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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



**5V/3.3V ÷ 2 DIVIDER****Precision Edge®
SY10EL32V
SY100EL32V****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
- Available in 8-pin SOIC package

**Precision Edge®****DESCRIPTION**

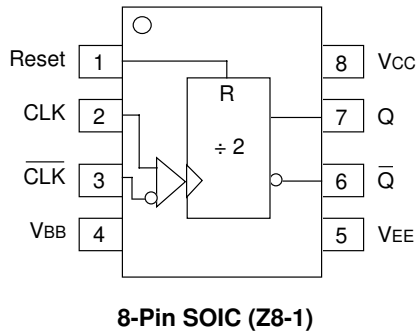
The SY10/100EL32V are integrated ÷2 dividers. The differential clock inputs and the VBB allow a differential, single-ended or AC-coupled interface to the device. If used, the VBB output should be bypassed to ground with a 0.01μF capacitor. Also note that the VBB is designed to be used as an input bias on the EL32V 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 EL32Vs in a system.

PIN NAMES

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

PACKAGE/ORDERING INFORMATION



Ordering Information⁽¹⁾

| Part Number | Package Type | Operating Range | Package Marking | Lead Finish |
|----------------------------------|--------------|-----------------|--|----------------|
| SY10EL32VZC | Z8-1 | Commercial | HEL32V | Sn-Pb |
| SY10EL32VZCTR ⁽²⁾ | Z8-1 | Commercial | HEL32V | Sn-Pb |
| SY100EL32VZC | Z8-1 | Commercial | XEL32V | Sn-Pb |
| SY100EL32VZCTR ⁽²⁾ | Z8-1 | Commercial | XEL32V | Sn-Pb |
| SY10EL32VZI | Z8-1 | Industrial | HEL32V | Sn-Pb |
| SY10EL32VZITR ⁽²⁾ | Z8-1 | Industrial | HEL32V | Sn-Pb |
| SY100EL32VZI | Z8-1 | Industrial | XEL32V | Sn-Pb |
| SY100EL32VZITR ⁽²⁾ | Z8-1 | Industrial | XEL32V | Sn-Pb |
| SY10EL32VZG ⁽³⁾ | Z8-1 | Industrial | HEL32V with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY10EL32VZGTR ^(2, 3) | Z8-1 | Industrial | HEL32V with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY100EL32VZG ⁽³⁾ | Z8-1 | Industrial | XEL32V with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY100EL32VZGTR ^(2, 3) | Z8-1 | Industrial | XEL32V with Pb-Free bar-line indicator | Pb-Free NiPdAu |

Notes:

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

DC ELECTRICAL CHARACTERISTICS⁽¹⁾

V_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = GND

| Symbol | Parameter | T _A = -40°C | | | T _A = 0°C | | | T _A = +25°C | | | T _A = +85°C | | | Unit |
|-----------------|--------------------------|------------------------|------|-------|----------------------|------|-------|------------------------|------|-------|------------------------|------|-------|------|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| I _{EE} | Power Supply Current | | | | | | | | | | | | | mA |
| | 10EL | — | 25 | 30 | — | 25 | 30 | — | 25 | 30 | — | 25 | 30 | |
| | 100EL | — | 25 | 30 | — | 25 | 30 | — | 25 | 30 | — | 29 | 35 | |
| V _{BB} | 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 | |
| I _{IH} | Input HIGH Current | — | — | 150 | — | — | 150 | — | — | 150 | — | — | 150 | μA |

NOTE:

1. Parametric values specified at: 10/100EL32V Series: -3.0V to -5.5V.

AC ELECTRICAL CHARACTERISTICS⁽¹⁾

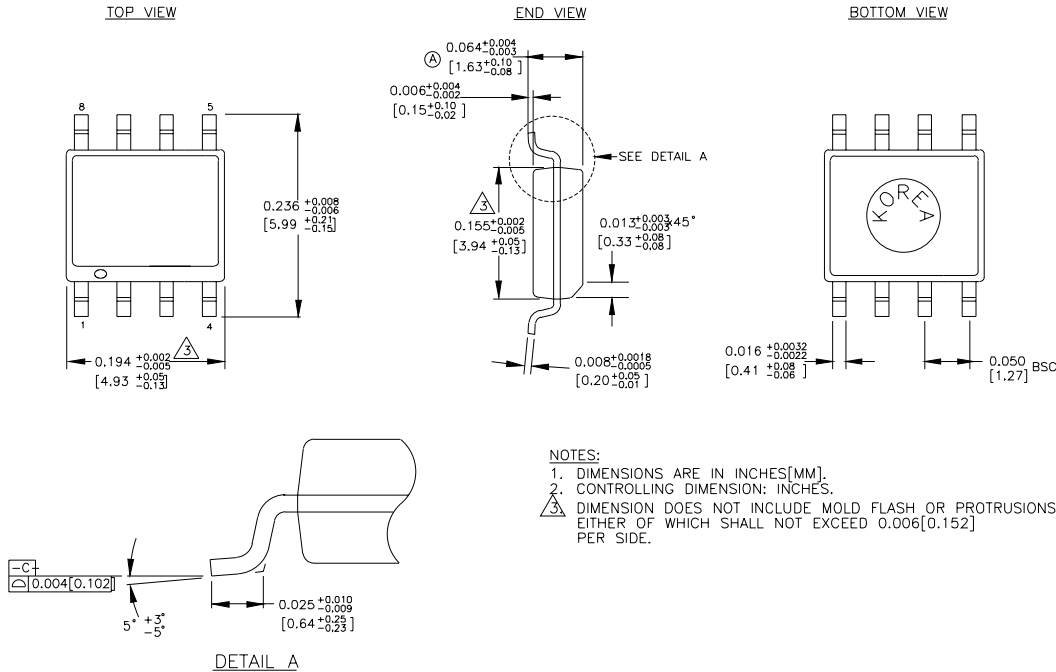
V_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = GND

| Symbol | Parameter | T _A = -40°C | | | T _A = 0°C | | | T _A = +25°C | | | T _A = +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 _{PD} | 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 |
| V _{CMR} | Common Mode Range ⁽³⁾ | -1.3 | — | -0.4 | -1.4 | — | -0.4 | -1.4 | — | -0.4 | -1.4 | — | -0.4 | V |
| 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:

1. Parametric values specified at: 10/100EL32V Series: -3.0V to -5.5V.
2. Minimum input swing for which AC parameters are guaranteed. The device has a DC gain of ≈40.
3. The CMR range is referenced to the most positive side of the differential input signal. Normal operation is obtained if the HIGH level falls within the specified range and the peak-to-peak voltage lies between V_{PP} min. and 1V. The lower end of the CMR range varies 1:1 with V_{EE}. The numbers in the spec table assume a nominal V_{EE} = -3.3V. Note for PECL operation, the V_{CMR} (min) will be fixed at 3.3V - |V_{CMR} (min)|.

8-PIN SOIC .150" WIDE (Z8-1)



Rev. 03

MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USA

TEL + 1 (408) 944-0800 FAX + 1 (408) 474-1000 WEB <http://www.micrel.com>

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