



5V/3.3V  
1:2 DIFFERENTIAL  
FANOUT BUFFER

Precision Edge®  
SY10EL11V  
SY100EL11V

## FEATURES

- 3.3V and 5V power supply options
- 265ps propagation delay
- 5ps skew between outputs
- High bandwidth output transitions
- Internal 75KΩ input pull-down resistors
- Replaces SY10/100EL11
- Improved output waveform characteristics
- Available in 8-pin SOIC package



Precision Edge®

## DESCRIPTION

The SY10/100EL11V are 1:2 differential fanout gates. These devices are functionally similar to the E111A/L devices, with higher performance capabilities. Having within-device skews and output transition times significantly improved over the E111A/L, the EL11V is ideally suited for those applications which require the ultimate in AC performance.

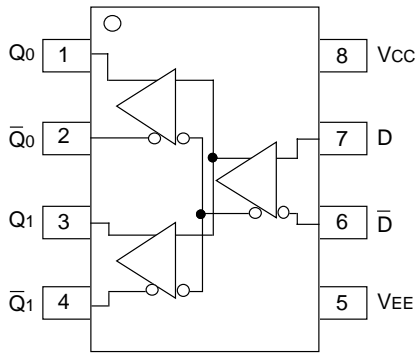
The differential inputs of the EL11V employ clamping circuitry to maintain stability under open input conditions. If the inputs are left open (pulled to VEE), the Q outputs will go LOW.

## PIN NAMES

Pin	Function
D	Data Inputs
Q0, Q1	Data Outputs

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**PACKAGE/ORDERING INFORMATION**



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

**Ordering Information**

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10EL11VZC	Z8-1	Commercial	HEL11V	Sn-Pb
SY10EL11VZCTR <sup>(1)</sup>	Z8-1	Commercial	HEL11V	Sn-Pb
SY100EL11VZC	Z8-1	Commercial	XEL11V	Sn-Pb
SY100EL11VZCTR <sup>(1)</sup>	Z8-1	Commercial	XEL11V	Sn-Pb
SY10EL11VZI	Z8-1	Industrial	HEL11V	Sn-Pb
SY10EL11VZITR <sup>(1)</sup>	Z8-1	Industrial	HEL11V	Sn-Pb
SY100EL11VZI	Z8-1	Industrial	XEL11V	Sn-Pb
SY100EL11VZITR <sup>(1)</sup>	Z8-1	Industrial	XEL11V	Sn-Pb
SY10EL11VZG <sup>(2)</sup>	Z8-1	Industrial	HEL11V with Pb-Free bar line indicator	NiPdAu Pb-Free
SY10EL11VZGTR <sup>(1, 2)</sup>	Z8-1	Industrial	HEL11V with Pb-Free bar line indicator	NiPdAu Pb-Free
SY100EL11VZG <sup>(2)</sup>	Z8-1	Industrial	XEL11V with Pb-Free bar line indicator	NiPdAu Pb-Free
SY100EL11VZGTR <sup>(1, 2)</sup>	Z8-1	Industrial	XEL11V with Pb-Free bar line indicator	NiPdAu Pb-Free

**Notes:**

1. Tape and Reel.
2. NiPdAu Pb-Free package recommended for new designs.

**ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup>**

Symbol	Rating	Value	Unit
$V_{CC}$	Power Supply Voltage ( $V_{EE} = 0$ )	+6.0 to 0	V
$V_{EE}$	Power Supply Voltage ( $V_{CC} = 0$ )	-6.0 to 0	V
$V_{IN}$	Input Voltage ( $V_{CC} = 0V$ , $V_{IN}$ not more negative than $V_{EE}$ ) Input Voltage ( $V_{EE} = 0V$ , $V_{IN}$ not more positive than $V_{CC}$ )	-6.0 to 0 +6.0 to 0	V V
$I_{OUT}$	Output Current -Continuous -Surge	50 100	mA
$T_A$	Operating Temperature Range	-40 to +85	°C
$T_{LEAD}$	Lead Temperature (soldering, 20 sec.)	+260	°C
$T_{STORE}$	Storage Temperature Range	-65 to +150	°C
$\theta_{JA}$	Thermal Resistance (Junction-to-Ambient) -Still Air -500lfpm	160 109	°C/W °C/W
$\theta_{JC}$	Thermal Resistance (Junction-to-Case)	39	°C/W
ESD	Mil Std. 883 Human Body Model, All Pins	>1.5k	V

**Notes:**

1. Permanent device damage may occur if absolute maximum ratings are exceeded. This is a stress rating only and functional operation is not implied at conditions other than those detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

