

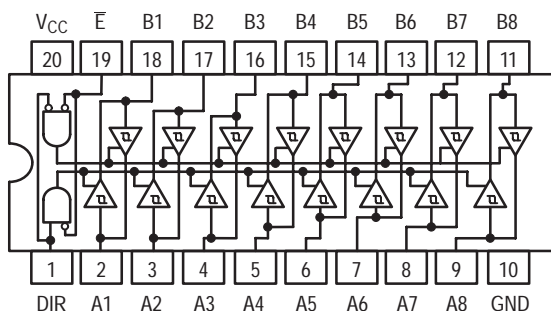
SN74LS245

Octal Bus Transceiver

The SN74LS245 is an Octal Bus Transmitter/Receiver designed for 8-line asynchronous 2-way data communication between data buses. Direction Input (DR) controls transmission of Data from bus A to bus B or bus B to bus A depending upon its logic level. The Enable input (\bar{E}) can be used to isolate the buses.

- Hysteresis Inputs to Improve Noise Immunity
- 2-Way Asynchronous Data Bus Communication
- Input Diodes Limit High-Speed Termination Effects
- ESD > 3500 Volts

LOGIC AND CONNECTION DIAGRAMS DIP (TOP VIEW)



TRUTH TABLE

| INPUTS | | OUTPUT |
|-----------|-----|---------------------|
| \bar{E} | DIR | |
| L | L | Bus B Data to Bus A |
| L | H | Bus A Data to Bus B |
| H | X | Isolation |

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial

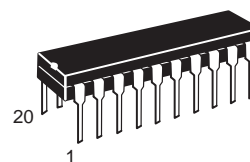
GUARANTEED OPERATING RANGES

| Symbol | Parameter | Min | Typ | Max | Unit |
|----------|-------------------------------------|------|-----|------|------|
| V_{CC} | Supply Voltage | 4.75 | 5.0 | 5.25 | V |
| T_A | Operating Ambient Temperature Range | 0 | 25 | 70 | °C |
| I_{OH} | Output Current – High | | | -3.0 | mA |
| | | | | -15 | mA |
| I_{OL} | Output Current – Low | | | 24 | mA |

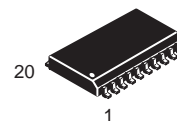


ON Semiconductor
Formerly a Division of Motorola
<http://onsemi.com>

**LOW
POWER
SCHOTTKY**



**PLASTIC
N SUFFIX
CASE 738**



**SOIC
DW SUFFIX
CASE 751D**

ORDERING INFORMATION

| Device | Package | Shipping |
|-------------|------------|------------------|
| SN74LS245N | 16 Pin DIP | 1440 Units/Box |
| SN74LS245DW | 16 Pin | 2500/Tape & Reel |

SN74LS245

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

| Symbol | Parameter | Limits | | | Unit | Test Conditions |
|----------------------------------|---|-----------------|-------|------|------|--|
| | | Min | Typ | Max | | |
| V _{IH} | Input HIGH Voltage | 2.0 | | | V | Guaranteed Input HIGH Voltage for All Inputs |
| V _{IL} | Input LOW Voltage | | | 0.8 | V | Guaranteed Input LOW Voltage for All Inputs |
| V _{T+} -V _{T-} | Hysteresis | 0.2 | 0.4 | | V | V _{CC} = MIN |
| V _{IK} | Input Clamp Diode Voltage | | -0.65 | -1.5 | V | V _{CC} = MIN, I _{IN} = -18 mA |
| V _{OH} | Output HIGH Voltage | 2.4 | 3.4 | | V | V _{CC} = MIN, I _{OH} = -3.0 mA |
| | | 2.0 | | | V | V _{CC} = MIN, I _{OH} = MAX |
| V _{OL} | Output LOW Voltage | | 0.25 | 0.4 | V | I _{OL} = 12 mA |
| | | | 0.35 | 0.5 | V | I _{OL} = 24 mA |
| I _{OZH} | Output Off Current HIGH | | | 20 | μA | V _{CC} = MAX, V _{OUT} = 2.7 V |
| I _{OZL} | Output Off Current LOW | | | -200 | μA | V _{CC} = MAX, V _{OUT} = 0.4 V |
| I _{IH} | Input HIGH Current | A or B, DR or E | | 20 | μA | V _{CC} = MAX, V _{IN} = 2.7 V |
| | | DR or E | | 0.1 | mA | V _{CC} = MAX, V _{IN} = 7.0 V |
| | | A or B | | 0.1 | mA | V _{CC} = MAX, V _{IN} = 5.5 V |
| I _{IL} | Input LOW Current | | | -0.2 | mA | V _{CC} = MAX, V _{IN} = 0.4 V |
| I _{OS} | Output Short Circuit Current (Note 1) | -40 | | -225 | mA | V _{CC} = MAX |
| I _{CC} | Power Supply Current Total, Output HIGH | | | 70 | mA | V _{CC} = MAX |
| | Total, Output LOW | | | 90 | | |
| | Total at HIGH Z | | | 95 | | |

Note 1: Not more than one output should be shorted at a time, nor for more than 1 second.

