

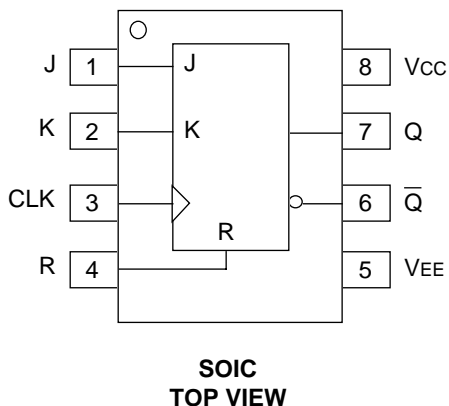
## FEATURES

- 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.

## PIN CONFIGURATION/BLOCK DIAGRAM



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

J	K	R	CLK	Q <sub>n+1</sub>
L	L	L	Z	Q <sub>n</sub>
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.

**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	—	—	—	—	—	—	—	—	—	—	—	—	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	—	—	—	—	—	—	—	—	—	—	—	—	V
	10EL	—	-5.2	—	-4.75	-5.2	-5.5	-4.75	-5.2	-5.5	-4.75	-5.2	-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>PLH</sub> t <sub>PHL</sub>	Propagation Delay to Output	290 225	515 450	—	340 275	515 450	690 625	350 275	525 450	700 625	395 350	570 525	745 700	ps
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

**PRODUCT ORDERING CODE**

Ordering Code	Package Type	Operating Range	Marking Code
SY10EL35ZC	Z8-1	Commercial	HEL35
SY10EL35ZCTR*	Z8-1	Commercial	HEL35
SY100EL35ZC	Z8-1	Commercial	XEL35
SY100EL35ZCTR*	Z8-1	Commercial	XEL35

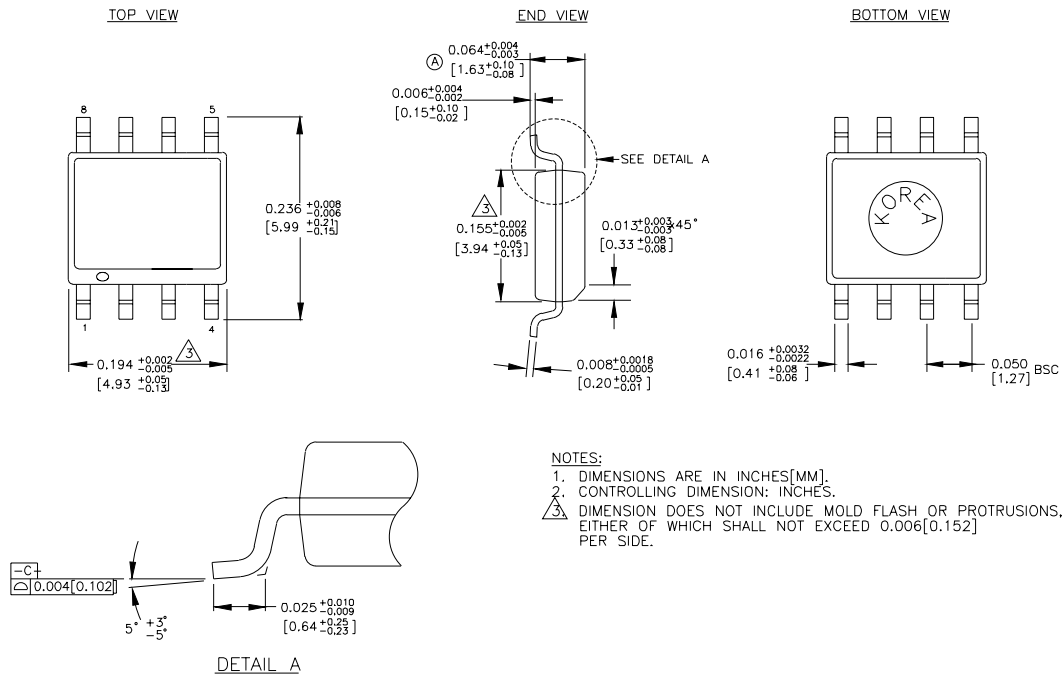
\*Tape and Reel

**Note 1.** Recommended for new designs.

Ordering Code	Package Type	Operating Range	Marking Code
SY10EL35ZI <sup>(1)</sup>	Z8-1	Industrial	HEL35
SY10EL35ZITR <sup>*(1)</sup>	Z8-1	Industrial	HEL35
SY100EL35ZI <sup>(1)</sup>	Z8-1	Industrial	XEL35
SY100EL35ZITR <sup>*(1)</sup>	Z8-1	Industrial	XEL35

\*Tape and Reel

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



Rev. 03

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