

7406, 07 Inverter/Buffer/Drivers

'06 Hex Inverter Buffer/Driver (Open Collector)

'07 Hex Buffer/Driver (Open Collector)

Product Specification

Logic Products

TYPE	TYPICAL PROPAGATION DELAY	TYPICAL SUPPLY CURRENT (TOTAL)
7406	10ns (t_{PLH}) 15ns (t_{PHL})	31mA
7407	6ns (t_{PLH}) 20ns (t_{PHL})	25mA

ORDERING CODE

PACKAGES	COMMERCIAL RANGE $V_{CC} = 5V \pm 5\%$; $T_A = 0^\circ C$ to $+70^\circ C$
Plastic DIP	N7406N, N7407N
Plastic SO	N7406D, N7407D

NOTE:

For information regarding devices processed to Military Specifications, see the Signetics Military Products Data Manual.

FUNCTION TABLE

'06		'07	
INPUT	OUTPUT	INPUT	OUTPUT
A	Y	A	Y
H	L	H	H
L	H	L	L

H = HIGH voltage level

L = LOW voltage level

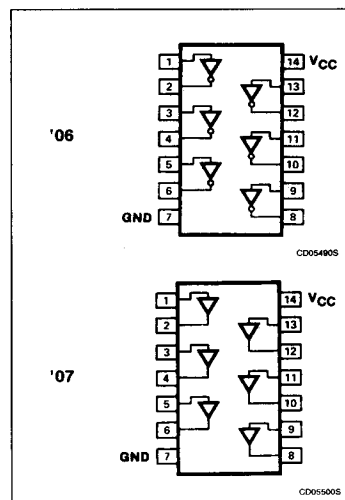
INPUT AND OUTPUT LOADING AND FAN-OUT TABLE

PINS	DESCRIPTION	74
A	Input	1ul
Y	Output	10ul

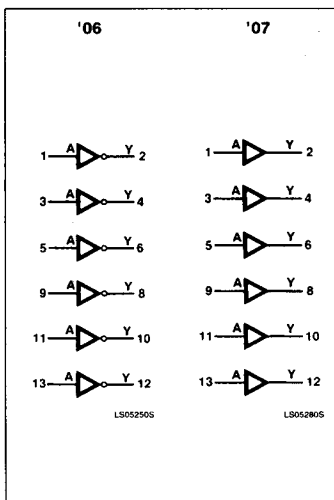
NOTE:

Where a 74 unit load (ul) is understood to be $40\mu A$ I_{IH} and $-1.6mA$ I_{IL} .

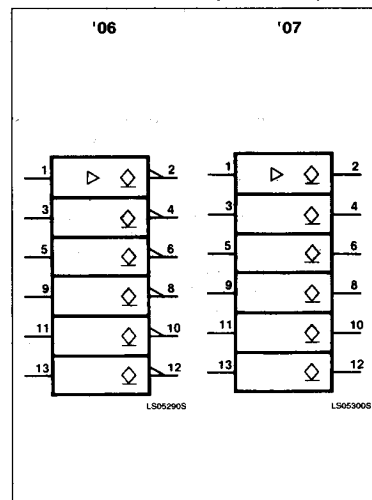
PIN CONFIGURATION



LOGIC SYMBOL



LOGIC SYMBOL (IEEE/IEC)



December 4, 1985

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853-0506 81501

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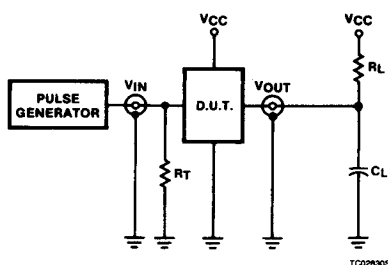
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ABSOLUTE MAXIMUM RATINGS (Over operating free-air temperature range unless otherwise noted.)

PARAMETER	74	UNIT
V_{CC} Supply voltage	7.0	V
V_{IN} Input voltage	-0.5 to +5.5	V
I_{IN} Input current	-30 to +5	mA
V_{OUT} Voltage applied to output in HIGH output state	-0.5 to +30	V
T_A Operating free-air temperature range	0 to 70	°C

RECOMMENDED OPERATING CONDITIONS

PARAMETER	74			UNIT
	Min	Nom	Max	
V_{CC} Supply voltage	4.75	5.0	5.25	V
V_{IH} HIGH-level input voltage	2.0			V
V_{IL} LOW-level input voltage			+0.8	V
I_{IK} Input clamp current			-12	mA
V_{OH} HIGH-level output voltage			30	V
I_{OL} LOW-level output current			40	mA
T_A Operating free-air temperature	0		70	°C

