



**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 75K Ω input pull-down resistors
- Replaces SY10/100EL11
- Improved output waveform characteristics
- Available in 8-pin SOIC package



Precision Edge®

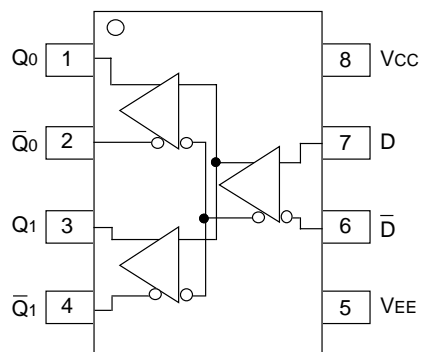
DESCRIPTION

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 NAMES

Pin	Function
D	Data Inputs
Q0, Q1	Data Outputs

PACKAGE/ORDERING INFORMATION**8-Pin SOIC (Z8-1)****Ordering Information⁽¹⁾**

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10EL11VZC	Z8-1	Commercial	HEL11V	Sn-Pb
SY10EL11VZCTR ⁽²⁾	Z8-1	Commercial	HEL11V	Sn-Pb
SY100EL11VZC	Z8-1	Commercial	XEL11V	Sn-Pb
SY100EL11VZCTR ⁽²⁾	Z8-1	Commercial	XEL11V	Sn-Pb
SY10EL11VZI	Z8-1	Industrial	HEL11V	Sn-Pb
SY10EL11VZITR ⁽²⁾	Z8-1	Industrial	HEL11V	Sn-Pb
SY100EL11VZI	Z8-1	Industrial	XEL11V	Sn-Pb
SY100EL11VZITR ⁽²⁾	Z8-1	Industrial	XEL11V	Sn-Pb
SY10EL11VZG ⁽³⁾	Z8-1	Industrial	HEL11V with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY10EL11VZGTR ^(2, 3)	Z8-1	Industrial	HEL11V with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL11VZG ⁽³⁾	Z8-1	Industrial	XEL11V with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL11VZGTR ^(2, 3)	Z8-1	Industrial	XEL11V with Pb-Free bar-line indicator	Pb-Free NiPdAu

Notes:

1. Contact factory for die availability. Dice are guaranteed at $T_A = 25^\circ\text{C}$, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

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_{LEAD}	Lead Temperature Range (soldering, 20sec.)	+260	°C
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													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

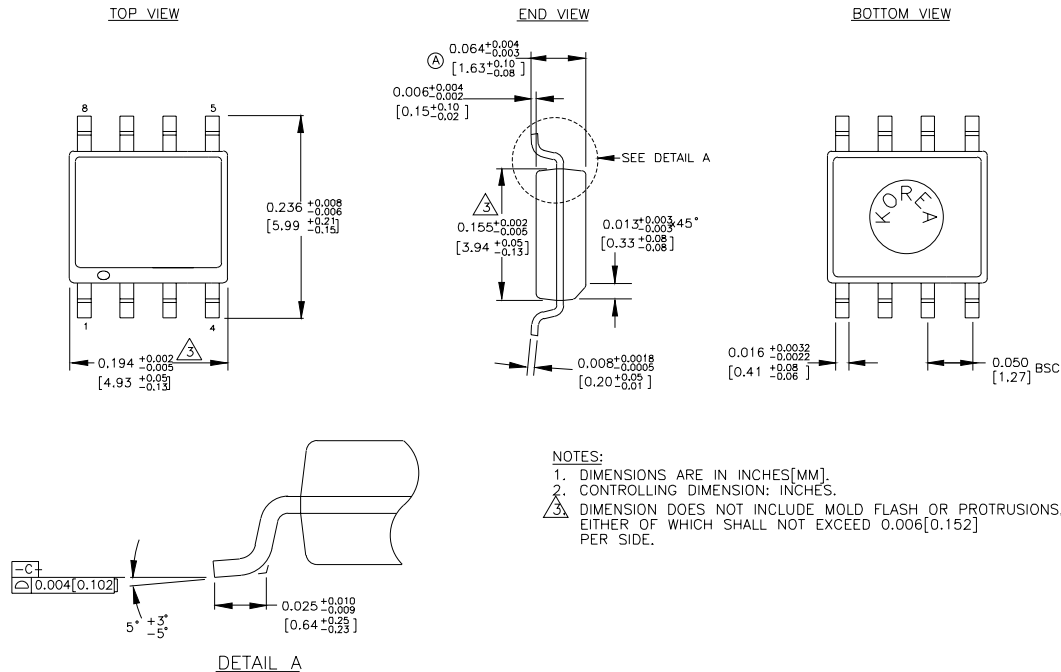
Note 1. Parametric values specified at: 10/100EL11V Series: -3.0V to -5.5V.

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
tskew	Within-Device Skew ⁽²⁾	—	5	—	—	5	20	—	5	20	—	5	20	ps
	Duty Cycle Skew ⁽³⁾	—	5	—	—	5	20	—	5	20	—	5	20	
VPP	Minimum Input Swing ⁽⁴⁾	150	—	—	150	—	—	150	—	—	150	—	—	mV
VCMR	Common Mode Range ⁽⁵⁾	-1.3	—	-0.4	-1.4	—	-0.4	-1.4	—	-0.4	-1.4	—	-0.4	V
tr tf	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 VPP 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 VCMR (min) will be fixed at 3.3V - |VCMR (min)|.

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

Rev. 03

Package Notes:**Note 1.** Package meets Level 1 moisture sensitivity.**MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USA**TEL + 1 (408) 944-0800 FAX + 1 (408) 474-1000 WEB <http://www.micrel.com>

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