

DP8483

DP8483 TTL to 100k ECL Level Translator with Latch



Literature Number: SNOSBO1A

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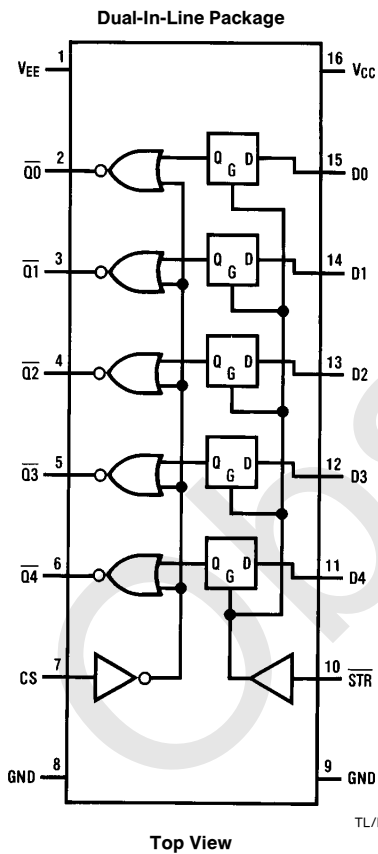
General Description

This circuit translates TTL input levels to ECL output levels and provides a fall-through latch. The outputs are gated with CS providing for wire ORing of outputs. The strobe and chip select inputs operate at ECL levels.

Features

- 16-pin DIP or S.O.
- ECL control inputs
- CS provided for wire ORing of output bus
- 100k ECL I/O compatible
- 3.0 ns typical propagation delay

Logic and Connection Diagram



Truth Table

D	$\bar{Q}$	$\overline{STR}$	CS
H	L	L	H
L	H	L	H
X	$\bar{Q}$	H	H
X	L	X	L

H = high level (most positive)

L = low level (most negative)

X = don't care

Order Number DP8483J,
DP8483M or DP8483N
See NS Package Number J16A, M16B or N16A

Absolute Maximum Ratings (Note 1)

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

V_{EE} Supply Voltage	−8V
V_{CC} Supply Voltage	7V
Input Voltage (ECL)	GND to V_{EE}
Input Voltage (TTL)	−1V to 5.5V
Output Current	50 mA

Maximum Power Dissipation* at 25°C

Molded Package 1476 mW

Storage Temperature −65°C to +150°C

*Derate molded package 11.8 mW/°C above 25°C.

Recommended Operating Conditions

V_{EE} Supply Voltage	−4.5V +7%
V_{CC} Supply Voltage	5.0V ±10%
T_A , Ambient Temperature	0°C to 85°C

Electrical Characteristics (TTL Logic) (Notes 2 and 3)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{IL}	Input Low Voltage				0.8	V
V_{IH}	Input High Voltage		2.0			V
I_{IL}	Input Low Current	$V_{IN} = 0.5V$		−25	−200	μA
I_{IH}	Input High Current	$V_{IN} = 2.5V$		1.0	40	μA
V_{CLAMP}	Input Clamp Voltage	$I_{IN} = -12\text{ mA}$		−0.9	−1.2	V
I_{CC}	Supply Current	$V_{CC} = 5.5V$		10	20	mA

Electrical Characteristics (ECL Logic) (Notes 2 and 3)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{IL}	Input Low Voltage	$V_{EE} = -4.5V$	−1810		−1475	mV
V_{IH}	Input High Voltage	$V_{EE} = -4.5V$	−1165		−880	mV
I_{IL}	Input Low Current	$V_{IN} = -1.8V$		45	150	μA
I_{IH}	Input High Current	$V_{IN} = -0.8V$		75	200	μA
V_{OL}	Output Low Voltage	$V_{EE} = -4.5V$	−1810	−1705	−1620	mV
V_{OH}	Output High Voltage	$V_{EE} = -4.5V$	−1025	−955	−880	mV
V_{OLC}	Output Low Voltage	$V_{EE} = -4.5V$			−1610	mV
V_{OHC}	Output High Voltage	$V_{EE} = -4.5V$	−1035			mV
I_{EE}	Supply Current	$V_{EE} = -4.8V$		−65	−85	mA

Switching Characteristics (Notes 2 and 4)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
t_{PD1}	Strobe To Output Delay	(Note 4)	1.5	3.0	6.0	ns
t_{PD2}	Data To Output Delay		2.5	4.5	7.5	ns
t_S	Data Set-Up Time to Strobe		5.0	2.0		ns
t_H	Data Hold Time		1.0	0		ns
t_{PW}	Strobe Pulse Width		5.0	3.0		ns
t_{PD3}	Chip Select to Output Delay		1.0	2.5	4.0	ns
t_{SCS}	Data Set-Up Time to Chip Select		5.5	3.0		ns

