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Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



MC10H334

Quad Bus Driver/Receiver with Transmit and Receiver Latches

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 25Ω loading on the bus drivers and 50Ω 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*

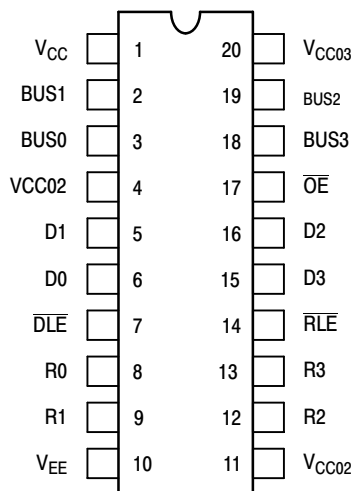


Figure 1. Pin Assignment

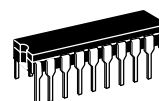
Pin assignment is for Dual-in-Line Package.



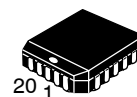
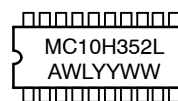
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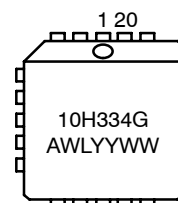
MARKING DIAGRAMS*



**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.

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

MC10H334

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)

| Symbol | Characteristic | 0° | | 25° | | 75° | | Unit |
|------------------|----------------------|-------|-------|-------|-------|-------|--------|------|
| | | Min | Max | Min | Max | Min | Max | |
| 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.

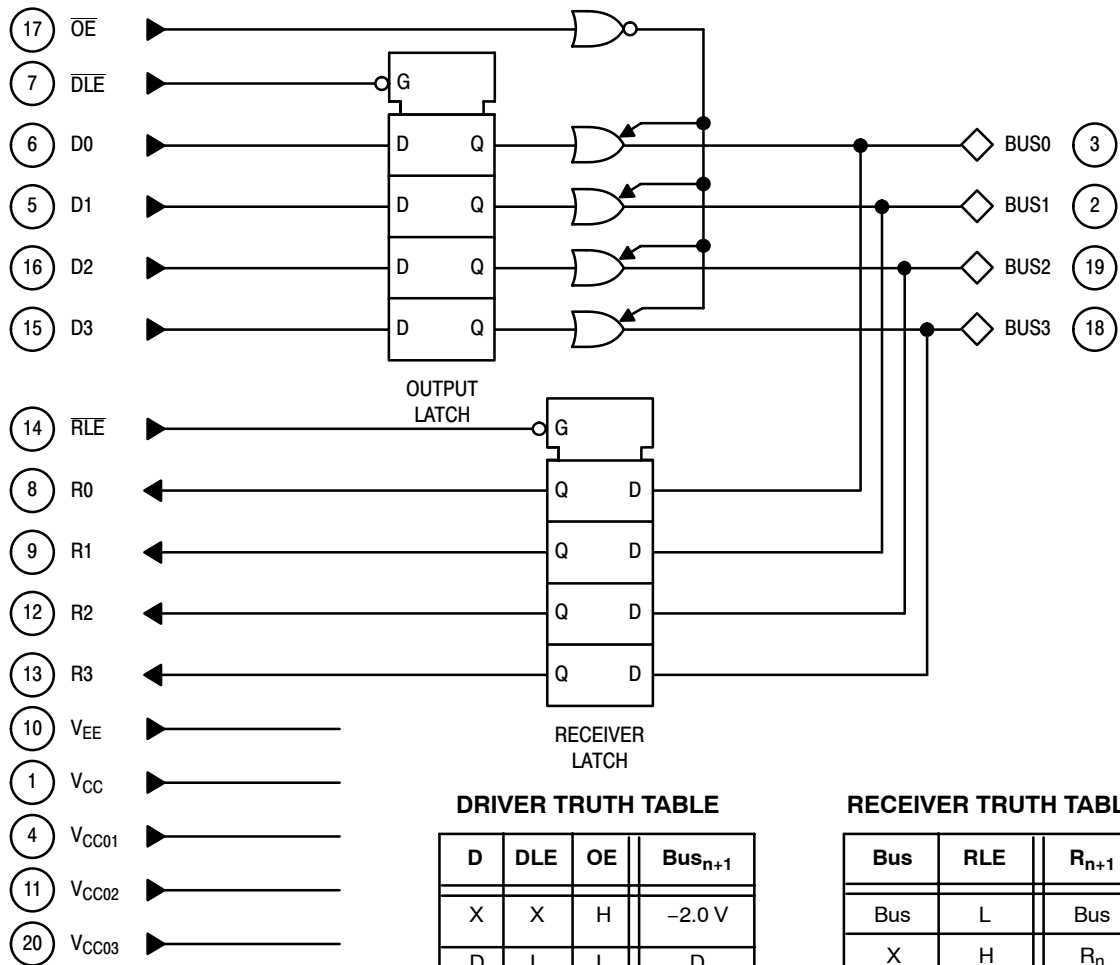
Table 3. AC PARAMETERS

| Symbol | Characteristic | 0° | | 25° | | 75° | | Unit |
|-----------------|---------------------------------|-----|-----|-----|-----|-----|-----|------|
| | | Min | Max | Min | Max | Min | Max | |
| 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.

