Dual Differential PECL to TTL Translator

MC100ELT23

The MC100ELT23 is a dual differential PECL to TTL translator. Because PECL (Positive ECL) levels are used only +5V and ground are required. The small outline 8-lead SOIC package and the dual gate design of the ELT23 makes it ideal for applications which require the translation of a clock and a data signal. Because the mature MOSAIC 1.5 process is used, low cost can be added to the list of features.

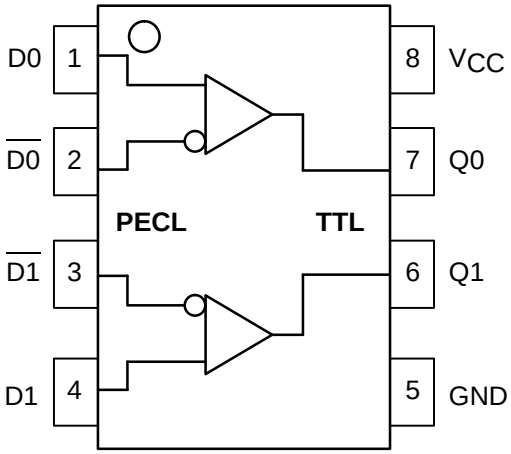
The ELT23 is available in only the ECL 100K standard. Since there are no PECL outputs or an external V_{BB} reference, the ELT23 does not require both ECL standard versions. The PECL inputs are differential; there is no specified difference between the differential input 10H and 100K standards. Therefore, the MC100ELT23 can accept any standard differential PECL input referenced from a V_{CC} of 5.0V.

- 3.5ns Typical Propagation Delay
- Differential PECL Inputs
- Small Outline SOIC Package
- 24mA TTL Outputs
- Flow Through Pinouts



D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



PIN DESCRIPTION

PIN	FUNCTION
Qn	TTL Outputs
Dn	Diff PECL Inputs
V_{CC}	+5.0V Supply
GND	Ground

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MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage (Referenced to GND)	7.0	V
T_A	Operating Temperature Range (In Free-Air)	–40 to 85	°C
T_{STG}	Storage Temperature Range	–55 to +150	°C

* 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} = 4.75V to 5.25V; T_A = –40°C to 85°C)

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
V_{OH}	Output HIGH Voltage	2.4			V	I_{OH} = –3.0mA
V_{OL}	Output LOW Voltage			0.5	V	I_{OL} = 24mA
I_{CCH}	Power Supply Current		23	33	mA	
I_{CCL}	Power Supply Current		26	36	mA	
I_{OS}	Output Short Circuit Current	–150		–60	mA	

PECL INPUT DC CHARACTERISTICS (V_{CC} = 4.75V to 5.25V; T_A = –40°C to 85°C)

		–40°C		0°C		25°C			85°C			
Symbol	Characteristic	Min	Max	Min	Max	Min	Typ	Max	Min	Max	Unit	Condition
I_{IH}	Input HIGH Current		150		150			150		150	µA	
I_{IL}	Input LOW Current	0.5		0.5		0.5			0.5		µA	
V_{CMR}	Common Mode Range	2.2	V_{CC}	2.2	V_{CC}	2.2		V_{CC}	2.2	V_{CC}	V	
V_{PP}	Minimum Peak-to-Peak Input[1]	200		200		200			200		mV	
V_{IH}	Input HIGH Voltage 10ELT 100ELT	3.770 3.835	4.110 4.120	3.830 3.835	4.16 4.12	3.870 3.835		4.19 4.12	3.930 3.835	4.265 4.120	V	V_{CC} = 5.0V
V_{IL}	Input LOW Voltage 10ELT 100ELT	3.05 3.19	3.500 3.525	3.05 3.19	3.520 3.525	3.05 3.19		3.520 3.525	3.05 3.19	3.550 3.525	V	V_{CC} = 5.0V

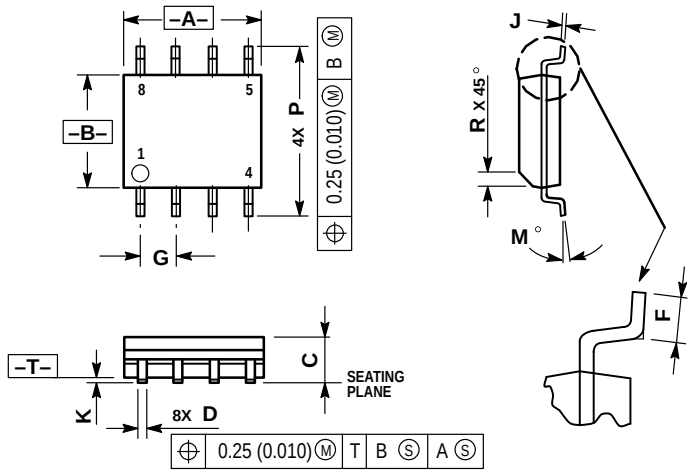
1. 200mV input guarantees full logic swing at the output.

AC CHARACTERISTICS (V_{CC} = 4.75V to 5.25V; T_A = –40°C to 85°C)

		–40°C		0°C		25°C			85°C			
Symbol	Characteristic	Min	Max	Min	Max	Min	Typ	Max	Min	Max	Unit	Condition
t_{PLH}	Propagation Delay[1]	2.0	5.5	2.0	5.5	2.0		5.5	2.0	5.5	ns	C_L = 20pF
t_{PHL}	Propagation Delay[1]	2.0	5.5	2.0	5.5	2.0		5.5	2.0	5.5	ns	C_L = 20pF

OUTLINE DIMENSIONS

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751–05
ISSUE P



NOTES:
1. DIMENSIONS A AND B ARE DATUMS AND T IS A DATUM SURFACE.
2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
3. DIMENSIONS ARE IN MILLIMETER.
4. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
5. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
6. DIMENSION D DOES NOT INCLUDE MOLD PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

	MILLIMETERS	
DIM	MIN	MAX
A	4.80	5.00
B	3.80	4.00
C	1.35	1.75
D	0.35	0.49
F	0.40	1.25
G	1.27 BSC	
J	0.18	0.25
K	0.10	0.25
M	0 °	7 °
P	5.80	6.20
R	0.25	0.50

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