

DP8483

DP8483 TTL to 100k ECL Level Translator with Latch



Literature Number: SNOSBO1A

DP8483 TTL to 100k ECL Level Translator with Latch

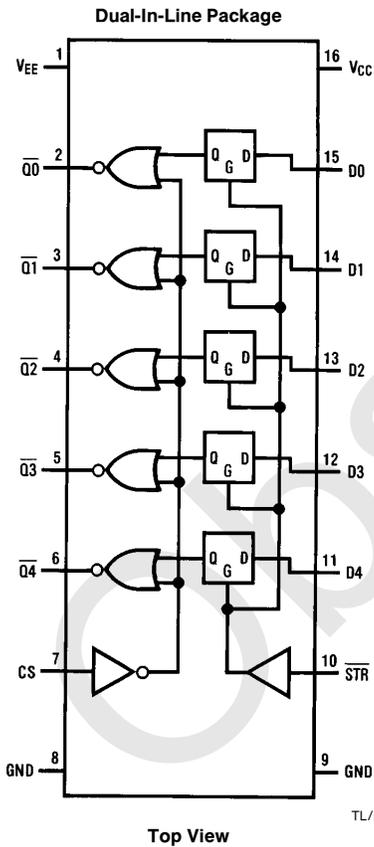
General Description

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

DP8483 TTL to 100k ECL Level Translator with Latch

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	1476 mW
Molded Package	
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	$I_{IN} = -12 mA$		-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

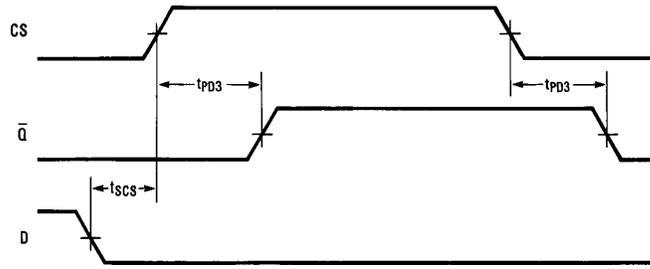
Note 1: "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. They are not meant to imply that the device should be operated at these limits. The table of "Electrical Characteristics" provides conditions for actual device operation.

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.

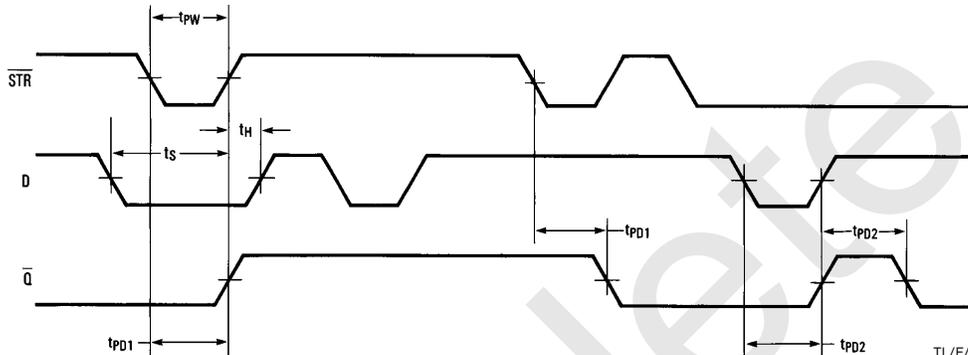
Note 3: All currents into device pins are shown as positive; all currents out of device pins are shown as negative. All voltages are referenced to ground, unless otherwise specified.

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 50 Ω 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 $t_r = t_f \leq 3$ ns measured from 10% to 90%.

