

**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 75KΩ input pull-down resistors
- 120% faster than Fairchild
- Approximately 40% lower power than Fairchild
- Function and pinout compatible with Fairchild F100K
- Available in 24-pin CERPACK and 28-pin PLCC packages

**DESCRIPTION**

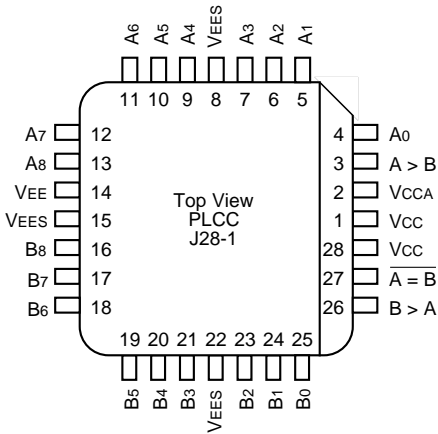
The SY100S366 is an ultra-fast 9-bit magnitude comparator designed for use in high-performance ECL systems. The device compares the arithmetic value of two 9-bit words and indicates whether one word is greater than or equal to the other. The inputs on the device have 75KΩ pull-down resistors.

**PIN NAMES**

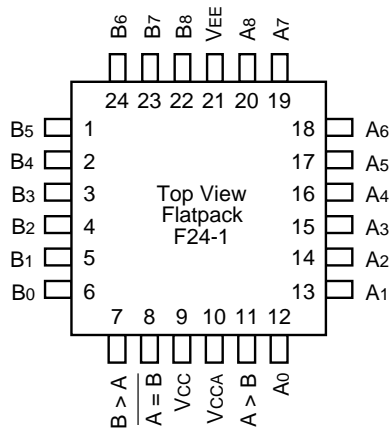
Pin	Function
A0 – A8	A Data Inputs
B0 – B8	B Data Inputs
A > B	A Greater Than B Output
B > A	B Greater Than A Output
$\overline{A = B}$	Complement A Equal to B Output (Active LOW)
VEES	VEE Substrate
VCCA	Vcco for ECL Outputs

