

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

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

NOTE:

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

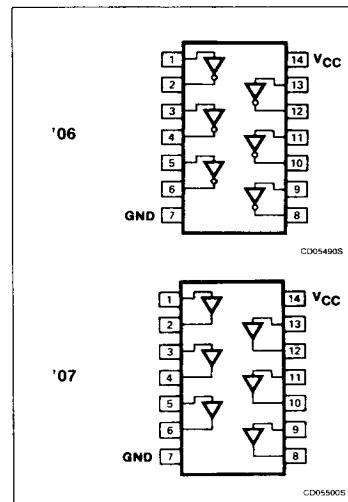
INPUT AND OUTPUT LOADING AND FAN-OUT TABLE

PINS	DESCRIPTION	74
A	Input	1ul
Y	Output	10ul

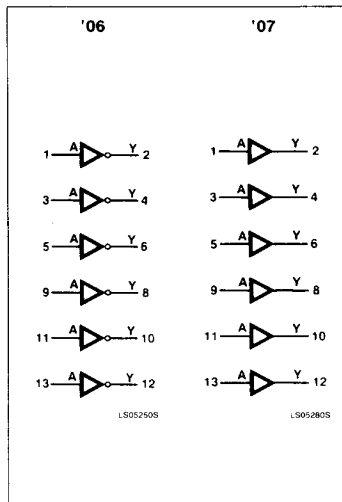
NOTE:

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

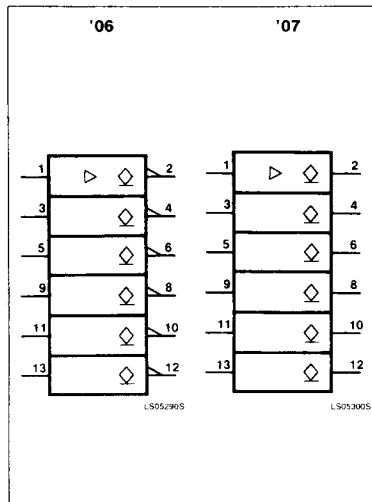
PIN CONFIGURATION



LOGIC SYMBOL



LOGIC SYMBOL (IEEE/IEC)



Inverter/Buffer/Drivers

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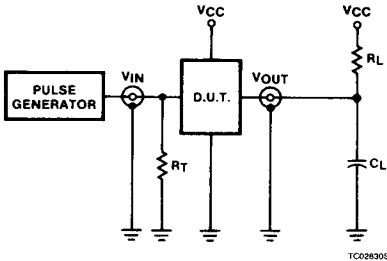
ABSOLUTE MAXIMUM RATINGS (Over operating free-air temperature range unless otherwise noted.)

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

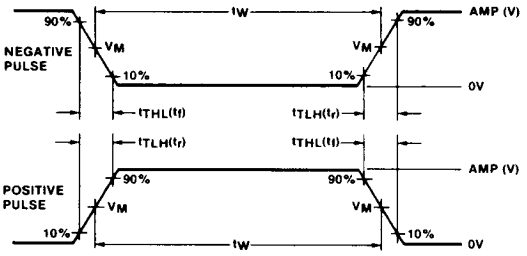
RECOMMENDED OPERATING CONDITIONS

PARAMETER	74			UNIT
	Min	Nom	Max	
V _{CC}	4.75	5.0	5.25	V
V _{IH}	2.0			V
V _{IL}			+0.8	V
I _{IK}			−12	mA
V _{OH}			30	V
I _{OL}			40	mA
T _A	0		70	°C

TEST CIRCUITS AND WAVEFORMS



Test Circuit For 74 Open Collectors Outputs



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

Input Pulse Definition

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

FAMILY	INPUT PULSE REQUIREMENTS				
	Amplitude	Rep. Rate	Pulse Width	t _{THL}	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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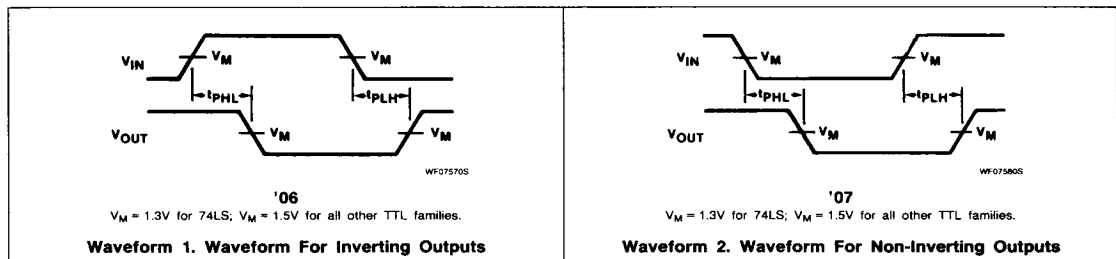
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DC ELECTRICAL CHARACTERISTICS (Over recommended operating free-air temperature range unless otherwise noted.)

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 _{CC} H Outputs HIGH	'06		30	48	mA
			I _{CC} L Outputs LOW			32	51	mA
			I _{CC} H Outputs HIGH	'07		29	41	mA
			I _{CC} L 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 $V_{CC} = 5V$, $T_A = 25^\circ C$.

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

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}	Propagation delay	Waveform 1, '06		15		10	ns
t_{PHL}		Waveform 2, '07		23		30	