

## FEATURES

- 750ps max. LEN to output
- Extended 100E VEE range of -4.2V to -5.5V
- 700ps max. D to output
- Differential outputs
- Asynchronous Master Reset
- Dual latch-enables
- Fully compatible with industry standard 10KH, 100K ECL levels
- Internal 75KΩ input pulldown resistors
- Fully compatible with Motorola MC10E/100E154
- Available in 28-pin PLCC package

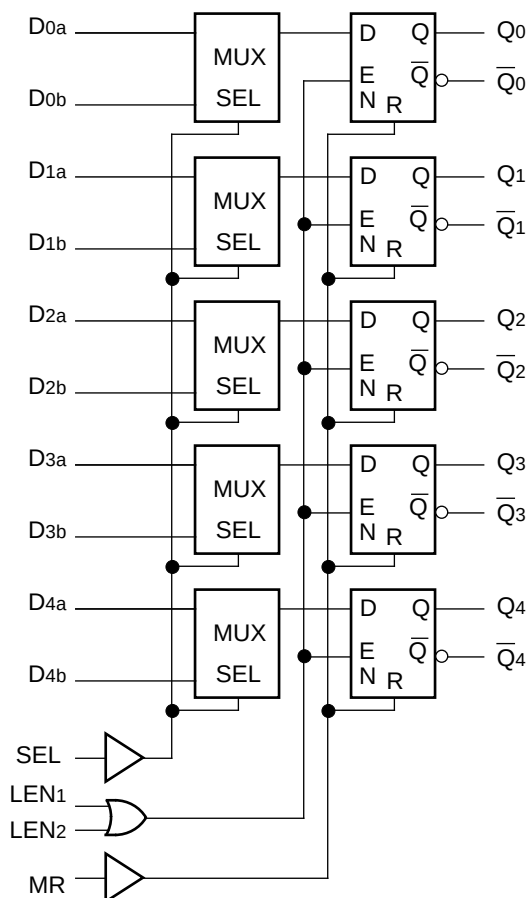
## DESCRIPTION

The SY10/100E154 offer five 2:1 multiplexers followed by latches with differential outputs, designed for use in new, high-performance ECL systems. The two external Latch-Enable signals (LEN1, LEN2) are gated through a logical OR operation before use as control for the five latches. When both LEN1 and LEN2 are at a logic LOW, the latches are transparent, thus presenting the data from the multiplexers at the output pins. If either LEN1 or LEN2 (or both) are at a logic HIGH, the outputs are latched.

The multiplexer operation is controlled by the SEL(Select) signal which selects one of the two bits of input data at each mux to be passed through.

The MR (Master Reset) signal operates asynchronously to make all Q outputs go to a logic LOW.

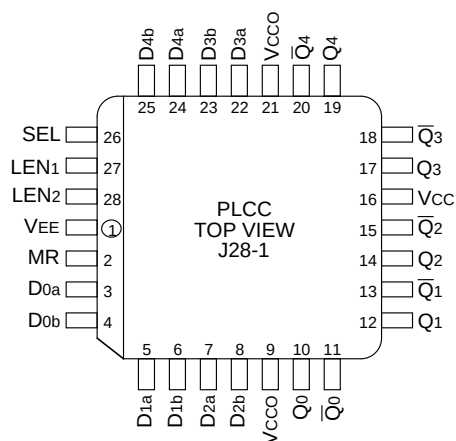
## BLOCK DIAGRAM



## PIN NAMES

| Pin                           | Function          |
|-------------------------------|-------------------|
| D0a-D4a                       | Input Data a      |
| D0b-D4b                       | Input Data b      |
| SEL                           | Data Select Input |
| LEN1, LEN2                    | Latch Enables     |
| MR                            | Master Reset      |
| Q0-Q4                         | True Outputs      |
| $\overline{Q0}-\overline{Q4}$ | Inverted Outputs  |
| VCCO                          | Vcc to Output     |

## PACKAGE/ORDERING INFORMATION



28-Pin PLCC (J28-1)

