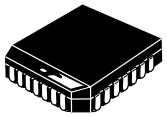
# 6-Bit 2:1 Mux-Latch

**MC10E155**
**MC100E155**

**6-BIT 2:1**
**MUX-LATCH**

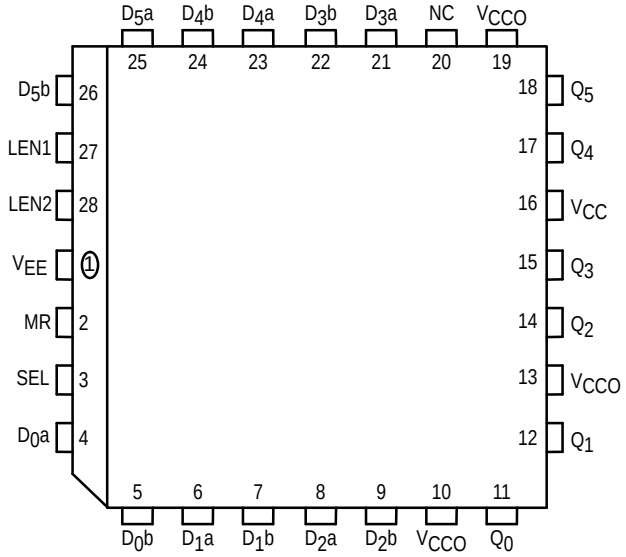
The MC10E/100E155 contains six 2:1 multiplexers followed by transparent latches with single-ended outputs. When both Latch Enables (LEN1, LEN2) are LOW, the latch is transparent, and output data is controlled by the multiplexer select control, SEL. A logic HIGH on either LEN1 or LEN2 (or both) latches the outputs. The Master Reset (MR) overrides all other controls to set the Q outputs LOW.

- 850ps Max. LEN to Output
- 825ps Max. D to Output
- Single-Ended Outputs
- Asynchronous Master Reset
- Dual Latch-Enables
- Extended 100E $V_{EE}$ Range of – 4.2V to – 5.46V
- 75kΩ Input Pulldown Resistors



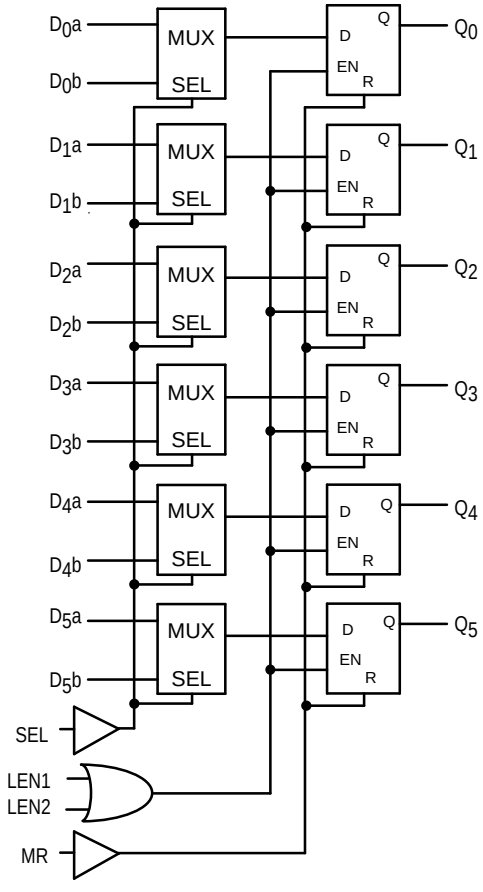
**FN SUFFIX**
PLASTIC PACKAGE
CASE 776-02

**Pinout: 28-Lead PLCC** (Top View)




* All $V_{CC}$ and $V_{CCO}$ pins are tied together on the die.

