

## FEATURES

- 525ps propagation delay
- 2.2GHz toggle frequency
- High bandwidth output transistions
- Internal 75K $\Omega$  input pull-down resistors
- Available in 8-pin SOIC package

## DESCRIPTION

The SY10/100EL35 are high-speed JK Flip-Flops. The J/K data enters the master portion of the flip-flop when the clock is LOW and is transferred to the slave and, thus, the outputs, upon a positive transition of the clock. The reset pin is asynchronous and is activated with a logic HIGH.

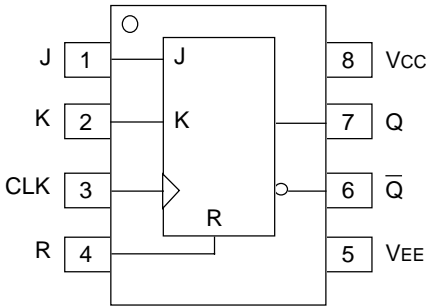
TRUTH TABLE<sup>(1)</sup>

J	K	R	CLK	Qn+1
L	L	L	Z	Qn
L	H	L	Z	L
H	L	L	Z	H
H	H	L	Z	$\bar{Q}_n$
X	X	H	X	L

## NOTE:

1. Z = LOW-to-HIGH transition.

**PACKAGE/ORDERING INFORMATION**



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

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

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10EL35LZC	Z8-1	Commercial	HEL35	Sn-Pb
SY10EL35LZCTR <sup>(2)</sup>	Z8-1	Commercial	HEL35	Sn-Pb
SY100EL35LZC	Z8-1	Commercial	XEL35	Sn-Pb
SY100EL35LZCTR <sup>(2)</sup>	Z8-1	Commercial	XEL35	Sn-Pb
SY10EL35LZI	Z8-1	Industrial	HEL35	Sn-Pb
SY10EL35LZITR <sup>(2)</sup>	Z8-1	Industrial	HEL35	Sn-Pb
SY100EL35LZI	Z8-1	Industrial	XEL35	Sn-Pb
SY100EL35LZITR <sup>(2)</sup>	Z8-1	Industrial	XEL35	Sn-Pb
SY10EL35LZG <sup>(3)</sup>	Z8-1	Industrial	HEL35 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY10EL35LZGTR <sup>(2, 3)</sup>	Z8-1	Industrial	HEL35 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL35LZG <sup>(3)</sup>	Z8-1	Industrial	XEL35 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL35LZGTR <sup>(2, 3)</sup>	Z8-1	Industrial	XEL35 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.

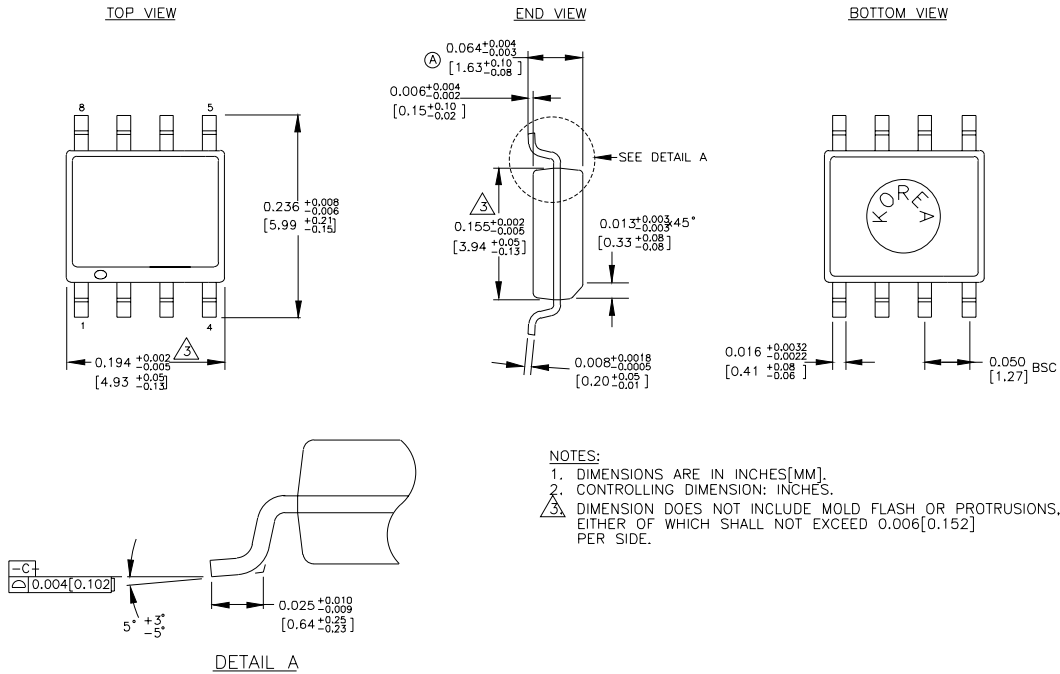
**DC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = GND

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	—	27	32	—	27	32	—	27	32	—	27	32	mA
	10EL	—	27	32	—	27	32	—	27	32	—	27	32	
	100EL	—	27	32	—	27	32	—	27	32	—	32	37	
V <sub>EE</sub>	Power Supply Voltage	—	-5.2	—	-4.75	-5.2	-5.5	-4.75	-5.2	-5.5	-4.75	-5.2	-5.5	V
	10EL	—	-4.5	—	-4.20	-4.5	-5.5	-4.20	-4.5	-5.5	-4.20	-4.5	-5.5	
	100EL	—	-4.5	—	-4.20	-4.5	-5.5	-4.20	-4.5	-5.5	-4.20	-4.5	-5.5	
I <sub>IH</sub>	Input HIGH Current	—	—	150	—	—	150	—	—	150	—	—	150	μA

**AC ELECTRICAL CHARACTERISTICS**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	1.4	2.0	—	1.8	2.2	—	1.8	2.2	—	1.8	2.2	—	GHz	
t <sub>PD</sub>	Propagation Delay to Output	CLK	290	515	—	340	515	690	350	525	700	395	570	745	ps
		MR	225	450	—	275	450	625	275	450	625	350	525	700	
t <sub>S</sub>	Set-up Time	150	0	—	150	0	—	150	0	—	150	0	—	ps	
t <sub>H</sub>	Hold Time	250	100	—	250	100	—	250	100	—	250	100	—	ps	
t <sub>RR</sub>	Reset Recovery	400	200	—	400	200	—	400	200	—	400	200	—	ps	
t <sub>PW</sub>	Minimum Pulse Width CLK, Reset	400	—	—	400	—	—	400	—	—	400	—	—	ps	
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	

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



Rev. 03

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