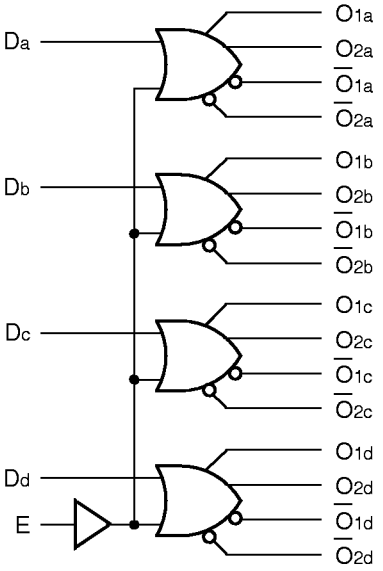
FEATURES

- **Max. propagation delay of 800ps**
- **Enable to Output max. of 950ps**
- **I_{EE} min. of –60mA**
- **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**
- **50% faster than National 300K**
- **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



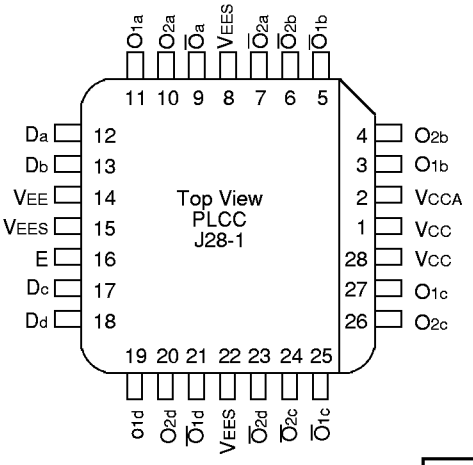
PIN NAMES

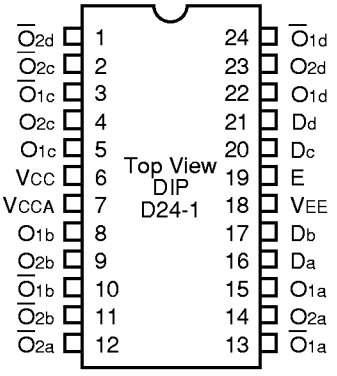
Pin	Function
D_a – D_d	Data Inputs (n-1...5)
E	Enable Input
O_{na} – O_{nd}	Data Outputs
$\overline{O}_{na}$ – $\overline{O}_{nd}$	Complementary Data Outputs
V_{EES}	V_{EE} Substrate
V_{CCA}	V_{CCO} for ECL Outputs

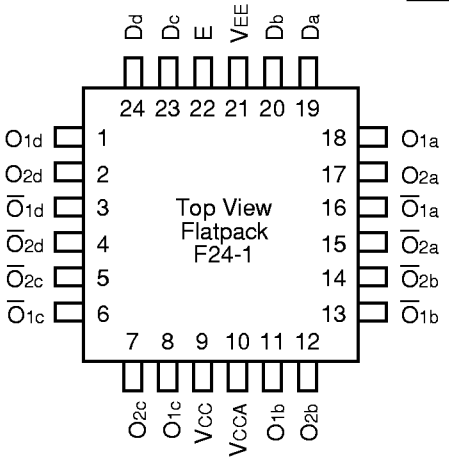
DESCRIPTION

The SY100S313 offers four drivers with two OR and two NOR outputs, designed for use in high-performance ECL systems. The four drivers are controlled by a common Enable signal which is buffered to minimize input loading. If the D inputs are not used, the Enable signal can be used to drive sixteen 50Ω lines. All inputs have 75KΩ pulldown resistors and all outputs are buffered.

PIN CONFIGURATIONS







Rev.: F Amendment: /0
Issue Date: October, 1998

LOGIC EQUATION

$O = D + E$

$\overline{O} = \overline{D + E}$

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, All Inputs	—	—	200	µA	V_{IN} = V_{IH} (Max.)
I_{EE}	Power Supply Current	–60	–43	–20	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 Data to Output	200	900	200	900	200	900	ps	
t_{PLH} t_{PHL}	Propagation Delay Enable to Output	300	1100	300	1100	300	1100	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

