

## FEATURES

- 25Ω cutoff bus output
- Extended 100E VEE range of -4.2V to -5.5V
- 50Ω receiver output
- Transmit and receive registers
- 1500ps max. clock to bus
- 1000ps max. clock to Q
- Internal edge slow-down capacitors on bus outputs
- Additional package ground pins
- Fully compatible with industry standard 10KH, 100K ECL levels
- Internal 75KΩ input pulldown resistors
- Fully compatible with Motorola MC10E/100E336
- Available in 28-pin PLCC package

## DESCRIPTION

The SY10/100E336 offer three bus transceivers with both transmit and receive registers and are designed for use in new, high-performance ECL systems. The bus outputs (BUS<sub>0</sub> - BUS<sub>2</sub>) are designed to drive a 25Ω bus. The receive outputs (Q<sub>0</sub> - Q<sub>2</sub>) are specified for 50Ω. The bus outputs feature a normal logic HIGH level (V<sub>OH</sub>) and a cutoff LOW level when at a logic LOW. At cutoff, the outputs go to -2.0V and the output emitter-follower is "off", presenting a high impedance to the bus. The bus outputs have edge slow-down capacitors.

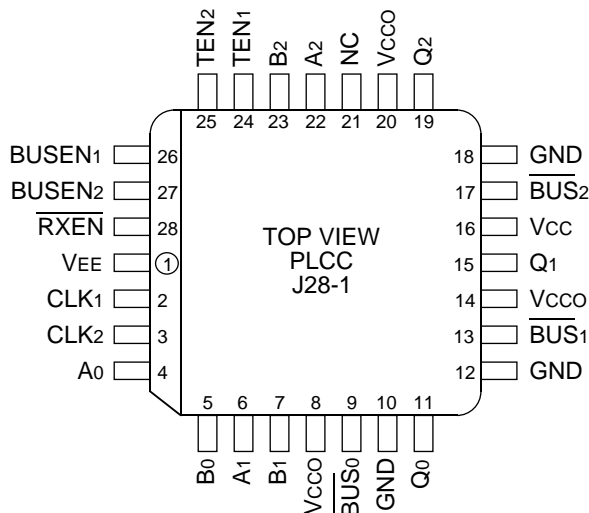
The Transmit Enable pins (TEN) determine whether current data is held in the transmit register or new data is loaded from the A/B inputs. A logic LOW on both of the bus enable inputs (BUSEN), when clocked through the register, disables the bus outputs to -2.0V.

The receiver section clocks bus data into the receive registers after gating with the Receive Enable (RXEN) input.

All registers are clocked by rising edge of CLK<sub>1</sub> or CLK<sub>2</sub> (or both).

Additional grounding is provided through the ground pins (GND) which should be connected to 0V. The GND pins are not electrically connected to the chip.

