

## FEATURES

- 3.3V and 5V power supply options
- 250ps propagation delay
- High bandwidth output transitions
- Internal 75K $\Omega$  input pull-down resistors
- Replaces SY10/100EL16
- Improved output waveform characteristics
- Available in 8-pin (3mm) MSOP and SOIC package

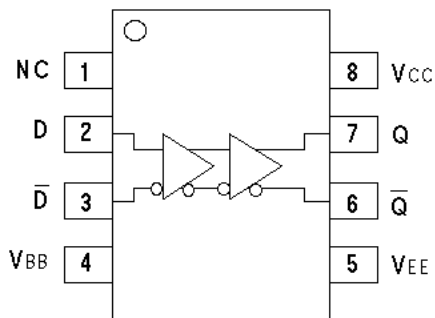
## DESCRIPTION

The SY10/100EL16V are differential receivers. The devices are functionally equivalent to the E116 devices, with higher performance capabilities. With output transition times significantly faster than the E116, the EL16V is ideally suited for interfacing with high-frequency sources.

The EL16V provides a VBB output for either single-ended use or as a DC bias for AC coupling to the device. The VBB pin should be used only as a bias for the EL16V as its current sink/source capability is limited. Whenever used, the VBB pin should be bypassed to ground via a 0.01 $\mu$ f capacitor.

Under open input conditions (pulled to VEE), internal input clamps will force the Q output LOW.

## PIN CONFIGURATION/BLOCK DIAGRAM



MSOP and SOIC

## PIN NAMES

Pin	Function
D	Data Inputs
Q	Data Outputs
VBB	Reference Voltage Output

**DC ELECTRICAL CHARACTERISTICS**(Note 1, 2)

VEE = VEE (Min.) to VEE (Max.); VCC = GND

Symbol	Parameter	TA = -40°C			TA = 0°C			TA = +25°C			TA = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
IEE	Power Supply Current													mA
	10EL	—	18	22	9	18	22	9	18	22	9	18	22	
	100EL	—	18	22	9	18	22	9	18	22	9	21	26	
VBB	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 <sub>IH</sub>	Input HIGH Current	—	—	150	—	—	150	—	—	150	—	—	150	μA

**Note 1.** Parametric values specified at: 10/100EL16V Series: -3.0V to -5.5V.**Note 2.** specification for packaged product only.**AC ELECTRICAL CHARACTERISTICS**(Note 1, 5)

VEE = VEE (Min.) to VEE (Max.); VCC = GND

Symbol	Parameter	TA = -40°C			TA = 0°C			TA = +25°C			TA = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay to Output D (Diff) D (SE)	125 75	250 250	375 425	175 125	250 250	325 375	175 125	250 250	325 375	205 155	280 280	355 405	ps
t <sub>skew</sub>	Duty Cycle Skew <sup>(2)</sup> (Diff)	—	5	—	—	5	20	—	5	20	—	5	20	ps
V <sub>PP</sub>	Minimum Input Swing <sup>(3)</sup>	150	—	—	150	—	—	150	—	—	150	—	—	mV
V <sub>CMR</sub>	Common Mode Range <sup>(4)</sup>	-1.3	—	-0.4	-1.4	—	-0.4	-1.4	—	-0.4	-1.4	—	-0.4	V
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

**Note 1.** Parametric values specified at: 10/100EL16V Series: -3.0V to -5.5V.**Note 2.** Duty cycle skew is the difference between a t<sub>PLH</sub> and t<sub>PHL</sub> propagation delay through a device.**Note 3.** Minimum input swing for which AC parameters are guaranteed. The device has a DC gain of ≈40.**Note 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<sub>PP</sub> min. and 1V. The lower end of the CMR range varies 1:1 with VEE. The numbers in the spec table assume a nominal VEE = -3.3V. Note for PECL operation, the V<sub>CMR</sub> (min) will be fixed at 3.3V - |V<sub>CMR</sub> (min)|.**Note 5.** Specification for packaged product only.**PRODUCT ORDERING CODE**

