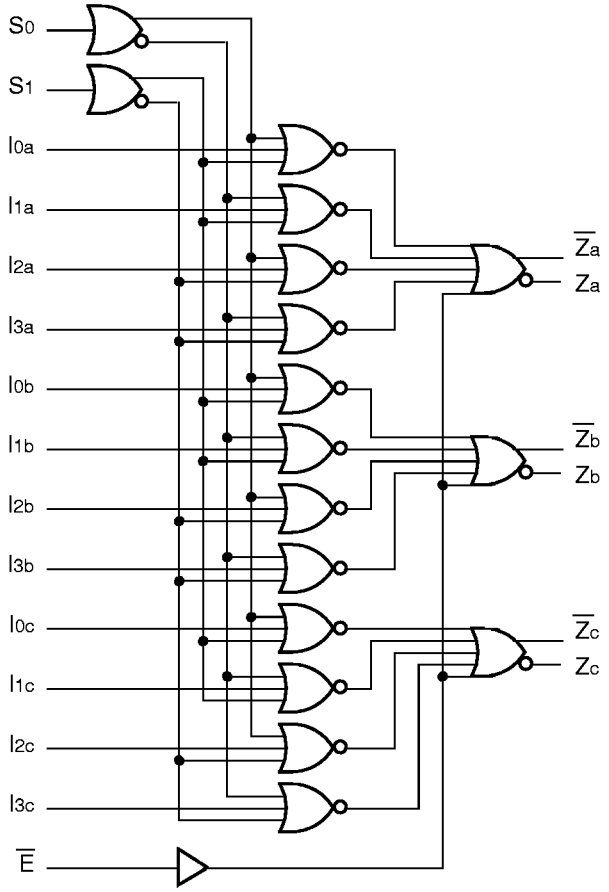
TRIPLE 4-INPUT MULTIPLEXER WITH ENABLE

FEATURES

- **Max. propagation delay of 1000ps**
- **I_{EE} min. of –68mA**
- **Industry standard 100K ECL levels**
- **Extended supply voltage option: V_{EE} = –4.2V to –5.5V**
- **Voltage and temperature compensation for improved noise immunity**
- **Internal 75KΩ input pull-down resistors**
- **40% faster than National or Signetics**
- **40% lower power than National or Signetics**
- **Function and pinout compatible with National and Signetics F100K**
- **ESD protection of 2000V**
- **Available in 24-pin CERDIP, 24-pin CERPACK and 28-pin PLCC packages**

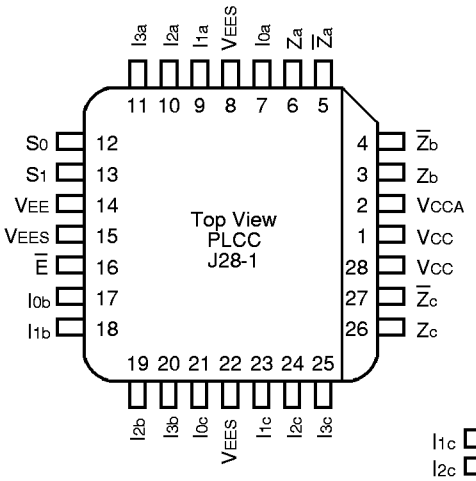
BLOCK DIAGRAM

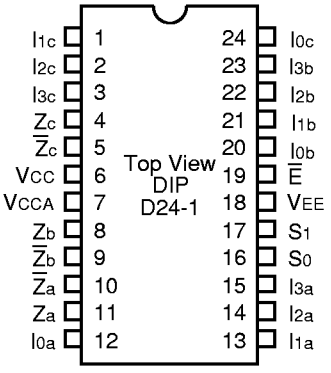


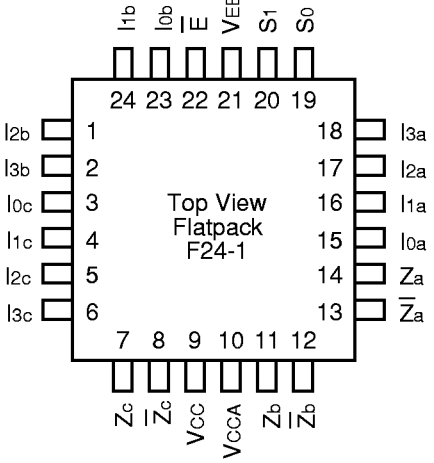
DESCRIPTION

The SY100S371 is an ultra-fast triple 4-input multiplexer with true and complementary outputs designed for use in high-performance ECL systems. The multiplexer is controlled by common select inputs S_0 and S_1. A logic HIGH on the Enable ($\overline{E}$) control input takes the outputs to a logic LOW. The inputs on the device have 75KΩ pull-down resistors.