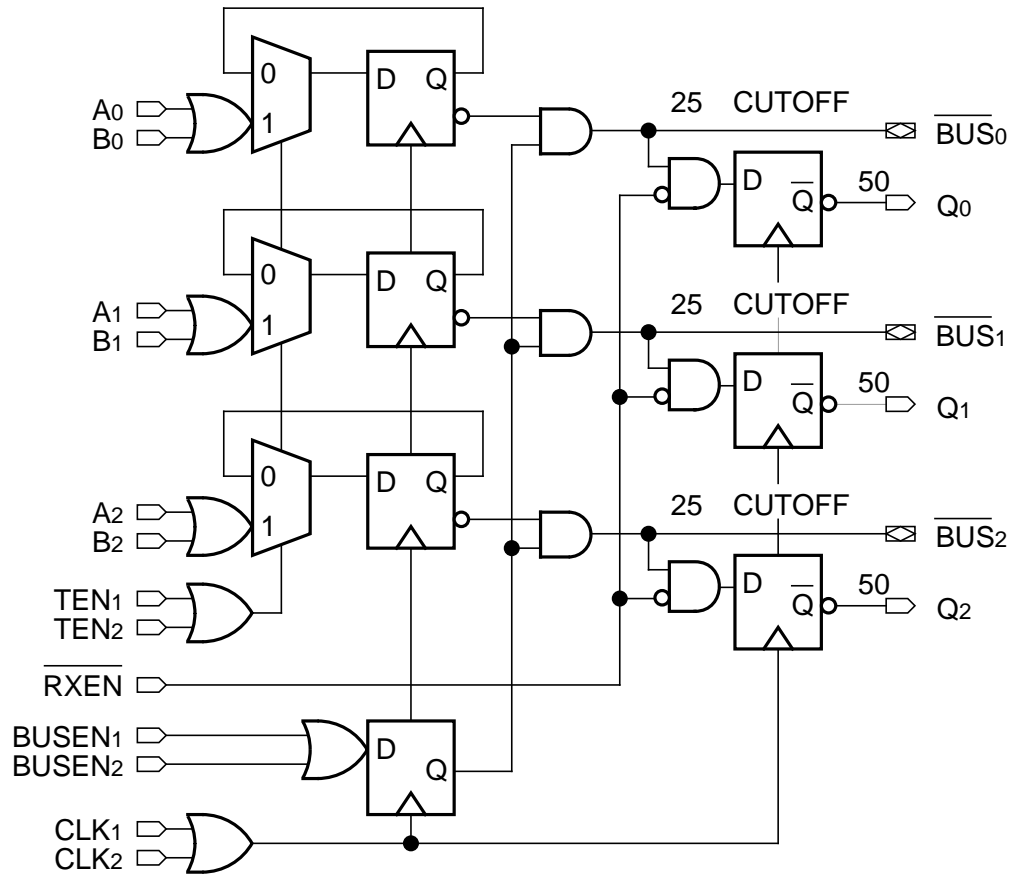
## PIN CONFIGURATION



## PIN NAMES

Pin	Function
A <sub>0</sub> -A <sub>2</sub>	Data Inputs A
B <sub>0</sub> -B <sub>2</sub>	Data Inputs B
TEN <sub>1, 2</sub>	Transmit Enable Inputs
RXEN	Receive Enable Input
BUSEN <sub>1, 2</sub>	Bus Enable Inputs
CLK <sub>1, 2</sub>	Clock Inputs
BUS <sub>0</sub> -BUS <sub>2</sub>	25Ω Cutoff Bus Outputs
Q <sub>0</sub> -Q <sub>2</sub>	Receive Data Outputs
VCC <sub>0</sub>	Vcc to Output

**BLOCK DIAGRAM**



**DC ELECTRICAL CHARACTERISTICS**

VEE = VEE (Min.) to VEE (Max.); VCC = VCCO = GND

Symbol	Parameter	TA = 0°C			TA = +25°C			TA = +85°C			Unit	Condition	
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.			
V <sub>CUT</sub>	Cut-off Output Voltage	-2.10	—	-2.03	-2.10	—	-2.03	-2.10	—	-2.03	V	1	
I <sub>IH</sub>	Input HIGH Current RXEN All Other Inputs	—	—	225	—	—	225	—	—	225	μA	—	
I <sub>EE</sub>	Power Supply Current	10E	—	125	150	—	125	150	—	125	150	mA	—
		100E	—	125	150	—	125	150	—	144	173		

