MC10H334

Quad Bus Driver/Receiver with Transmit and Receiver Latches

ON Semiconductor®

http://onsemi.com

Description

The MC10H334 is a Quad Bus Driver/Receiver with transmit and receiver latches. When disabled, ($\overline{OE}$ = high) the bus outputs will fall to −2.0 V. Data to be transmitted or received is passed through its respective latch when the respective latch enable ($\overline{DLE}$ and $\overline{RLE}$) is at a low level. Information is latched on the positive transition of $\overline{DLE}$ and $\overline{RLE}$. The parameters specified are with 25 Ω loading on the bus drivers and 50 Ω loads on the receivers.

Features

- Propagation Delay, 1.6 ns Typical Data−to−Output
- Improved Noise Margin 150 mV (Over Operating Voltage and Temperature Range)
- Voltage Compensated
- MECL 10K™ Compatible
- Pb−Free Packages are Available*

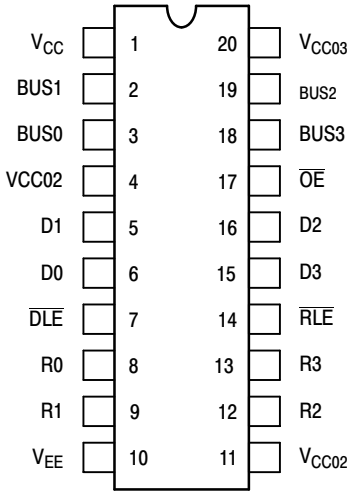
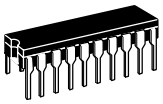


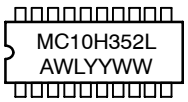
Figure 1. Pin Assignment

Pin assignment is for Dual−in−Line Package.

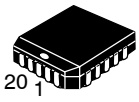
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

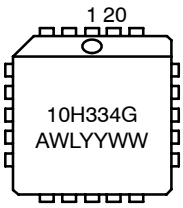
MARKING DIAGRAMS*





CDIP−20
L SUFFIX
CASE 732





PLLC−20
FN SUFFIX
CASE 775

A	= Assembly Location
WL	= Wafer Lot
YY	= Year
WW	= Work Week
G	= Pb−Free Package

*For additional marking information, refer to Application Note AND8002/D.

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

Table 1. MAXIMUM RATINGS

Symbol	Characteristic	Rating	Unit
V_{EE}	Power Supply (V_{CC} = 0)	−8.0 to 0	Vdc
V_I	Input Voltage (V_{CC} = 0)	0 to V_{EE}	Vdc
I_{out}	Output Current − Continuous − Surge	50 100	mA
T_A	Operating Temperature Range	0 to +75	°C
T_{stg}	Storage Temperature Range − Plastic − Ceramic	−55 to +150 −55 to +165	°C °C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

Table 2. ELECTRICAL CHARACTERISTICS (V_{EE} = −5.2 V ±5%) (Note 1)

		0°		25°		75°		
Symbol	Characteristic	Min	Max	Min	Max	Min	Max	Unit
I_E	Power Supply Current	−	161	−	161	−	161	mA
I_{inH}	Input Current High							μA
	Pins 5,6,15,16	−	397	−	273	−	273	
	Pins 7,14	−	460	−	297	−	297	
	Pin 17	−	520	−	357	−	357	
I_{inL}	Input Current Low	0.5	−	0.5	−	0.3	−	μA
V_{OH}	High Output Voltage	−1.02	−0.84	−0.98	−0.81	−0.92	−0.735	Vdc
V_{OL}	Low Output Voltage	−1.95	−1.63	−1.95	−1.63	−1.95	−1.60	Vdc
V_{IH}	High Input Voltage	−1.17	−0.84	−1.13	−0.81	−1.07	−0.735	Vdc
V_{IL}	Low Input Voltage	−1.95	−1.48	−1.95	−1.48	−1.95	−1.45	Vdc