PIN CONFIGURATIONS







Rev.: F Amendment: /0
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PIN NAMES

Pin	Function
$I_{0X} - I_{3X}$	Data Inputs (x = a, b or c)
S_0, S_1	Select Inputs
$\overline{E}$	Enable Input (Active LOW)
$Z_a - Z_c$	Data Outputs
$\overline{Z}_a - \overline{Z}_c$	Complementary Data Outputs
V_{EES}	V_{EE} Substrate
V_{CCA}	V_{CCO} for ECL Outputs

TRUTH TABLE(1)

Inputs			Outputs
$\overline{E}$	S_0	S_1	Z_n
L	L	L	I_{0X}
L	H	L	I_{1X}
L	L	H	I_{2X}
L	H	H	I_{3X}
H	X	X	L

NOTE:

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

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 $I_{0X} - I_{3X}$ S_0, S_1, $\overline{E}$	 — —	 — —	 250 300	µA	V_{IN} = V_{IH} (Max.)
I_{EE}	Power Supply Current	–68	–48	–34	mA	Inputs Open

AC ELECTRICAL CHARACTERISTICS

CERDIP

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

Symbol	Parameter	T_A = 0°C		T_A = +25°C		T_A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t_{PLH} t_{PHL}	Propagation Delay I_{0X} – I_{3X} to Output	300	1200	300	1200	300	1200	ps	
t_{PLH} t_{PHL}	Propagation Delay S_0, S_1 to Output	400	1600	400	1600	400	1600	ps	
t_{PLH} t_{PHL}	Propagation Delay $\overline{S}_0$, S_1 to Output	400	1500	400	1500	400	1500	ps	
t_{TLH} t_{THL}	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

CERPACK

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

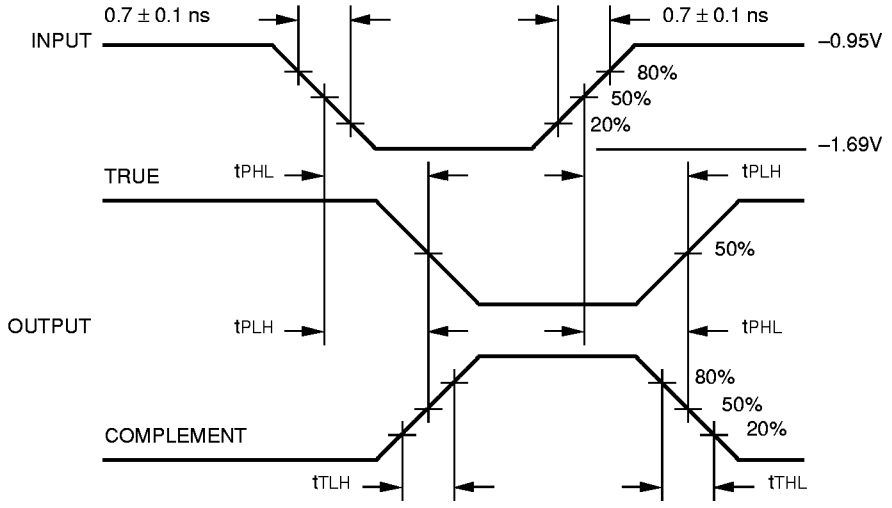
Symbol	Parameter	T_A = 0°C		T_A = +25°C		T_A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t_{PLH} t_{PHL}	Propagation Delay I_{0X} – I_{3X} to Output	300	1100	300	1100	300	1100	ps	
t_{PLH} t_{PHL}	Propagation Delay S_0, S_1 to Output	400	1500	400	1500	400	1500	ps	
t_{PLH} t_{PHL}	Propagation Delay $\overline{S}_0$, S_1 to Output	400	1400	400	1400	400	1400	ps	
t_{TLH} t_{THL}	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

