

FEATURES

- Max. transparent propagation delay of 900ps
- Min. Master Reset and Enable pulse widths of 100ps
- IEE min. of -98mA
- 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
- More than 40% faster than Fairchild
- Approximately 30% lower power than Fairchild
- Function and pinout compatible with Fairchild F100K
- Available in 28-pin PLCC package

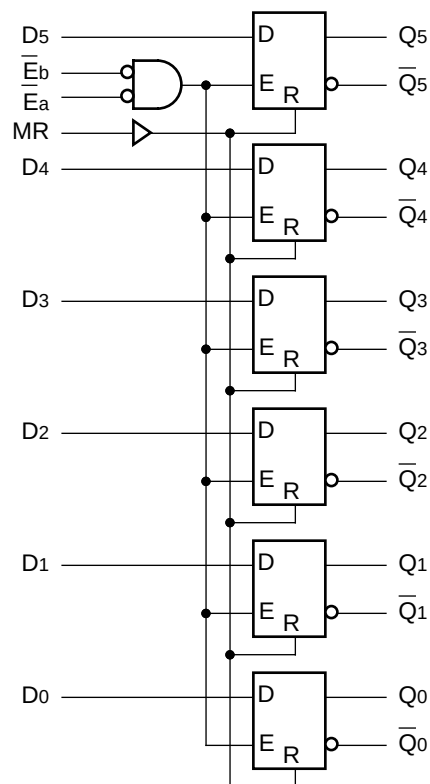
DESCRIPTION

The SY100S350 offers six high-speed D-Latches with both true and complement outputs, and is performance compatible for use with high-performance ECL systems. When both enable signals ($\bar{E}_a$ and $\bar{E}_b$) are at a logic LOW, the latches are transparent and the input signals (D_0 – D_5) appear at the outputs (Q_0 – Q_5) after a propagation delay. If either or both of the enable signals are at a logic HIGH, then the latches store the last valid data present on its inputs before $\bar{E}_a$ or $\bar{E}_b$ went to a logic HIGH. The Master Reset (MR) overrides all other input signals and takes the outputs to a logic LOW state. All inputs have 75kΩ pull-down resistors.

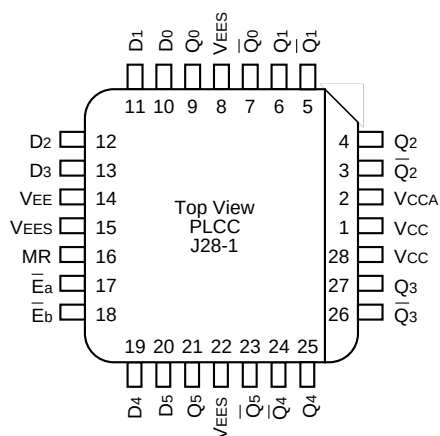
PIN NAMES

Pin	Function
D_0 — D_5	Data Inputs
$\bar{E}_a$, $\bar{E}_b$	Common Enable Inputs (Active LOW)
MR	Asynchronous Master Reset Input
Q_0 — Q_5	Data Outputs
$\bar{Q}_0$ — $\bar{Q}_5$	Complementary Data Outputs
VEES	VEE Substrate
VCCA	VCCO for ECL Outputs

BLOCK DIAGRAM



PACKAGE/ORDERING INFORMATION



28-Pin PLCC (J28-1)

Ordering Information

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY100S350JC	J28-1	Commercial	SY100S350JC	Sn-Pb
SY100S350JCTR ⁽¹⁾	J28-1	Commercial	SY100S350JC	Sn-Pb
SY100S350JZ ⁽²⁾	J28-1	Commercial	SY100S350JZ with Pb-Free bar-line indicator	Matte-Sn
SY100S350JZTR ^(1, 2)	J28-1	Commercial	SY100S350JZ with Pb-Free bar-line indicator	Matte-Sn

Notes:

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

TRUTH TABLE⁽¹⁾

Each Latch

Inputs				Outputs		Operating Mode
D _n	$\bar{E}_a$	$\bar{E}_b$	MR	Q _n	$\bar{Q}_n$	
H	L	L	L	H	L	Latch
L	L	L	L	L	H	
X	X	H	L	Latched ⁽²⁾	Latched ⁽²⁾	
X	H	X	L	Latched ⁽²⁾	Latched ⁽²⁾	
X	X	X	H	L	H	Asynchronous

NOTES:

1. H = HIGH State
L = LOW State
X = Don't Care
2. Retains data that is present before $\bar{E}$ positive transition.

DC ELECTRICAL CHARACTERISTICS

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

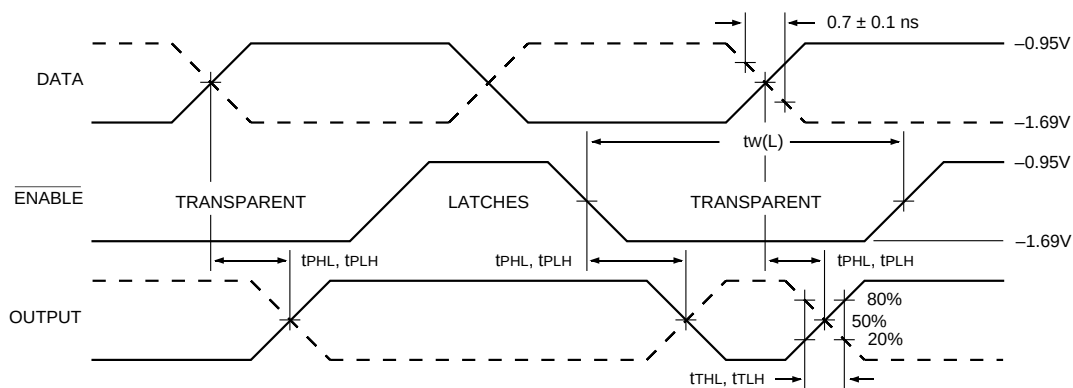
Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
I_{IH}	Input HIGH Current MR D_n $\bar{E}_a, \bar{E}_b$	—	—	250 250 250	μA	$V_{IN} = V_{IH} (Max.)$
I_{EE}	Power Supply Current	-98	-78	-49	mA	Inputs Open

AC ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter	$T_A = 0^\circ C$		$T_A = +25^\circ C$		$T_A = +85^\circ C$		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t_{PLH} t_{PHL}	Propagation Delay D_n to Output	300	900	300	900	300	900	ps	
t_{PLH} t_{PHL}	Propagation Delay E_a, E_b to Output	300	1000	300	1000	300	1000	ps	
t_{PLH} t_{PHL}	Propagation Delay MR to Output	300	1200	300	1200	300	1200	ps	
t_{TLH} t_{THL}	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	
t_s	Set-up Time, D_n to E_n	500	—	500	—	500	—	ps	
t_h	Hold Time, D_n to E_n	500	—	500	—	500	—	ps	
t_r	Release Time, MR to E_n	1000	—	1000	—	1000	—	ps	
$t_{PW} (L)$	Pulse Width, E_a, E_b	1000	—	1000	—	1000	—	ps	
$t_{PW} (H)$	Pulse Width, MR	1000	—	1000	—	1000	—	ps	

