

## 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



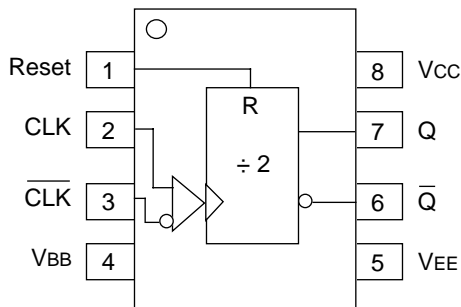
Precision Edge™

## 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 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<sup>(1)</sup>

V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = GND

Symbol	Parameter	T <sub>A</sub> = -40°C			T <sub>A</sub> = 0°C			T <sub>A</sub> = +25°C			T <sub>A</sub> = +85°C			Unit	
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
I <sub>EE</sub>	Power Supply Current	10EL	—	25	30	—	25	30	—	25	30	—	25	30	mA
		100EL	—	25	30	—	25	30	—	25	30	—	29	35	
V <sub>BB</sub>	Output Reference Voltage	10EL	-1.43	—	-1.30	-1.38	—	-1.27	-1.35	—	-1.25	-1.31	—	-1.19	V
		100EL	-1.38	—	-1.26	-1.38	—	-1.26	-1.38	—	-1.26	-1.38	—	-1.26	
I <sub>IH</sub>	Input HIGH Current	—	—	150	—	—	150	—	—	150	—	—	150	μA	

### NOTES:

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

## AC ELECTRICAL CHARACTERISTICS<sup>(1)</sup>

V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = GND

Symbol	Parameter	T <sub>A</sub> = -40°C			T <sub>A</sub> = 0°C			T <sub>A</sub> = +25°C			T <sub>A</sub> = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
f <sub>MAX</sub>	Maximum Toggle Frequency	2.2	3.0	—	2.6	3.0	—	2.6	3.0	—	2.6	3.0	—	GHz
t <sub>PLH</sub> t <sub>PHL</sub>	Prop Delay to Output D Reset to Q	360 390	500 540	640 690	410 440	500 540	590 640	420 440	510 540	600 640	450 450	540 550	630 650	ps
V <sub>PP</sub>	Minimum Input Swing <sup>(2)</sup>	150	—	—	150	—	—	150	—	—	150	—	—	mV
V <sub>CMR</sub>	Common Mode Range <sup>(3)</sup>	-1.3	—	-0.4	-1.4	—	-0.4	-1.4	—	-0.4	-1.4	—	-0.4	V
t <sub>r</sub> t <sub>f</sub>	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: 10/100EL32V Series: -3.0V to -5.5V.
- Minimum input swing for which AC parameters are guaranteed. The device has a DC gain of ≈40.
- 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<sub>PP</sub> min. and 1V. The lower end of the CMR range varies 1:1 with V<sub>EE</sub>. The numbers in the spec table assume a nominal V<sub>EE</sub> = -3.3V. Note for PECL operation, the V<sub>CMR</sub> (min) will be fixed at 3.3V - |V<sub>CMR</sub> (min)|.

## PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range	Marking Code
SY10EL32VZC	Z8-1	Commercial	HEL32V
SY10EL32VZCTR*	Z8-1	Commercial	HEL32V
SY100EL32VZC	Z8-1	Commercial	XEL32V
SY100EL32VZCTR*	Z8-1	Commercial	XEL32V

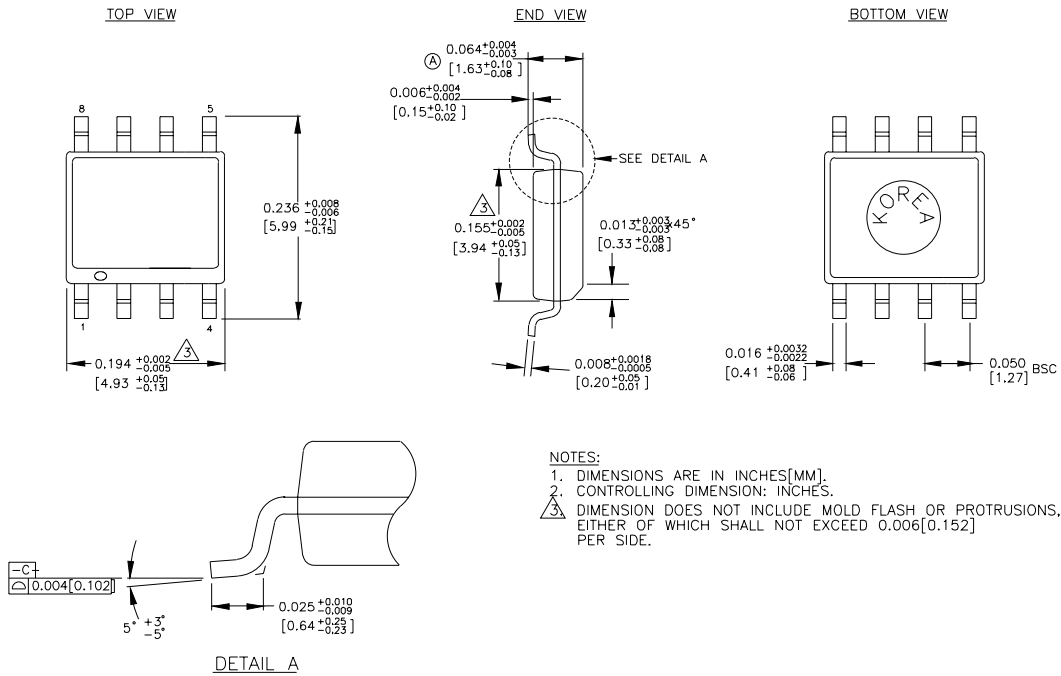
\*Tape and Reel

**Note 1.** Recommended for new designs.

Ordering Code	Package Type	Operating Range	Marking Code
SY10EL32VZI <sup>(1)</sup>	Z8-1	Industrial	HEL32V
SY10EL32VZITR* <sup>(1)</sup>	Z8-1	Industrial	HEL32V
SY100EL32VZI <sup>(1)</sup>	Z8-1	Industrial	XEL32V
SY100EL32VZITR* <sup>(1)</sup>	Z8-1	Industrial	XEL32V

\*Tape and Reel

**8 LEAD SOIC .150" WIDE (Z8-1)**



**NOTES:**  
 1. DIMENSIONS ARE IN INCHES[MM].  
 2. CONTROLLING DIMENSION: INCHES.  
 3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.006[0.152] PER SIDE.

Rev. 03

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