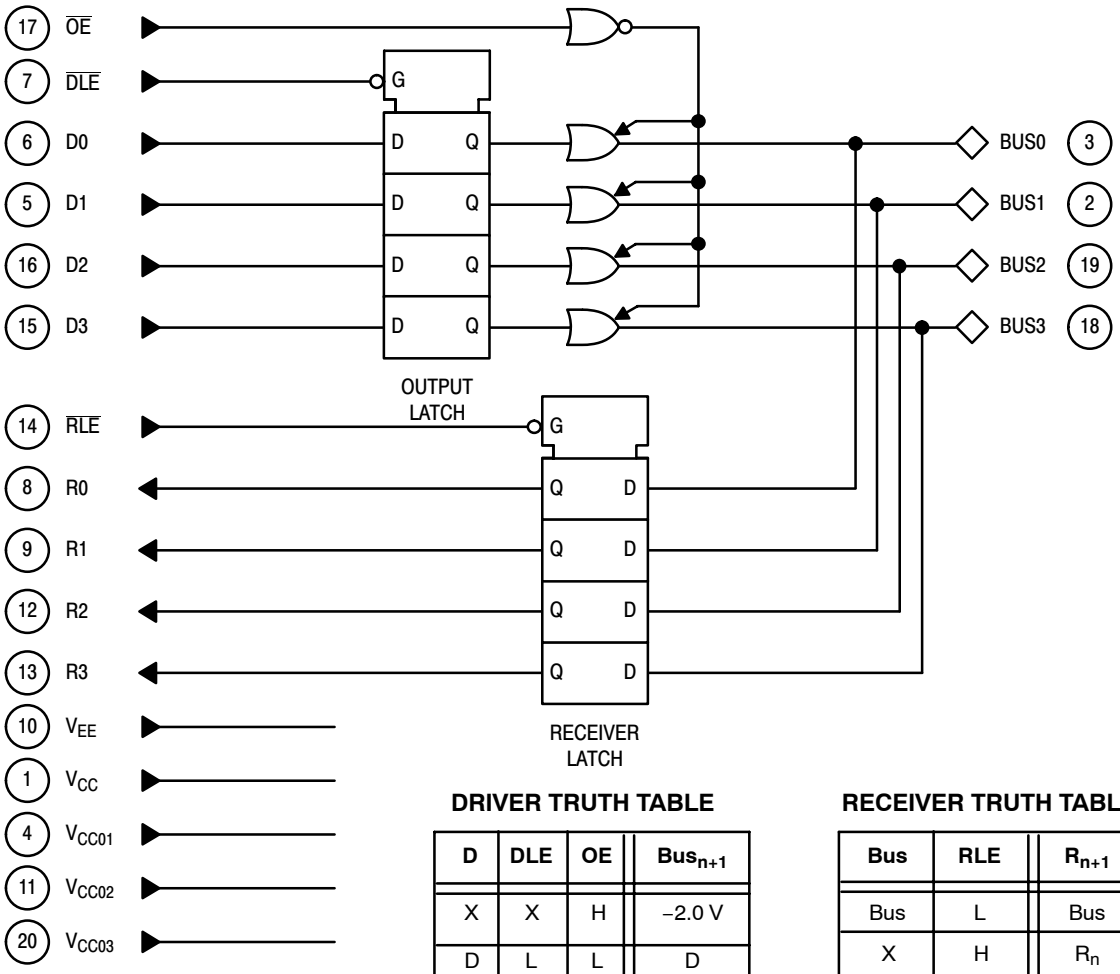
1. Each MECL 10H™ series circuit has been designed to meet the dc specifications shown in the test table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 lfpm is maintained. Receiver outputs are terminated through a 50 Ω resistor to −2.0 V dc. Bus outputs are terminated through a 25 Ω resistor to −2.0 Vdc.

Table 3. AC PARAMETERS

		0°		25°		75°		
Symbol	Characteristic	Min	Max	Min	Max	Min	Max	Unit
t_{pd}	Propagation Delay							ns
	Data−to−Bus Output	0.5	2.5	0.5	2.5	0.5	2.5	
	$\overline{DLE}$−to−Bus Output	1.0	2.7	1.0	2.7	1.0	2.7	
	$\overline{OE}$−to−Bus Output	0.5	2.5	0.5	2.5	0.5	2.5	
	Bus−to−R0	0.5	1.9	0.5	1.9	0.5	1.9	
	$\overline{RLE}$−to−R0	0.5	2.1	0.5	2.1	0.5	2.1	
	Data−to−Receiver R0	1.0	3.8	1.0	3.8	1.0	3.8	
t_r	Rise Time	0.5	2.2	0.5	2.2	0.5	2.2	ns
t_f	Fall Time	0.5	2.2	0.5	2.2	0.5	2.2	ns

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lfpm. Electrical parameters are guaranteed only over the declared operating temperature range. Functional operation of the device exceeding these conditions is not implied. Device specification limit values are applied individually under normal operating conditions and not valid simultaneously.