TEST CIRCUITS AND WAVEFORMS**Test Circuit For 74 Open Collectors Outputs****DEFINITIONS**

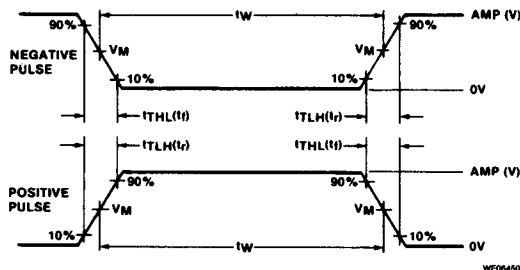
R_L = Load resistor to V_{CC} ; see AC CHARACTERISTICS for value.

C_L = Load capacitance includes jig and probe capacitance; see AC CHARACTERISTICS for value.

R_T = Termination resistance should be equal to Z_{OUT} of Pulse Generators.

D = Diodes are 1N916, 1N3064, or equivalent.

t_{TLH} , t_{THL} Values should be less than or equal to the table entries.



$V_M = 1.3V$ for 74LS; $V_M = 1.5V$ for all other TTL families.

Input Pulse Definition

FAMILY	INPUT PULSE REQUIREMENTS				
	Amplitude	Rep. Rate	Pulse Width	t_{TLH}	t_{THL}
74	3.0V	1MHz	500ns	7ns	7ns
74LS	3.0V	1MHz	500ns	15ns	6ns
74S	3.0V	1MHz	500ns	2.5ns	2.5ns

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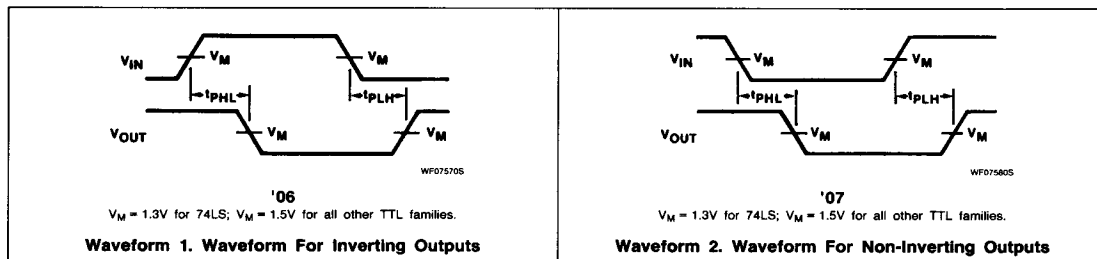
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DC ELECTRICAL CHARACTERISTICS (Over recommended operating free-air temperature range unless otherwise noted.)

PARAMETER		TEST CONDITIONS ¹		7406, 7407			UNIT
				Min	Typ ²	Max	
I _{OH}	HIGH-level output current	V _{CC} = MIN, V _{IH} = MIN, V _{IL} = MAX, V _{OH} = 30V				250	μA
V _{OL}	LOW-level output voltage	V _{CC} = MIN, V _{IH} = MIN, V _{IL} = MAX	I _{OL} = 16mA			0.4	V
			I _{OL} = 30mA			0.7	V
			I _{OL} = 40mA			0.7	V
V _{IK}	Input clamp voltage	V _{CC} = MIN, I _I = I _{IK}				-1.5	V
I _I	Input current at maximum input voltage	V _{CC} = MAX, V _I = 5.5V				1.0	mA
I _{IH}	HIGH-level input current	V _{CC} = MAX, V _I = 2.4V				40	μA
I _{IL}	LOW-level input current	V _{CC} = MAX, V _I = 0.4V				-1.6	mA
I _{CC}	Supply current (total)	V _{CC} = MAX	I _{CCH} Outputs HIGH	'06	30	48	mA
			I _{CCL} Outputs LOW		32	51	mA
			I _{CCH} Outputs HIGH	'07	29	41	mA
			I _{CCL} Outputs LOW		21	30	mA

NOTES:

- For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable type.
- All typical values are at $V_{CC} = 5\text{V}$, $T_A = 25^\circ\text{C}$.

AC WAVEFORMS**AC ELECTRICAL CHARACTERISTICS** $T_A = 25^\circ\text{C}$, $V_{CC} = 5.0\text{V}$

PARAMETER		TEST CONDITIONS	7406		7407		UNIT
			$C_L = 15\text{pF}, R_L = 110\Omega$		$C_L = 15\text{pF}, R_L = 110\Omega$		
			Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation delay	Waveform 1, '06 Waveform 2, '07		15 23		10 30	ns