**LOGIC DIAGRAM**




**PIN NAMES**

| Pin | Function |
|---|---|
| $D_0a$ – $D_04$ | Input Data a |
| $D_0b$ – $D_4b$ | Input Data b |
| SEL | Data Select Input |
| LEN1, LEN2 | Latch Enables |
| MR | Master Reset |
| $Q_0$ – $Q_4$ | Outputs |

**TRUTH TABLE**

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







MOTOROLA

**DC CHARACTERISTICS** ($V_{EE}$ = $V_{EE}$(min) to $V_{EE}$(max); $V_{CC}$ = $V_{CCO}$ = GND)

| | | 0°C | | | 25°C | | | 85°C | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Symbol** | **Characteristic** | **min** | **typ** | **max** | **min** | **typ** | **max** | **min** | **typ** | **max** | **Unit** | **Condition** |
| $I_{IH}$ | Input HIGH Current | | | 150 | | | 150 | | | 150 | μA | |
| $I_{EE}$ | Power Supply Current | | | | | | | | | | mA | |
| | 10E | | 85 | 102 | | 85 | 102 | | 85 | 102 | | |
| | 100E | | 85 | 102 | | 85 | 102 | | 98 | 117 | | |

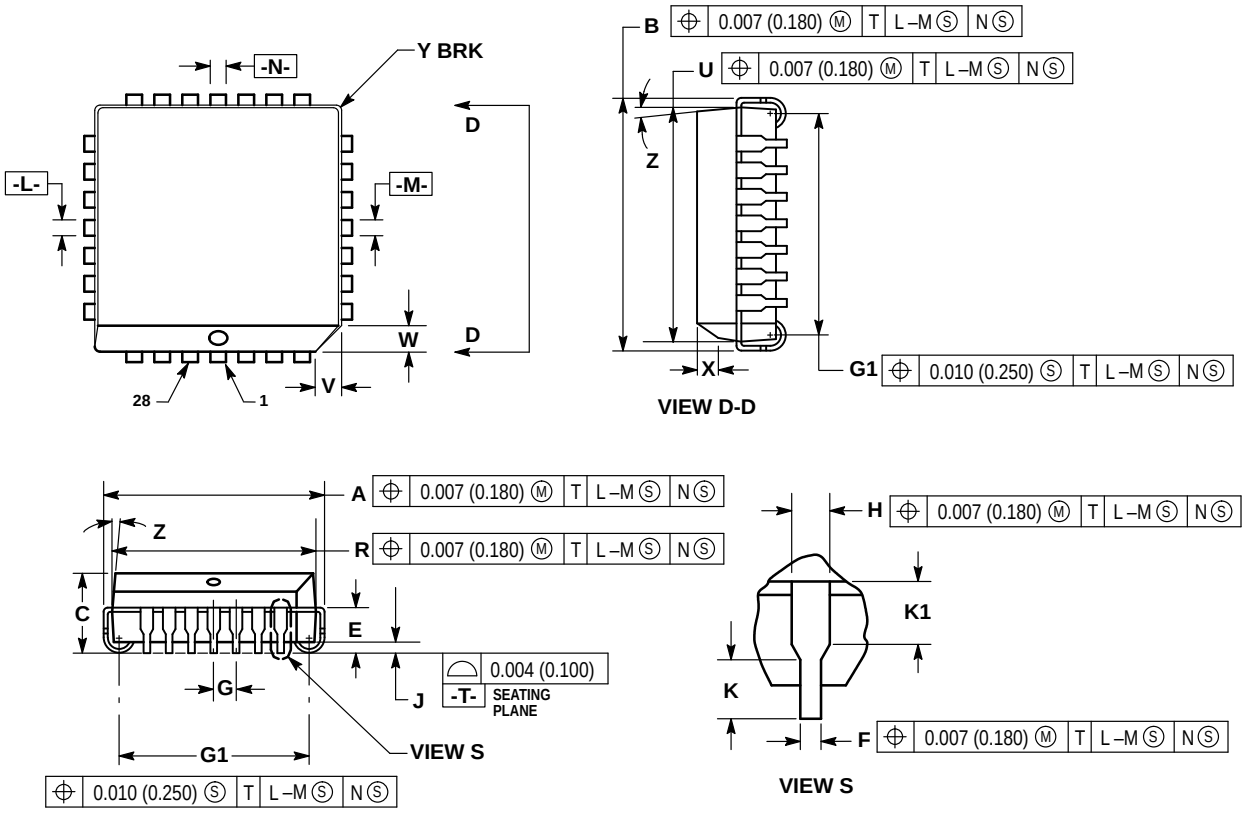
**AC CHARACTERISTICS** ($V_{EE}$ = $V_{EE}$(min) to $V_{EE}$(max); $V_{CC}$ = $V_{CCO}$ = GND)

