



Not Intended For New Designs
T-45-23-33

11C01

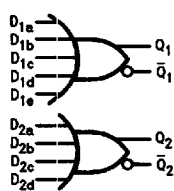
Dual 5-4 Input OR/NOR Gate

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

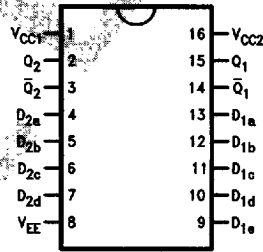


TL/F/9888-2

Pin Names	Description
D _{1a} -D _{1e} , D _{2a} -D _{2e} Q ₁ , Q ₁ $\bar$, Q ₂ , Q ₂ $\bar$	Data Inputs Outputs

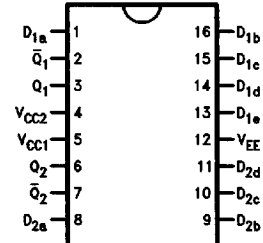
Connection Diagrams

16-Pin DIP



TL/F/9888-1

16-Pin Flatpak



TL/F/9888-3

Truth Tables

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

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

In				Out	
D _{2a}	D _{2b}	D _{2c}	D _{2d}	Q ₂	Q ₂ $\bar$
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

11C01

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 Characteristics $V_{EE} = -5.2V$, $V_{CC} = GND$

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

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	



L1 and L2 = 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 setup with no circuit under test
 $V_{CC1} = V_{CC2} = +2.0V$
 $V_{EE} = -3.2V$

FIGURE 1. Switching Circuit and Waveforms