## FEATURES

- **3.3V and 5V power supply options**
- **Maximum frequency > 3.0GHz**
- **Internal 75KΩ input pull-down resistors**
- **Faster version of SY100EL16V**
- **100K ECL compatible I/O**
- **Improved output waveform characteristics**
- **Available in 8-pin (3mm) MSOP and SOIC package**

## DESCRIPTION

The SY88927V is a 2.5Gbps high-speed differential receiver. The device is functionally equivalent to the EL16V devices, with higher performance capabilities. With output transition times significantly faster than the EL16V, the SY88927V is ideally suited for interfacing with high-frequency sources.

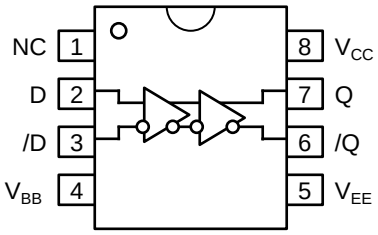
The SY88927V provides a $V_{BB}$ output for either single-ended use or as a DC bias for AC coupling to the device. The $V_{BB}$ pin should be used only as a bias for the SY88927V as its current sink/source capability is limited. Whenever used, the $V_{BB}$ pin should be bypassed to the most positive supply via a 0.01µF capacitor.

Under open input conditions (pulled to $V_{EE}$), internal input clamps will force the Q output LOW.

## PIN NAMES

| Pin | Function |
|---|---|
| D | Data Inputs |
| Q | Data Outputs |
| $V_{BB}$ | Reference Voltage Output |

## PACKAGE/ORDERING INFORMATION




**10-Pin MSOP (K10-1)**

### Ordering Information

| Part Number | Package Type | Operating Range | Package Marking | Lead Finish |
|---|---|---|---|---|
| SY88927VKC | K8-1 | Commercial | 927V | Sn-Pb |
| SY88927VKCTR[1] | K8-1 | Commercial | 927V | Sn-Pb |
| SY88927VZC | Z8-1 | Commercial | 927V | Sn-Pb |
| SY88927VZCTR[1] | Z8-1 | Commercial | 927V | Sn-Pb |
| SY88927VKG[2] | K8-1 | Industrial | 927V with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY88927VKGTR[1,2] | K8-1 | Industrial | 927V with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY88927VZG[2] | Z8-1 | Industrial | 927V with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY88927VZGTR[1,2] | Z8-1 | Industrial | 927V with Pb-Free bar-line indicator | Pb-Free NiPdAu |

**Note:**

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

## ABSOLUTE MAXIMUM RATINGS[1]

| Symbol | Rating | | Value | Unit |
|---|---|---|---|---|
| $V_{EE}$ | Power Supply Voltage | | –8.0 to 0 | V |
| $V_I$ | Input Voltage | | 0 to –6.0 | V |
| $I_{OUT}$ | Output Current | –Continuous<br>–Surge | 50<br>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 |

**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 ratlng conditions for extended periods may affect device reliability.

## DC ELECTRICAL CHARACTERISTICS

$V_{EE}$ = –3.0V to –5.5V; $V_{CC}$ = GND

| Symbol | Parameter | $T_A$ = –40°C | | | $T_A$ = 0°C | | | $T_A$ = +25°C | | | $T_A$ = +85°C | | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| $I_{EE}$ | Power Supply Current | — | — | 40 | — | — | 40 | — | 35 | 42 | — | — | 48 | mA |
| $V_{BB}$ | Output Reference Voltage | –1.38 | –1.30 | –1.26 | –1.38 | –1.31 | –1.26 | –1.38 | –1.32 | –1.26 | –1.38 | –1.33 | –1.26 | V |
| $I_{IH}$ | Input HIGH Current | — | — | 150 | — | — | 150 | — | — | 150 | — | — | 150 | µA |

