

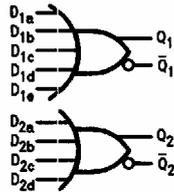
11C01 Dual 5-4 Input OR/NOR Gate

General Description

The 11C01 is a voltage-compensated ECL dual 5-4 input OR/NOR gate. The circuit has standard internal voltage compensation with DC parameters identical to 10K ECL devices.

Ordering Code: See Section 6

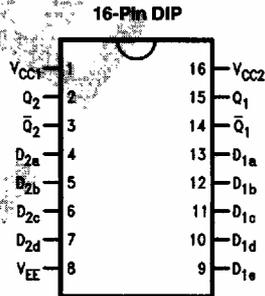
Logic Symbol



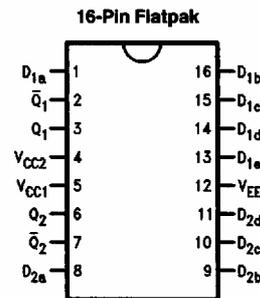
TL/F/9888-2

Pin Names	Description
D _{1a} -D _{1e} , D _{2a} -D _{2d}	Data Inputs
Q ₁ , Q ₁ [̄] , Q ₂ , Q ₂ [̄]	Outputs

Connection Diagrams



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Truth Tables

In					Out	
D _{1a}	D _{1b}	D _{1c}	D _{1d}	D _{1e}	Q ₁	Q ₁ [̄]
L	L	L	L	L	L	H
H	X	X	X	X	H	L
X	H	X	X	X	H	L
X	X	H	X	X	H	L
X	X	X	H	X	H	L
X	X	X	X	H	H	L

In				Out	
D _{2a}	D _{2b}	D _{2c}	D _{2d}	Q ₂	Q ₂ [̄]
L	L	L	L	L	H
H	X	X	X	H	L
X	H	X	X	H	L
X	X	H	X	H	L
X	X	X	H	H	L

H = HIGH Voltage Level
L = LOW Voltage Level
X = Don't Care

Absolute Maximum Ratings

Above which the useful life may be impaired

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Storage Temperature	-65°C to +150°C
Maximum Junction Temperature (T _J)	+150°C
Supply Voltage Range	-7.0V to GND
Input Voltage (DC)	V _{EE} to GND
Output Current (DC Output HIGH)	-50 mA
Operating Range	-5.5V to -4.75V
Lead Temperature (Soldering, 10 sec.)	300°C

Recommended Operating Conditions

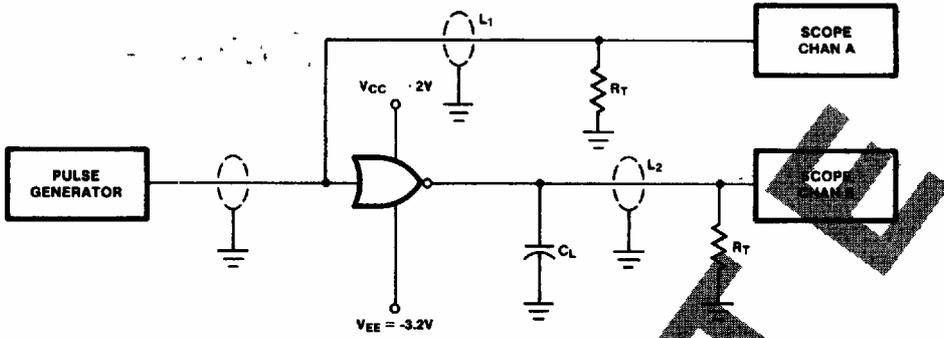
	Min	Typ	Max	Units
Supply Voltage (V _{EE})	-5.5	-5.2	-4.75	V
Ambient Temperature (T _A)	0		+75	°C