**PACKAGE/ORDERING INFORMATION**

**Ordering Information**



**28-Pin PLCC (J28-1)**



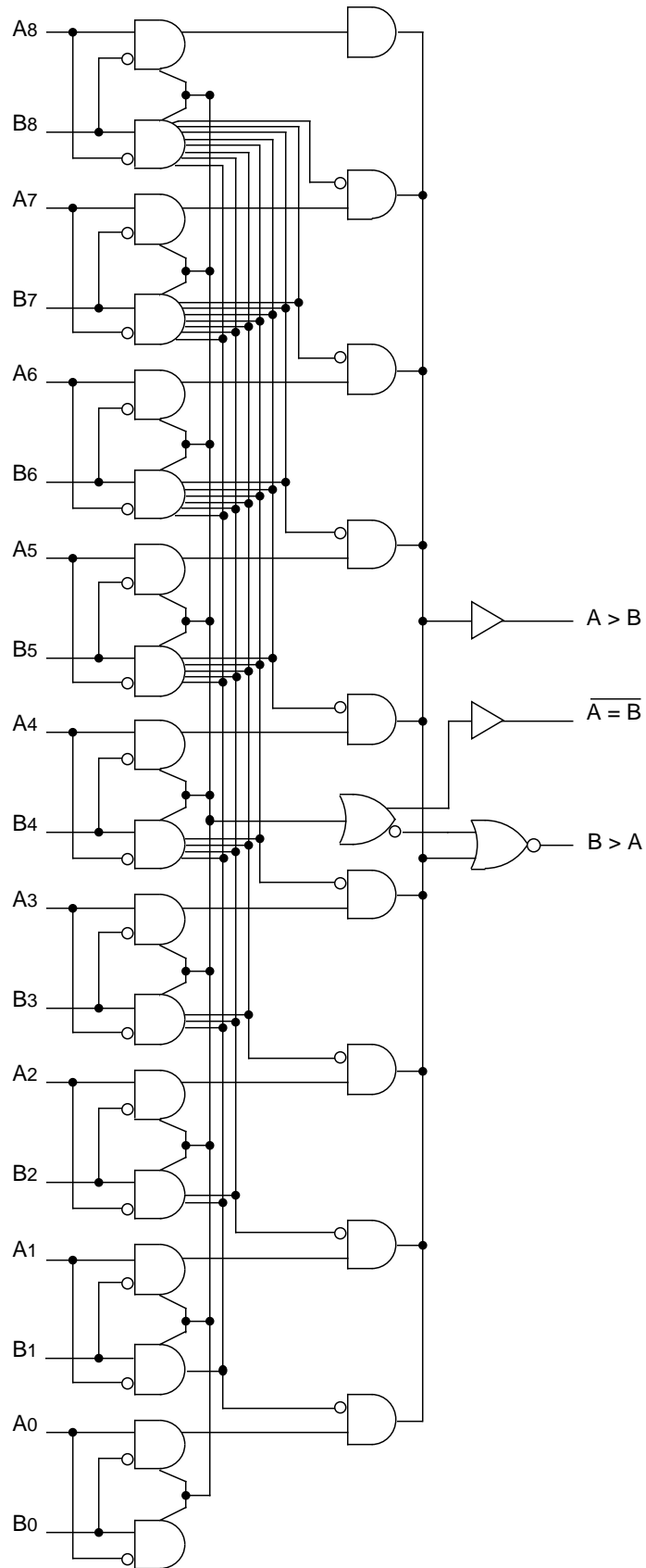
**24-Pin Cerpack (F24-1)**

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY100S366FC	F24-1	Commercial	SY100S366FC	Sn-Pb
SY100S366FCTR <sup>(1)</sup>	F24-1	Commercial	SY100S366FC	Sn-Pb
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 A5 = B5 A5 = B5						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 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 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 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**

**CERPACK**

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	1600	400	1600	400	1600	ps	
t <sub>TLH</sub> t <sub>THL</sub>	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

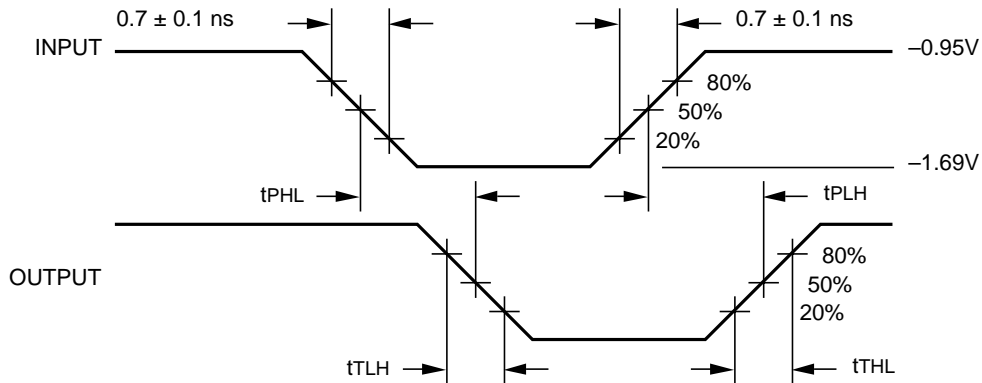
**AC ELECTRICAL CHARACTERISTICS**

**PLCC**

VEE = -4.2V to -5.5V unless otherwise specified; VCC = VCCA = GND

Symbol	Parameter	TA = 0°C		TA = +25°C		TA = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
tPLH tPHL	Propagation Delay Data to Output	400	1500	400	1500	400	1500	ps	
tTLH tTHL	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