## 100K SERIES DC ELECTRICAL CHARACTERISTICS[1]

$V_{EE}$ = –3.0V to –5.5V; $V_{CC}$ = GND

| Symbol | Parameter | $T_A$ = –40°C | | | $T_A$ = 0°C to +85°C | | | Unit | Conditions | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | | | |
| $V_{OH}$<br>$V_{OL}$ | Output HIGH Voltage<br>Output LOW Voltage | –1085<br>–1830 | –1005<br>–1695 | –880<br>–1555 | –1025<br>–1810 | –955<br>–1705 | –880<br>–1620 | mV | $V_{IN}$ = $V_{IH}$(Max) or $V_{IL}$(Min) | Loading with 50Ω to –2.0V |
| $V_{OHA}$<br>$V_{OLA}$ | Output HIGH Voltage<br>Output LOW Voltage | –1095<br>— | —<br>— | —<br>–1555 | –1035<br>— | —<br>— | —<br>–1610 | mV | $V_{IN}$ = $V_{IH}$(Min) or $V_{IL}$(Max) | |
| $V_{IH}$ | Input HIGH Voltage[2] | –1165 | — | –880 | –1165 | — | –880 | mV | | |
| $V_{IL}$ | Input LOW Voltage[3] | –1810 | — | –1475 | –1810 | — | –1475 | mV | | |
| $I_{IL}$ | Input LOW Current | 0.5 | — | — | 0.5 | — | — | µA | $V_{IN}$ = $V_{IL}$(Min) | |

**Notes:**

1. This table replaces the three tables traditionally seen in ECL 100K data books. Outputs are terminated through a 50Ω resistor to –2.0V except where otherwise specified on the individual data sheets.
2. Guaranteed HIGH Signal for all inputs.
3. Guaranteed LOW Signal for all inputs.

## AC ELECTRICAL CHARACTERISTICS

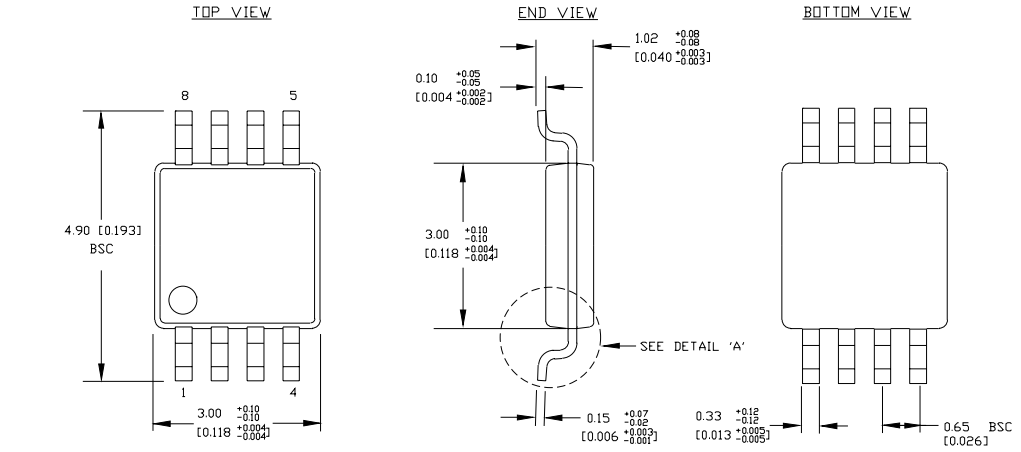
$V_{EE}$ = –3.0V to –5.5V; $V_{CC}$ = GND

| Symbol | Parameter | $T_A$ = –40°C | | $T_A$ = 0°C | | $T_A$ = +25°C | | | $T_A$ = +85°C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min. | Max. | Min. | Max. | Min. | Typ. | Max. | Min. | Max. | |
| $t_{PLH}$ $t_{PHL}$ | Propagation Delay to Output D (Diff) | 150 | 240 | 150 | 240 | 150 | 190 | 240 | 150 | 280 | ps |
| | D (SE) | — | — | — | — | — | — | — | — | — | |
| $t_{skew}$ | Duty Cycle Skew(1) (Diff) | — | — | — | 20 | — | 5 | 20 | — | 20 | ps |
| $V_{CMR}$ | Common Mode Range(2) | $V_{EE}$+2 | $V_{CC}$–0.4 | $V_{EE}$+2 | $V_{CC}$–0.4 | $V_{EE}$+2 | — | $V_{CC}$–0.4 | $V_{EE}$+2 | $V_{CC}$–0.4 | V |
| $V_{PP}$ | Input Voltage Range (Diff) | 150 | 1200 | 150 | 1200 | 150 | 800 | 1200 | 150 | 1200 | mV |
| $t_r$ $t_f$ | Output Rise/Fall Times Q(3) (20% to 80%) | — | 175 | — | 175 | — | 105 | 175 | — | 175 | ps |

