

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

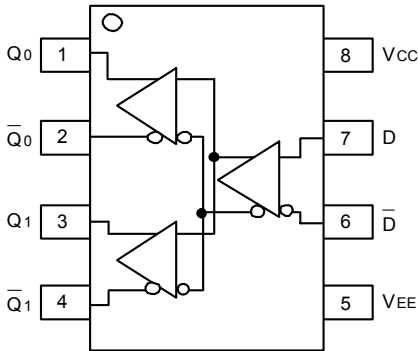
The SY10/100EL11V are 1:2 differential fanout gates. These devices are functionally similar to the E111A/L devices, with higher performance capabilities. Having within-device skews and output transition times significantly improved over the E111A/L, the EL11V is ideally suited for those applications 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°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 | V |
| | | +6.0 to 0 | V |
| I _{OUT} | Output Current | -Continuous | 50 |
| | | -Surge | 100 |
| 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 | 160 |
| | | -500lfpm | 109 |
| 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.

10K SERIES DC ELECTRICAL CHARACTERISTICS⁽¹⁾

V_{CC} = 3.3V ±10%; V_{EE} = 0V

| Symbol | Parameter | T _A = -40°C | | T _A = 0°C | | T _A = +25°C | | T _A = +85°C | | Unit |
|-----------------|---------------------|------------------------|-------|----------------------|-------|------------------------|-------|------------------------|-------|------|
| | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | |
| V _{OH} | Output HIGH Voltage | -1080 | -890 | -1020 | -840 | -980 | -810 | -910 | -720 | mV |
| V _{OL} | Output LOW Voltage | -1950 | -1650 | -1950 | -1630 | -1950 | -1630 | -1950 | -1595 | mV |
| V _{IH} | Input HIGH Voltage | -1230 | -890 | -1170 | -840 | -1130 | -810 | -1060 | -720 | mV |
| V _{IL} | Input LOW Voltage | -1950 | -1500 | -1950 | -1480 | -1950 | -1480 | -1950 | -1445 | mV |
| I _{IH} | Input HIGH Current | — | 150 | — | 150 | — | 150 | — | 150 | µA |
| I _{IL} | Input LOW Current | 0.5 | — | 0.5 | — | 0.5 | — | 0.3 | — | µA |

100K SERIES DC ELECTRICAL CHARACTERISTICS⁽²⁾

V_{CC} = 3.3V ±10%; V_{EE} = 0V

| Symbol | Parameter | T _A = -40°C | | | T _A = 0°C to +85°C | | | Unit | Conditions |
|-----------------|-----------------------------------|------------------------|-------|-------|-------------------------------|-------|-------|------|---|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | | |
| V _{OH} | Output HIGH Voltage | -1085 | -1005 | -880 | -1025 | -955 | -880 | mV | V _{IN} = V _{IH} (Max) or V _{IL} (Min) |
| V _{OL} | Output LOW Voltage | -1830 | -1695 | -1555 | -1810 | -1705 | -1620 | mV | |
| V _{IH} | Input HIGH Voltage ⁽³⁾ | -1165 | — | -880 | -1165 | — | -880 | mV | |
| V _{IL} | Input LOW Voltage ⁽⁴⁾ | -1810 | — | -1475 | -1810 | — | -1475 | mV | |
| I _{IH} | Input HIGH Current | — | — | 150 | — | — | 150 | µA | |
| I _{IL} | Input LOW Current | 0.5 | — | — | 0.5 | — | — | µA | V _{IN} = V _{IL} (Min) |

