

11C01 Dual 5-4 Input OR/NOR Gate

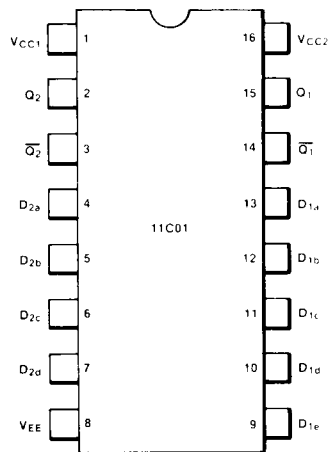
11C ECL Product

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.

Connection Diagrams

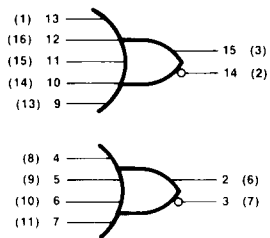
16-Pin DIP (Top View)



Pin Names

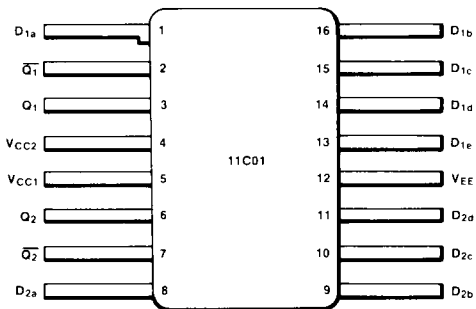
D_{1a} - D_{1e} , D_{2a} - D_{2d} Data Inputs
 Q_1 , $\overline{Q_1}$, Q_2 , $\overline{Q_2}$ Outputs

Logic Symbol



V_{CC1} = Pin 1 (5)
 V_{CC2} = Pin 16 (4)
 V_{EE} = Pin 8 (12)
 () = Flatpak

16-Pin Flatpak (Top View)



Ordering Information

Package	Outline	Order Code
Ceramic DIP	4J	DC
Flatpak	3L	FC

11C01

Absolute Maximum Ratings

Above which the useful life may be impaired

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

Guaranteed Operating Ranges

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

D C Characteristics: V_{EE} = -5.2V, V_{CC} = GND

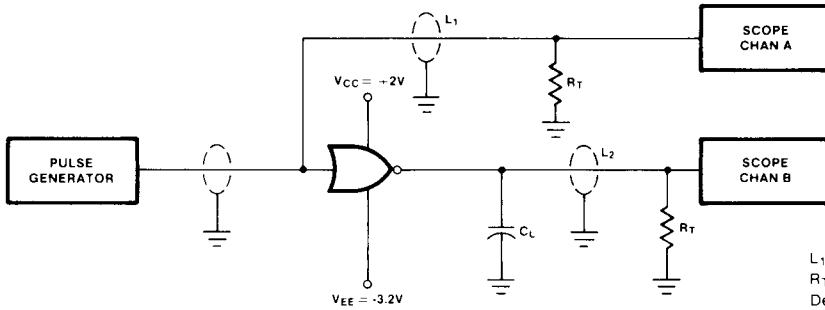
Symbol	Characteristic	Min	Typ	Max	Unit	T _A	Condition
V _{OH}	Output Voltage HIGH	-1000 -960 -900		-840 -810 -720	mV	0°C +25°C -75°C	V _{IN} = V _{IH(Max)} or V _{IL(Min)} per Truth Table
V _{OL}	Output Voltage LOW	-1870 -1850 -1830		-1665 -1650 -1625	mV	0°C -25°C +75°C	
V _{OHC}	Output Voltage HIGH	-1020 -980 -920			mV	0°C -25°C -75°C	V _{IN} = V _{IH(Min)} or V _{IL(Max)} per Truth Table
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

Loading is 50Ω to -2.0V

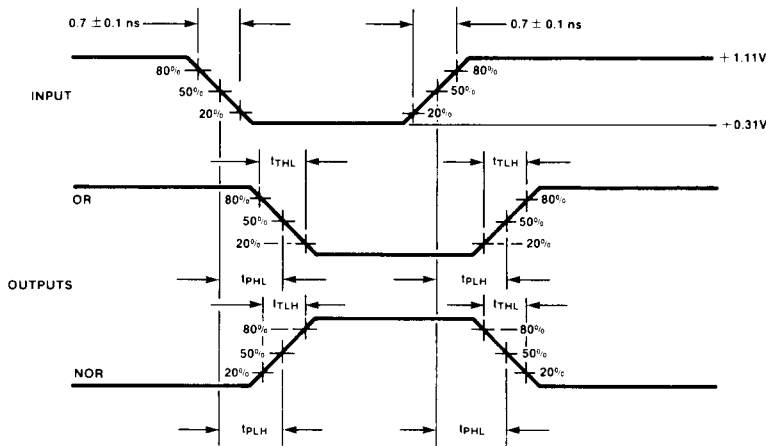
AC Characteristics: V_{EE} = -5.2V, T_A = +25°C

Symbol	Characteristic	Flatpak			DIP			Unit	Condition
		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 _{PHL}	Output Transition Time HIGH to LOW (80% to 20%)		0.7	0.95		0.90	1.15	ns	

Figure 1 Switching Circuit and Waveforms



L_1 and L_2 = equal length 50 Ω impedance lines
 R_T = 50 Ω Termination of scope
 Decoupling 0.1 μ F from GND to V_{EE} and V_{CC}
 $C_L \leq 3$ pF



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

Truth Table

In					Out	
D _{1a}	D _{1b}	D _{1c}	D _{1d}	D _{1e}	Q ₁	\bar{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	\bar{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