**TIMING DIAGRAM**

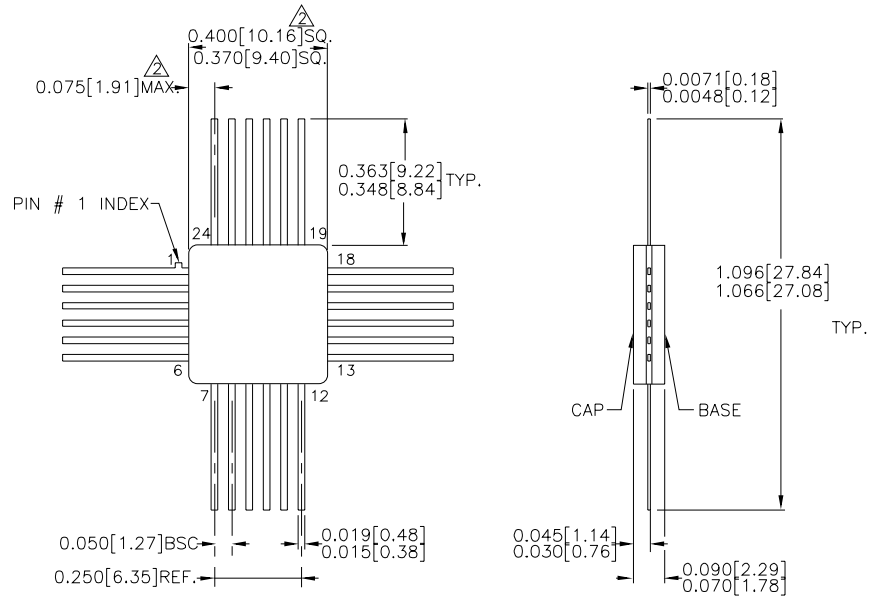


Propagation Delay and Transition Times

**Note:**

VEE = -4.2V to -5.5V unless otherwise specified; VCC = VCCA = GND

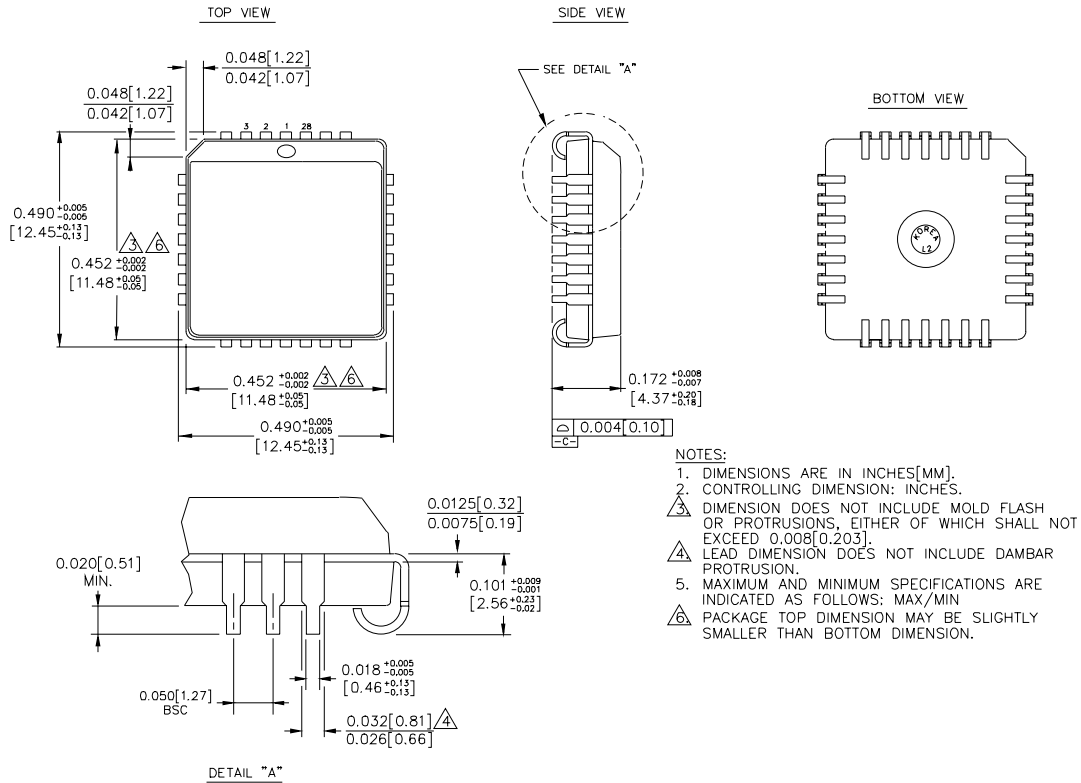
**24-PIN CERPACK (F24-1)**



- NOTES:
1. DIMENSIONS ARE IN INCHES[MM].
  2. THIS DIMENSION INCLUDES GLASS PROTRUSION AND CAP TO BASE ALIGNMENT TOLERANCES.
  3. DIMENSIONS SHOWN ARE MAX/MIN, WHERE NOTED.

Rev. 03

**28-PIN PLCC (J28-1)**



Rev. 03

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