



## 9-BIT COMPARATOR

SY100S366

### FEATURES

- Max. propagation delay of 1500ps
- IEE min. of -120mA
- Industry standard 100K ECL levels
- Extended supply voltage option:  
VEE = -4.2V to -5.5V
- Voltage and temperature compensation for improved noise immunity
- Internal 75k $\Omega$  input pull-down resistors
- 120% faster than Fairchild
- Approximately 40% lower power than Fairchild
- Function and pinout compatible with Fairchild F100K
- Available in 28-pin PLCC packages

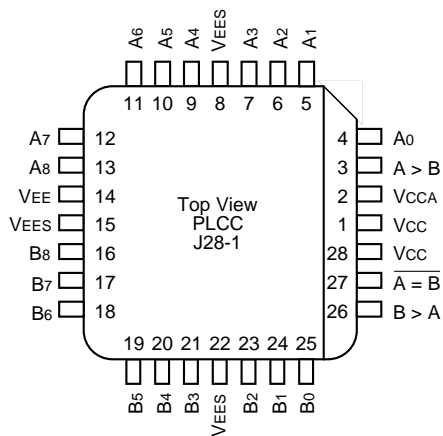
### DESCRIPTION

The SY100S366 is an ultra-fast 9-bit magnitude comparator designed for use in high-performance ECL systems. The device compares the arithmetic value of two 9-bit words and indicates whether one word is greater than or equal to the other. The inputs on the device have 75k $\Omega$  pull-down resistors.

### PIN NAMES

Pin	Function
A0 – A8	A Data Inputs
B0 – B8	B Data Inputs
A > B	A Greater Than B Output
B > A	B Greater Than A Output
$\overline{A = B}$	Complement A Equal to B Output (Active LOW)
VEES	VEE Substrate
VCCA	Vcco for ECL Outputs

