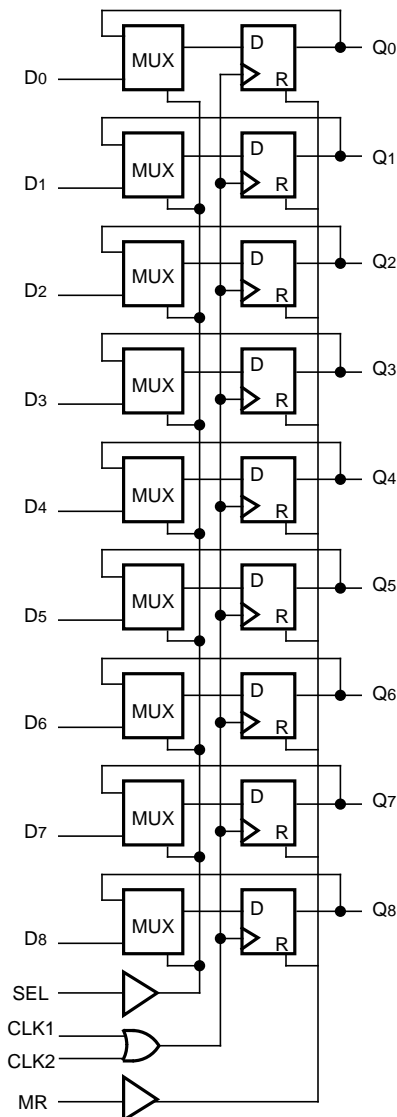


## FEATURES

- 700MHz min. operating frequency
- Extended 100E VEE range of -4.2V to -5.5V
- 9 bits wide for byte-parity applications
- Asynchronous Master Reset
- Dual clocks
- Fully compatible with industry standard 10KH, 100K ECL levels
- Internal 75kΩ input pulldown resistors
- Fully compatible with Motorola MC10E/100E143
- Available in 28-pin PLCC package

## BLOCK DIAGRAM



## DESCRIPTION

The SY10/100E143 are high-speed 9-bit hold registers designed for use in new, high-performance ECL systems. The E143 can hold current data or load new data. The nine inputs, D<sub>0</sub>-D<sub>8</sub>, accept parallel input data.

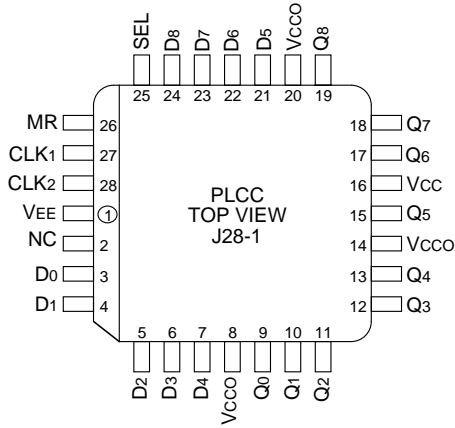
The SEL (Select) control pin serves to determine the mode of operation; either HOLD or LOAD. The input data has to meet the set-up time before being clocked into the nine input registers on the rising edge of CLK<sub>1</sub> or CLK<sub>2</sub>. The MR (Master Reset) control signal asynchronously resets all nine registers to a logic LOW when a logic HIGH is applied to MR.

The E143 is designed for applications requiring high-speed registers, pipeline registers, synchronous operation, and is also suitable for byte-wide parity.

## PIN NAMES

| Pin                                 | Function                  |
|-------------------------------------|---------------------------|
| D <sub>0</sub> -D <sub>8</sub>      | Parallel Data Inputs      |
| SEL                                 | Mode Select Input         |
| CLK <sub>1</sub> , CLK <sub>2</sub> | Clock Inputs              |
| MR                                  | Master Reset              |
| Q <sub>0</sub> -Q <sub>8</sub>      | Data Outputs              |
| NC                                  | No Connection             |
| V <sub>CCO</sub>                    | V <sub>CC</sub> 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 |
|---------------------------------|--------------|-----------------|---|-------------|
| SY10E143JC                      | J28-1        | Commercial      | SY10E143JC                                  | Sn-Pb       |
| SY10E143JCTR <sup>(2)</sup>     | J28-1        | Commercial      | SY10E143JC                                  | Sn-Pb       |
| SY100E143JC                     | J28-1        | Commercial      | SY100E143JC                                 | Sn-Pb       |
| SY100E143JCTR <sup>(2)</sup>    | J28-1        | Commercial      | SY100E143JC                                 | Sn-Pb       |
| SY10E143JZ <sup>(3)</sup>       | J28-1        | Commercial      | SY10E143JZ with Pb-Free bar-line indicator  | Matte-Sn    |
| SY10E143JZTR <sup>(2, 3)</sup>  | J28-1        | Commercial      | SY10E143JZ with Pb-Free bar-line indicator  | Matte-Sn    |
| SY100E143JZ <sup>(3)</sup>      | J28-1        | Commercial      | SY100E143JZ with Pb-Free bar-line indicator | Matte-Sn    |
| SY100E143JZTR <sup>(2, 3)</sup> | J28-1        | Commercial      | SY100E143JZ with Pb-Free bar-line indicator | Matte-Sn    |

**Notes:**

1. Contact factory for die availability. Dice are guaranteed at T<sub>A</sub> = 25°C, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