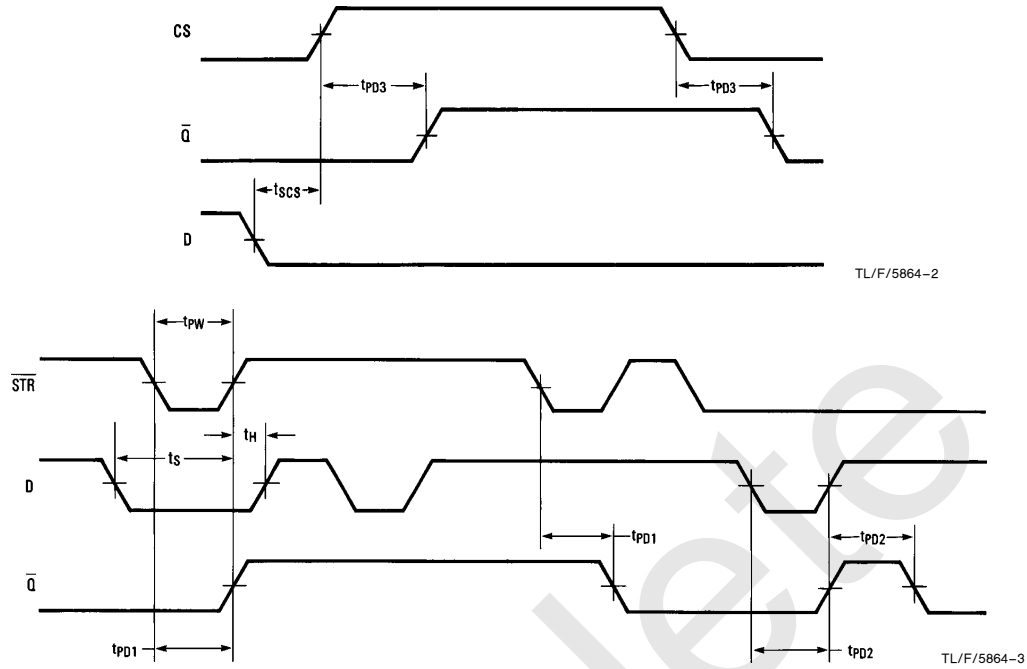
Note 1: “Absolute Maximum Ratings” are those values beyond which the safety of the device cannot be guaranteed. They are not meant to imply that the device should be operated at these limits. The table of “Electrical Characteristics” provides conditions for actual device operation.

Note 2: Unless otherwise specified, min/max limits apply across the 0°C to 85°C ambient temperature range in still air and across the specified supply variations. All typical values are for 25°C and nominal supply.

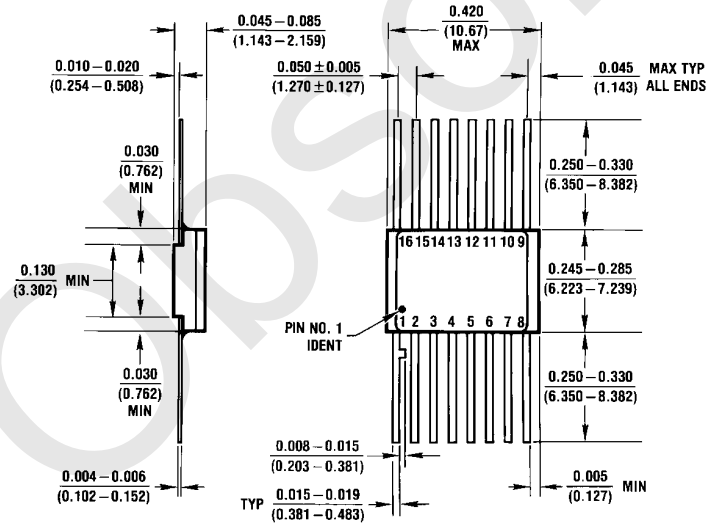
Note 3: All currents into device pins are shown as positive; all currents out of device pins are shown as negative. All voltages are referenced to ground, unless otherwise specified.

Note 4: Unless otherwise specified, all AC measurements are referenced from the 1.5V level of the TTL input and to/from the 50% point of the ECL signal and a 50Ω resistor to −2V is the load. ECL input rise and fall times are 0.7 ns ±0.1 ns from 20% to 80%. TTL input characteristics is 0V to 3V with $t_r = t_f \leq 3\text{ ns}$ measured from 10% to 90%.