PACKAGE/ORDERING INFORMATION

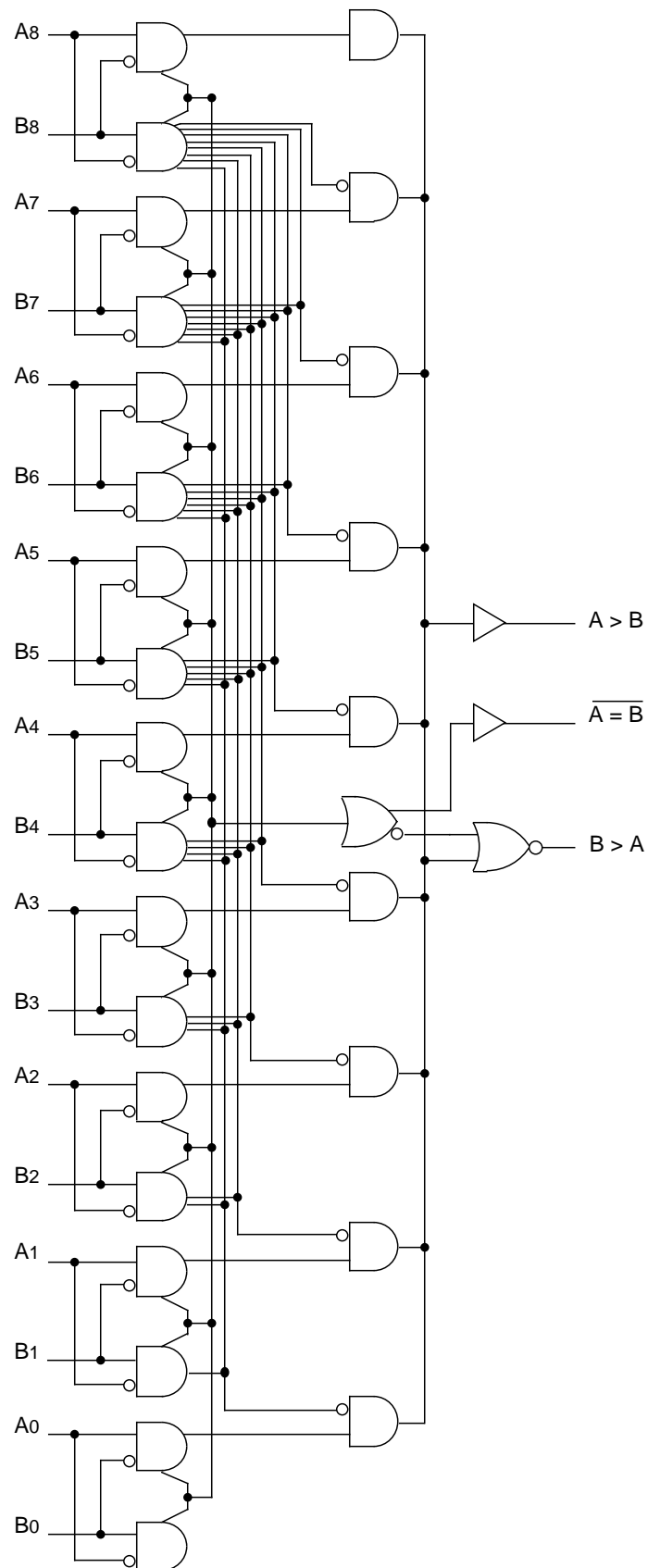


28-Pin PLCC (J28-1)

Ordering Information

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY100S366JC	J28-1	Commercial	SY100S366JC	Sn-Pb
SY100S366JCTR <sup>(1)</sup>	J28-1	Commercial	SY100S366JC	Sn-Pb
SY100S366JZ <sup>(2)</sup>	J28-1	Commercial	SY100S366JZ with Pb-Free bar-line indicator	Matte-Sn
SY100S366JZTR <sup>(1, 2)</sup>	J28-1	Commercial	SY100S366JZ with Pb-Free bar-line indicator	Matte-Sn

- Notes:
- 1. Tape and Reel.
  - 2. Pb-Free package is recommended for new designs.

**BLOCK DIAGRAM**

**TRUTH TABLE<sup>(1)</sup>**

Inputs									Outputs		
A8B8	A7B7	A6B6	A5B5	A4B4	A3B3	A2B2	A1B1	A0B0	A > B	B > A	A = B
H L L H A8 = B8 A8 = B8	H L L H								H L H L	L H L H	H H H H
A8 = B8 A8 = B8 A8 = B8 A8 = B8	A7 = B7 A7 = B7 A7 = B7 A7 = B7	H L L H A6 = B6 A6 = B6	H L L H						H L H L	L H L H	H H H H
A8 = B8 A8 = B8 A8 = B8 A8 = B8	A7 = B7 A7 = B7 A7 = B7 A7 = B7	A6 = B6 A6 = B6 A6 = B6 A6 = B6	A5 = B5 A5 = B5 A5 = B5 A5 = B5	H L L H A4 = B4 A4 = B4	H L L H				H L H L	L H L H	H H H H
A8 = B8 A8 = B8 A8 = B8 A8 = B8	A7 = B7 A7 = B7 A7 = B7 A7 = B7	A6 = B6 A6 = B6 A6 = B6 A6 = B6	A5 = B5 A5 = B5 A5 = B5 A5 = B5	A4 = B4 A4 = B4 A4 = B4 A4 = B4	A3 = B3 A3 = B3 A3 = B3 A3 = B3	H L L H A2 = B2 A2 = B2	H L L H		H L H L	L H L H	H H H H
A8 = B8 A8 = B8 A8 = B8 A8 = B8	A7 = B7 A7 = B7 A7 = B7 A7 = B7	A6 = B6 A6 = B6 A6 = B6 A6 = B6	A5 = B5 A5 = B5 A5 = B5 A5 = B5	A4 = B4 A4 = B4 A4 = B4 A4 = B4	A3 = B3 A3 = B3 A3 = B3 A3 = B3	A2 = B2 A2 = B2 A2 = B2 A2 = B2	A1 = B1 A1 = B1 A1 = B1 A1 = B1	H L L H A0 = B0	H L L L	L H H H	H H H H