PLCC

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

Symbol	Parameter	T_A = 0°C		T_A = +25°C		T_A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t_{PLH} t_{PHL}	Propagation Delay I_{0X} – I_{3X} to Output	300	1000	300	1000	300	1000	ps	
t_{PLH} t_{PHL}	Propagation Delay S_0, S_1 to Output	400	1400	400	1400	400	1400	ps	
t_{PLH} t_{PHL}	Propagation Delay $\overline{S}_0$, S_1 to Output	400	1300	400	1300	400	1300	ps	
t_{TLH} t_{THL}	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

TIMING DIAGRAM



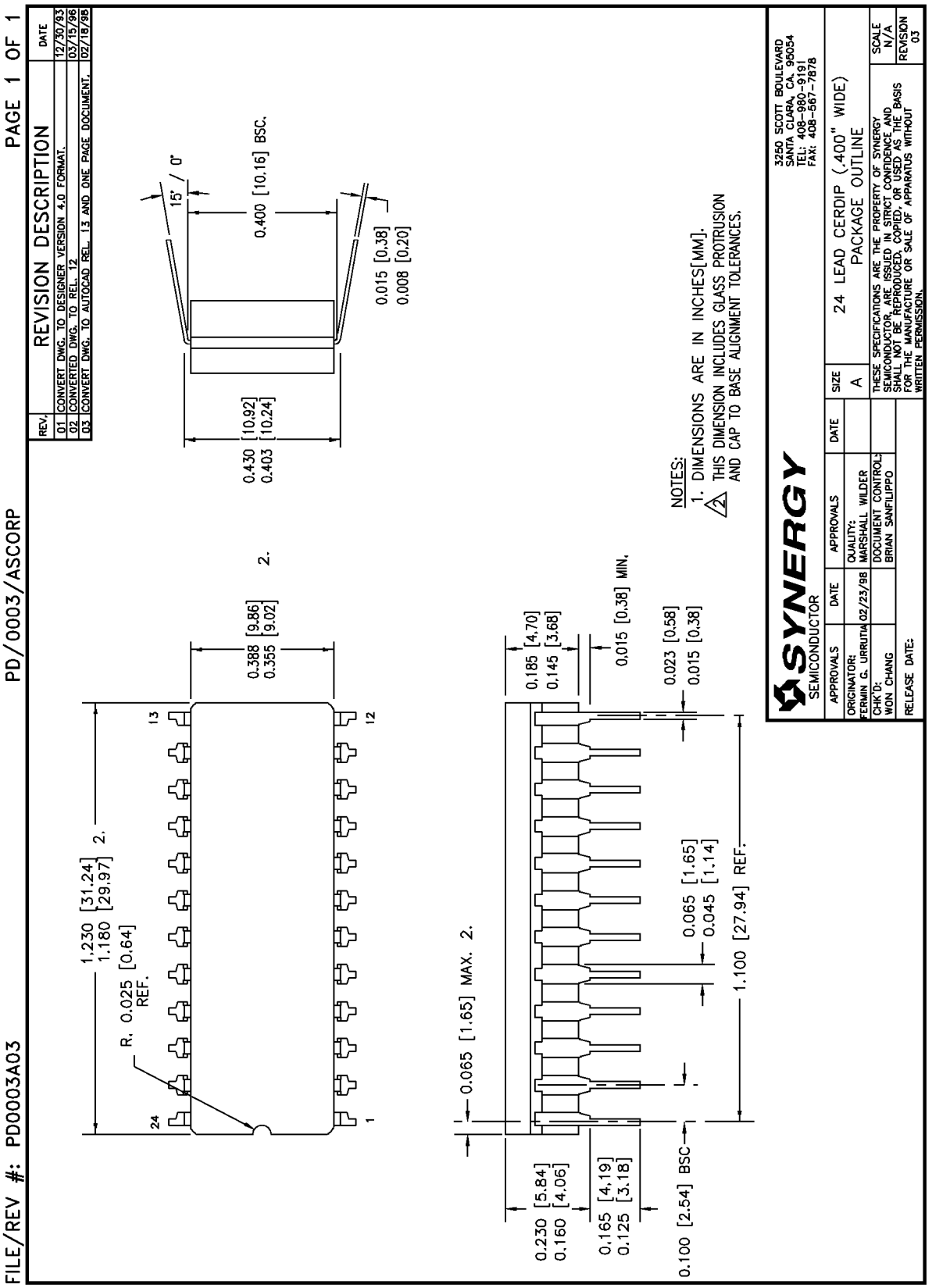
Propagation Delay and Transition Times

NOTE:
V_{EE} = –4.2V to –5.5V unless otherwise specified; V_{CC} = V_{CCA} = GND

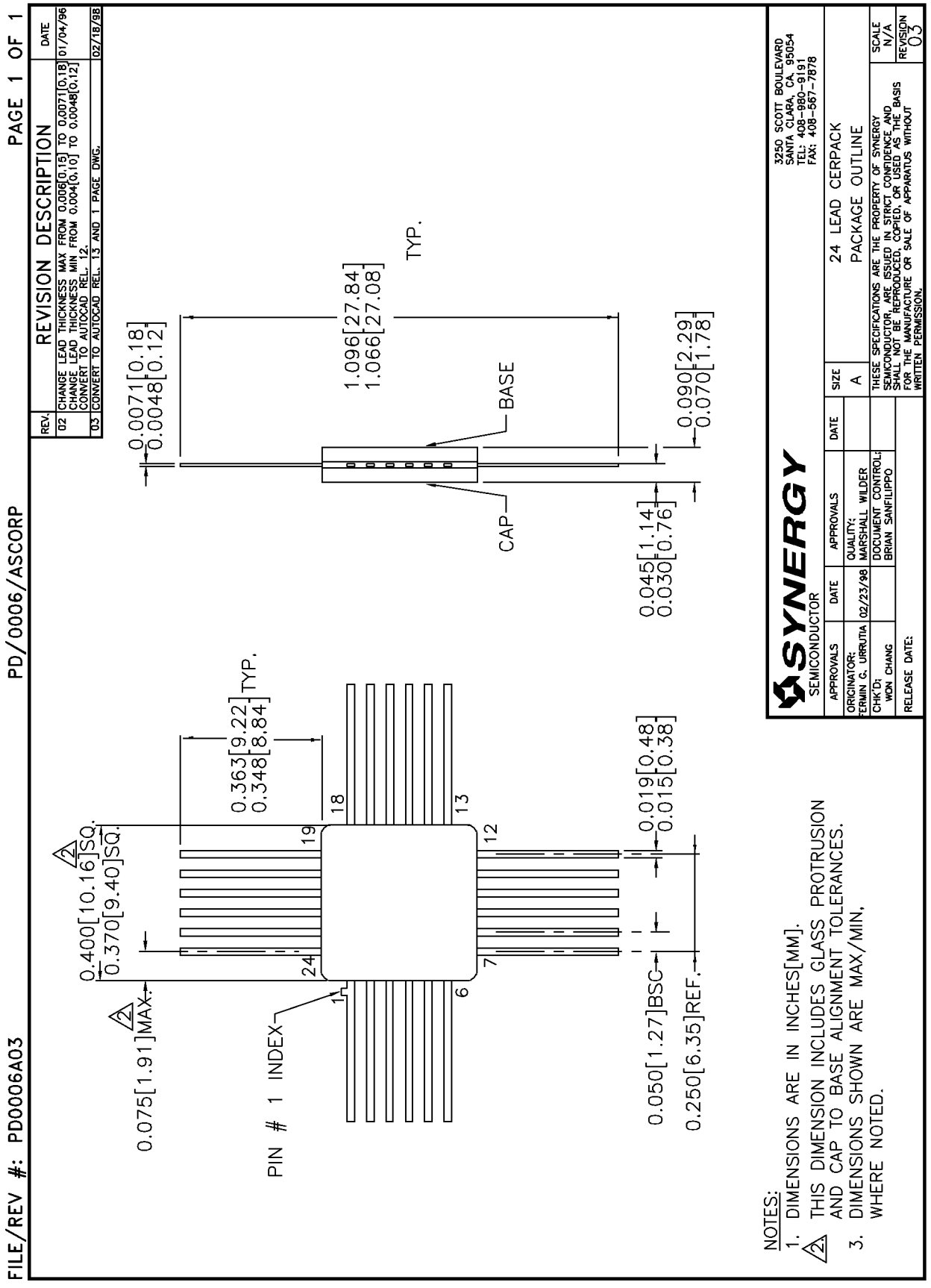
PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY100S371DC	D24-1	Commercial
SY100S371FC	F24-1	Commercial
SY100S371JC	J28-1	Commercial
SY100S371JCTR	J28-1	Commercial

24 LEAD CERDIP (D24-1)



24 LEAD CERPACK (F24-1)



28 LEAD PLASTIC LEADED CHIP CARRIER (J28-1)