

**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**

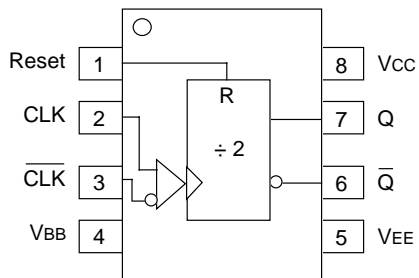
The SY10/100EL32V are integrated ÷2 dividers. The differential clock inputs and the VBB allow a differential, single-ended or AC-coupled interface to the device. If used, the VBB output should be bypassed to ground with a 0.01μF capacitor. Also note that the VBB is designed to be used as an input bias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



**8-Pin SOIC (Z8-1)**

**Ordering Information<sup>(1)</sup>**

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10EL32VZC	Z8-1	Commercial	HEL32V	Sn-Pb
SY10EL32VZCTR <sup>(2)</sup>	Z8-1	Commercial	HEL32V	Sn-Pb
SY100EL32VZC	Z8-1	Commercial	XEL32V	Sn-Pb
SY100EL32VZCTR <sup>(2)</sup>	Z8-1	Commercial	XEL32V	Sn-Pb
SY10EL32VZI	Z8-1	Industrial	HEL32V	Sn-Pb
SY10EL32VZITR <sup>(2)</sup>	Z8-1	Industrial	HEL32V	Sn-Pb
SY100EL32VZI	Z8-1	Industrial	XEL32V	Sn-Pb
SY100EL32VZITR <sup>(2)</sup>	Z8-1	Industrial	XEL32V	Sn-Pb
SY10EL32VZG <sup>(3)</sup>	Z8-1	Industrial	HEL32V with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY10EL32VZGTR <sup>(2, 3)</sup>	Z8-1	Industrial	HEL32V with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL32VZG <sup>(3)</sup>	Z8-1	Industrial	XEL32V with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL32VZGTR <sup>(2, 3)</sup>	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<sub>A</sub> = 25°C, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

## 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													mA
	10EL	—	25	30	—	25	30	—	25	30	—	25	30	
	100EL	—	25	30	—	25	30	—	25	30	—	29	35	
V <sub>BB</sub>	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 <sub>IH</sub>	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<sup>(1)</sup>

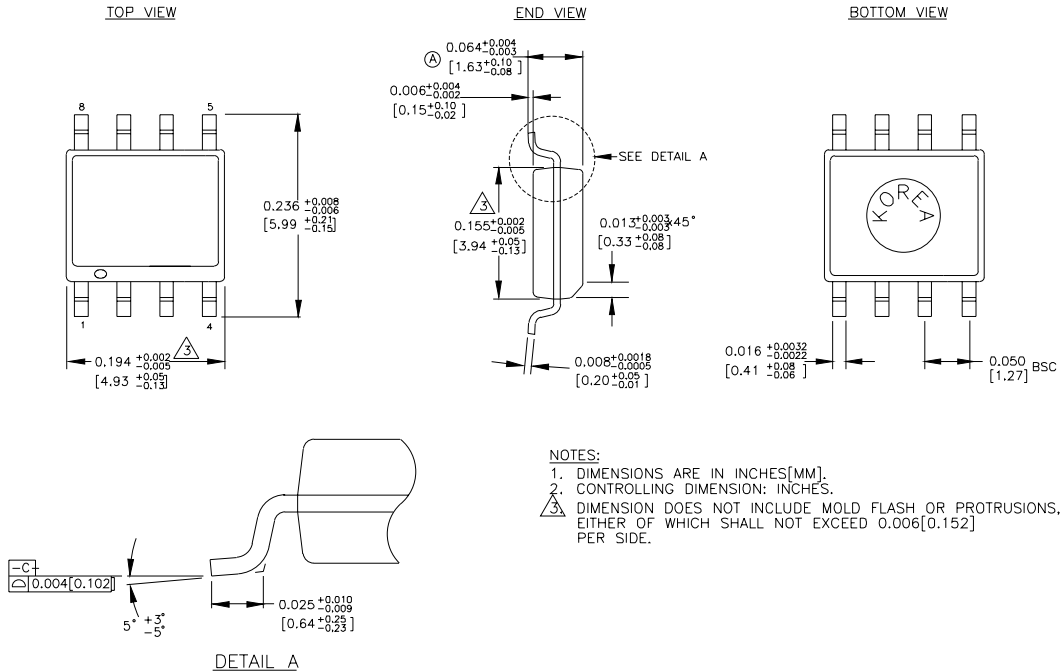
V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = GND

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>PD</sub>	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 <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:**

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<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)|.

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



Rev. 03

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