**Note:**

1. H = HIGH Voltage Level, L = LOW Voltage Level, Blank = X = Don't Care

**DC ELECTRICAL CHARACTERISTICS**

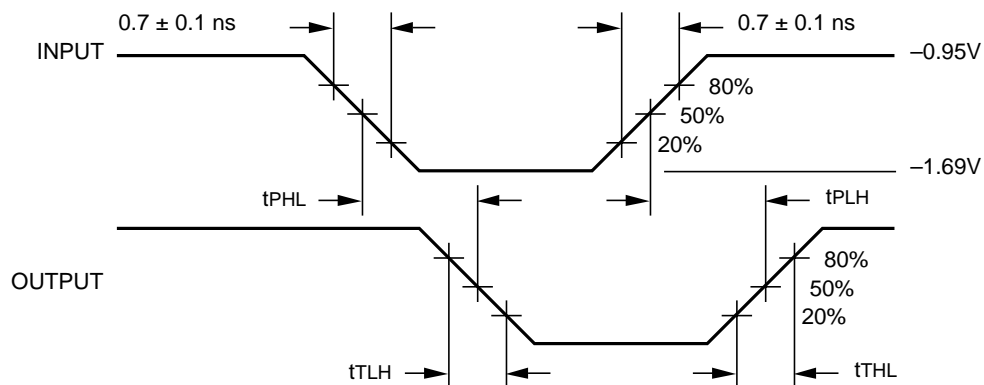
V<sub>EE</sub> = -4.2V to -5.5V unless otherwise specified; V<sub>CC</sub> = V<sub>CCA</sub> = GND

Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
I <sub>IH</sub>	Input HIGH Current, All Inputs	—	—	200	μA	V <sub>IN</sub> = V <sub>IH</sub> (Max.)
I <sub>EE</sub>	Power Supply Current	-120	-86	-60	mA	Inputs Open

**AC ELECTRICAL CHARACTERISTICS**

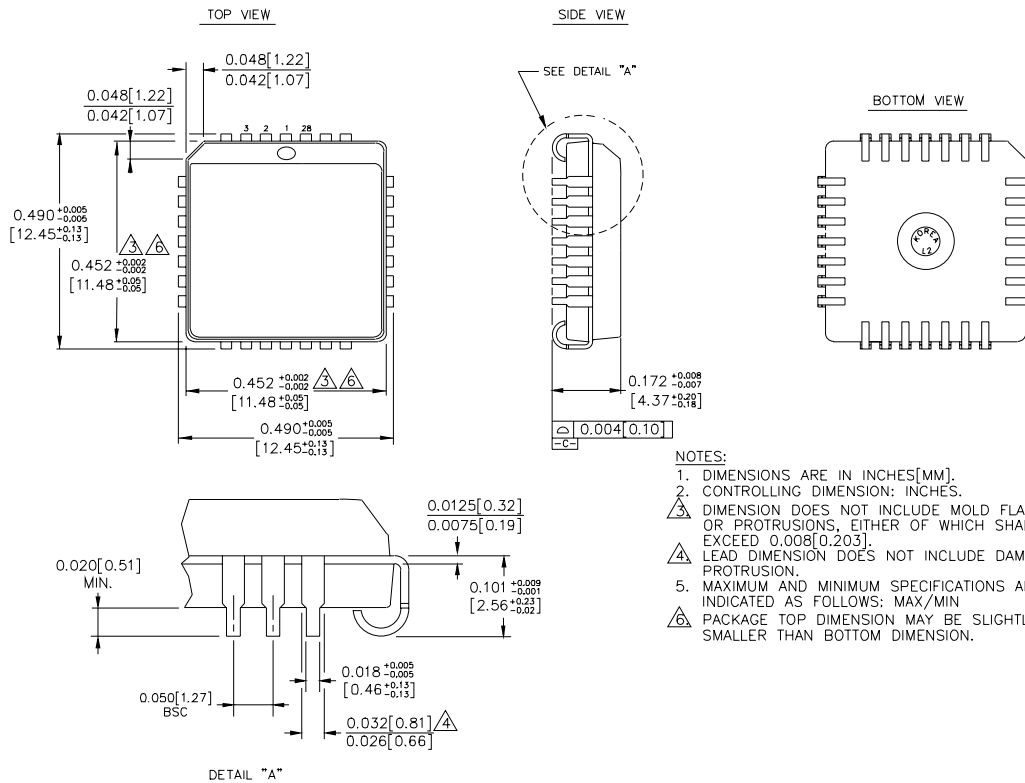
V<sub>EE</sub> = -4.2V to -5.5V unless otherwise specified; V<sub>CC</sub> = V<sub>CCA</sub> = GND

Symbol	Parameter	T <sub>A</sub> = 0°C		T <sub>A</sub> = +25°C		T <sub>A</sub> = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay Data to Output	400	1500	400	1500	400	1500	ps	
t <sub>TLH</sub> t <sub>THL</sub>	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

**TIMING DIAGRAM****Propagation Delay and Transition Times****Note:**

$V_{EE} = -4.2V$  to  $-5.5V$  unless otherwise specified;  $V_{CC} = V_{CCA} = GND$

## 28-PIN PLCC (J28-1)



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