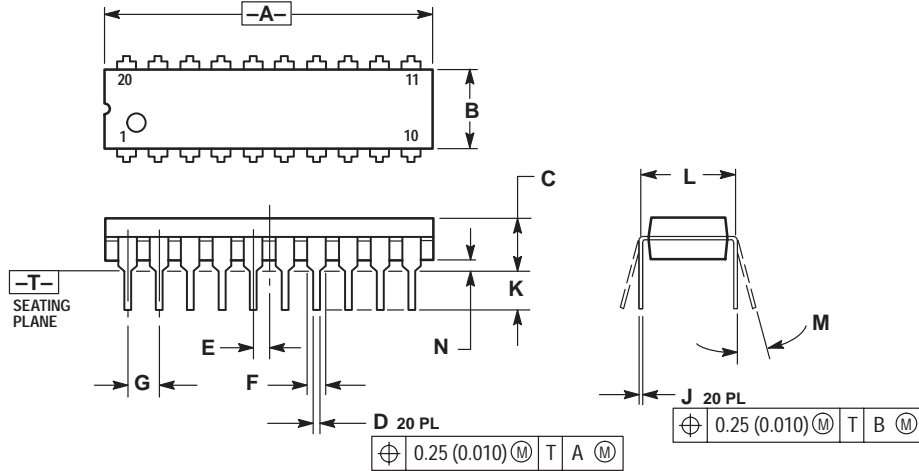
AC CHARACTERISTICS (T_A = 25°C, V_{CC} = 5.0 V, T_{RISE}/T_{FALL} ≤ 6.0 ns)

| Symbol | Parameter | Limits | | | Unit | Test Conditions |
|--------------------------------------|-------------------------------------|--------|------------|----------|------|--|
| | | Min | Typ | Max | | |
| t _{PLH} t _{PHL} | Propagation Delay, Data to Output | | 8.0 8.0 | 12 12 | ns | C _L = 45 pF, R _L = 667 Ω |
| t _{PZH} | Output Enable Time to HIGH Level | | 25 | 40 | | |
| t _{PZL} | Output Enable Time to LOW Level | | 27 | 40 | | |
| t _{PLZ} | Output Disable Time from LOW Level | | 15 | 25 | ns | C _L = 5.0 pF, R _L = 667 Ω |
| t _{PHZ} | Output Disable Time from HIGH Level | | 15 | 25 | | |

SN74LS245

PACKAGE DIMENSIONS

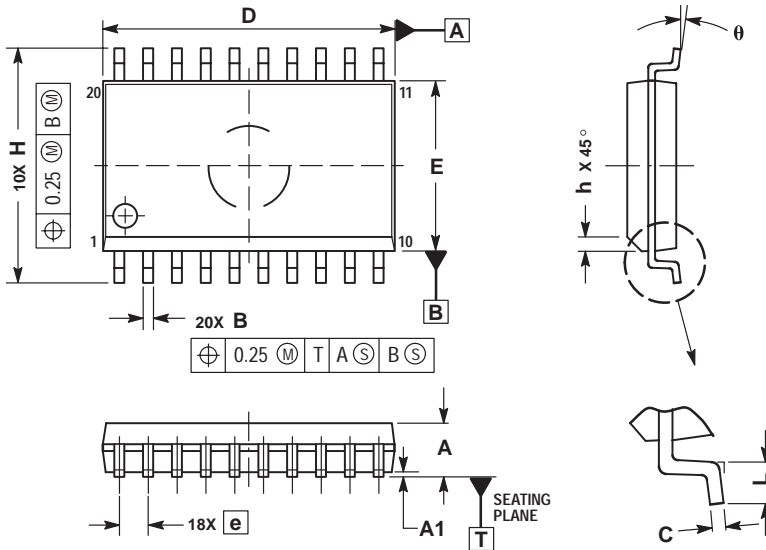
N SUFFIX PLASTIC PACKAGE CASE 738-03 ISSUE E



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. DIMENSION L TO CENTER OF LEAD WHEN FORMED PARALLEL.
 4. DIMENSION B DOES NOT INCLUDE MOLD FLASH.


| DIM | INCHES | | MILLIMETERS | |
|-----|-----------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 1.010 | 1.070 | 25.66 | 27.17 |
| B | 0.240 | 0.260 | 6.10 | 6.60 |
| C | 0.150 | 0.180 | 3.81 | 4.57 |
| D | 0.015 | 0.022 | 0.39 | 0.55 |
| E | 0.050 BSC | | 1.27 BSC | |
| F | 0.050 | 0.070 | 1.27 | 1.77 |
| G | 0.100 BSC | | 2.54 BSC | |
| J | 0.008 | 0.015 | 0.21 | 0.38 |
| K | 0.110 | 0.140 | 2.80 | 3.55 |
| L | 0.300 BSC | | 7.62 BSC | |
| M | 0° | 15° | 0° | 15° |
| N | 0.020 | 0.040 | 0.51 | 1.01 |

D SUFFIX PLASTIC SOIC PACKAGE CASE 751D-05 ISSUE F



- NOTES:
1. DIMENSIONS ARE IN MILLIMETERS.
 2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.
 3. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
 4. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
 5. DIMENSION B DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE PROTRUSION SHALL BE 0.13 TOTAL IN EXCESS OF B DIMENSION AT MAXIMUM MATERIAL CONDITION.

| DIM | MILLIMETERS | |
|-----|-------------|-------|
| | MIN | MAX |
| A | 2.35 | 2.65 |
| A1 | 0.10 | 0.25 |
| B | 0.35 | 0.49 |
| C | 0.23 | 0.32 |
| D | 12.65 | 12.95 |
| E | 7.40 | 7.60 |
| e | 1.27 BSC | |
| H | 10.05 | 10.55 |
| h | 0.25 | 0.75 |
| L | 0.50 | 0.90 |
| θ | 0° | 7° |

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