DC Electrical CharacteristicsV_{EE} = -5.2V, V_{CC} = GND

Symbol	Parameter	Min	Typ	Max	Units	T _A	Conditions
V _{OH}	Output Voltage HIGH	-1000 -960 -900		-840 -810 -720	mV	0°C +25°C +75°C	V _{IN} = V _{IH(Max)} or V _{IL(Min)} per Truth Table Loading is 50Ω to -2.0V
V _{OL}	Output Voltage LOW	-1870 -1850 -1830		-1665 -1650 -1625	mV	0°C +25°C +75°C	
V _{OHC}	Output Voltage HIGH	-1020 -980 -920			mV	0°C +25°C +75°C	
V _{OLC}	Output Voltage LOW			-1645 -1630 -1605	mV	0°C +25°C +75°C	
V _{IH}	Input Voltage HIGH	-1145 -1105 -1045		-840 -810 -720	mV	0°C +25°C +75°C	Guaranteed Input Voltage HIGH for All Inputs
V _{IL}	Input Voltage LOW	-1870 -1850 -1830		-1490 -1475 -1450	mV	0°C +25°C +75°C	Guaranteed Input Voltage LOW for All Inputs
I _{IH}	Input Current HIGH			350	μA	+25°C	V _{IN} = V _{IH(Max)}
I _{IL}	Input Current LOW	0.5			μA	+25°C	V _{IN} = V _{IL(Min)}
I _{EE}	Power Supply Current	-30	-24		mA	+25°C	Inputs and Outputs Open

AC Electrical CharacteristicsV_{EE} = -5.2V, T_A = +25°C

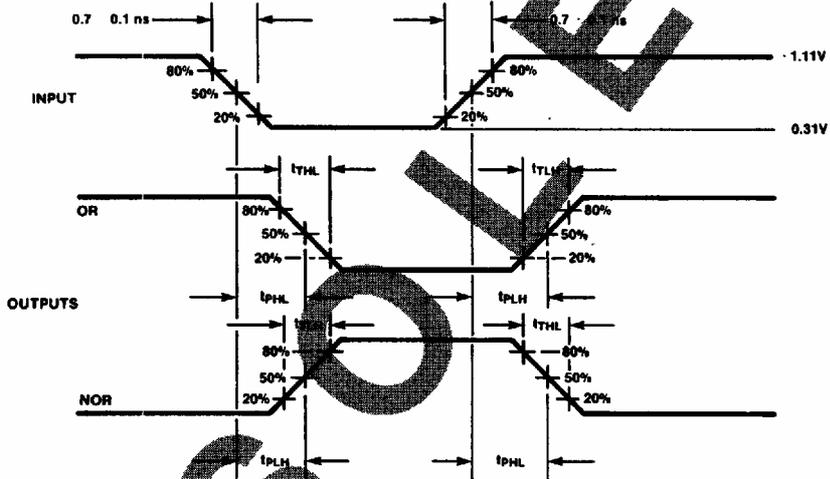
Symbol	Parameter	Flatpak			DIP			Units	Conditions
		Min	Typ	Max	Min	Typ	Max		
t _{PLH}	Propagation Delay LOW to HIGH	0.45	0.7	0.95	0.60	0.90	1.15	ns	See Figure 1
t _{PHL}	Propagation Delay HIGH to LOW	0.45	0.7	0.95	0.60	0.90	1.15	ns	
t _{TLH}	Output Transition Time LOW to HIGH (20% to 80%)		0.7	0.95		0.90	1.15	ns	
t _{THL}	Output Transition Time HIGH to LOW (80% to 20%)		0.7	0.95		0.90	1.15	ns	



Notes:

- L1 and L2 = equal length 50Ω impedance lines
- $R_T = 50\Omega$ Termination of scope
- Decoupling 0.1 μF from GND to V_{EE} and V_{CC}
- $C_L \leq 3$ pF

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Notes:

- Jig setup with no circuit under test
- $V_{CC1} = V_{CC2} = +2.0V$
- $V_{EE} = -3.2V$

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FIGURE 1. Switching Circuit and Waveforms

OBSOLETE