**NOTES:**

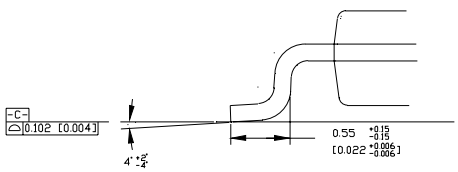
1. Duty cycle skew is the difference between a $t_{PLH}$ and $t_{PHL}$ propagation delay through a device.
2. The CMR range is referenced to the most positive side of the differential input signal. Normal operation is obtained if the HIGH level falls within the specified range and the peak-to-peak voltage lies between $V_{PP}$ min. and 1V. The lower end of the CMR range varies 1:1 with $V_{EE}$.
3. $V_{ID}$ > 150mV.

## 8 LEAD MSOP (K8-1)




NOTES:

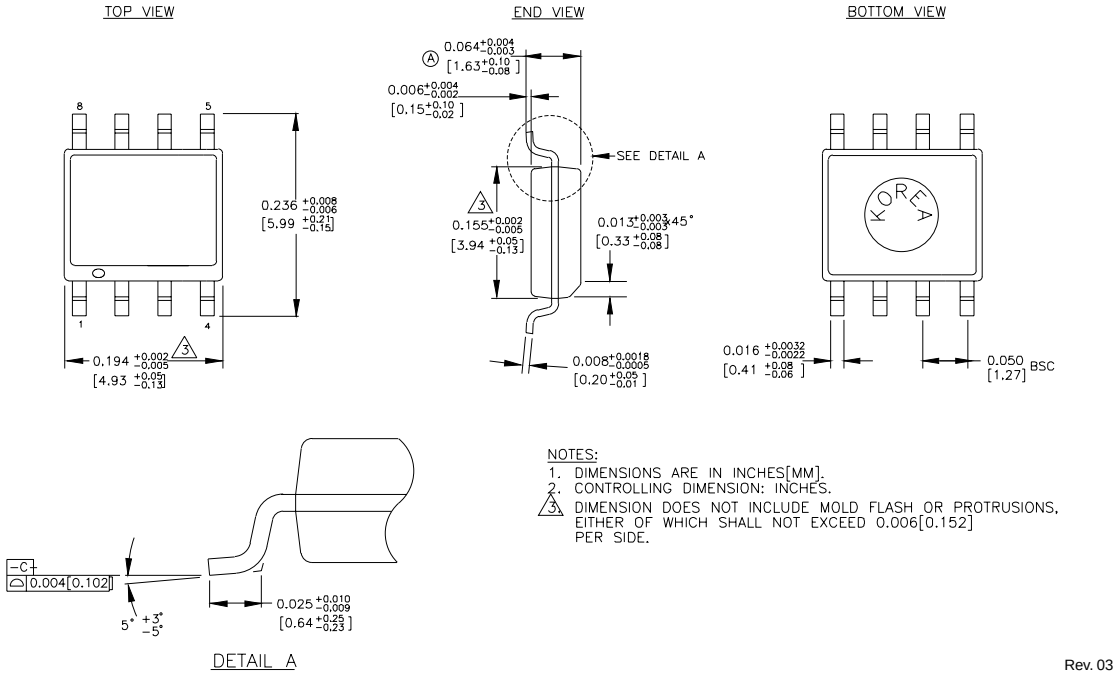
1. DIMENSIONS ARE IN MM [INCHES].
2. CONTROLLING DIMENSION: MM
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.20 [0.008] PER SIDE.




DETAIL A

Rev. 01

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




Rev. 03

**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.

© 2005 Micrel, Incorporated.

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- View SY88927VKG on WIN SOURCE
- Microchip Technology Information

## Optimize Your Supply Chain with WIN SOURCE Solutions

- Global Sourcing Solution
- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management