

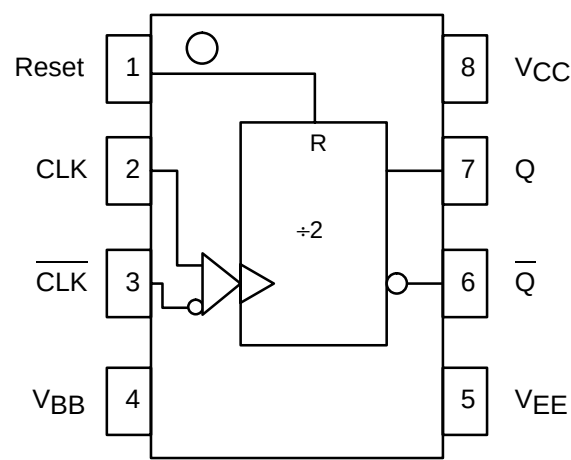
Product Preview  
÷2 Divider

The MC100LVEL32 is an integrated ÷2 divider. The differential clock inputs and the V<sub>BB</sub> allow a differential, single-ended or AC coupled interface to the device. If used, the V<sub>BB</sub> output should be bypassed to ground with a 0.01μF capacitor. Also note that the V<sub>BB</sub> is designed to be used as an input bias on the LVEL32 only, the V<sub>BB</sub> output has limited current sink and source capability. The LVEL32 is functionally identical to the EL32, but operates from a low voltage supply.

The reset pin is asynchronous and is asserted on the rising edge. Upon power-up, the internal flip-flop will attain a random state; the reset allows for the synchronization of multiple EL32's in a system.

- 510ps Propagation Delay
- 3.0GHz Toggle Frequency
- High Bandwidth Output Transitions
- 75kΩ Internal Input Pulldown Resistors
- >1000V ESD Protection

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



MC100LVEL32



D SUFFIX  
PLASTIC SOIC PACKAGE  
CASE 751-05

PIN DESCRIPTION

| PIN             | FUNCTION           |
|-----------------|--------------------|
| CLK             | Clock Inputs       |
| Reset           | Asynch Reset       |
| V <sub>BB</sub> | Ref Voltage Output |
| Q               | Data Outputs       |

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

| Symbol   | Characteristic           | -40°C |      |       | 0°C   |      |       | 25°C  |      |       | 85°C  |      |       | Unit          |
|----------|--------------------------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|---------------|
|          |                          | Min   | Typ  | Max   | Min   | Typ  | Max   | Min   | Typ  | Max   | Min   | Typ  | Max   |               |
| $I_{EE}$ | Power Supply Current     |       | 25   |       |       | 25   |       |       | 25   |       |       | 25   |       | mA            |
| $V_{EE}$ | Power Supply Voltage     |       | -3.0 |       | -3.0  | -3.3 | -3.8  | -3.0  | -3.3 | -3.8  | -3.0  | -3.3 | -3.8  | V             |
| $V_{BB}$ | Output Reference Voltage | -1.38 |      | -1.26 | -1.38 |      | -1.26 | -1.38 |      | -1.26 | -1.38 |      | -1.26 | V             |
| $I_{IH}$ | Input HIGH Current       |       |      | 150   |       |      | 150   |       |      | 150   |       |      | 150   | $\mu\text{A}$ |

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

| Symbol                               | Characteristic                              | -40°C |            |     | 0°C |            |     | 25°C |            |     | 85°C |            |     | Unit |
|--------------------------------------|---------------------------------------------|-------|------------|-----|-----|------------|-----|------|------------|-----|------|------------|-----|------|
|                                      |                                             | Min   | Typ        | Max | Min | Typ        | Max | Min  | Typ        | Max | Min  | Typ        | Max |      |
| $f_{\text{MAX}}$                     | Maximum Toggle Frequency                    |       | 3.0        |     |     | 3.0        |     |      | 3.0        |     |      | 3.0        |     | GHz  |
| $t_{\text{PLH}}$<br>$t_{\text{PHL}}$ | Propagation Delay<br>CLK to Q<br>Reset to Q |       | 500<br>540 |     |     | 500<br>540 |     |      | 510<br>540 |     |      | 540<br>550 |     | ps   |
| $V_{\text{PP}}$                      | Minimum Input Swing <sup>1</sup>            | 150   |            |     | 150 |            |     | 150  |            |     | 150  |            |     | mV   |
| $t_r$<br>$t_f$                       | Output Rise/Fall Times Q<br>(20% – 80%)     |       | 225        |     |     | 225        |     |      | 225        |     |      | 225        |     | ps   |

1. Minimum input swing for which AC parameters are guaranteed.

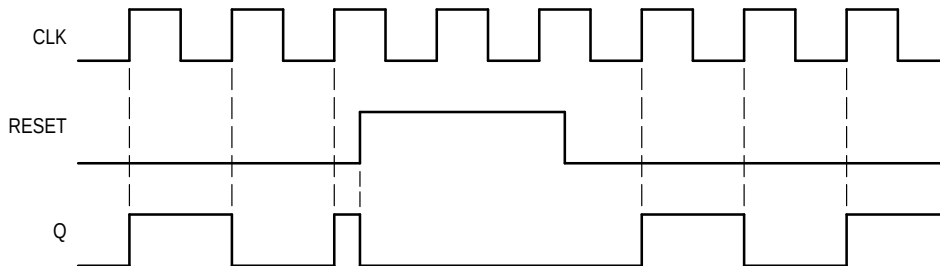
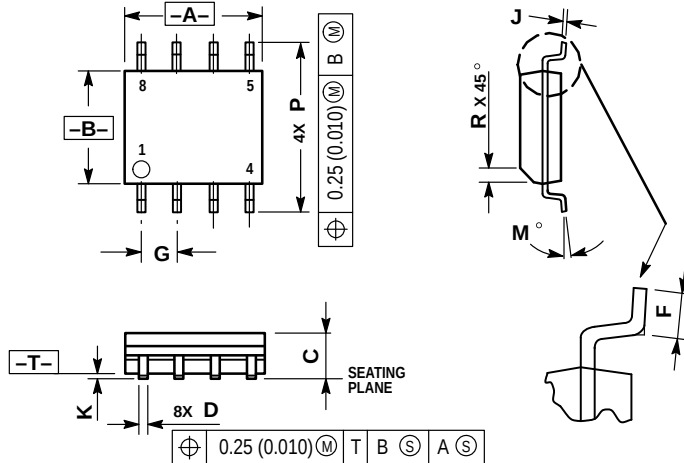


Figure 1. Timing Diagram

## 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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