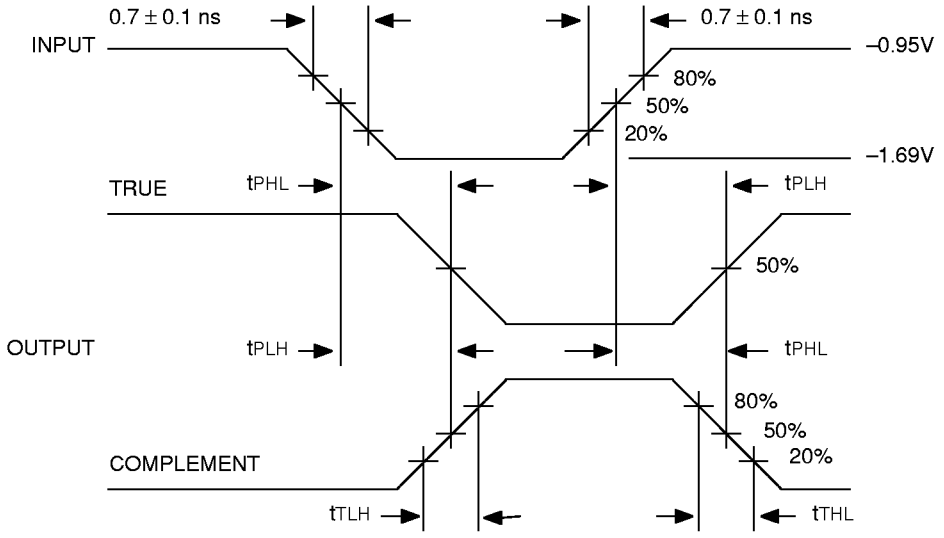
Symbol	Parameter	T_A = 0°C		T_A = +25°C		T_A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t_{PLH} t_{PHL}	Propagation Delay Data to Output	200	850	200	850	200	850	ps	
t_{PLH} t_{PHL}	Propagation Delay Enable to Output	300	1000	300	1000	300	1000	ps	
t_{TLH} t_{THL}	Transition Time 20% to 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 Data to Output	200	800	200	800	200	800	ps	
t_{PLH} t_{PHL}	Propagation Delay Enable to Output	300	950	300	950	300	950	ps	
t_{TLH} t_{THL}	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

