TTL to Differential ECL Translator

MC10ELT24
MC100ELT24

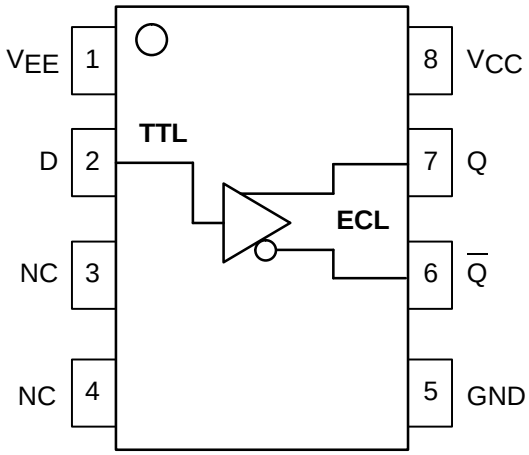
The MC10ELT/100ELT24 is a TTL to differential ECL translator. Because ECL levels are used a +5V, -5.2V (or -4.5V) and ground are required. The small outline 8-lead SOIC package and the single gate of the ELT24 makes it ideal for those applications where space, performance and low power are at a premium. Because the mature MOSAIC 1.5 process is used, low cost can be added to the list of features.

The ELT24 is available in both ECL standards: the 10ELT is compatible with MECL 10H logic levels while the 100ELT is compatible with ECL 100K logic levels.

- 1.2ns Typical Propagation Delay
- Differential PECL Outputs
- Small Outline SOIC Package
- PNP TTL Inputs for Minimal Loading
- Flow Through Pinouts

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



PIN DESCRIPTION

PIN	FUNCTION
Q	Diff ECL Outputs
D	TTL Input
V_{CC}	Positive Supply
V_{EE}	Negative Supply
GND	Ground

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage (Referenced to GND, V_{CC} = –5.2V)	7.0	V
V_{EE}	DC Supply Voltage (Referenced to GND, V_{CC} = 5.0V)	–8.0	V
V_{IN}	Input Voltage	–40 to V_{CC}	V
I_{OUT}	Current Applied to Output in Low Output State Continuous Surge	50 100	mA
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 INPUT DC CHARACTERISTICS (V_{CC} = 4.5V to 5.5V; V_{EE} = –4.2V to –5.5V 100ELT, –4.94V to –5.5V 10ELT; T_A = –40°C to 85°C)

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
I_{IH}	Input HIGH Current			20	µA	V_{IN} = 2.7V
I_{IHH}	Input HIGH Current			100	µA	V_{IN} = 7.0V
I_{IL}	Input LOW Current			–0.6	mA	V_{IN} = 0.5V
V_{IK}				–1.2	V	I_{IN} = –18mA
V_{IH}	Input HIGH Voltage	2.0			V	
V_{IL}	Input LOW Voltage			0.8	V	

ECL OUTPUT DC CHARACTERISTICS (V_{CC} = 4.5V to 5.5V; V_{EE} = –4.2V to –5.5V 100ELT, –4.94V to –5.5V 10ELT; 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
V_{OH}	Output HIGH Voltage 10ELT	–1080	–890	–1020	–840	–980		–810	–910	–720	mV	
	Output HIGH Voltage 100ELT	–1085	–880	–1025	–880	–1025	–955	–880	–1025	–880		
V_{OL}	Output LOW Voltage 10ELT	–1950	–1650	–1950	–1630	–1950		–1630	–1950	–1595	mV	
	Output LOW Voltage 100ELT	–1830	–1555	–1810	–1620	–1810	–1705	–1620	–1810	–1620		
I_{CC}	Power Supply Current		7		7		4.5	7		7	mA	
I_{EE}	Power Supply Current		18		18		12.5	18		18	mA	

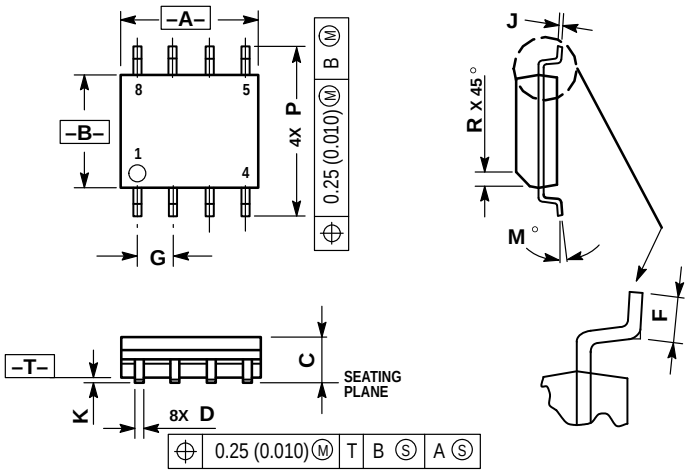
AC CHARACTERISTICS (V_{CC} = 4.5V to 5.5V; V_{EE} = –4.2V to –5.5V 100ELT, –4.94V to –5.5V 10ELT; T_A = –40°C to 85°C)

		–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]	0.7	1.3	0.65	1.25	0.65	0.95	1.25	0.65	1.25	ns	
t_{PHL}	Propagation Delay[1]	0.4	1.0	0.45	1.05	0.50	0.80	1.10	0.70	1.30	ns	
t_r/t_f	Output Rise/Fall Time	0.25	1.25	0.25	1.25	0.25		1.25	0.25	1.25	ns	20–80%
f_{MAX}	Maximum Input Frequency	100		100		100			100		MHz	

1. Specifications for standard TTL input signal.

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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