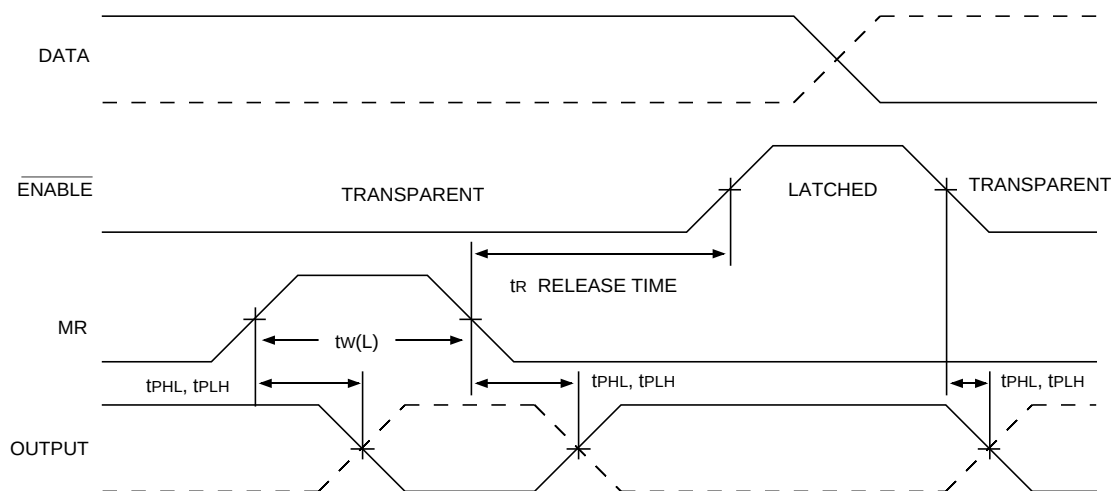
TIMING DIAGRAMS



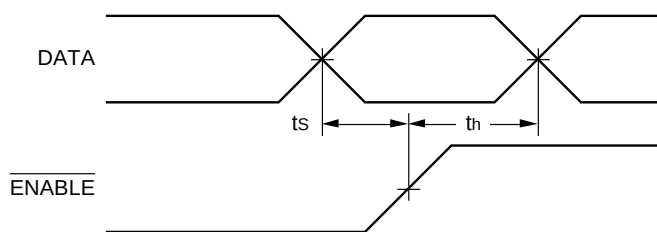
Enable Timing

Note:

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



Reset Timing



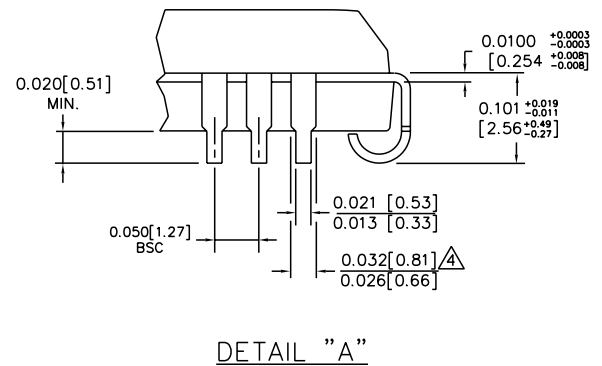
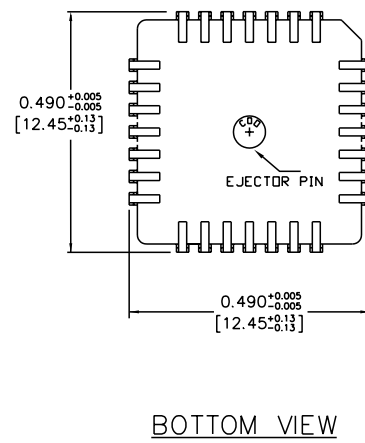
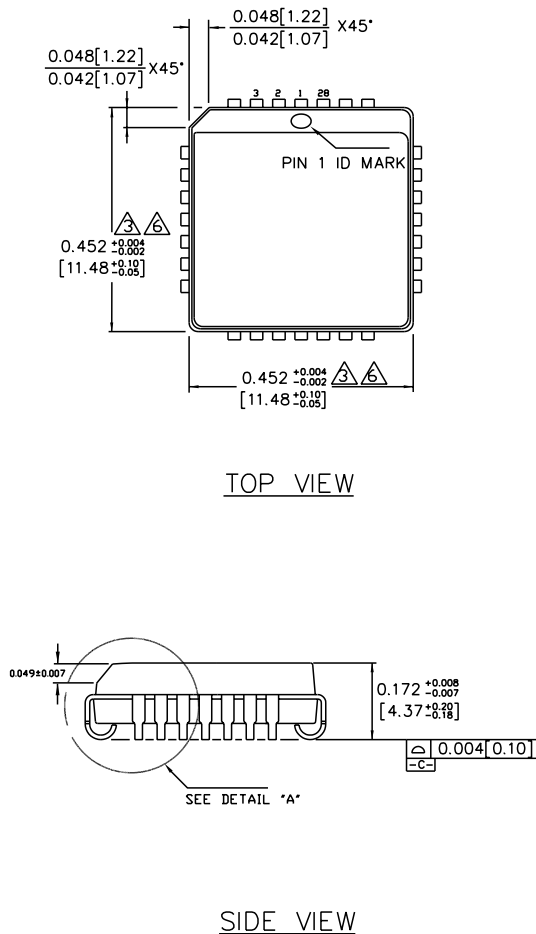
Data Set-up and Hold Times

Notes:

t_s is the minimum time before the transition of the clock that information must be present at the data input.

t_h is the minimum time after the transition of the clock that information must remain unchanged at the data input.

28-PIN PLCC (J28-1)



NOTES:

1. DIMENSIONS ARE IN INCHES [MM].
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.008 [0.203].
4. LEAD DIMENSION DOES NOT INCLUDE DAMBAR PROTRUSION.
5. MAXIMUM AND MINIMUM SPECIFICATIONS ARE INDICATED AS FOLLOWS: MAX/MIN
6. PACKAGE TOP DIMENSION MAY BE SLIGHTLY SMALLER THAN BOTTOM DIMENSION.

Rev. A

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