

FEATURES

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



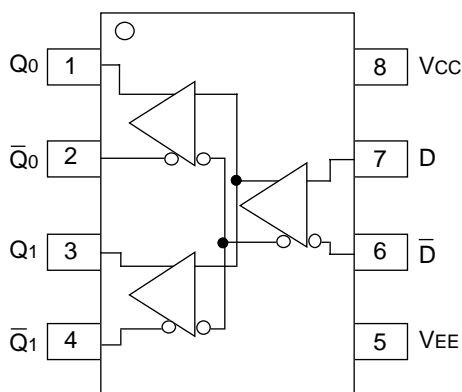
Precision Edge™

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 CONFIGURATION/BLOCK DIAGRAM



SOIC
TOP VIEW

PIN NAMES

Pin	Function
D	Data Inputs
Q0, Q1	Data Outputs

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

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_{store}	Storage Temperature Range	-65 to +150	°C
θ_{JA}	Thermal Resistance (Junction-to-Ambient) —Still Air —500lfpm	160 109	°C/W °C/W
θ_{JC}	Thermal Resistance (Junction-to-Case)	39	°C/W
ESD	Mil Std. 883 Human Body Model, All Pins	>1.5k	V

Note 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⁽¹⁾

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

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	μA

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

AC ELECTRICAL CHARACTERISTICS⁽¹⁾

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

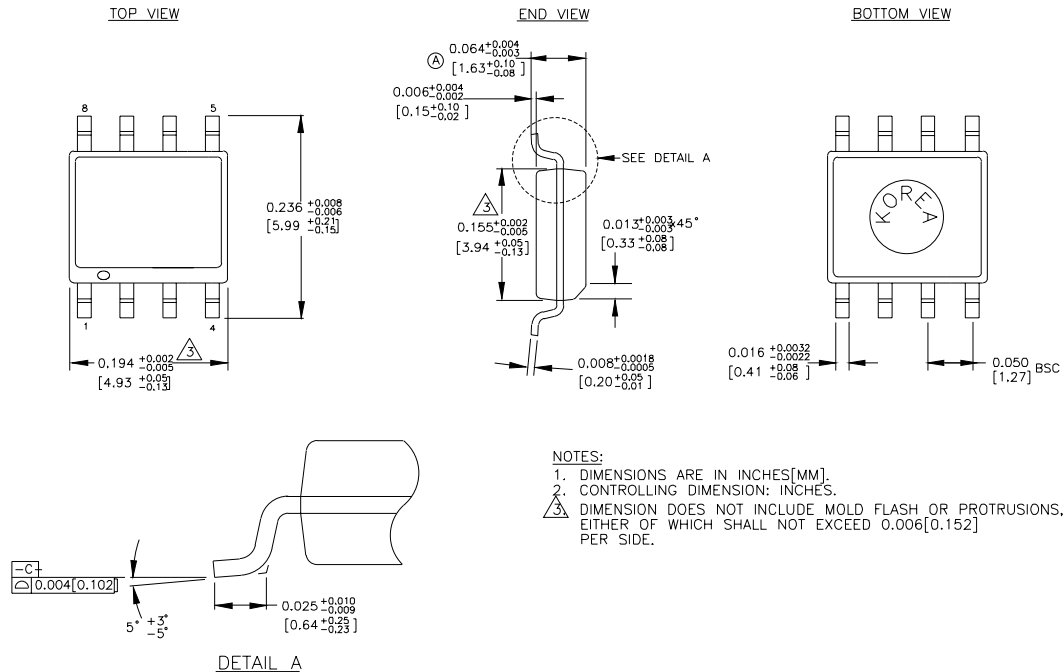
Symbol	Parameter	TA = -40°C			TA = 0°C			TA = +25°C			TA = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
tPLH tPHL	Propagation Delay to Output D	135	260	385	185	260	335	190	265	340	215	290	365	ps
t _{skew}	Within-Device Skew ⁽²⁾ Duty Cycle Skew ⁽³⁾	—	5	—	—	5	20	—	5	20	—	5	20	ps
V _{PP}	Minimum Input Swing ⁽⁴⁾	150	—	—	150	—	—	150	—	—	150	—	—	mV
V _{CMR}	Common Mode Range ⁽⁵⁾	-1.3	—	-0.4	-1.4	—	-0.4	-1.4	—	-0.4	-1.4	—	-0.4	V
t _r t _f	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: 10/100EL11V Series: -3.0V to -5.5V.**Note 2.** Within-device skew defined as identical transitions on similar paths through a device.**Note 3.** Duty cycle skew is the difference between a tPLH and tPHL propagation delay through a device.**Note 4.** Minimum input swing for which AC parameters are guaranteed. The device has a DC gain of ≈40.**Note 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_{PP} 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_{CMR} (min) will be fixed at 3.3V - |V_{CMR} (min)|.**PRODUCT ORDERING CODE**

Ordering Code	Package Type	Operating Range	Package Marking
SY10EL11VZC	Z8-1	Commercial	HEL11V
SY10EL11VZCTR ⁽¹⁾	Z8-1	Commercial	HEL11V
SY100EL11VZC	Z8-1	Commercial	XEL11V
SY100EL11VZCTR ⁽¹⁾	Z8-1	Commercial	XEL11V

Ordering Code	Package Type	Operating Range	Package Marking
SY10EL11VZI ⁽²⁾	Z8-1	Industrial	HEL11V
SY10EL11VZITR ^(1, 2)	Z8-1	Industrial	HEL11V
SY100EL11VZI ⁽²⁾	Z8-1	Industrial	XEL11V
SY100EL11VZITR ^(1, 2)	Z8-1	Industrial	XEL11V

Note 1. Tape and Reel.**Note 2.** Recommended for new designs.

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

Rev. 03

Package Notes:**Note 1.** Package meets Level 1 moisture sensitivity.**MICREL, INC. 1849 FORTUNE DRIVE SAN JOSE, CA 95131 USA**TEL + 1 (408) 944-0800 FAX + 1 (408) 944-0970 WEB <http://www.micrel.com>

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