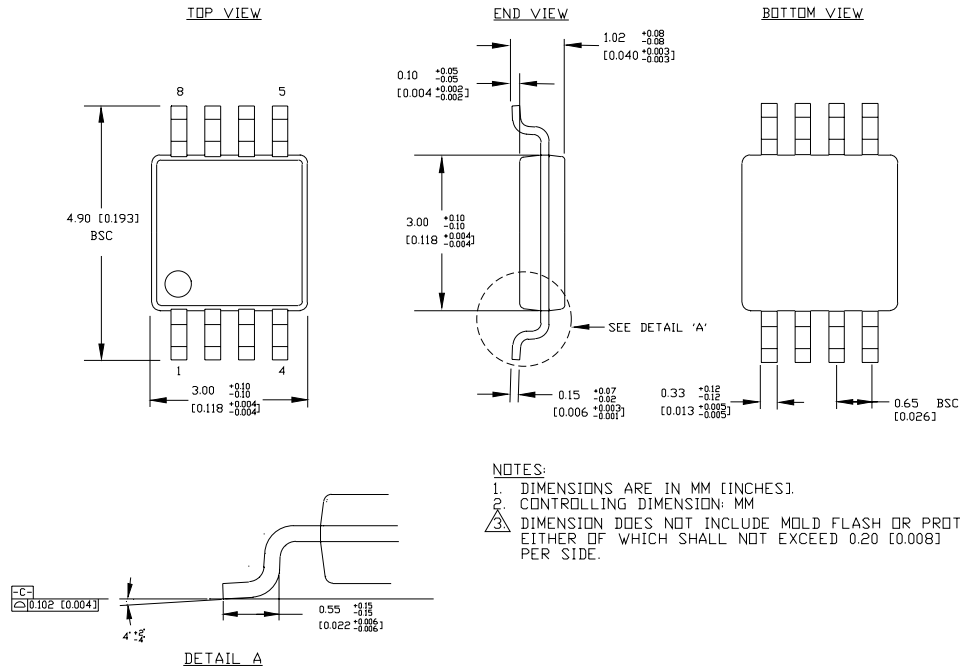
Ordering Code	Package Type	Operating Range	Marking Code
SY10EL16VKCTR*	K8-1	Commercial	HL16V
SY100EL16VKCTR*	K8-1	Commercial	XL16V
SY10EL16VZC	Z8-1	Commercial	HEL16V
SY10EL16VZCTR*	Z8-1	Commercial	HEL16V
SY100EL16VZC	Z8-1	Commercial	XEL16V
SY100EL16VZCTR*	Z8-1	Commercial	XEL16V

Ordering Code	Package Type	Operating Range	Marking Code
SY10EL16VKITR <sup>(1)</sup>	K8-1	Industrial	HL16V
SY100EL16VKITR <sup>(1)</sup>	K8-1	Industrial	XL16V
SY10EL16VZI <sup>(1)</sup>	Z8-1	Industrial	HEL16V
SY10EL16VZITR <sup>(1)</sup>	Z8-1	Industrial	HEL16V
SY100EL16VZI <sup>(1)</sup>	Z8-1	Industrial	XEL16V
SY100EL16VZITR <sup>(1)</sup>	Z8-1	Industrial	XEL16V

\*Tape and Reel

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

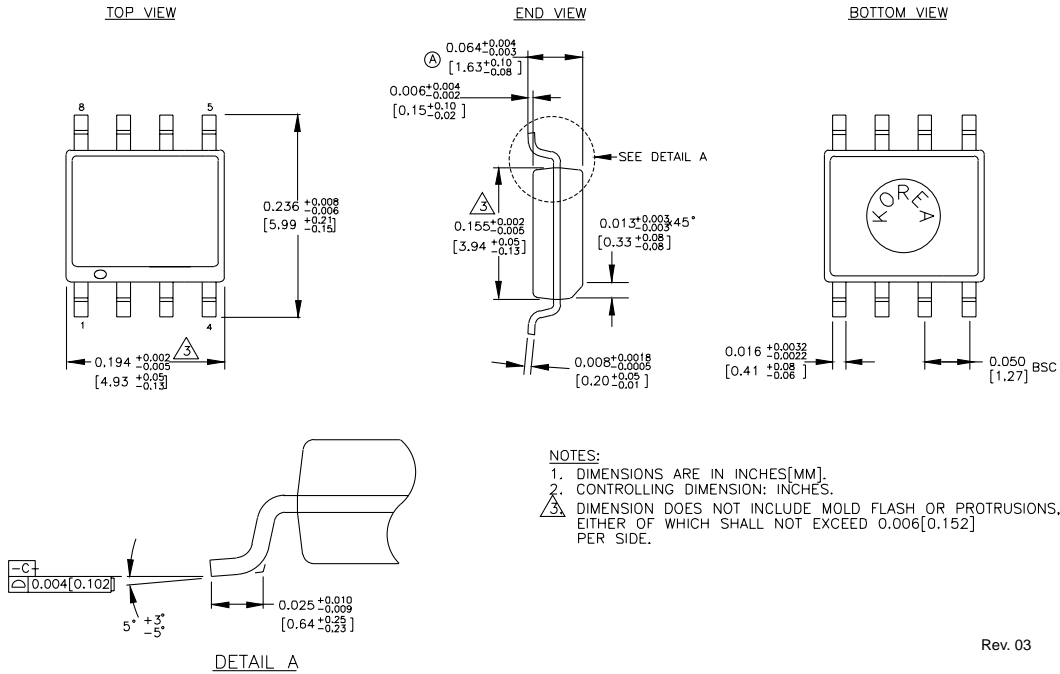
**8 LEAD MSOP (K8-1)**



NOTES:  
1. DIMENSIONS ARE IN MM [INCHES].  
2. CONTROLLING DIMENSION: MM  
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.20 [0.008] PER SIDE.

Rev. 01

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



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