Ordering Information<sup>(1)</sup>

| Part Number                     | Package Type | Operating Range | Package Marking                             | Lead Finish |
|---------------------------------|--------------|-----------------|---------------------------------------------|-------------|
| SY10E154JC                      | J28-1        | Commercial      | SY10E154JC                                  | Sn-Pb       |
| SY10E154JCTR <sup>(2)</sup>     | J28-1        | Commercial      | SY10E154JC                                  | Sn-Pb       |
| SY100E154JC                     | J28-1        | Commercial      | SY100E154JC                                 | Sn-Pb       |
| SY100E154JCTR <sup>(2)</sup>    | J28-1        | Commercial      | SY100E154JC                                 | Sn-Pb       |
| SY10E154JZ <sup>(3)</sup>       | J28-1        | Commercial      | SY10E154JZ with Pb-Free bar-line indicator  | Matte-Sn    |
| SY10E154JZTR <sup>(2, 3)</sup>  | J28-1        | Commercial      | SY10E154JZ with Pb-Free bar-line indicator  | Matte-Sn    |
| SY100E154JZ <sup>(3)</sup>      | J28-1        | Commercial      | SY100E154JZ with Pb-Free bar-line indicator | Matte-Sn    |
| SY100E154JZTR <sup>(2, 3)</sup> | J28-1        | Commercial      | SY100E154JZ with Pb-Free bar-line indicator | Matte-Sn    |

## Notes:

1. Contact factory for die availability. Dice are guaranteed at  $T_A = 25^\circ\text{C}$ , DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

**TRUTH TABLES**

| SEL | Data |
|-----|------|
| H   | a    |
| L   | b    |

| LEN1 | LEN2 | Latch       |
|------|------|-------------|
| L    | L    | Transparent |
| H    | X    | Latched     |
| X    | H    | Latched     |

**DC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = V<sub>CCO</sub> = GND

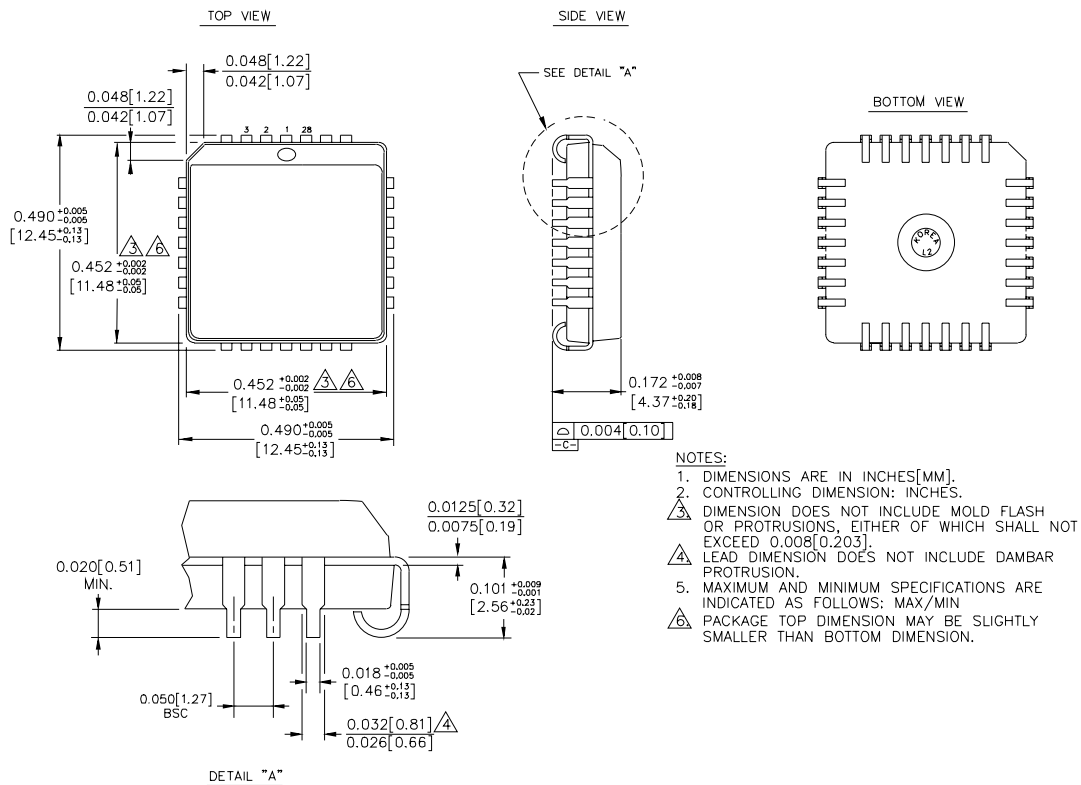
| Symbol          | Parameter            | T <sub>A</sub> = 0°C |      |      | T <sub>A</sub> = +25°C |      |      | T <sub>A</sub> = +85°C |      |      | Unit | Condition |
|-----------------|----------------------|----------------------|------|------|------------------------|------|------|------------------------|------|------|------|-----------|
|                 |                      | Min.                 | Typ. | Max. | Min.                   | Typ. | Max. | Min.                   | Typ. | Max. |      |           |
| I <sub>IH</sub> | Input HIGH Current   | —                    | —    | 150  | —                      | —    | 150  | —                      | —    | 150  | μA   | —         |
| I <sub>EE</sub> | Power Supply Current |                      |      |      |                        |      |      |                        |      |      | mA   | —         |
|                 |                      | 10E                  | 76   | 91   | —                      | 76   | 91   | —                      | 76   | 91   |      |           |
|                 |                      | 100E                 | 76   | 91   | —                      | 76   | 91   | —                      | 87   | 105  |      |           |

