

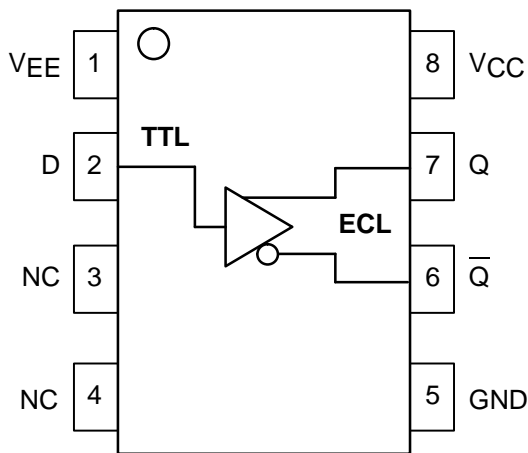
TTL to Differential ECL Translator

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 _{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)

| Symbol | Characteristic | -40°C | | 0°C | | 25°C | | | 85°C | | Unit | Condition |
|-----------------|--|----------------|----------------|----------------|----------------|----------------|-------|----------------|----------------|----------------|------|-----------|
| | | Min | Max | Min | Max | Min | Typ | Max | Min | Max | | |
| V _{OH} | Output HIGH Voltage 10ELT 100ELT | -1080 -1085 | -890 -880 | -1020 -1025 | -840 -880 | -980 -1025 | | -810 -880 | -910 -1025 | -720 -880 | mV | |
| V _{OL} | Output LOW Voltage 10ELT 100ELT | -1950 -1830 | -1650 -1555 | -1950 -1810 | -1630 -1620 | -1950 -1810 | -1705 | -1630 -1620 | -1950 -1810 | -1595 -1620 | mV | |
| 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)

| Symbol | Characteristic | -40°C | | 0°C | | 25°C | | | 85°C | | Unit | Condition |
|--------------------------------|--------------------------------|-------|------|------|------|------|------|------|------|------|------|-----------|
| | | Min | Max | Min | Max | Min | Typ | Max | Min | Max | | |
| 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.

| 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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