10K SERIES DC ELECTRICAL CHARACTERISTICS⁽¹⁾VCC = 5.0V \pm 10%; VEE = 0V

| Symbol | Parameter | TA = -40°C | | TA = 0°C | | TA = +25°C | | TA = +85°C | | Unit |
|-----------------|---------------------|------------|-------|----------|-------|------------|-------|------------|-------|------|
| | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | |
| VOH | Output HIGH Voltage | -1080 | -890 | -1020 | -840 | -980 | -810 | -910 | -720 | mV |
| VOL | Output LOW Voltage | -1950 | -1650 | -1950 | -1630 | -1950 | -1630 | -1950 | -1595 | mV |
| VIH | Input HIGH Voltage | -1230 | -890 | -1170 | -840 | -1130 | -810 | -1060 | -720 | mV |
| VIL | Input LOW Voltage | -1950 | -1500 | -1950 | -1480 | -1950 | -1480 | -1950 | -1445 | mV |
| I _{IH} | Input HIGH Current | — | 150 | — | 150 | — | 150 | — | 150 | μA |
| I _{IL} | Input LOW Current | 0.5 | — | 0.5 | — | 0.5 | — | 0.3 | — | μA |

100K SERIES DC ELECTRICAL CHARACTERISTICS⁽²⁾VCC = 5.0V \pm 10%; VEE = 0V

| Symbol | Parameter | TA = -40°C | | | TA = 0°C to +85°C | | | Unit | Conditions |
|-----------------|-----------------------------------|------------|-------|-------|-------------------|-------|-------|------|-------------------------------|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | | |
| VOH | Output HIGH Voltage | -1085 | -1005 | -880 | -1025 | -955 | -880 | mV | VIN = VIH(Max) or VIL(Min) |
| VOL | Output LOW Voltage | -1830 | -1695 | -1555 | -1810 | -1705 | -1620 | | |
| VIH | Input HIGH Voltage ⁽³⁾ | -1165 | — | -880 | -1165 | — | -880 | mV | |
| VIL | Input LOW Voltage ⁽⁴⁾ | -1810 | — | -1475 | -1810 | — | -1475 | mV | |
| I _{IH} | Input HIGH Current | — | — | 150 | — | — | 150 | μA | |
| I _{IL} | Input LOW Current | 0.5 | — | — | 0.5 | — | — | μA | VIN = VIL(Min) |

10K SERIES DC ELECTRICAL CHARACTERISTICS⁽¹⁾

VCC = 0V; VEE = -3.3V ±10%

| Symbol | Parameter | TA = -40°C | | TA = 0°C | | TA = +25°C | | TA = +85°C | | Unit |
|--------|---------------------|------------|-------|----------|-------|------------|-------|------------|-------|------|
| | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | |
| VOH | Output HIGH Voltage | -1080 | -890 | -1020 | -840 | -980 | -810 | -910 | -720 | mV |
| VOL | Output LOW Voltage | -1950 | -1650 | -1950 | -1630 | -1950 | -1630 | -1950 | -1595 | mV |
| VIH | Input HIGH Voltage | -1230 | -890 | -1170 | -840 | -1130 | -810 | -1060 | -720 | mV |
| VIL | Input LOW Voltage | -1950 | -1500 | -1950 | -1480 | -1950 | -1480 | -1950 | -1445 | mV |
| IiH | Input HIGH Current | — | 150 | — | 150 | — | 150 | — | 150 | µA |
| IiL | Input LOW Current | 0.5 | — | 0.5 | — | 0.5 | — | 0.3 | — | µA |

100K SERIES DC ELECTRICAL CHARACTERISTICS⁽²⁾

VCC = 0V; VEE = -3.3V ±10%

| Symbol | Parameter | TA = -40°C | | | TA = 0°C to +85°C | | | Unit | Conditions |
|--------|-----------------------------------|------------|-------|-------|-------------------|-------|-------|------|-------------------------------|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | | |
| VOH | Output HIGH Voltage | -1085 | -1005 | -880 | -1025 | -955 | -880 | mV | VIN = VIH(Max) or VIL(Min) |
| VOL | Output LOW Voltage | -1830 | -1695 | -1555 | -1810 | -1705 | -1620 | | |
| VIH | Input HIGH Voltage ⁽³⁾ | -1165 | — | -880 | -1165 | — | -880 | mV | |
| VIL | Input LOW Voltage ⁽⁴⁾ | -1810 | — | -1475 | -1810 | — | -1475 | mV | |
| IiH | Input HIGH Current | — | — | 150 | — | — | 150 | µA | |
| IiL | Input LOW Current | 0.5 | — | — | 0.5 | — | — | µA | VIN = VIL(Min) |

