

## FEATURES

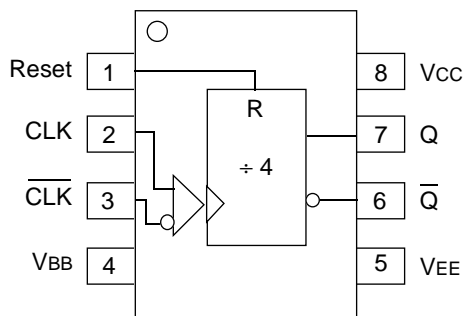
- 3.3V and 5V power supply options
- 650ps propagation delay
- 4.0GHz toggle frequency
- High bandwidth output transistions
- Internal 75K $\Omega$  input pull-down resistors
- Available in 8-pin SOIC package

## DESCRIPTION

The SY10/100EL33/L are integrated ÷4 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 0.01 $\mu$ F capacitor. Also note that the VBB is designed to be used as an input bias on the EL33/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-up, the internal flip-flops will attain a random state; the reset input allows for the synchronization of multiple EL33/Ls 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>**

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

Symbol	Parameter	TA = -40°C			TA = 0°C			TA = +25°C			TA = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
IEE	Power Supply Current													mA
	10EL	—	27	33	—	27	33	—	27	33	—	27	33	
	100EL	—	27	33	—	27	33	—	27	33	—	31	37	
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	
I <sub>IH</sub>	Input HIGH Current	—	—	150	—	—	150	—	—	150	—	—	150	μA

**NOTE:**

1. Parametric values specified at:
- |                           |                     |                  |
|---------------------------|---------------------|------------------|
| 5 volt Power Supply Range | 100EL33 Series:     | -4.2V to -5.5V.  |
|                           | 10EL33 Series       | -4.75V to -5.5V. |
| 3 volt Power Supply Range | 10/100EL33L Series: | -3.0V to -3.8V.  |

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

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

Symbol	Parameter	TA = -40°C			TA = 0°C			TA = +25°C			TA = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
f <sub>MAX</sub>	Maximum Toggle Frequency	3.4	4.2	—	3.8	4.2	—	3.8	4.2	—	3.8	4.2	—	GHz
t <sub>PLH</sub> t <sub>PHL</sub>	Prop. Delay to Output D Reset to Q	490	630 310	770 460	540 610	630 360	720 460	550 560	640 360	730 460	590 560	670 380	760 480	ps 580
V <sub>PP</sub>	Minimum Input Swing <sup>(2)</sup>	150	—	—	150	—	—	150	—	—	150	—	—	mV
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:
- |                           |                     |                  |
|---------------------------|---------------------|------------------|
| 5 volt Power Supply Range | 100EL33 Series:     | -4.2V to -5.5V.  |
|                           | 10EL33 Series       | -4.75V to -5.5V. |
| 3 volt Power Supply Range | 10/100EL33L Series: | -3.0V to -3.8V.  |
2. Minimum input swing for which AC parameters are guaranteed.

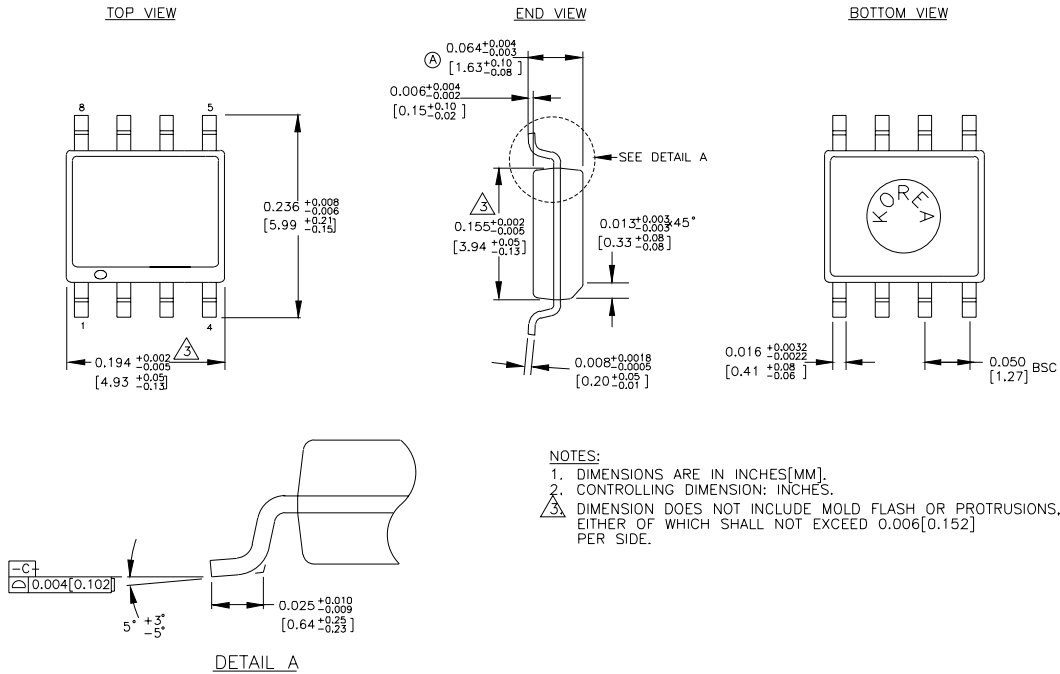
**PRODUCT ORDERING CODE****3.3V**

Ordering Code	Package Type	Operating Range	VEE Range (V)
SY10EL33LZC	Z8-1	Commercial	-3.0 to -3.8
SY10EL33LZCTR	Z8-1	Commercial	-3.0 to -3.8
SY100EL33LZC	Z8-1	Commercial	-3.0 to -3.8
SY100EL33LZCTR	Z8-1	Commercial	-3.0 to -3.8

**5V**

Ordering Code	Package Type	Operating Range	VEE Range (V)
SY10EL33ZC	Z8-1	Commercial	-4.75 to -5.5
SY10EL33ZCTR	Z8-1	Commercial	-4.75 to -5.5
SY100EL33ZC	Z8-1	Commercial	-4.2 to -5.5
SY100EL33ZCTR	Z8-1	Commercial	-4.2 to -5.5

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



Rev. 03

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**MICREL-SYNERGY 3250 SCOTT BOULEVARD SANTA CLARA CA 95054 USA**

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