

Dual Differential LVPECL to TTL Translator

The MC100LVELT23 is a dual differential LVPECL to TTL translator. Because LVPECL (Positive ECL) levels are used only +3.3V and ground are required. The small outline 8-lead SOIC package and the dual gate design of the LVELT23 makes it ideal for applications which require the translation of a clock and a data signal.

The LVELT23 is available in only the ECL 100K standard. Since there are no LVPECL outputs or an external V_{BB} reference, the LVELT23 does not require both ECL standard versions. The LVPECL inputs are differential; there is no specified difference between the differential input 10H and 100K standards. Therefore, the MC100LVELT23 can accept any standard differential LVPECL input referenced from a V_{CC} of 3.3V.

- 2.0ns Typical Propagation Delay
- Differential LVPECL Inputs
- Small Outline SOIC Package
- 24mA TTL Outputs
- Flow Through Pinouts
- ESD Performance: Human Body Model 1200V; Machine Model 150V

Note:

- 1) Pulling the output higher than V_{CC} is not recommended. Doing so causes excessive leakage and possible latchup leading to reliability risk.

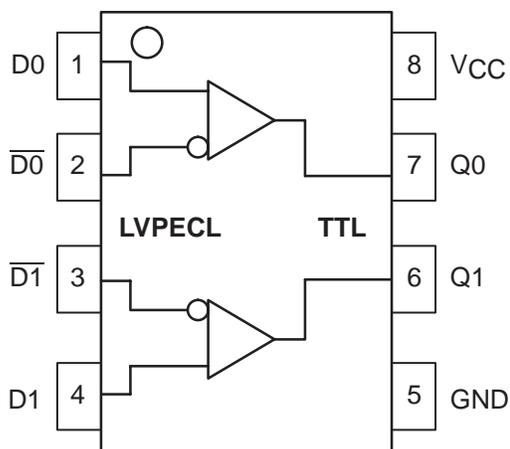


Figure 1. 8-Lead Pinout and Logic Diagram

MC100LVELT23



D SUFFIX
8-LEAD PLASTIC SOIC PACKAGE
CASE 751-06

PIN DESCRIPTION

PIN	FUNCTION
Qn	TTL Outputs
Dn	Diff LVPECL Inputs
VCC	+3.3V Supply
GND	Ground



MC100LVELT23

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
V _{CC}	DC Supply Voltage (Referenced to GND)	-0.5 to +3.8	V
T _A	Operating Temperature Range (In Free-Air)	-40 to 85	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
θ	Thermal Resistnace Through Package (No Air Flow)	130	°C/W

* Maximum Ratings are those values beyond which damage to the device may occur. Functional operation should be restricted to the Recommended Operating Conditions.

TTL OUTPUT DC CHARACTERISTICS (V_{CC} = 3.0V to 3.6V; T_A = -40°C to 85°C)

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
V _{OH}	Output HIGH Voltage	2.0			V	I _{OH} = -3.0mA
V _{OL}	Output LOW Voltage			0.5	V	I _{OL} = 24mA
I _{CC} H	Power Supply Current		20	26	mA	
I _{CC} L	Power Supply Current		28	37	mA	
I _{OS}	Output Short Circuit Current	-80		-130	mA	

PECL INPUT DC CHARACTERISTICS (V_{CC} = 3.0V to 3.6V; T_A = -40°C to 85°C)

Symbol	Characteristic	-40°C		0°C		25°C			85°C		Unit	Condition
		Min	Max	Min	Max	Min	Typ	Max	Min	Max		
I _{IH}	Input HIGH Current		150		150			150		150	μA	
I _{IL}	Input LOW Current D0, D1 D0, D1	-100 -100		-100 -100		-100 -100			-100 -100		μA	
V _{CMR}	Common Mode Range	1.2	V _{CC}	1.2	V _{CC}	1.2		V _{CC}	1.2	V _{CC}	V	
V _{PP}	Minimum Peak-to-Peak Input	100		100		100			100		mV	Note 1.

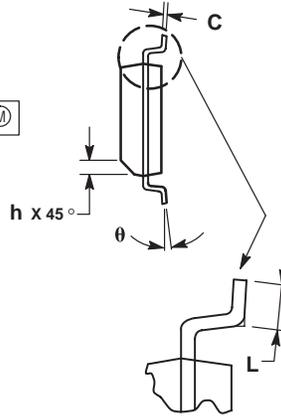
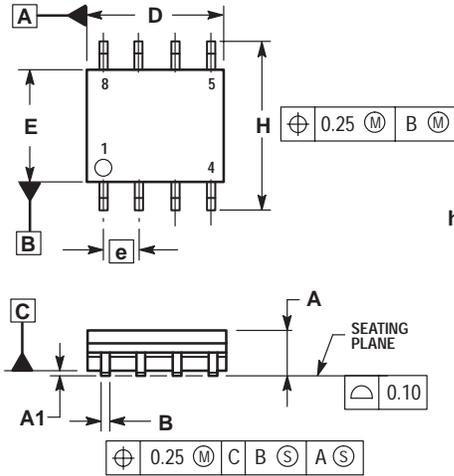
1. 200mV input guarantees full logic swing at the output.

AC CHARACTERISTICS (V_{CC} = 3.0V to 3.6V; T_A = -40°C to +85°C)

Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
t _{PLH}	Propagation Delay (Note 2.)	1.0	1.7	3.0	1.0	1.7	3.0	1.0	1.7	3.0	1.0	1.7	3.0	ns
t _{PHL}	Propagation Delay (Note 2.)	1.0	1.4	3.0	1.0	1.4	3.0	1.0	1.4	3.0	1.0	1.4	3.0	ns
f _{max}	Max Input Frequency (Note 2.)	275			275			275			275			MHz
t _{skpp}	Part-to-Part Skew (Note 2.)			0.5			0.5			0.5			0.5	ns
t _{sk++}	Output-to-Output Skew			60			60			60			110	ps
t _{sk--}	Output-to-Output Skew			25			25			25			25	ps
t _r , t _f	Output Rise/Fall	330		700	330		700	330		700	330		700	ps

2. C_L = 20pF.

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-06
ISSUE T



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. DIMENSIONS ARE IN MILLIMETER.
3. DIMENSION D AND E DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
5. DIMENSION B DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 TOTAL IN EXCESS OF THE B DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS	
	MIN	MAX
A	1.35	1.75
A1	0.10	0.25
B	0.35	0.49
C	0.19	0.25
D	4.80	5.00
E	3.80	4.00
e	1.27 BSC	
H	5.80	6.20
h	0.25	0.50
L	0.40	1.25
θ	0°	7°

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and  are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Mfax is a trademark of Motorola, Inc.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 5405, Denver, Colorado 80217. 1-303-675-2140 or 1-800-441-2447

JAPAN: Motorola Japan Ltd.; SPD, Strategic Planning Office, 141,
4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan. 81-3-5487-8488

Customer Focus Center: 1-800-521-6274

Mfax™: RMFAX0@email.sps.mot.com – TOUCHTONE 1-602-244-6609
Motorola Fax Back System – US & Canada ONLY 1-800-774-1848
– <http://sps.motorola.com/mfax/>

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre,
2, Dai King Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong.
852-26668334

HOME PAGE: <http://motorola.com/sps/>