10K SERIES DC ELECTRICAL CHARACTERISTICS⁽¹⁾

VCC = 0V; VEE = -5.0V ±10%

| Symbol | Parameter | TA = -40°C | | TA = 0°C | | TA = +25°C | | TA = +85°C | | Unit |
|--------|---------------------|------------|-------|----------|-------|------------|-------|------------|-------|------|
| | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | |
| VOH | Output HIGH Voltage | -1080 | -890 | -1020 | -840 | -980 | -810 | -910 | -720 | mV |
| VOL | Output LOW Voltage | -1950 | -1650 | -1950 | -1630 | -1950 | -1630 | -1950 | -1595 | mV |
| VIH | Input HIGH Voltage | -1230 | -890 | -1170 | -840 | -1130 | -810 | -1060 | -720 | mV |
| VIL | Input LOW Voltage | -1950 | -1500 | -1950 | -1480 | -1950 | -1480 | -1950 | -1445 | mV |
| IiH | Input HIGH Current | — | 150 | — | 150 | — | 150 | — | 150 | µA |
| IiL | Input LOW Current | 0.5 | — | 0.5 | — | 0.5 | — | 0.3 | — | µA |

100K SERIES DC ELECTRICAL CHARACTERISTICS⁽²⁾

VCC = 0V; VEE = -5.0V ±10%

| Symbol | Parameter | TA = -40°C | | | TA = 0°C to +85°C | | | Unit | Conditions |
|--------|-----------------------------------|------------|-------|-------|-------------------|-------|-------|------|-------------------------------|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | | |
| VOH | Output HIGH Voltage | -1085 | -1005 | -880 | -1025 | -955 | -880 | mV | VIN = VIH(Max) or VIL(Min) |
| VOL | Output LOW Voltage | -1830 | -1695 | -1555 | -1810 | -1705 | -1620 | | |
| VIH | Input HIGH Voltage ⁽³⁾ | -1165 | — | -880 | -1165 | — | -880 | mV | |
| VIL | Input LOW Voltage ⁽⁴⁾ | -1810 | — | -1475 | -1810 | — | -1475 | mV | |
| IiH | Input HIGH Current | — | — | 150 | — | — | 150 | µA | |
| IiL | Input LOW Current | 0.5 | — | — | 0.5 | — | — | µA | VIN = VIL(Min) |

Notes:

- 10EL circuits are designed to meet the DC specifications shown in the table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500lfpm is maintained. Outputs are terminated through a 50Ω resistor to -2.0V except where otherwise specified on the individual data sheets.
- This table replaces the three tables traditionally seen in ECL 100K data books. The same DC parameter values at VEE = -4.5V now apply across the full VEE range of -4.2V to -5.5V. Outputs are terminated through a 50Ω resistor to -2.0V except where otherwise specified on the individual data sheets. 100K circuits are designed to meet the DC specifications shown in the table where transverse airflow greater than 500lfpm is maintained.
- Guaranteed HIGH Signal for all Inputs.
- Guaranteed LOW Signal for all Inputs.

