

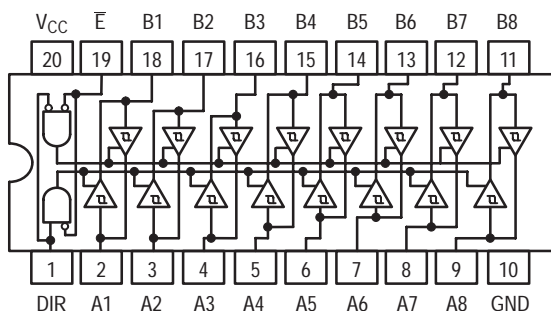
# SN74LS245

## 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

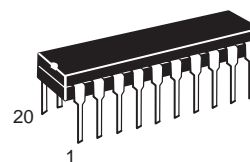


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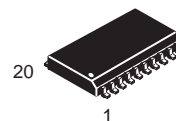
Formerly a Division of Motorola

<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	$V_{CC} = \text{MIN}$
$V_{IK}$	Input Clamp Diode Voltage		-0.65	-1.5	V	$V_{CC} = \text{MIN}$ , $I_{IN} = -18 \text{ mA}$
$V_{OH}$	Output HIGH Voltage	2.4	3.4		V	$V_{CC} = \text{MIN}$ , $I_{OH} = -3.0 \text{ mA}$
		2.0			V	$V_{CC} = \text{MIN}$ , $I_{OH} = \text{MAX}$
$V_{OL}$	Output LOW Voltage		0.25	0.4	V	$I_{OL} = 12 \text{ mA}$ , $V_{CC} = V_{CC} \text{ MIN}$ , $V_{IN} = V_{IL} \text{ or } V_{IH}$ per Truth Table
			0.35	0.5	V	$I_{OL} = 24 \text{ mA}$
$I_{OZH}$	Output Off Current HIGH			20	$\mu\text{A}$	$V_{CC} = \text{MAX}$ , $V_{OUT} = 2.7 \text{ V}$
$I_{OZL}$	Output Off Current LOW			-200	$\mu\text{A}$	$V_{CC} = \text{MAX}$ , $V_{OUT} = 0.4 \text{ V}$
$I_{IH}$	Input HIGH Current	A or B, DR or $\bar{E}$		20	$\mu\text{A}$	$V_{CC} = \text{MAX}$ , $V_{IN} = 2.7 \text{ V}$
		DR or $\bar{E}$		0.1	mA	$V_{CC} = \text{MAX}$ , $V_{IN} = 7.0 \text{ V}$
		A or B		0.1	mA	$V_{CC} = \text{MAX}$ , $V_{IN} = 5.5 \text{ V}$
$I_{IL}$	Input LOW Current			-0.2	mA	$V_{CC} = \text{MAX}$ , $V_{IN} = 0.4 \text{ V}$
$I_{OS}$	Output Short Circuit Current (Note 1)	-40		-225	mA	$V_{CC} = \text{MAX}$
$I_{CC}$	Power Supply Current Total, Output HIGH			70	mA	$V_{CC} = \text{MAX}$
	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.

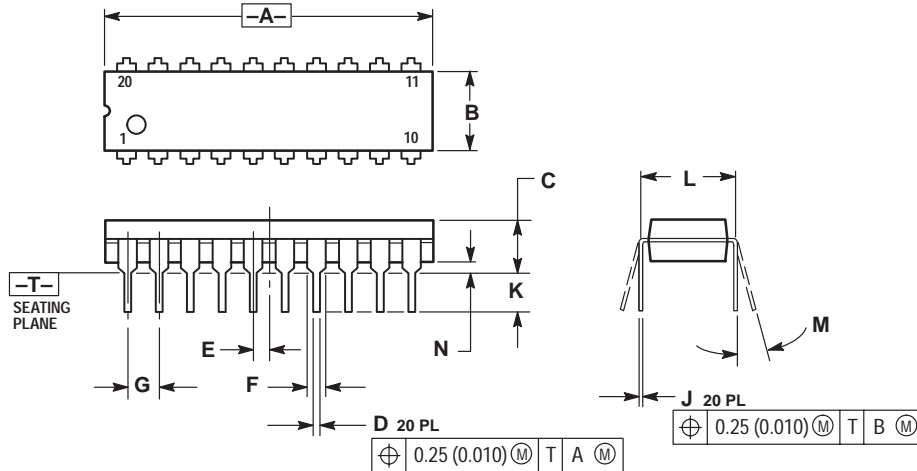
## AC CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ , $V_{CC} = 5.0 \text{ V}$ , $T_{RISE}/T_{FALL} \leq 6.0 \text{ ns}$ )

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	$C_L = 45 \text{ pF}$ , $R_L = 667 \Omega$
$t_{PZH}$	Output Enable Time to HIGH Level		25	40	ns	
$t_{PZL}$	Output Enable Time to LOW Level		27	40	ns	
$t_{PLZ}$	Output Disable Time from LOW Level		15	25	ns	$C_L = 5.0 \text{ pF}$ , $R_L = 667 \Omega$
$t_{PHZ}$	Output Disable Time from HIGH Level		15	25	ns	

# SN74LS245

## PACKAGE DIMENSIONS

### N SUFFIX PLASTIC PACKAGE CASE 738-03 ISSUE E

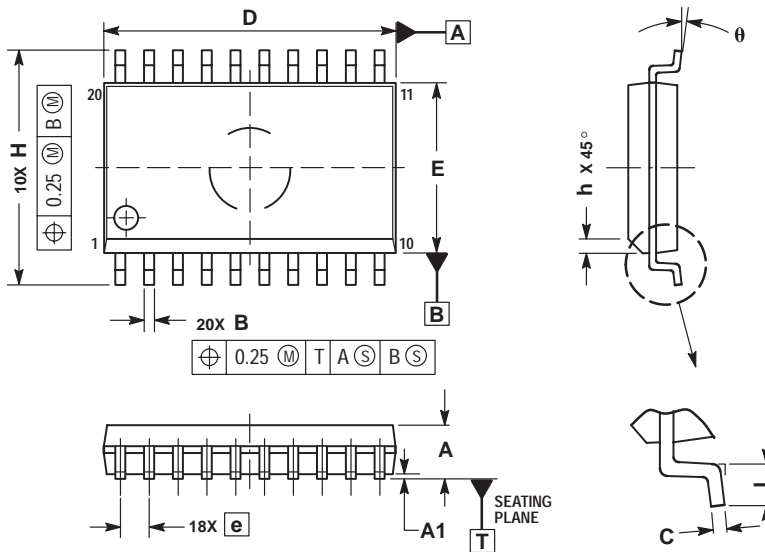


#### NOTES:

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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