**AC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = V<sub>CCO</sub> = GND

| Symbol                           | Parameter                                            | T <sub>A</sub> = 0°C     |                          |                          | T <sub>A</sub> = +25°C   |                          |                          | T <sub>A</sub> = +85°C   |                          |                          | Unit | Condition |
|----------------------------------|------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|-----------|
|                                  |                                                      | Min.                     | Typ.                     | Max.                     | Min.                     | Typ.                     | Max.                     | Min.                     | Typ.                     | Max.                     |      |           |
| t <sub>PD</sub>                  | Propagation Delay to Output<br>D<br>SEL<br>LEN<br>MR | 325<br>475<br>350<br>450 | 500<br>650<br>500<br>600 | 700<br>925<br>750<br>800 | 325<br>475<br>350<br>450 | 500<br>650<br>500<br>600 | 700<br>925<br>750<br>800 | 325<br>475<br>350<br>450 | 500<br>650<br>500<br>600 | 700<br>925<br>750<br>800 | ps   | —         |
| t <sub>s</sub>                   | Set-up Time<br>D<br>SEL                              | 300<br>500               | 100<br>250               | —<br>—                   | 300<br>500               | 100<br>250               | —<br>—                   | 300<br>500               | 100<br>250               | —<br>—                   | ps   | —         |
| t <sub>H</sub>                   | Hold Time<br>D<br>SEL                                | 300<br>200               | –100<br>–250             | —<br>—                   | 300<br>200               | –100<br>–250             | —<br>—                   | 300<br>200               | –100<br>–250             | —<br>—                   | ps   | —         |
| t <sub>RR</sub>                  | Reset Recovery Time                                  | 800                      | 600                      | —                        | 800                      | 600                      | —                        | 800                      | 600                      | —                        | ps   | —         |
| t <sub>PW</sub>                  | Minimum Pulse Width, MR                              | 400                      | —                        | —                        | 400                      | —                        | —                        | 400                      | —                        | —                        | ps   | —         |
| t <sub>skew</sub>                | Within-Device Skew                                   | —                        | 50                       | —                        | —                        | 50                       | —                        | —                        | 50                       | —                        | ps   | 1         |
| t <sub>r</sub><br>t <sub>f</sub> | Rise/Fall Time<br>20% to 80%                         | 300                      | 475                      | 800                      | 300                      | 475                      | 800                      | 300                      | 475                      | 800                      | ps   | —         |

**Note:**

1. Within-device skew is defined as identical transitions on similar paths through a device.

**28-PIN PLCC (J28-1)**

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**MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USA**TEL + 1 (408) 944-0800 FAX + 1 (408) 474-1000 WEB <http://www.micrel.com>

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