

3-Bit Registered Bus Transceiver

The MC10E/MC100E336 contains three bus transceivers with both transmit and receive registers. The bus outputs (BUS0–BUS2) are specified for driving a 25Ω bus; the receive outputs (Q0–Q2) are specified for 50Ω. The bus outputs feature a normal HIGH level (V_{OH}) and a cutoff LOW level — when LOW, the outputs go to –2.0V and the output emitter-follower is “off”, presenting a high impedance to the bus. The bus outputs also feature edge slow-down capacitors.

- 25Ω Cutoff Bus Outputs
- 50Ω Receiver Outputs
- Transmit and Receive Registers
- 1500ps Max. Clock to Bus
- 1000ps Max. Clock to Q
- Bus Outputs Feature Internal Edge Slow-Down Capacitors
- Additional Package Ground Pins
- Extended 100E V_{EE} Range of –4.2V to –5.46V
- 75kΩ Input Pulldown Resistors

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

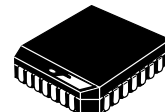
The receiver section clocks bus data into the receive registers, after gating with the Receive Enable (RXEN) input.

All registers are clocked by a positive transition of CLK1 or CLK2 (or both).

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

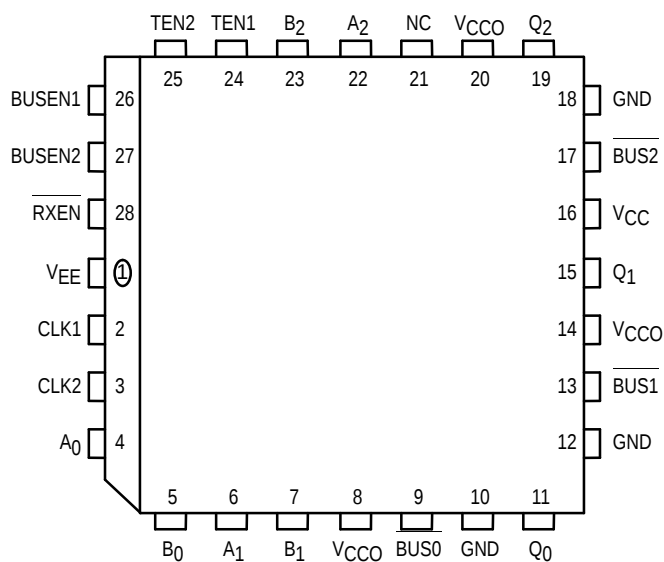
MC10E336
MC100E336

3-BIT REGISTERED
BUS TRANSCEIVER



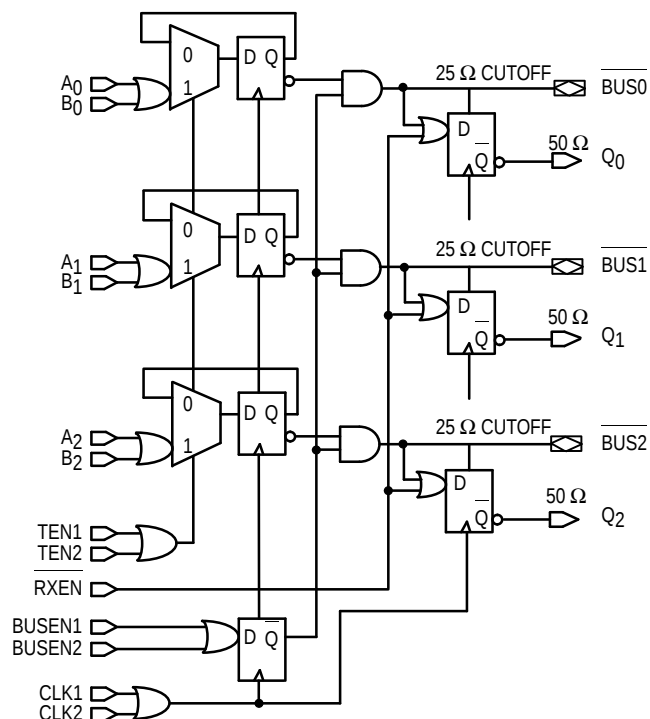
FN SUFFIX
PLASTIC PACKAGE
CASE 776-02

Pinout: 28-Lead PLCC (Top View)



* All V_{CC} and V_{CCO} pins are tied together on the die.