LOGIC DIAGRAM



DRIVER TRUTH TABLE

D	DLE	OE	Bus_{n+1}
X	X	H	−2.0 V
D	L	L	D
X	H	L	Bus_n

RECEIVER TRUTH TABLE

Bus	RLE	R_{n+1}
Bus	L	Bus
X	H	R_n

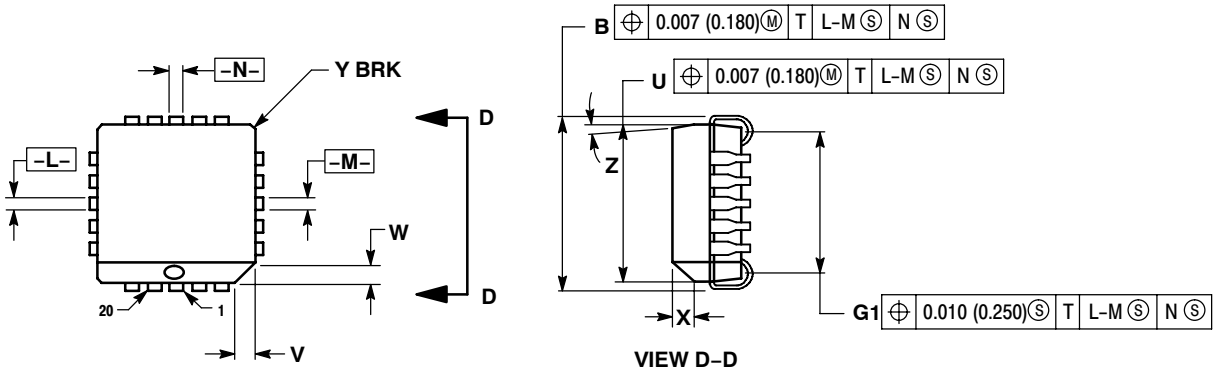
ORDERING INFORMATION

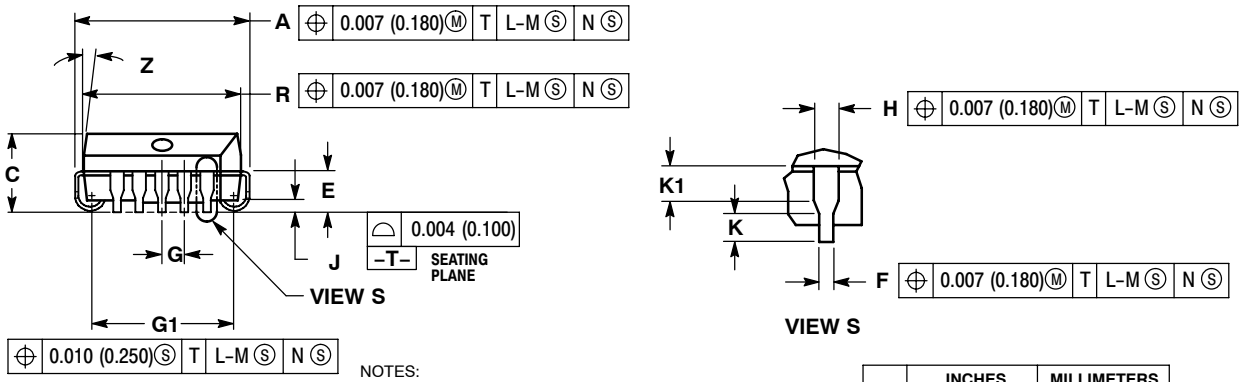
Device	Package	Shipping†
MC10H334FN	PLLC−20	46 Units / Rail
MC10H334FNG	PLLC−20 (Pb−Free)	46 Units / Rail
MC10H334FNR2	PLLC−20	500 / Tape & Reel
MC10H334FNR2G	PLLC−20 (Pb−Free)	500 / Tape & Reel
MC10H334L	CDIP−20	19 Unit / Rail

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

PACKAGE DIMENSIONS

20 LEAD PLLC
CASE 775−02
ISSUE E



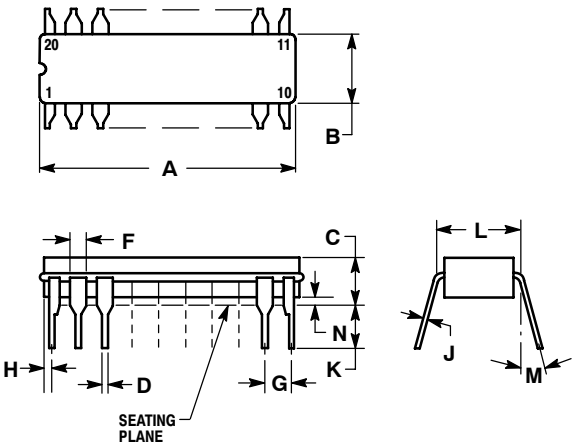


NOTES:
1. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M, 1982.
2. DIMENSIONS IN INCHES.
3. DATUMS –L–, –M–, AND –N– DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
4. DIMENSION G1, TRUE POSITION TO BE MEASURED AT DATUM –T–, SEATING PLANE.
5. DIMENSIONS R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
6. DIMENSIONS IN 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.
7. 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).

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.385	0.395	9.78	10.03
B	0.385	0.395	9.78	10.03
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	0.350	0.356	8.89	9.04
U	0.350	0.356	8.89	9.04
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	0.310	0.330	7.88	8.38
K1	0.040	−−−	1.02	−−−

PACKAGE DIMENSIONS

CDIP−20
L SUFFIX
CERAMIC DIP PACKAGE
CASE 732−03
ISSUE E



NOTES:
1. LEADS WITHIN 0.010 DIAMETER, TRUE POSITION AT SEATING PLANE, AT MAXIMUM MATERIAL CONDITION.
2. DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.
3. DIMENSIONS A AND B INCLUDE MENISCUS.

	INCHES	
DIM	MIN	MAX
A	0.940	0.990
B	0.260	0.295
C	0.150	0.200
D	0.015	0.022
F	0.055	0.065
G	0.100 BSC	
H	0.020	0.050
J	0.008	0.012
K	0.125	0.160
L	0.300 BSC	
M	0°	15°
N	0.010	0.040

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PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
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2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.