

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
- ESD protection of 2000V
- Available in 8-pin (3mm)TSSOP and SOIC package

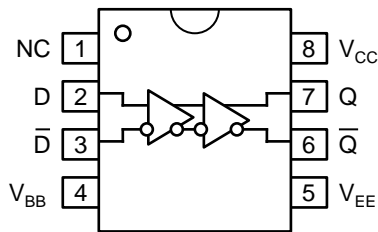
DESCRIPTION

The SY88927V is a 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 ground via a 0.01μF capacitor.

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

PIN CONFIGURATION/BLOCK DIAGRAM



TOP VIEW
(TSSOP or SOIC)

PIN NAMES

Pin	Function
D	Data Inputs
Q	Data Outputs
V _{BB}	Reference Voltage Output

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

Symbol	Rating	Value	Unit
VEE	Power Supply Voltage	-8.0 to 0	V
VI	Input Voltage	0 to -6.0	V
IOUT	Output Current Continuous Surge	50 100	mA
TA	Operating Temperature Range	-40 to +85	°C
Tstore	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 RATING conditions for extended periods may affect device reliability.

DC ELECTRICAL CHARACTERISTICS

VEE = -3.0V to -5.5V; 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.	
IEE	Power Supply Current	—	—	29	—	—	29	—	22	29	—	—	34	mA
VBB	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⁾

VEE = -3.0V to -5.5V; VCC = GND

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)	Loading with 50Ω to -2.0V
VOL	Output LOW Voltage	-1830	-1695	-1555	-1810	-1705	-1620			
VOHA	Output HIGH Voltage	-1095	—	—	-1035	—	—	mV	VIN = VIH(Min) or VIL(Max)	
VOLA	Output LOW Voltage	—	—	-1555	—	—	-1610			
VIH	Input HIGH Voltage ⁽²⁾	-1165	—	-880	-1165	—	-880	mV		
VIL	Input LOW Voltage ⁽³⁾	-1810	—	-1475	-1810	—	-1475	mV		
IIL	Input LOW Current	0.5	—	—	0.5	—	—	μA	VIN = VIL(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	$T_A = -40^\circ C$		$T_A = 0^\circ C$		$T_A = +25^\circ C$			$T_A = +85^\circ C$		Unit	Conditions
		Min.	Max.	Min.	Max.	Min.	Typ.	Max.	Min.	Max.		
t_{PLH} t_{PHL}	Propagation Delay to Output D (Diff) D (SE)	160 —	300 —	160 —	300 —	160 —	260 —	300 —	200 —	360 —	ps	
t_{skew}	Duty Cycle Skew ⁽¹⁾ (Diff)	—	—	—	20	—	5	20	—	20	ps	
V_{CMR}	Common Mode Range ⁽²⁾	$V_{EE}+2$	V_{CC}	$V_{EE}+2$	V_{CC}	$V_{EE}+2$	—	V_{CC}	$V_{EE}+2$	V_{CC}	V	
V_{ID}	Input Voltage Range	5	1800	5	1800	5	—	1800	5	1800	mVp-p	
V_{OD}	Differential Output Voltage Swing	—	—	—	—	—	600 200	—	—	—	mV mV	$V_{ID} > 25mVp-p$ $V_{ID} > 5mVp-p$
t_r t_f	Output Rise/Fall Times Q (20% to 80%)	—	175	—	175	—	105	175	—	175	ps	$V_{ID} > 100mVp-p$ $V_{ID} < 100mVp-p$

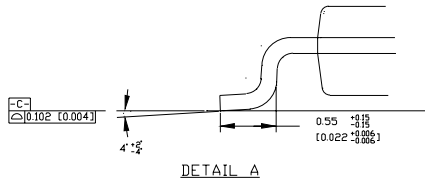
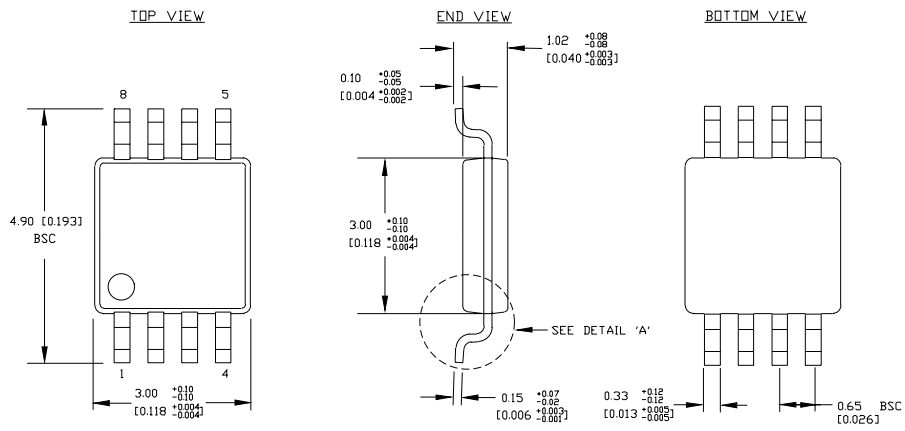
NOTES:

- Duty cycle skew is the difference between a t_{PLH} and t_{PHL} propagation delay through a device.
- 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} .

PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range	V_{EE} Range (V)
SY88927VKC	K8-1	Commercial	-3.0 to -5.5
SY88927VKCTR	K8-1	Commercial	-3.0 to -5.5
SY88927VZC	Z8-1	Commercial	-3.0 to -5.5
SY88927VZCTR	Z8-1	Commercial	-3.0 to -5.5

8 LEAD TSSOP (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.

8 LEAD PLASTIC SOIC (Z8-1)