Switching Time Waveforms

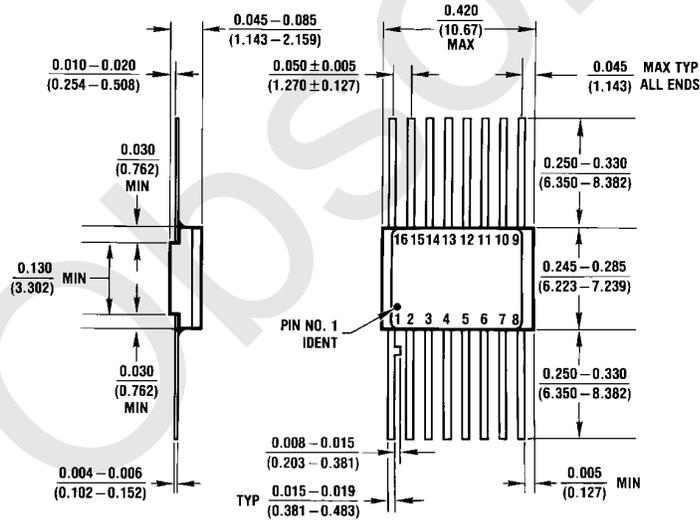


TL/F/5864-2



TL/F/5864-3

Physical Dimensions inches (millimeters)

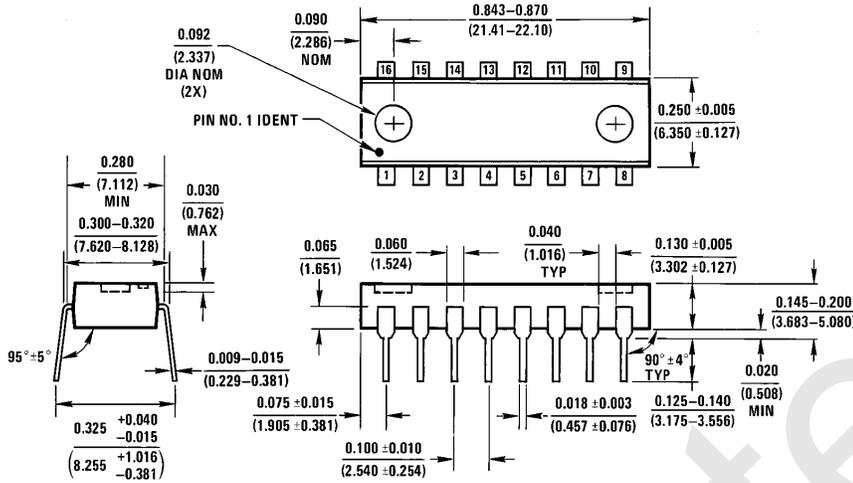


Ceramic Flat Package (F)
Order Number DP8483F
NS Package Number F16B

F16B (REV K)

Obsolete

Physical Dimensions inches (millimeters) (Continued)



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

N16A (REV E)

LIFE SUPPORT POLICY

NATIONAL'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF NATIONAL SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.



National Semiconductor Corporation
 1111 West Bardin Road
 Arlington, TX 76017
 Tel: 1(800) 272-9959
 Fax: 1(800) 737-7018

National Semiconductor Europe
 Fax: (+49) 0-180-530 85 86
 Email: onjwge@tevm2.nsc.com
 Deutsch Tel: (+49) 0-180-530 85 85
 English Tel: (+49) 0-180-532 78 32
 Français Tel: (+49) 0-180-532 93 58
 Italiano Tel: (+49) 0-180-534 16 80

National Semiconductor Hong Kong Ltd.
 19th Floor, Straight Block,
 Ocean Centre, 5 Canton Rd.
 Tsimshatsui, Kowloon
 Hong Kong
 Tel: (852) 2737-1600
 Fax: (852) 2736-9960

National Semiconductor Japan Ltd.
 Tel: 81-043-299-2309
 Fax: 81-043-299-2408

National does not assume any responsibility for use of any circuitry described, no circuit patent licenses are implied and National reserves the right at any time without notice to change said circuitry and specifications.

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products

Audio	www.ti.com/audio
Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
OMAP Mobile Processors	www.ti.com/omap
Wireless Connectivity	www.ti.com/wirelessconnectivity

Applications

Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy and Lighting	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics and Defense	www.ti.com/space-avionics-defense
Transportation and Automotive	www.ti.com/automotive
Video and Imaging	www.ti.com/video

TI E2E Community Home Page

e2e.ti.com

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2011, Texas Instruments Incorporated