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### 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.

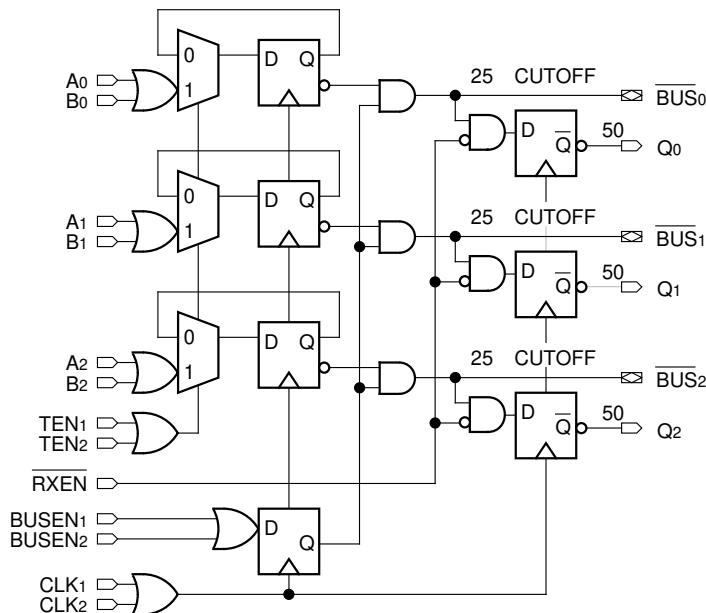
The Transmit Enable pins (TEN) determine whether current data is held in the transmit register or new data is loaded from the A/B inputs. A logic LOW on both of the bus enable inputs (BUSEN), when clocked through the register, disables the bus outputs to -2.0V.

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.

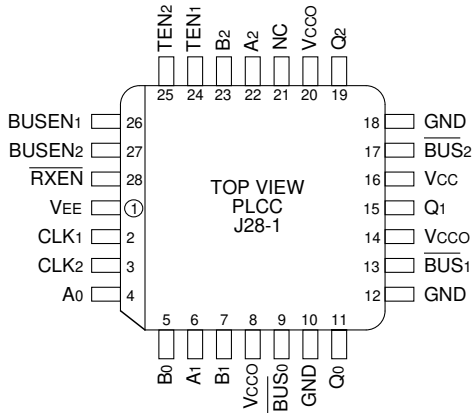
### BLOCK DIAGRAM



### 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
V <sub>CCO</sub>	Vcc to Output

**PACKAGE/ORDERING INFORMATION**



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

**Ordering Information<sup>(1)</sup>**

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10E336JC	J28-1	Commercial	SY10E336JC	Sn-Pb
SY10E336JCTR <sup>(2)</sup>	J28-1	Commercial	SY10E336JC	Sn-Pb
SY100E336JC	J28-1	Commercial	SY100E336JC	Sn-Pb
SY100E336JCTR <sup>(2)</sup>	J28-1	Commercial	SY100E336JC	Sn-Pb
SY10E336JZ <sup>(3)</sup>	J28-1	Commercial	SY10E336JZ with Pb-Free bar-line indicator	Matte-Sn
SY10E336JZTR <sup>(2, 3)</sup>	J28-1	Commercial	SY10E336JZ with Pb-Free bar-line indicator	Matte-Sn
SY100E336JZ <sup>(3)</sup>	J28-1	Commercial	SY100E336JZ with Pb-Free bar-line indicator	Matte-Sn
SY100E336JZTR <sup>(2, 3)</sup>	J28-1	Commercial	SY100E336JZ with Pb-Free bar-line indicator	Matte-Sn

**Notes:**

1. Contact factory for die availability. Dice are guaranteed at T<sub>A</sub> = 25°C, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

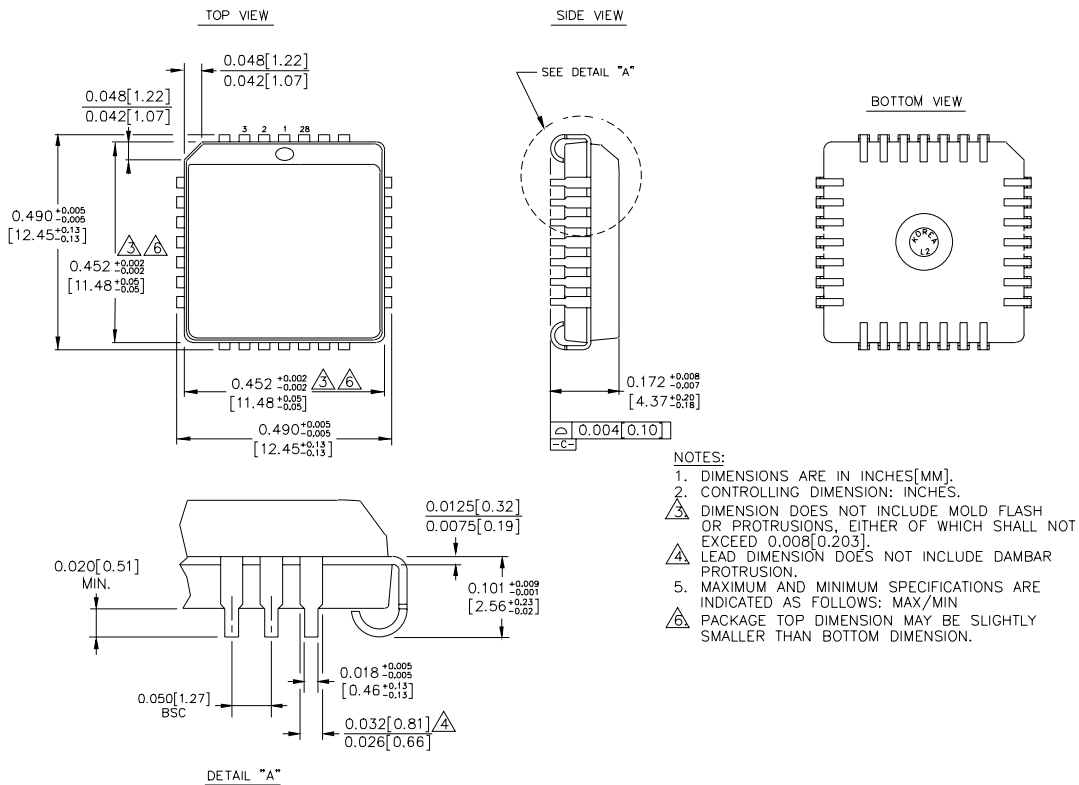
**DC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = V<sub>CCO</sub> = GND

Symbol	Parameter	T <sub>A</sub> = 0°C			T <sub>A</sub> = +25°C			T <sub>A</sub> = +85°C			Unit	Condition	
		Min.	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**V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = V<sub>CCO</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.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
t <sub>PD</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										ps	—
	20% to 80% (Q <sub>n</sub> )	300	450	700	300	450	700	300	450	700		
	20% to 80% (BUS <sub>n</sub> Rise)	500	800	1000	500	800	1000	500	800	1000		
	20% to 80% (BUS <sub>n</sub> Fall)	300	500	800	300	500	800	300	500	800		

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



Rev. 03

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