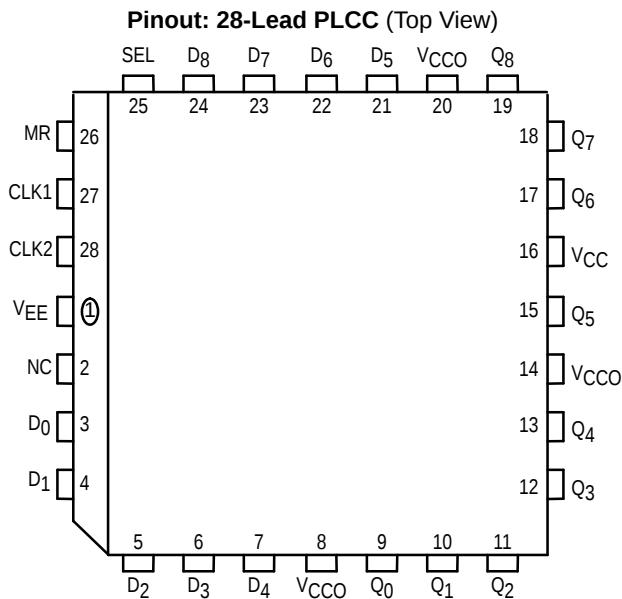


# 9-Bit Hold Register

The MC10E100E143 is a 9-bit holding register, designed with byte-parity applications in mind. The E143 holds current data or loads new data, with the nine inputs D0 – D8 accepting parallel input data.

- 700MHz Min. Operating Frequency
- 9-Bit for Byte-Parity Applications
- Asynchronous Master Reset
- Dual Clocks
- Extended 100E V<sub>EE</sub> Range of – 4.2V to – 5.46V
- 75kΩ Input Pulldown Resistors

The SEL (Select) input pin is used to switch between the two modes of operation — HOLD and LOAD. Input data is accepted by the registers a set-up time before the positive going edge of CLK1 or CLK2. A HIGH on the Master Reset pin (MR) asynchronously resets all the registers to zero.



\* All V<sub>CC</sub> and V<sub>CCO</sub> pins are tied together on the die.

## PIN NAMES

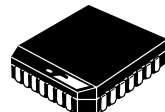
| Pin                             | Function             |
|---------------------------------|----------------------|
| D <sub>0</sub> – D <sub>8</sub> | Parallel Data Inputs |
| SEL                             | Mode Select Input    |
| CLK1, CLK2                      | Clock Inputs         |
| MR                              | Master Reset         |
| Q <sub>0</sub> – Q <sub>8</sub> | Data Outputs         |
| NC                              | No Connection        |

## FUNCTIONS

| SEL | Mode |
|-----|------|
| L   | Load |
| H   | Hold |

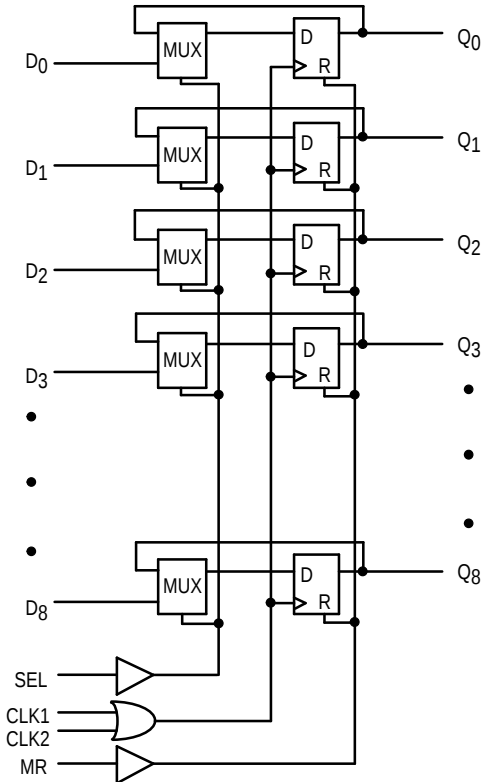
**MC10E143**  
**MC100E143**

**9-BIT HOLD  
REGISTER**



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

## LOGIC DIAGRAM



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

| Symbol   | Characteristic       | 0°C |     |     | 25°C |     |     | 85°C |     |     | Unit    | Condition |
|----------|----------------------|-----|-----|-----|------|-----|-----|------|-----|-----|---------|-----------|
|          |                      | min | typ | max | min  | typ | max | min  | typ | max |         |           |
| $I_{IH}$ | Input HIGH Current   |     |     | 150 |      |     | 150 |      |     | 150 | $\mu A$ |           |
| $I_{EE}$ | Power Supply Current |     |     |     |      |     |     |      |     |     | mA      |           |
|          | 10E                  |     | 120 | 145 |      | 120 | 145 |      | 120 | 145 |         |           |
|          | 100E                 |     | 120 | 145 |      | 120 | 145 |      | 138 | 165 |         |           |