**NOTE:**1. Measured with V<sub>TT</sub> = -2.10V.**AC ELECTRICAL CHARACTERISTICS**

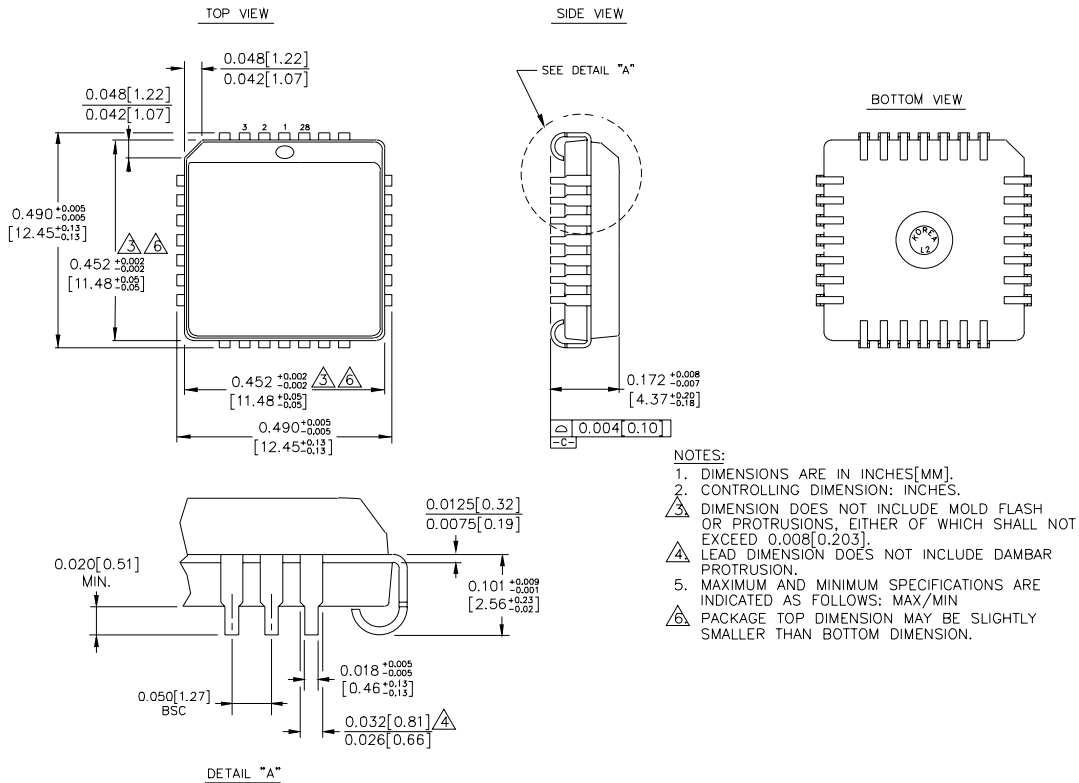
VEE = VEE (Min.) to VEE (Max.); VCC = VCCO = GND

Symbol	Parameter	TA = 0°C			TA = +25°C			TA = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay to Output CLK to Q CLK to $\overline{\text{BUS}}$	500 825	700 1250	1000 1800	500 825	700 1250	1000 1800	500 825	700 1250	1000 1800	ps	—
t <sub>S</sub>	Set-up Time BUS, RXEN	150	-150	—	150	-150	—	150	-150	—	ps	—
	BUSEN	100	-200	—	100	-200	—	100	-200	—		
	A, B Data	300	-50	—	300	-50	—	300	-50	—		
	TEN	450	150	—	450	150	—	450	150	—		
t <sub>H</sub>	Hold Time BUS, RXEN	450	150	—	450	150	—	450	150	—	ps	—
	BUSEN	500	200	—	500	200	—	500	200	—		
	A, B Data	350	50	—	350	50	—	350	50	—		
	TEN	200	-150	—	200	-150	—	200	-150	—		
t <sub>PW</sub>	Minimum Pulse Width, CLK	400	—	—	400	—	—	400	—	—	ps	—
t <sub>r</sub> t <sub>f</sub>	Rise/Fall Time	300	450	700	300	450	700	300	450	700	ps	—
	20% to 80% (Q <sub>n</sub> )											
	20% to 80% (BUS <sub>n</sub> Rise)											
	20% to 80% (BUS <sub>n</sub> Fall)	300	500	800	300	500	800	300	500	800		

**PRODUCT ORDERING CODE**

Ordering Code	Package Type	Operating Range
SY10E336JC	J28-1	Commercial
SY10E336JCTR	J28-1	Commercial
SY100E336JC	J28-1	Commercial
SY100E336JCTR	J28-1	Commercial

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



Rev. 03

**MICREL-SYNERGY 3250 SCOTT BOULEVARD SANTA CLARA CA 95054 USA**

TEL + 1 (408) 980-9191 FAX + 1 (408) 914-7878 WEB <http://www.micrel.com>

This information is believed to be accurate and reliable, however no responsibility is assumed by Micrel for its use nor for any infringement of patents or other rights of third parties resulting from its use. No license is granted by implication or otherwise under any patent or patent right of Micrel Inc.

© 2000 Micrel Incorporated