TIMING DIAGRAM



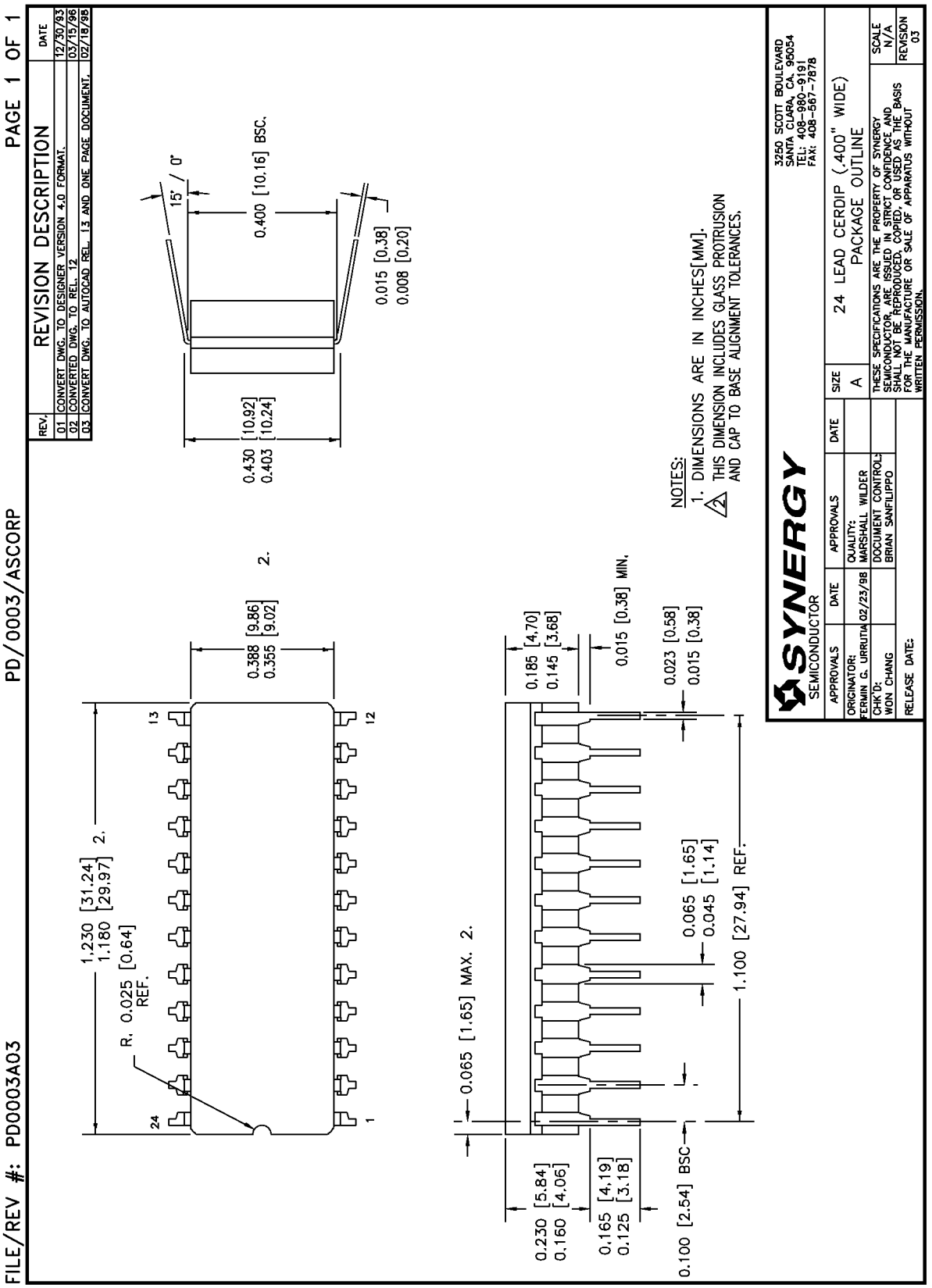
Propagation Delay and Transition Times

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

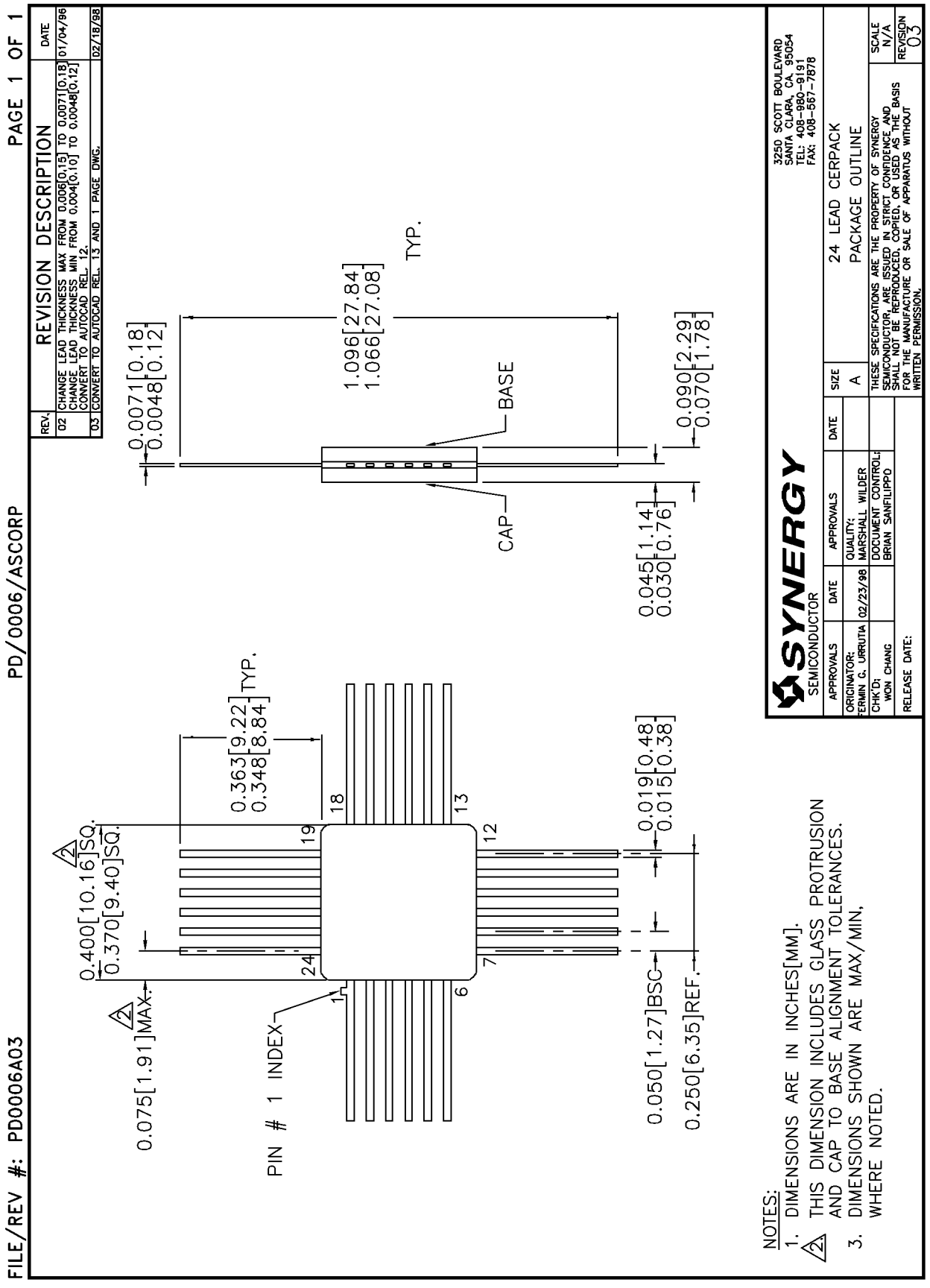
PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY100S313DC	D24-1	Commercial
SY100S313FC	F24-1	Commercial
SY100S313JC	J28-1	Commercial
SY100S313JCTR	J28-1	Commercial

24 LEAD CERDIP (D24-1)



28 LEAD PLASTIC LEADED CHIP



28 LEAD PLASTIC LEADED CHIP CARRIER (J28-1)