SY10EL34/L
SY100EL34/L

5V/3.3V ÷2, ÷4, ÷8 Clock Generation Chip

Precision Edge®

General Description

The SY10/100EL34/L are low-skew ÷2, ÷4, ÷8 clock generation chips designed explicitly for low-skew clock generation applications. The internal dividers are synchronous to each other; therefore, the common output edges are all precisely aligned. The devices can be driven by either a differential or single-ended ECL or, if positive power supplies are used, PECL input signal. In addition, by using the V_{BB} output, a sinusoidal source can be AC-coupled into the device. If a single-ended input is to be used, the V_{BB} output should be connected to the $\overline{CLK}$ input and bypassed to ground via a 0.01µF capacitor. The V_{BB} output is designed to act as the switching reference for the input of the EL34/L under single-ended input conditions. As a result, this pin can only source/ sink up to 0.5mA of current.

The common enable ($\overline{EN}$) is synchronous so that the internal dividers will only be enabled/disabled when the internal clock is already in the LOW state. This avoids any chance of generating a runt clock pulse on the internal clock when the device is enabled/disabled as can happen with an asynchronous control. An internal runt pulse could lead to losing synchronization between the internal divider stages. The internal enable flip-flop is clocked on the falling edge of the divider stages. The internal enable flip-flop is clocked on the falling edge of the input clock; therefore, all associated specification limits are referenced to the negative edge of the clock input.

Upon start-up, the internal flip-flops will attain a random state; the master reset (MR) input allows for the synchronization of the internal dividers, as well as for multiple EL34/Ls in a system.

Data sheets and support documentation can be found on Micrel's web site at: www.micrel.com.

Precision Edge®

Features

- 3.3V and 5V power supply options
- 50ps output-to-output skew
- Synchronous enable/disable
- Master Reset for synchronization
- Internal 75KΩ input pull-down resistors
- Available in 16-pin SOIC package

Pin Description

Pin Name	Pin Function
CLK	Differential clock inputs.
$\overline{EN}$	Synchronous enable.
MR	Master reset.
V_{BB}	Reference output.
Q_0	Differential ÷2 outputs.
Q_1	Differential ÷4 outputs.
Q_2	Differential ÷8 outputs.

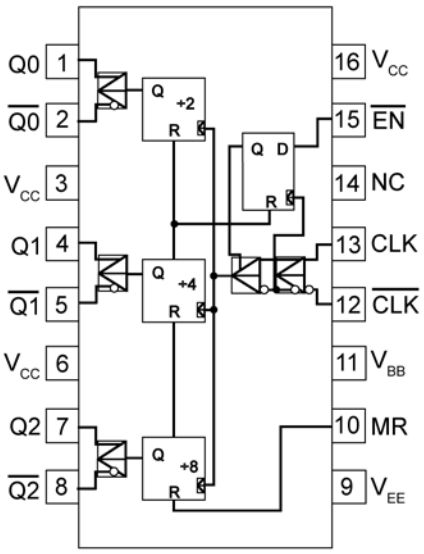
Ordering Information

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10EL34LZG	Z16-2	Industrial	SY10EL34LZG with Pb-Free Bar Line Indicator	Pb-Free NiPdAu
SY10EL34LZGTR[2]	Z16-2	Industrial	SY10EL34LZG with Pb-Free Bar Line Indicator	Pb-Free NiPdAu
SY100EL34LZG	Z16-2	Industrial	SY100EL34LZG with Pb-Free Bar Line Indicator	Pb-Free NiPdAu
SY100EL34LZGTR[2]	Z16-2	Industrial	SY100EL34LZG with Pb-Free Bar Line Indicator	Pb-Free NiPdAu
SY10EL34ZG	Z16-2	Industrial	SY10EL34ZG with Pb-Free Bar Line Indicator	Pb-Free NiPdAu
SY10EL34ZGTR[2]	Z16-2	Industrial	SY10EL34ZG with Pb-Free Bar Line Indicator	Pb-Free NiPdAu
SY100EL34ZG	Z16-2	Industrial	SY100EL34ZG with Pb-Free Bar Line Indicator	Pb-Free NiPdAu
SY100EL34ZGTR[2]	Z16-2	Industrial	SY100EL34ZG 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.

