

FEATURES

- 3.3V and 5V power supply options
- 510ps propagation delay
- 3.0GHz toggle frequency
- High bandwidth output transistions
- Internal 75KΩ input pull-down resistors
- ESD protection of 2000V

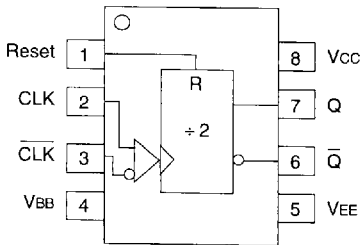
DESCRIPTION

The SY10/100EL32/L are integrated +2 dividers. The differential clock inputs and the VBB allow a differential, single-ended or AC-coupled interface to the device. If used, the VBB output should be bypassed to ground with a 0.01μF capacitor. Also note that the VBB is designed to be used as an input bias on the EL32/L only; the VBB output has limited current sink and source capability.

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

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PIN CONFIGURATION/BLOCK DIAGRAM



SOIC
TOP VIEW

PIN NAMES

| Pin | Function |
|-------|--------------------------|
| CLK | Clock Inputs |
| Reset | Asynchronous Reset |
| VBB | Reference Voltage Output |
| Q | Data Outputs |

DC ELECTRICAL CHARACTERISTICS⁽¹⁾

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

| Symbol | Parameter | -40°C | | | 0°C | | | +25°C | | | +85°C | | | Unit |
|-----------------|--------------------------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|------|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| IEE | Power Supply Current | | | | | | | | | | | | | mA |
| | 10EL | — | 25 | 30 | — | 25 | 30 | — | 25 | 30 | — | 25 | 30 | |
| | 100EL | — | 25 | 30 | — | 25 | 30 | — | 25 | 30 | — | 29 | 35 | |
| VBB | Output Reference Voltage | | | | | | | | | | | | | V |
| | 10EL | -1.43 | — | -1.30 | -1.38 | — | -1.27 | -1.35 | — | -1.25 | -1.31 | — | -1.19 | |
| | 100EL | -1.38 | — | -1.26 | -1.38 | — | -1.26 | -1.38 | — | -1.26 | -1.38 | — | -1.26 | |
| VEE | Power Supply Voltage | | | | | | | | | | | | | V |
| | 10EL | — | -5.2 | — | -4.75 | -5.2 | -5.5 | -4.75 | -5.2 | -5.5 | -4.75 | -5.2 | -5.5 | |
| | 100EL | — | -4.5 | — | -4.20 | -4.5 | -5.5 | -4.20 | -4.5 | -5.5 | -4.20 | -4.5 | -5.5 | |
| I _{IH} | Input HIGH Current | — | — | 150 | — | — | 150 | — | — | 150 | — | — | 150 | μA |

NOTES:

- Parametric values specified at:

| | | |
|---------------------------|---------------------|------------------|
| 5 volt Power Supply Range | 100EL32 Series: | -4.2V to -5.5V. |
| | 10EL32 Series | -4.75V to -5.5V. |
| 3 volt Power Supply Range | 10/100EL32L Series: | -3.0V to -3.8V. |

AC ELECTRICAL CHARACTERISTICS⁽¹⁾

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

| Symbol | Parameter | -40°C | | | 0°C | | | +25°C | | | +85°C | | | Unit |
|--------------------------------------|--|-------|------|------|------|------|------|-------|------|------|-------|------|------|------|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| f _{MAX} | Maximum Toggle Frequency | 2.2 | 3.0 | — | 2.6 | 3.0 | — | 2.6 | 3.0 | — | 2.6 | 3.0 | — | GHz |
| t _{PLH} t _{PHL} | Prop Delay to Output D Reset to Q | 360 | 500 | 640 | 410 | 500 | 590 | 420 | 510 | 600 | 450 | 540 | 630 | ps |
| | | 390 | 540 | 690 | 440 | 540 | 640 | 440 | 540 | 640 | 450 | 550 | 650 | |
| V _{PP} | Minimum Input Swing ⁽²⁾ | 150 | — | — | 150 | — | — | 150 | — | — | 150 | — | — | mV |
| t _r t _f | Output Rise/Fall Times Q (20% to 80%) | 100 | 225 | 350 | 100 | 225 | 350 | 100 | 225 | 350 | 100 | 225 | 350 | ps |

NOTES:

- Parametric values specified at:

| | | |
|---------------------------|---------------------|------------------|
| 5 volt Power Supply Range | 100EL32 Series: | -4.2V to -5.5V. |
| | 10EL32 Series | -4.75V to -5.5V. |
| 3 volt Power Supply Range | 10/100EL32L Series: | -3.0V to -3.8V. |
- Minimum input swing for which AC parameters are guaranteed.

PRODUCT ORDERING CODE

5V

| Ordering Code | Package Type | Operating Range | VEE Range (V) |
|---------------|--------------|-----------------|---------------|
| SY10EL32ZC | Z8-1 | Commercial | -4.75 to -5.5 |
| SY10EL32ZCTR | Z8-1 | Commercial | -4.75 to -5.5 |
| SY100EL32ZC | Z8-1 | Commercial | -4.2 to -5.5 |
| SY100EL32ZCTR | Z8-1 | Commercial | -4.2 to -5.5 |

3.3V

| Ordering Code | Package Type | Operating Range | VEE Range (V) |
|----------------|--------------|-----------------|---------------|
| SY10EL32LZC | Z8-1 | Commercial | -3.0 to -3.8 |
| SY10EL32LZCTR | Z8-1 | Commercial | -3.0 to -3.8 |
| SY100EL32LZC | Z8-1 | Commercial | -3.0 to -3.8 |
| SY100EL32LZCTR | Z8-1 | Commercial | -3.0 to -3.8 |