**TRUTH TABLE**

| SEL | MODE |
|-----|------|
| L   | LOAD |
| H   | HOLD |

**DC ELECTRICAL CHARACTERISTICS**

VEE = VEE (Min.) to VEE (Max.); VCC = VCCO = GND

| Symbol          | Parameter            | TA = 0°C |      |      | TA = +25°C |      |      | TA = +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 | 10E      | —    | 120  | 145        | —    | 120  | 145        | —    | 120  | 145  | mA        | — |
|                 |                      | 100E     | —    | 120  | 145        | —    | 120  | 145        | —    | 138  | 165  |           |   |
|                 |                      |          |      |      |            |      |      |            |      |      |      |           |   |

**AC ELECTRICAL CHARACTERISTICS**

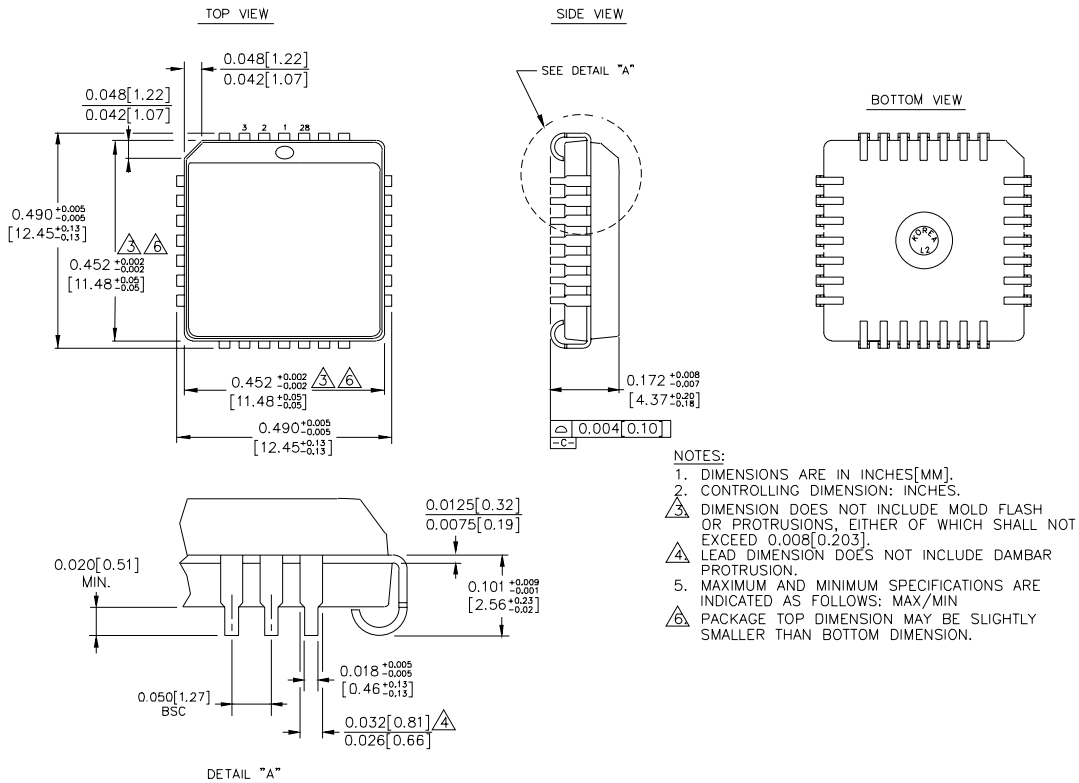
VEE = VEE (Min.) to VEE (Max.); VCC = VCCO = GND

| Symbol                           | Parameter                                | TA = 0°C |      |      | TA = +25°C |      |      | TA = +85°C |      |      | Unit | Condition |
|----------------------------------|--|----------|------|------|------------|------|------|------------|------|------|------|-----------|
|                                  |  | Min.     | Typ. | Max. | Min.       | Typ. | Max. | Min.       | Typ. | Max. |      |           |
| f <sub>MAX</sub>                 | Max. Toggle Frequency                    | 700      | 900  | —    | 700        | 900  | —    | 700        | 900  | —    | MHz  | —         |
| t <sub>PD</sub>                  | Propagation Delay to Output<br>CLK<br>MR | 600      | 800  | 1000 | 600        | 800  | 1000 | 600        | 800  | 1000 | ps   | —         |
|                                  |  | 600      | 800  | 1000 | 600        | 800  | 1000 | 600        | 800  | 1000 |      |           |
| t <sub>S</sub>                   | Set-up Time<br>D<br>SEL                  | 50       | -100 | —    | 50         | -100 | —    | 50         | -100 | —    | ps   | —         |
|                                  |  | 300      | 150  | —    | 300        | 150  | —    | 300        | 150  | —    |      |           |
| t <sub>H</sub>                   | Hold Time<br>D<br>SEL                    | 300      | 100  | —    | 300        | 100  | —    | 300        | 100  | —    | ps   | —         |
|                                  |  | 75       | -150 | —    | 75         | -150 | —    | 75         | -150 | —    |      |           |
| t <sub>RR</sub>                  | Reset Recovery Time                      | 900      | 700  | —    | 900        | 700  | —    | 900        | 700  | —    | ps   | —         |
| t <sub>PW</sub>                  | Minimum Pulse Width<br>CLK, MR           | 400      | —    | —    | 400        | —    | —    | 400        | —    | —    | ps   | —         |
| t <sub>skew</sub>                | Within-Device Skew                       | —        | 75   | —    | —          | 75   | —    | —          | 75   | —    | ps   | 1         |
| t <sub>r</sub><br>t <sub>f</sub> | Rise/Fall Time<br>20% to 80%             | 300      | 525  | 800  | 300        | 525  | 800  | 300        | 525  | 800  | ps   | —         |

**Note:**

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

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



Rev. 03

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