

**MOTOROLA**  
SEMICONDUCTOR TECHNICAL DATA

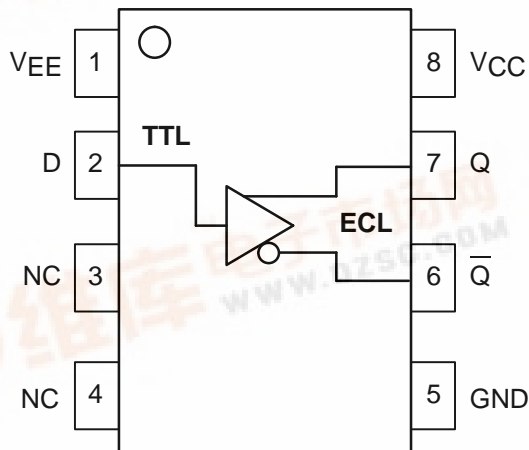
# TTL to Differential ECL Translator

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

### LOGIC DIAGRAM AND PINOUT ASSIGNMENT



## MC10ELT24 MC100ELT24



**D SUFFIX**  
PLASTIC SOIC PACKAGE  
CASE 751-05

### PIN DESCRIPTION

PIN	FUNCTION
Q	Diff ECL Outputs
D	TTL Input
VCC	Positive Supply
VEE	Negative Supply
GND	Ground



# MC10ELT24 MC100ELT24

## MAXIMUM RATINGS\*

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	DC Supply Voltage (Referenced to GND, V <sub>CC</sub> = -5.2V)	7.0	V
V <sub>EE</sub>	DC Supply Voltage (Referenced to GND, V <sub>CC</sub> = 5.0V)	-8.0	V
V <sub>IN</sub>	Input Voltage	-40 to V <sub>CC</sub>	V
I <sub>OUT</sub>	Current Applied to Output in Low Output State	50	mA
	Continuous Surge	100	
T <sub>A</sub>	Operating Temperature Range (In Free-Air)	-40 to 85	°C
T <sub>STG</sub>	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<sub>CC</sub> = 4.5V to 5.5V; V<sub>EE</sub> = -4.2V to -5.5V 100ELT, -4.94V to -5.5V 10ELT; T<sub>A</sub> = -40°C to 85°C)

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
I <sub>IH</sub>	Input HIGH Current			20	μA	V <sub>IN</sub> = 2.7V
I <sub>IHH</sub>	Input HIGH Current			100	μA	V <sub>IN</sub> = 7.0V
I <sub>IL</sub>	Input LOW Current			-0.6	mA	V <sub>IN</sub> = 0.5V
V <sub>IK</sub>				-1.2	V	I <sub>IN</sub> = -18mA
V <sub>IH</sub>	Input HIGH Voltage	2.0			V	
V <sub>IL</sub>	Input LOW Voltage			0.8	V	

## ECL OUTPUT DC CHARACTERISTICS (V<sub>CC</sub> = 4.5V to 5.5V; V<sub>EE</sub> = -4.2V to -5.5V 100ELT, -4.94V to -5.5V 10ELT; T<sub>A</sub> = -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		
V <sub>OH</sub>	Output HIGH Voltage	10ELT	-1080	-890	-1020	-840	-980	-810	-910	-720	mV	
		100ELT	-1085	-880	-1025	-880	-1025	-955	-880	-1025		
V <sub>OL</sub>	Output LOW Voltage	10ELT	-1950	-1650	-1950	-1630	-1950	-1630	-1950	-1595	mV	
		100ELT	-1830	-1555	-1810	-1620	-1810	-1705	-1620	-1810		
I <sub>CC</sub>	Power Supply Current		7		7		4.5	7		7	mA	
I <sub>EE</sub>	Power Supply Current		18		18		12.5	18		18	mA	

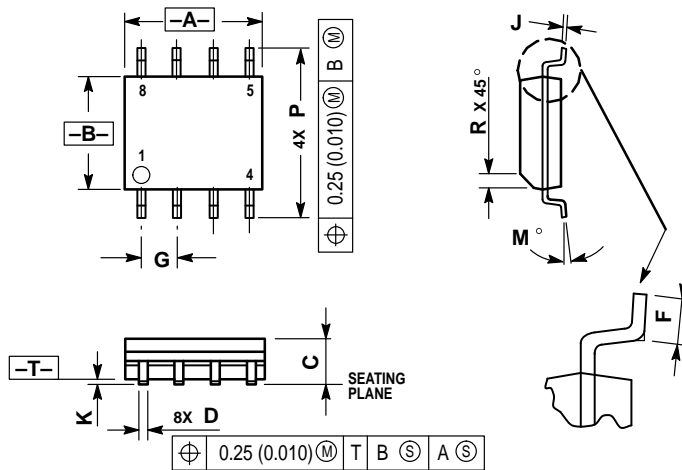
## AC CHARACTERISTICS (V<sub>CC</sub> = 4.5V to 5.5V; V<sub>EE</sub> = -4.2V to -5.5V 100ELT, -4.94V to -5.5V 10ELT; T<sub>A</sub> = -40°C to 85°C)

Symbol	Characteristic	-40°C		0°C		25°C			85°C		Unit	Condition
		Min	Max	Min	Max	Min	Typ	Max	Min	Max		
t <sub>PLH</sub>	Propagation Delay <sup>1</sup>	0.7	1.3	0.65	1.25	0.65	0.95	1.25	0.65	1.25	ns	
t <sub>PHL</sub>	Propagation Delay <sup>1</sup>	0.4	1.0	0.45	1.05	0.50	0.80	1.10	0.70	1.30	ns	
t <sub>r</sub> /t <sub>f</sub>	Output Rise/Fall Time	0.25	1.25	0.25	1.25	0.25		1.25	0.25	1.25	ns	20-80%
f <sub>MAX</sub>	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.

DIM	MILLIMETERS	
	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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