Switching Time Waveforms



Physical Dimensions inches (millimeters)



Ceramic Flat Package (F)
Order Number DP8483F
NS Package Number F16B

F16B (REV K)

Obsolete

Physical Dimensions inches (millimeters)

Top view dimensions:

- Overall width: 0.785 ± 0.005 [19.94] MAX
- Pin 1 to Pin 8 distance: $0.220 - 0.310$ [5.59-7.87]
- Pin 1 to Pin 9 distance: $0.005 - 0.020$ [0.13-0.51] TYP
- Pin 1 to Pin 8 distance: 0.025 [0.64]
- Pin 1 to Pin 9 distance: $0.005 - 0.020$ [0.13-0.51] TYP

Side view dimensions:

- Pin 1 to Pin 8 distance: 0.037 ± 0.005 [0.94 $\pm$ 0.13] TYP
- Pin 1 to Pin 8 distance: 0.005 [0.13] MIN TYP
- Pin 1 to Pin 8 distance: 0.055 ± 0.005 [1.40 $\pm$ 0.13] TYP
- Pin 1 to Pin 8 distance: $0.020 - 0.060$ [0.51-1.52] TYP
- Pin 1 to Pin 8 distance: 0.150 [3.81] MIN TYP
- Pin 1 to Pin 8 distance: $0.125 - 0.200$ [3.18-5.08] TYP
- Pin 1 to Pin 8 distance: 0.080 [2.03] MAX BOTH ENDS
- Pin 1 to Pin 8 distance: 0.100 ± 0.010 [2.54 $\pm$ 0.25] TYP
- Pin 1 to Pin 8 distance: 0.018 ± 0.003 [0.46 $\pm$ 0.08] TYP
- Pin 1 to Pin 8 distance: $90^\circ \pm 4^\circ$ TYP

Top view dimensions (continued):

- Pin 1 to Pin 8 distance: $0.290 - 0.320$ [7.37-8.13]
- Pin 1 to Pin 8 distance: 0.180 [4.57] MAX
- Pin 1 to Pin 8 distance: 0.010 ± 0.002 [0.25 $\pm$ 0.05] TYP
- Pin 1 to Pin 8 distance: $95^\circ \pm 5^\circ$ TYP
- Pin 1 to Pin 8 distance: $0.310 - 0.410$ [7.87-10.41]

GLASS SEALANT

J16A (REV L)

MECHANICAL DRAWING OF A 16-PIN DIP PACKAGE.

Dimensions and Tolerances:

- Overall Width: 10.10-10.50
- Pin Pitch: 0.050 (1.27)
- Pin Diameter: 0.010 (0.25)
- Lead Identification: LEAD NO 1
- Pin 1 Identification: 1
- Pin 2 Identification: 2
- Pin 3 Identification: 3
- Pin 4 Identification: 4
- Pin 5 Identification: 5
- Pin 6 Identification: 6
- Pin 7 Identification: 7
- Pin 8 Identification: 8
- Pin 9 Identification: 9
- Pin 10 Identification: 10
- Pin 11 Identification: 11
- Pin 12 Identification: 12
- Pin 13 Identification: 13
- Pin 14 Identification: 14
- Pin 15 Identification: 15
- Pin 16 Identification: 16

0.010 0.25	A	C	S	B
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Technical drawing of a 16-pin D-sub connector showing top and side views with dimensions.

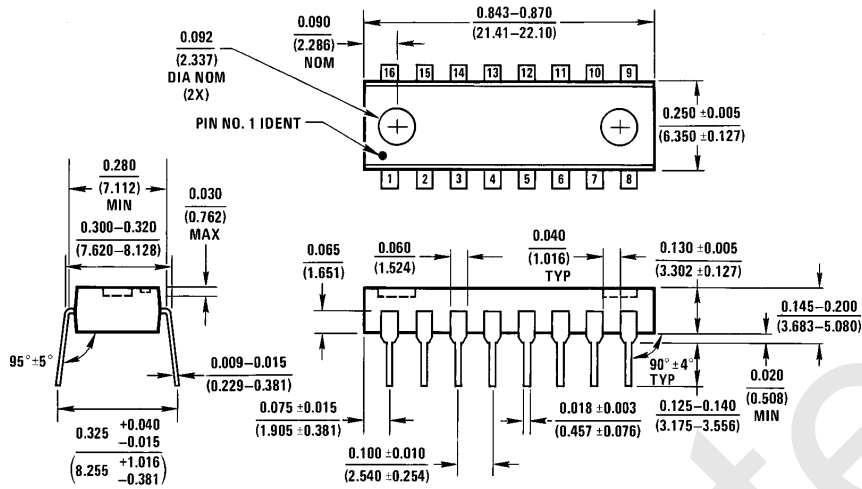
Top View Dimensions:

- Overall width: $0.0926-0.1043$ (2.35-2.65)
- Pin pitch: 0.014 (0.35)
- Pin height: $0.0040-0.0118$ (0.1-0.3)
- Pin angle: $-A$
- Seating Plane

Side View Dimensions:

- Pin angle: 45°
- Pin height: $0.010-0.029$ (0.25-0.75)
- Pin width: $0.0091-0.0125$ (0.23-0.32) TYP ALL LEADS
- Pin width: $0.0160-0.0500$ (0.40-1.27) TYP ALL LEADS
- Pin width: 0.004 (0.1) ALL LEAD TIPS
- Pin width: B MAX TYP ALL LEADS

Molded Dual-In-Line Package (M)
Order Number DP8483M
NS Package Number M16B

Physical Dimensions inches (millimeters) (Continued)

Molded Dual-In-Line Package (N)
Order Number DP8483N
NS Package Number N16A

N16A (REV E)

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