Pin Configuration



16-Pin Narrow SOIC (Z16-2)

DC Electrical Characteristics[1]

V_{EE} = V_{EE} (minimum) to V_{EE} (maximum); V_{CC} = GND.

Symbol	Parameter		Min.	Typ.	Max.	Units
T_A = –40°C						
I_{EE}	Power Supply Current	10EL	–	–	49	mA
		100EL	–	–	49	
V_{BB}	Output Reference Voltage	10EL	–1.43		–1.30	V
		100EL	–1.38		–1.26	
I_{IH}	Input High Current		–	–	150	µA
T_A = 0°C						
I_{EE}	Power Supply Current	10EL	–	–	49	mA
		100EL	–	–	49	
V_{BB}	Output Reference Voltage	10EL	–1.38		–1.27	V
		100EL	–1.38		–1.26	
I_{IH}	Input High Current		–	–	150	µA
T_A = +25°C						
I_{EE}	Power Supply Current	10EL	–	–	49	mA
		100EL	–	–	49	
V_{BB}	Output Reference Voltage	10EL	–1.35		–1.25	V
		100EL	–1.38		–1.26	
I_{IH}	Input High Current		–	–	150	µA
T_A = +85°C						
I_{EE}	Power Supply Current	10EL	–	–	49	mA
		100EL	–	–	54	
V_{BB}	Output Reference Voltage	10EL	–1.31		–1.19	V
		100EL	–1.38		–1.26	
I_{IH}	Input High Current		–	–	150	µA

Note:

1. Parametric values specified at:
   - 5V Power Supply Range:
     100EL34 Series: –4.2V to –5.5V
     10EL34 Series: –4.75V to –5.5V
   - 3V Power Supply Range:
     10/100EL34L Series: –3.0V to –3.8V

AC Electrical Characteristics[1]

V_{EE} = V_{EE} (minimum) to V_{EE} (maximum); V_{CC} = GND.

Symbol	Parameter	Min.	Typ.	Max.	Units
T_A = –40°C					
t_{PD}	Propagation Delay to Output CLK	960	1100	1200	ps
	MR	650	800	1010	
t_{SKEW}	Within-Device Skew[2]	–	–	50	ps
t_S	Set-Up Time ($\overline{EN}$)	400	–	–	ps
t_H	Hold Time ($\overline{EN}$)	200	–	–	ps
V_{PP}	Minimum Input Swing[3]	250	–	–	mV
V_{CMR}	Common-Mode Range[4]	–1.3	–	–0.4	V
t_r t_f	Output Rise/Fall Times Q (20% – 80%)	275	400	525	ps
T_A = 0°C					
t_{PD}	Propagation Delay to Output CLK	960	1100	1200	ps
	MR	650	800	1010	
t_{SKEW}	Within-Device Skew[2]	–	–	50	ps
t_S	Set-Up Time ($\overline{EN}$)	400	–	–	ps
t_H	Hold Time ($\overline{EN}$)	200	–	–	ps
V_{PP}	Minimum Input Swing[3]	250	–	–	mV
V_{CMR}	Common-Mode Range[4]	–1.4	–	–0.4	V
t_r t_f	Output Rise/Fall Times Q (20% – 80%)	275	400	525	ps
T_A = +25°C					
t_{PD}	Propagation Delay to Output CLK	960	1100	1200	ps
	MR	650	800	1010	
t_{SKEW}	Within-Device Skew[2]	–	–	50	ps
t_S	Set-Up Time ($\overline{EN}$)	400	–	–	ps
t_H	Hold Time ($\overline{EN}$)	200	–	–	ps
V_{PP}	Minimum Input Swing[3]	250	–	–	mV
V_{CMR}	Common-Mode Range[4]	–1.4	–	–0.4	V
t_r t_f	Output Rise/Fall Times Q (20% – 80%)	275	400	525	ps

AC Electrical Characteristics[1] (Continued)

V_{EE} = V_{EE} (minimum) to V_{EE} (maximum); V_{CC} = GND.