**DC ELECTRICAL CHARACTERISTICS<sup>(1)</sup>**

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

Symbol	Parameter	$T_A = -40^\circ\text{C}$			$T_A = 0^\circ\text{C}$			$T_A = +25^\circ\text{C}$			$T_A = +85^\circ\text{C}$			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
$I_{EE}$	Power Supply Current	—	26	31	15	26	31	15	26	31	15	26	31	mA
	10EL	—	26	31	15	26	31	15	26	31	15	26	31	
	100EL	—	26	31	15	26	31	15	26	31	15	30	36	
$I_{IH}$	Input HIGH Current	—	—	150	—	—	150	—	—	150	—	—	150	$\mu\text{A}$

**Note:**

1. Parametric values specified at: 10/100EL11V Series: -3.0V to -5.5V.

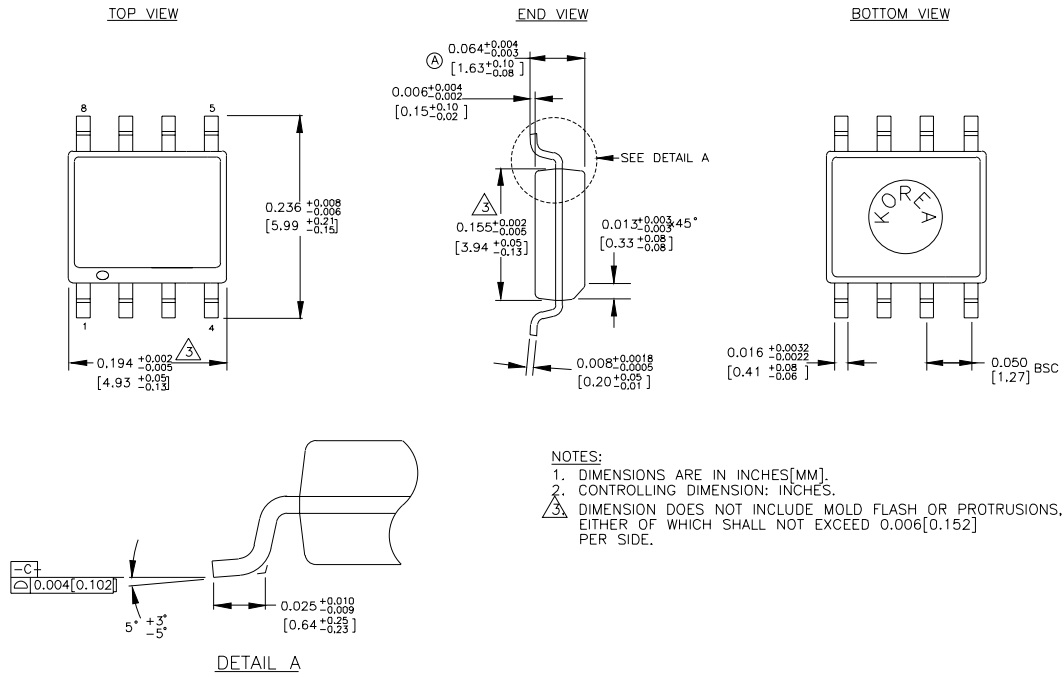
**AC ELECTRICAL CHARACTERISTICS(1)** $V_{EE} = V_{EE} \text{ (Min.) to } V_{EE} \text{ (Max.)}; V_{CC} = \text{GND}$ 

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>pd</sub>	Propagation Delay to Output D	135	260	385	185	260	335	190	265	340	215	2 ; ' ;	365	ps
t <sub>SKEW</sub>	Within-Device Skew <sup>(2)</sup>	—	5	—	—	5	20	—	5	20	—	5	20	ps
	Duty Cycle Skew <sup>(3)</sup>	—	5	—	—	5	20	—	5	20	—	5	20	ps
V <sub>PP</sub>	Minimum Input Swing <sup>(4)</sup>	150	—	—	150	—	—	150	—	—	150	—	—	mV
V <sub>CMR</sub>	Common Mode Range <sup>(5)</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

**Notes:**

1. Parametric values specified at: 10/100EL11V Series: -3.0V to -5.5V.
2. Within-device skew defined as identical transitions on similar paths through a device.
3. Duty cycle skew is the difference between a t<sub>PLH</sub> and t<sub>PHL</sub> propagation delay through a device.
4. Minimum input swing for which AC parameters are guaranteed. The device has a DC gain of ≈40.
5. 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 V<sub>EE</sub>. The numbers in the spec table assume a nominal V<sub>EE</sub> = -3.3V. Note for PECL operation, the V<sub>CMR</sub> (min) will be fixed at 3.3V - |V<sub>CMR</sub> (min)|.

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



Rev. 03

**Package Notes:**

**Note 1.** Package meets Level 1 moisture sensitivity.

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