5V/3.3V ÷ 4 DIVIDER

ClockWorks™
SY10EL33/L
SY100EL33/L

FEATURES

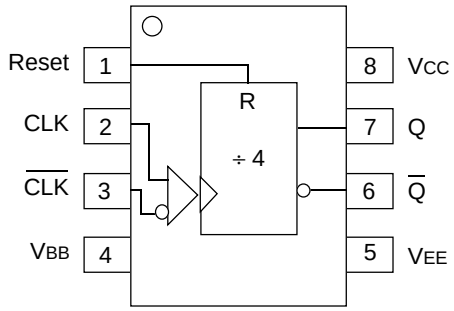
- **3.3V and 5V power supply options**
- **650ps propagation delay**
- **4.0GHz toggle frequency**
- **High bandwidth output transistions**
- **Internal 75KΩ input pull-down resistors**
- **Available in 8-pin SOIC package**

DESCRIPTION

The SY10/100EL33/L are integrated ÷4 dividers. The differential clock inputs and the V_{BB} allow a differential, single-ended or AC-coupled interface to the device. If used, the V_{BB} output should be bypassed to ground with a 0.01µF capacitor. Also note that the V_{BB} is designed to be used as an input bias on the EL33/L only; the V_{BB} 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
V_{BB}	Reference Voltage Output
Q	Data Outputs

DC ELECTRICAL CHARACTERISTICS[1]

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	—	27	33	—	27	33	—	27	33	—	27	33	
	100EL	—	27	33	—	27	33	—	27	33	—	31	37	
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: 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[1]

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	3.4	4.2	—	3.8	4.2	—	3.8	4.2	—	3.8	4.2	—	GHz
t_{PLH}	Prop. Delay to Output D	490	630	770	540	630	720	550	640	730	590	670	760	ps
t_{PHL}	Reset to Q		310	460	610	360	460	560	360	460	560	380	480	580
V_{PP}	Minimum Input Swing[2]	150	—	—	150	—	—	150	—	—	150	—	—	mV
t_r	Output Rise/Fall Times Q	100	225	350	100	225	350	100	225	350	100	225	350	ps
t_f	(20% to 80%)													

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   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

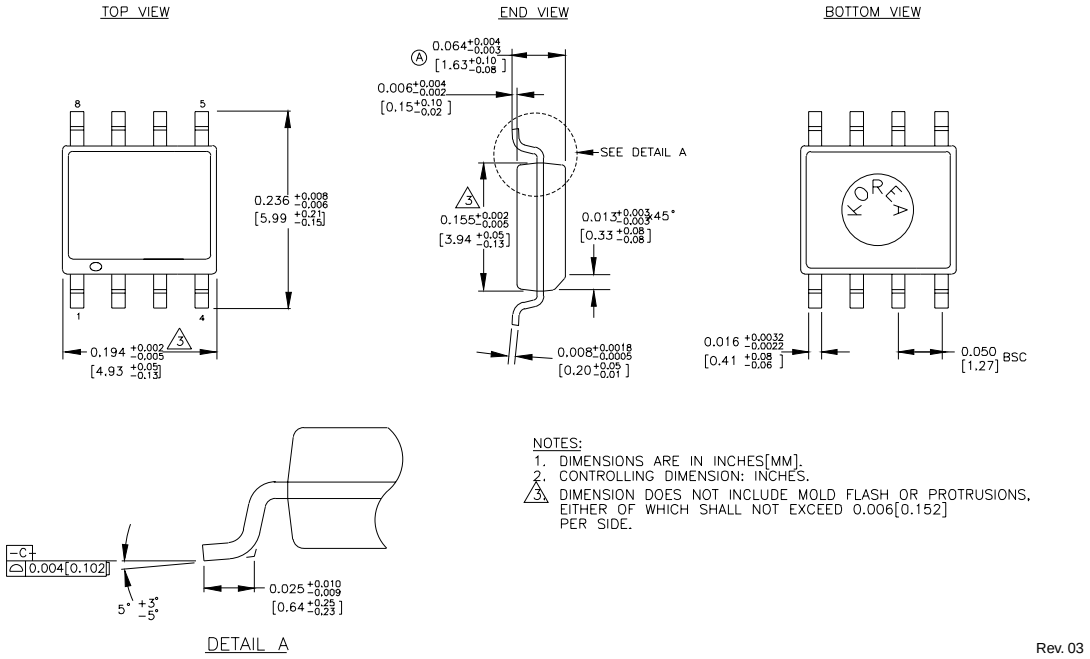
3.3V

Ordering Code	Package Type	Operating Range	V_{EE} 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	V_{EE} 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)



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.

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