

## 74LS266 Gate

Quad 2-Input Exclusive-NOR Gate (Open Collector)  
*Product Specification*

Logic Products

TYPE	TYPICAL PROPAGATION DELAY	TYPICAL SUPPLY CURRENT (TOTAL)
74LS266	18ns	8mA

### FUNCTION TABLE

INPUTS		OUTPUT
A	B	Y
L	L	H
L	H	L
H	L	L
H	H	H

H = HIGH voltage level  
L = LOW voltage level

### ORDERING CODE

PACKAGES	COMMERCIAL RANGE $V_{CC} = 5V \pm 5\%$ ; $T_A = 0^\circ C$ to $+70^\circ C$
Plastic DIP	N74LS266N

**NOTE:**

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

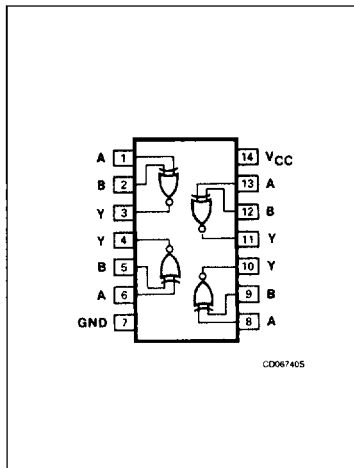
### INPUT AND OUTPUT LOADING AND FAN-OUT TABLE

PINS	DESCRIPTION	74LS
A, B	Inputs	2LSul
Y	Output	10LSul

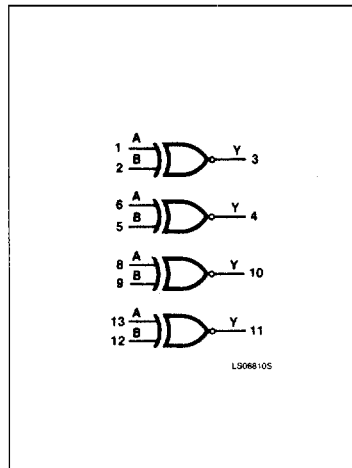
**NOTE:**

A 74LS unit load (LSul) is  $20\mu A$   $I_{IH}$  and  $-0.4mA$   $I_{IL}$ .

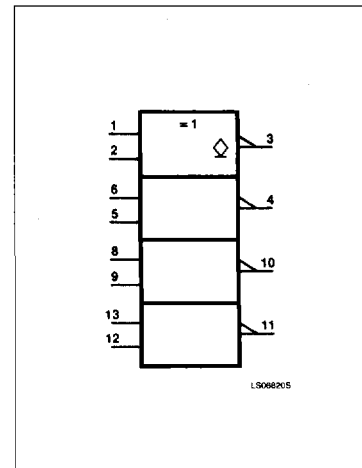
### PIN CONFIGURATION



### LOGIC SYMBOL



### LOGIC SYMBOL (IEEE/IEC)



## Gate

74LS266

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

PARAMETER		74LS	UNIT
$V_{CC}$	Supply voltage	7.0	V
$V_{IN}$	Input voltage	-0.5 to +7.0	V
$I_{IN}$	Input current	-30 to +1	mA
$V_{OUT}$	Voltage applied to output in HIGH output state	-0.5 to + $V_{CC}$	V
$T_A$	Operating free-air temperature range	0 to 70	°C

**RECOMMENDED OPERATING CONDITIONS**

PARAMETER		74LS			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			-18	mA
$V_{OH}$	HIGH-level output voltage			5.5	V
$I_{OL}$	LOW-level output current			8	mA
$T_A$	Operating free-air temperature	0		70	°C

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

PARAMETER	TEST CONDITIONS <sup>1</sup>	74LS266			UNIT
		Min	Typ <sup>2</sup>	Max	
$I_{OH}$	HIGH-level output current $V_{CC} = \text{MIN}, V_{IH} = \text{MIN}, V_{IL} = \text{MAX}, V_{OH} = 5.5V$			100	$\mu\text{A}$
$V_{OL}$	LOW-level output voltage $V_{CC} = \text{MIN}, V_{IH} = \text{MIN}, V_{IL} = \text{MAX}$		0.35	0.5	V
			0.25	0.4	V
$V_{IK}$	Input clamp voltage $V_{CC} = \text{MIN}, I_I = I_{IK}$			-1.5	V
$I_I$	Input current at maximum input voltage $V_{CC} = \text{MAX}, V_I = 7.0V$			0.2	mA
$I_{IH}$	HIGH-level input current $V_{CC} = \text{MAX}, V_I = 2.7V$			40	$\mu\text{A}$
$I_{IL}$	LOW-level input current $V_{CC} = \text{MAX}, V_I = 0.4V$			-0.8	mA
$I_{CC}$	Supply current <sup>4</sup> (total) $V_{CC} = \text{MAX}$		8	13	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  $V_{CC} = 5V, T_A = 25^\circ\text{C}$ .
- $I_{OS}$  is tested with  $V_{OUT} = +0.5V$  and  $V_{CC} = V_{CC} \text{ MAX} + 0.5V$ . Not more than one output should be shorted at a time and duration of the short circuit should not exceed one second.
- Measure  $I_{CC}$  with one input of each gate at 4.5V, the other inputs grounded and the outputs open.

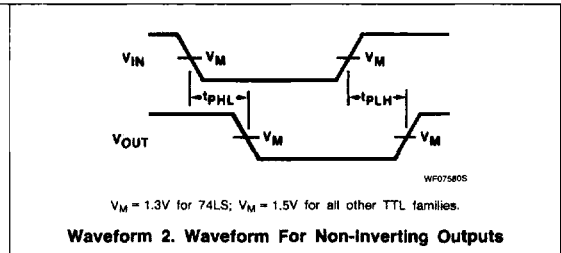
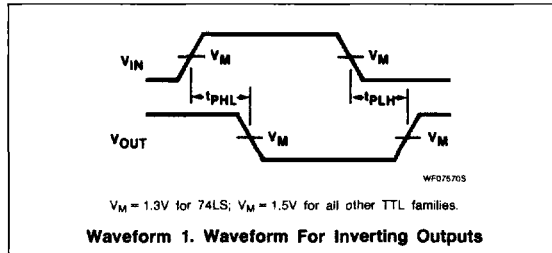
**AC ELECTRICAL CHARACTERISTICS**  $T_A = 25^\circ\text{C}, V_{CC} = 5.0V$ 

PARAMETER		TEST CONDITIONS	74LS		UNIT
			$C_L = 15pF, R_L = 2k\Omega$		
			Min	Max	
$t_{PLH}$ $t_{PHL}$	Propagation delay A or B to output	Waveform 1, other input LOW		30 30	ns
$t_{PLH}$ $t_{PHL}$	Propagation delay A or B to output			30 30	
		Waveform 2, other input HIGH			

# Gate

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## AC WAVEFORMS



## TEST CIRCUITS AND WAVEFORMS

10028305

**Test Circuit For 74 Open Collector 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.  
 $t_{TLH}$ ,  $t_{THL}$  Values should be less than or equal to the table entries.

WF064505

**Input Pulse Definition**

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

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