Symbol	Parameter	Min.	Typ.	Max.	Units
T_A = +85°C					
t_{PD}	Propagation Delay to Output CLK	960	1100	1200	ps
	MR	650	800	1010	
t_{SKEW}	Within-Device Skew	–	–	50	ps
t_S	Set-Up Time ($\overline{EN}$)	400	–	–	ps
t_H	Hold Time ($\overline{EN}$)	200	–	–	ps
V_{PP}	Minimum Input Swing[3]	250	–	–	mV
V_{CMR}	Common-Mode Range[4]	–1.4	–	–0.4	V
t_r t_f	Output Rise/Fall Times Q (20% – 80%)	275	400	525	ps

Notes:

1. Parametric values specified at:
   - 5V Power Supply Range:
     100EL34 Series: –4.2V to –5.5V
     10EL34 Series: –4.75V to –5.5V
   - 3V Power Supply Range:
     10/100EL34L Series: –3.0V to –3.8V
2. Skew is measured between outputs under identical transitions.
3. Minimum input swing for which AC parameters are guaranteed. The device will function reliably with differential inputs down to 100mV.
4. 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_{PP} minimum and 1V. The lower end of the CMR range varies 1:1 with V_{EE}. The numbers in the specification table assume a nominal V_{EE} = –3.3V. Note for PECL operation, the $V_{CMR(MIN)}$ will be fixed at 3.3V – $|V_{CMR(MIN)}|$.

Truth Table

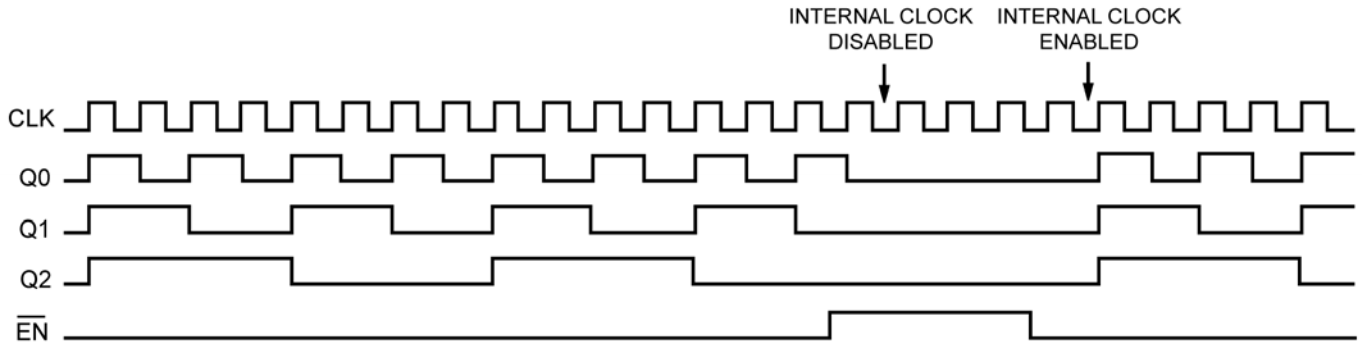
CLK	$\overline{EN}$	MR	Function
Z	L	L	Divide
ZZ	H	L	Hold Q_{0-2}
X	X	H	Reset Q_{0-2}

Notes:

