.0	μA
I _{CC}	Maximum Quiescent Supply Current	V _{IN} = V _{CC} or GND I _{OUT} ≤ 0 μA	6.0	2	20	40	μA

SWITCHING CHARACTERISTICS over full operating conditions (C_L = 50 pF, Input t_r = t_f = 6ns)

Symbol	Parameter	V _{CC} V	Guaranteed Limit			Unit
			25°C to -55°C	≤85°C	≤125°C	
t _{PLH} , t _{PHL}	Propagation Delay Time, Input A To Output Y	2.0 4.5 6.0	80 16 14	100 20 17	120 24 20	ns
t _{TLH} , t _{THL}	Output Transition Time Any Output	2.0 4.5 6.0	75 15 13	95 19 16	110 22 19	ns
C _{IN}	Maximum Input Capacitance	—	10	10	10	pF

CPD	Power Dissipation Capacitance (Per Inverter) Used to determine the no-load dynamic power consumption, $P_D = C_{PD} V_{CC}^2 f + I_{CC} V_{CC}$	Typical @ 25°C, $V_{CC} = 5\text{ V}$	pF
		15	

SWITCHING WAVEFORMS



Input and Output threshold voltage, V_T = 50% V_{CC} for HC; 1.3V for HCT
V_H = V_{CC} for HC, 3V for HCT

U04