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

Precision Edge®

DESCRIPTION

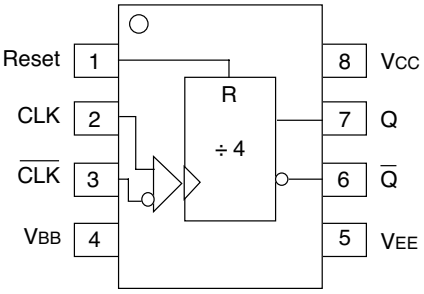
The SY10/100EL33/L are integrated ÷4 dividers. The differential clock inputs and the V_{BB} allow a differential, single-ended or AC-coupled interface to the device. If used, the V_{BB} output should be bypassed to ground with a 0.01μF capacitor. Also note that the V_{BB} is designed to be used as an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

Pin	Function
CLK	Clock Inputs
Reset	Asynchronous Reset
V_{BB}	Reference Voltage Output
Q	Data Outputs

PACKAGE/ORDERING INFORMATION



8-Pin SOIC (Z8-1)

Ordering Information[1]

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10EL33ZC	Z8-1	Commercial	HEL33	Sn-Pb
SY10EL33ZCTR[2]	Z8-1	Commercial	HEL33	Sn-Pb
SY100EL33ZC	Z8-1	Commercial	XEL33	Sn-Pb
SY100EL33ZCTR[2]	Z8-1	Commercial	XEL33	Sn-Pb
SY10EL33ZI	Z8-1	Industrial	HEL33	Sn-Pb
SY10EL33ZITR[2]	Z8-1	Industrial	HEL33	Sn-Pb
SY100EL33ZI	Z8-1	Industrial	XEL33	Sn-Pb
SY100EL33ZITR[2]	Z8-1	Industrial	XEL33	Sn-Pb
SY10EL33LZC	Z8-1	Commercial	HEL33L	Sn-Pb
SY10EL33LZCTR[2]	Z8-1	Commercial	HEL33L	Sn-Pb
SY100EL33LZC	Z8-1	Commercial	XEL33L	Sn-Pb
SY100EL33LZCTR[2]	Z8-1	Commercial	XEL33L	Sn-Pb
SY10EL33LZI	Z8-1	Industrial	HEL33L	Sn-Pb
SY10EL33LZITR[2]	Z8-1	Industrial	HEL33L	Sn-Pb
SY100EL33LZI	Z8-1	Industrial	XEL33L	Sn-Pb
SY100EL33LZITR[2]	Z8-1	Industrial	XEL33L	Sn-Pb
SY10EL33ZG[3]	Z8-1	Industrial	HEL33 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY10EL33ZGTR[2, 3]	Z8-1	Industrial	HEL33 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL33ZG[3]	Z8-1	Industrial	XEL33 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL33ZGTR[2, 3]	Z8-1	Industrial	XEL33 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY10EL33LZG[3]	Z8-1	Industrial	HEL33L with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY10EL33LZGTR[2, 3]	Z8-1	Industrial	HEL33L with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL33LZG[3]	Z8-1	Industrial	XEL33L with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL33LZGTR[2, 3]	Z8-1	Industrial	XEL33L 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} (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													V
	Voltage 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]

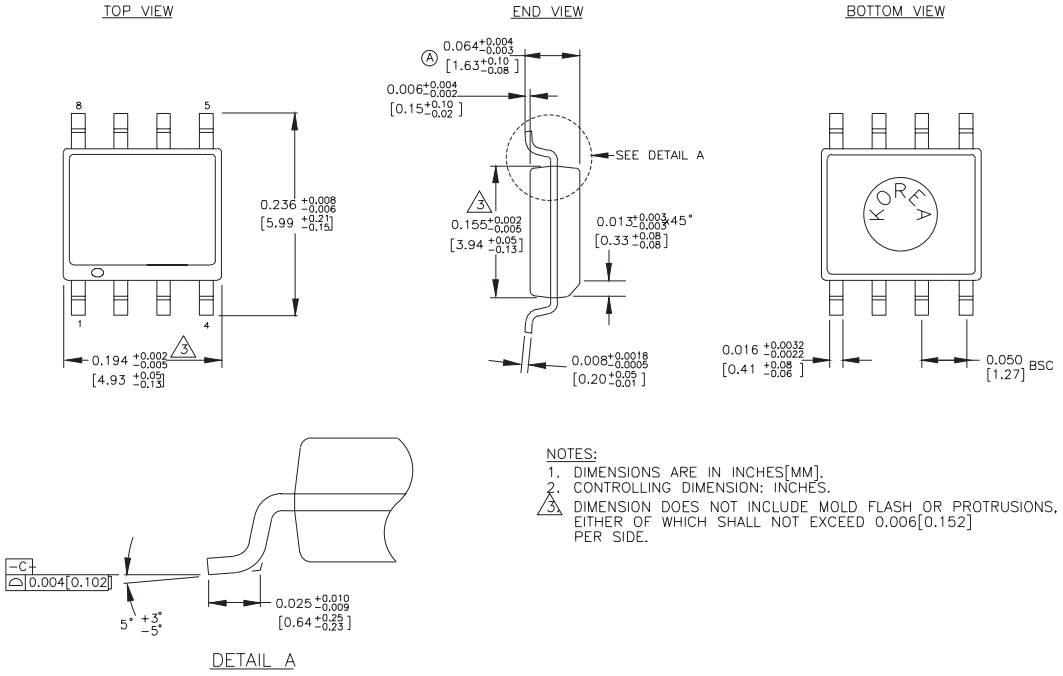
V_{EE} (Min) to V_{EE} (Max); V_{CC} = GND

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_{PD}	Prop. Delay to Output D	490	630	770	540	630	720	550	640	730	590	670	760	ps
	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 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: 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.

8-PIN 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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