MC10H334

LOGIC DIAGRAM



ORDERING INFORMATION

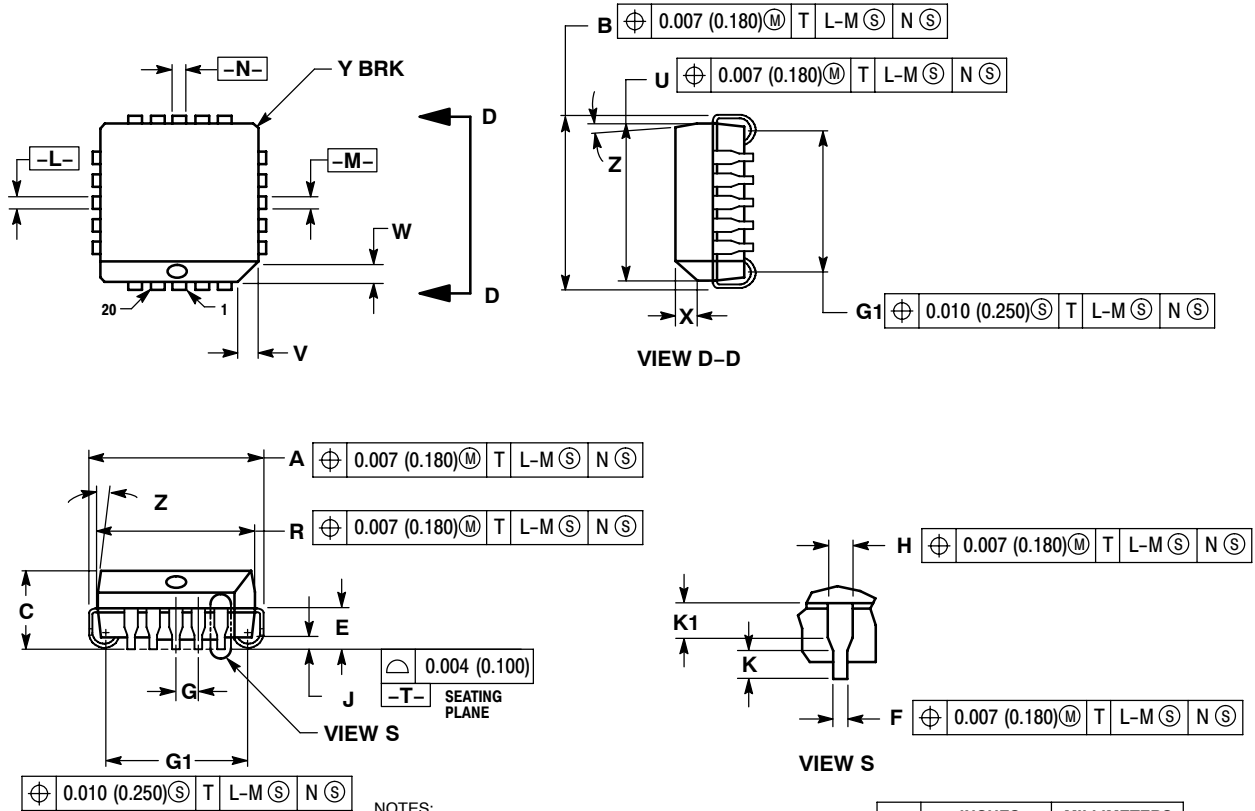
| Device | Package | Shipping [†] |
|---------------|----------------------|-----------------------|
| MC10H334FN | PLLC-20 | 46 Units / Rail |
| MC10H334FNG | PLLC-20 (Pb-Free) | 46 Units / Rail |
| MC10H334FNR2 | PLLC-20 | 500 / Tape & Reel |
| MC10H334FNR2G | PLLC-20 (Pb-Free) | 500 / Tape & Reel |
| 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.

MC10H334

PACKAGE DIMENSIONS

20 LEAD PLLC
CASE 775-02
ISSUE E



NOTES:

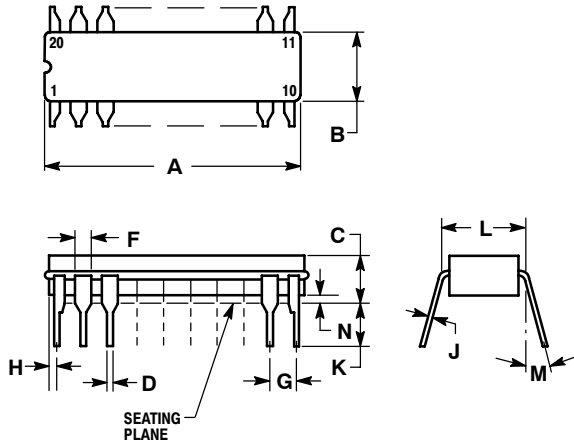
1. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M, 1982.
2. DIMENSIONS IN INCHES.
3. DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
4. DIMENSION G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
5. DIMENSIONS R AND U DO NOT INCLUDE MOLD 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).

| DIM | INCHES | | MILLIMETERS | |
|-----|-----------|-------|-------------|-------|
| | 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 | ---- |

MC10H334

PACKAGE DIMENSIONS

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



NOTES:

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

| DIM | INCHES | |
|-----|-----------|-------|
| | 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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