LOGIC DIAGRAM



DC CHARACTERISTICS ($V_{EE} = V_{EE}(\text{min})$ to $V_{EE}(\text{max})$; $V_{CC} = V_{CCO} = \text{GND}$)

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
V_{CUT}	Cut-off Output Voltage ¹	- 2.10		- 2.03	- 2.10		- 2.03	- 2.10		- 2.03	V	
I_{IH}	Input HIGH Current RXEN All Other Inputs			225 150			225 150			225 150	μA	
I_{EE}	Power Supply Current 10E 100E		125 125	150 150		125 125	150 150		125 144	150 173	mA	

1. Measured with $V_{\text{TT}} = - 2.10\text{V}$ **AC CHARACTERISTICS** ($V_{EE} = V_{EE}(\text{min})$ to $V_{EE}(\text{max})$; $V_{CC} = V_{CCO} = \text{GND}$)

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
t_{PLH} t_{PHL}	Propagation Delay to Output Clk to <u>Q</u> Clk to <u>BUS</u>	500 825	700 1250	100 1800	500 825	700 1250	1000 1800	500 825	700 1250	1000 1800	ps	
t_{s}	Setup Time BUS, RXEN BUSEN A, B Data TEN	150 100 300 450	-150 - 200 - 50 150		150 100 300 450	-150 - 200 - 50 150		150 100 300 450	-150 - 200 - 50 150		ps	
t_{h}	Hold Time BUS, RXEN BUSEN A, B Data TEN	450 500 350 200	150 200 50 -150		450 500 350 200	150 200 50 -150		450 500 350 200	150 200 50 -150		ps	
t_{PW}	Minimum Pulse Width Clk	400			400			400			ps	
t_{r} t_{f}	Rise/Fall Times 20 - 80% (<u>Qn</u>) 20 - 80% (<u>BUSn</u> Rise) 20 - 80% (<u>BUSn</u> Fall)	300 500 300	450 800 500	700 1000 800	300 500 300	450 800 500	700 1000 800	300 500 300	450 800 500	700 1000 800	ps	

OUTLINE DIMENSIONS

FN SUFFIX
PLASTIC PLCC PACKAGE
CASE 776-02
ISSUE D



NOTES:

- DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
- DIM G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
- DIM R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: INCH.
- THE PACKAGE TOP MAY BE SMALLER THAN THE PACKAGE BOTTOM BY UP TO 0.012 (0.300). DIMENSIONS R AND U ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY EXCLUSIVE OF MOLD FLASH, TIE BAR BURRS, GATE BURRS AND INTERLEAD FLASH, BUT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.
- DIMENSION H DOES NOT INCLUDE DAMBAR PROTRUSION OR INTRUSION. THE DAMBAR PROTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE GREATER THAN 0.037 (0.940). THE DAMBAR INTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE SMALLER THAN 0.025 (0.635).

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.485	0.495	12.32	12.57
B	0.485	0.495	12.32	12.57
C	0.165	0.180	4.20	4.57
E	0.090	0.110	2.29	2.79
F	0.013	0.019	0.33	0.48
G	0.050 BSC		1.27 BSC	
H	0.026	0.032	0.66	0.81
J	0.020	—	0.51	—
K	0.025	—	0.64	—
R	0.450	0.456	11.43	11.58
U	0.450	0.456	11.43	11.58
V	0.042	0.048	1.07	1.21
W	0.042	0.048	1.07	1.21
X	0.042	0.056	1.07	1.42
Y	—	0.020	—	0.50
Z	2°	10°	2°	10°
G1	0.410	0.430	10.42	10.92
K1	0.040	—	1.02	—

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