AC ELECTRICAL CHARACTERISTICS⁽¹⁾

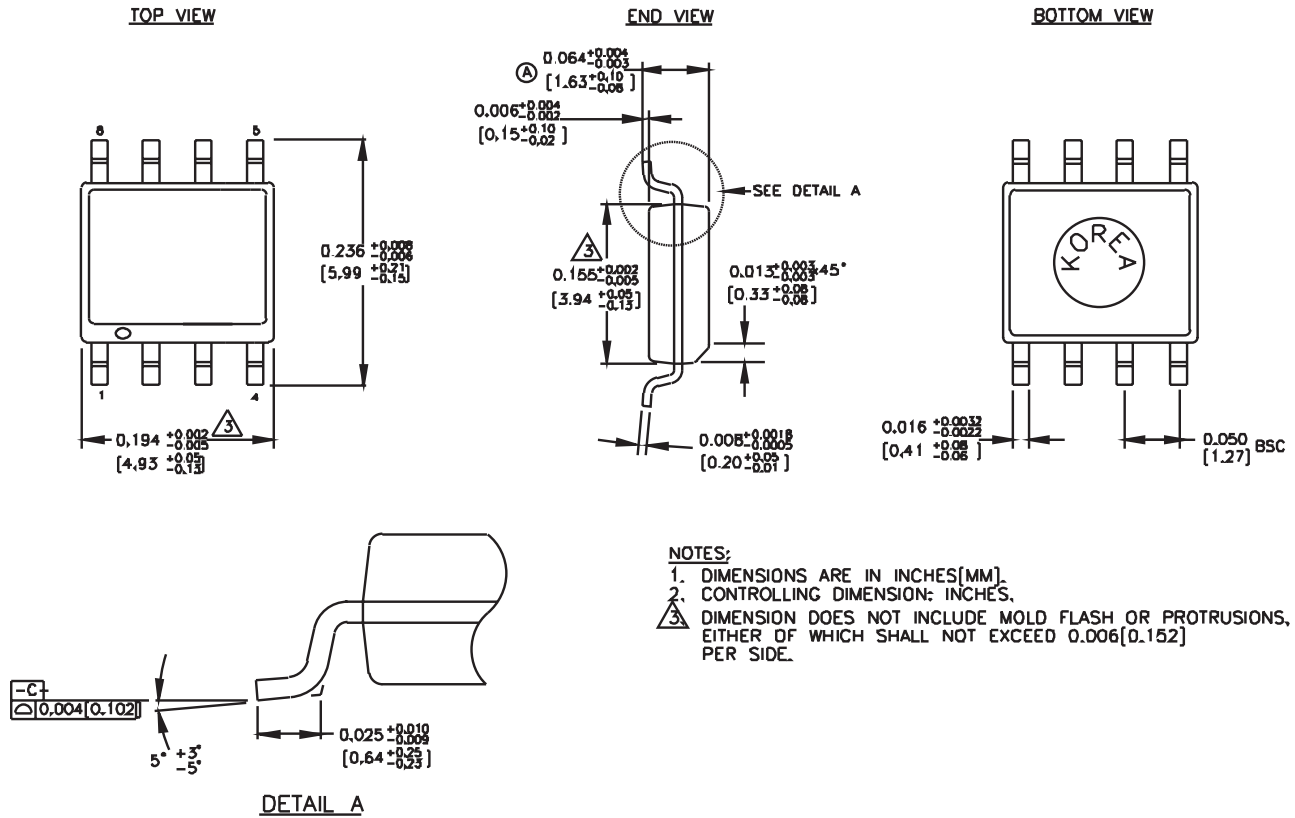
VEE = VEE (Min.) to VEE (Max.); VCC = GND

| 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. | |
| t _{PLH} t _{PHL} | 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 |
| t _{JITTER} | Random Clock Jitter (RMS) | — | — | — | — | — | — | — | 0.6 | — | — | — | — | 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 |

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_{PLH} and t_{PHL} 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_{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)|.

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



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>

The information furnished by Micrel in this datasheet is believed to be accurate and reliable. However, no responsibility is assumed by Micrel for its use. Micrel reserves the right to change circuitry and specifications at any time without notification to the customer.

Micrel Products are not designed or authorized for use as components in life support appliances, devices or systems where malfunction of a product can reasonably be expected to result in personal injury. Life support devices or systems are devices or systems that (a) are intended for surgical implant into the body or (b) support or sustain life, and whose failure to perform can be reasonably expected to result in a significant injury to the user. A Purchaser's use or sale of Micrel Products for use in life support appliances, devices or systems is at Purchaser's own risk and Purchaser agrees to fully indemnify Micrel for any damages resulting from such use or sale.

© 2003 Micrel, Incorporated.

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9