| | | 0°C | | | 25°C | | | 85°C | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Symbol** | **Characteristic** | **min** | **typ** | **max** | **min** | **typ** | **max** | **min** | **typ** | **max** | **Unit** | **Condition** |
| $t_{PLH}$ | Propagation Delay to Output | | | | | | | | | | ps | |
| $t_{PHL}$ | D | 325 | 500 | 700 | 325 | 500 | 700 | 325 | 500 | 700 | | |
| | SEL | 475 | 675 | 925 | 475 | 675 | 925 | 475 | 675 | 925 | | |
| | LEN | 350 | 500 | 750 | 350 | 500 | 750 | 350 | 500 | 750 | | |
| | MR | 450 | 600 | 850 | 450 | 600 | 850 | 450 | 600 | 850 | | |
| $t_S$ | Setup Time | | | | | | | | | | ps | |
| | D | 300 | 100 | | 300 | 100 | | 300 | 100 | | | |
| | SEL | 500 | 250 | | 500 | 250 | | 500 | 250 | | | |
| $t_h$ | Hold TIme | | | | | | | | | | ps | |
| | D | 300 | –100 | | 300 | –100 | | 300 | –100 | | | |
| | SEL | 0 | – 250 | | 0 | – 250 | | 0 | – 250 | | | |
| $t_{RR}$ | Reset Recovery Time | 800 | 650 | | 800 | 650 | | 800 | 650 | | ps | |
| $t_{PW}$ | Minimum Pulse Width | | | | | | | | | | ps | |
| | MR | 400 | | | 400 | | | 400 | | | | |
| $t_{SKEW}$ | Within-Device Skew | | 75 | | | 75 | | | 75 | | ps | 1 |
| $t_r$ | Rise/Fall Times | | | | | | | | | | ps | |
| $t_f$ | 20 - 80% | 300 | 450 | 800 | 300 | 450 | 800 | 300 | 450 | 800 | | |

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

## OUTLINE DIMENSIONS

**FN SUFFIX**
PLASTIC PLCC PACKAGE
CASE 776–02
ISSUE D




NOTES:
1. DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
2. DIM G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
3. DIM R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
4. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
5. CONTROLLING DIMENSION: INCH.
6. THE PACKAGE TOP MAY BE SMALLER THAN THE PACKAGE BOTTOM BY UP TO 0.012 (0.300). DIMENSIONS R AND U ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY EXCLUSIVE OF MOLD FLASH, TIE BAR BURRS, GATE BURRS AND INTERLEAD FLASH, BUT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.
7. DIMENSION H DOES NOT INCLUDE DAMBAR PROTRUSION OR INTRUSION. THE DAMBAR PROTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE GREATER THAN 0.037 (0.940). THE DAMBAR INTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE SMALLER THAN 0.025 (0.635).

| | INCHES | | MILLIMETERS | |
|---|---|---|---|---|
| DIM | MIN | MAX | MIN | MAX |
| A | 0.485 | 0.495 | 12.32 | 12.57 |
| B | 0.485 | 0.495 | 12.32 | 12.57 |
| C | 0.165 | 0.180 | 4.20 | 4.57 |
| E | 0.090 | 0.110 | 2.29 | 2.79 |
| F | 0.013 | 0.019 | 0.33 | 0.48 |
| G | 0.050 BSC | | 1.27 BSC | |
| H | 0.026 | 0.032 | 0.66 | 0.81 |
| J | 0.020 | — | 0.51 | — |
| K | 0.025 | — | 0.64 | — |
| R | 0.450 | 0.456 | 11.43 | 11.58 |
| U | 0.450 | 0.456 | 11.43 | 11.58 |
| V | 0.042 | 0.048 | 1.07 | 1.21 |
| W | 0.042 | 0.048 | 1.07 | 1.21 |
| X | 0.042 | 0.056 | 1.07 | 1.42 |
| Y | — | 0.020 | — | 0.50 |
| Z | 2° | 10° | 2° | 10° |
| G1 | 0.410 | 0.430 | 10.42 | 10.92 |
| K1 | 0.040 | — | 1.02 | — |

**How to reach us:**
**USA/EUROPE/Locations Not Listed**: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1–800–441–2447 or 602–303–5454

**MFAX**: RMFAX0@email.sps.mot.com – TOUCHTONE 602–244–6609
**INTERNET**: http://Design–NET.com

**JAPAN**: Nippon Motorola Ltd.; Tatsumi–SPD–JLDC, 6F Seibu–Butsuryu–Center,
3–14–2 Tatsumi Koto–Ku, Tokyo 135, Japan. 03–81–3521–8315

**ASIA/PACIFIC**: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852–26629298