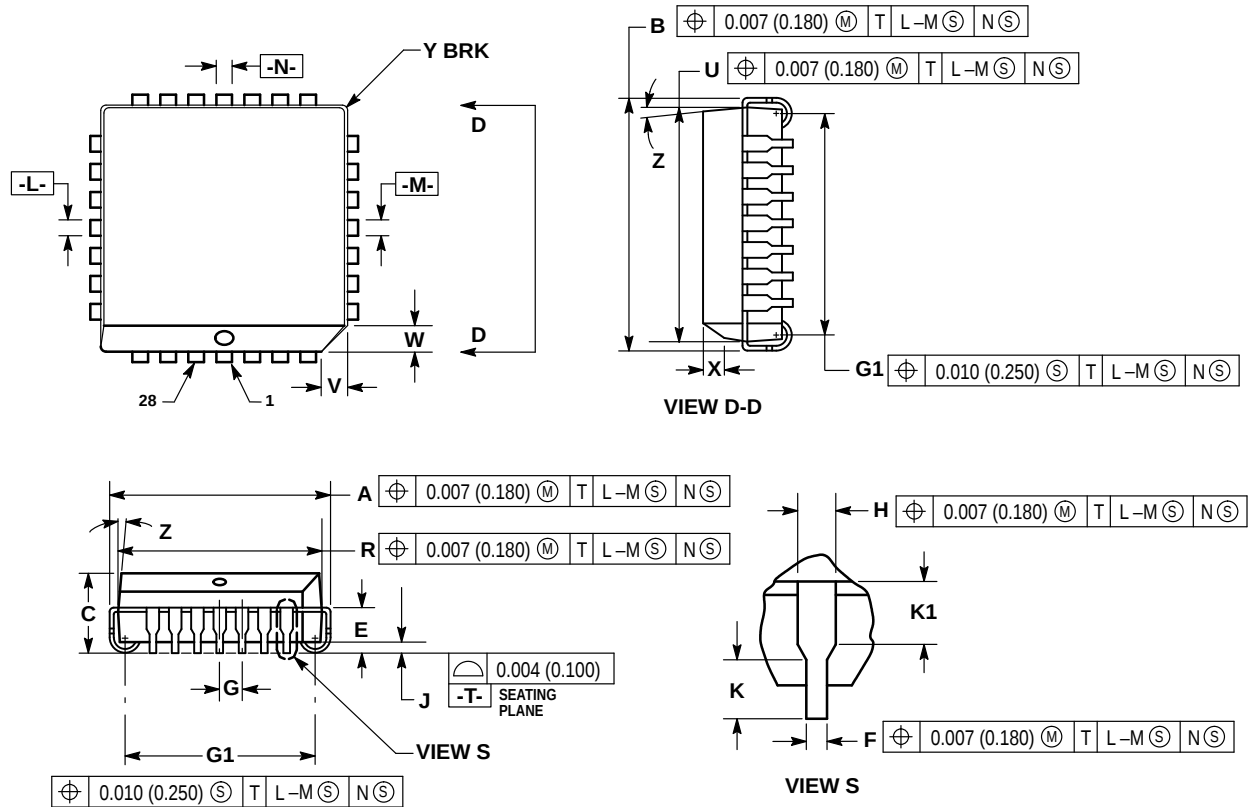
**AC CHARACTERISTICS** ( $V_{EE} = V_{EE(min)}$  to  $V_{EE(max)}$ ;  $V_{CC} = V_{CCO} = GND$ )

| Symbol                 | Characteristic                           | 0°C        |             |              | 25°C       |             |              | 85°C       |             |              | Unit | Condition |
|------------------------|------------------------------------------|------------|-------------|--------------|------------|-------------|--------------|------------|-------------|--------------|------|-----------|
|                        |                                          | min        | typ         | max          | min        | typ         | max          | min        | typ         | max          |      |           |
| $f_{MAX}$              | Max. Toggle Frequency                    | 700        | 900         |              | 700        | 900         |              | 700        | 900         |              | MHz  |           |
| $t_{PLH}$<br>$t_{PHL}$ | Propagation Delay to Output<br>Clk<br>MR | 600<br>600 | 800<br>800  | 1000<br>1000 | 600<br>600 | 800<br>800  | 1000<br>1000 | 600<br>600 | 800<br>800  | 1000<br>1000 | ps   |           |
| $t_S$                  | Setup Time<br>D<br>SEL                   | 50<br>300  | -100<br>150 |              | 50<br>300  | -100<br>150 |              | 50<br>300  | -100<br>150 |              | ps   |           |
| $t_H$                  | Hold Time<br>D<br>SEL                    | 300<br>75  | 100<br>-150 |              | 300<br>75  | 100<br>-150 |              | 300<br>75  | 100<br>-150 |              | ps   |           |
| $t_{RR}$               | Reset Recovery Time                      | 900        | 700         |              | 900        | 700         |              | 900        | 700         |              | ps   |           |
| $t_{PW}$               | Minimum Pulse Width<br>Clk, MR           | 400        |             |              | 400        |             |              | 400        |             |              | ps   |           |
| $t_{SKEW}$             | Within-Device Skew                       |            | 75          |              |            | 75          |              |            | 75          |              | ps   | 1         |
| $t_r$<br>$t_f$         | Rise/Fall Times<br>20 - 80%              | 300        | 525         | 800          | 300        | 525         | 800          | 300        | 525         | 800          | ps   |           |

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:

- DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
- DIM G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
- DIM R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: INCH.
- 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.
- 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).

| DIM | INCHES    |       | MILLIMETERS |       |
|-----|-----------|-------|-------------|-------|
|     | 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        | —     |

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