Z = LOW-to-HIGH transition

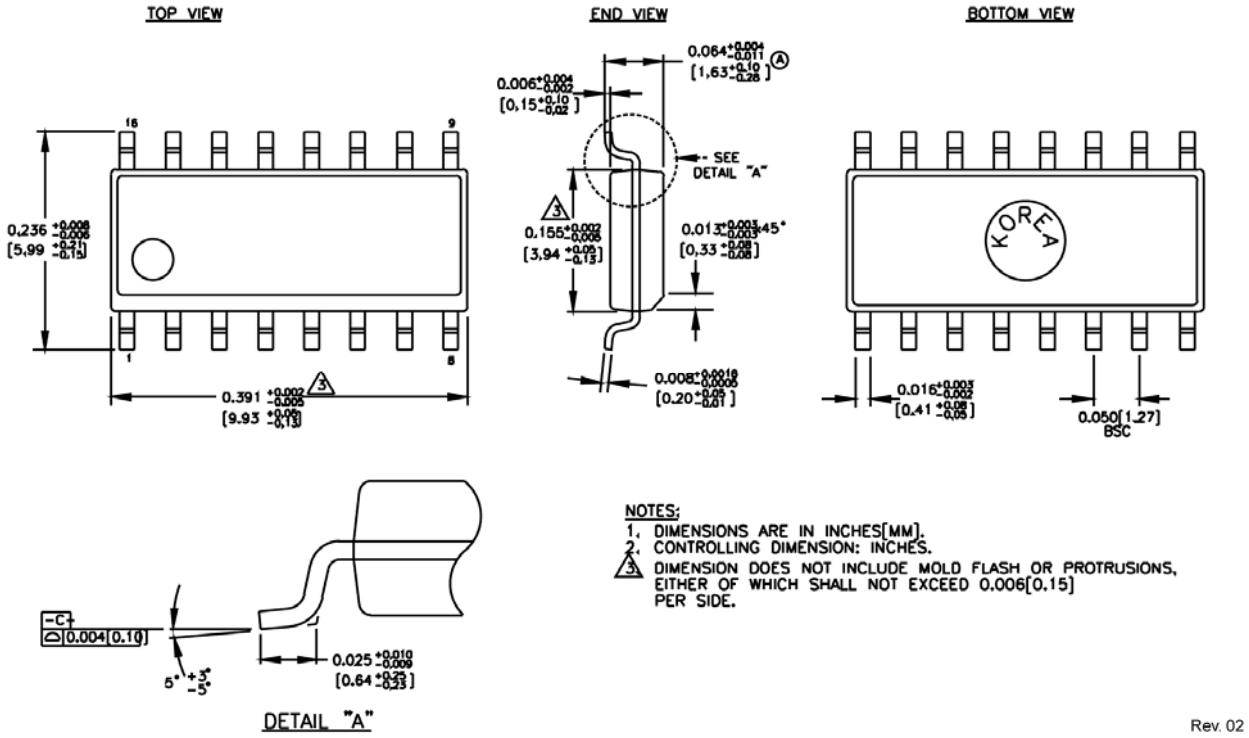
ZZ = HIGH-to-LOW transition

Timing Diagram



The $\overline{EN}$ signal will freeze the internal clocks to the flip-flops on the first falling edge of CLK after its assertion. The internal dividers will maintain their state during the internal clock freeze and will return to clocking once the internal clocks are unfrozen. The outputs will transition to their next states in the same manner, time and relationship as they would have had the $\overline{EN}$ signal not been asserted.

Package Information



16-Pin .150" Wide SOIC (Z16-2)

MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USA
TEL +1 (408) 944-0800 FAX +1 (408) 474-1000 WEB http://www.micrel.com

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Clock Generators & Support Products ***category:***

Click to view products by Microchip ***manufacturer:***

Other Similar products are found below :

CV183-2TPAG 950810CGLF 9DBV0741AKILF 9VRS4420DKLF CY25404ZXI226 CY25422SXI-004 MPC9893AE NB3H5150-01MNTXG PL602-20-K52TC PI6LC48P0101LIE 82P33814ANLG 840021AGLF ZL30244LFG7 PI6LC48C21LE ZL30245LFG7 PI6LC48P0405LIE PI6LC48P03LE MAX24505EXG+ ZL30163GDG2 5L1503L-000NVGI8 MAX24188ETK2 ZL30152GGG2 5L1503-000NVGI8 PI6C557-01BZHIEX PI6LC48C21LIE PI6C557-03AQEX 5P35023-106NLGI 5X1503L-000NLGI8 ZL30121GGG2V2 ZL30282LDG1 ZL30102QDG1 ZL30159GGG2 ZL30145GGG2 ZL30312GKG2 MAX24405EXG2 ZL30237GGG2 SY100EL34LZG 9FGV1002BQ506LTGI AD9518-4ABCPZ MX852BB0030 PI6LC4840ZHE AD9516-0BCPZ-REEL7 AD9574BCPZ-REEL7 PL602-21TC-R ZL30105QDG1 ZL30100QDG1 ZL30142GGG2 ZL30250LDG1 DSC557-0334FI1 DSC557-0343FI1