

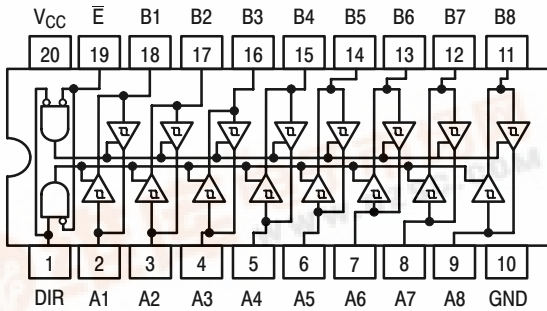
# SN74LS245

## 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

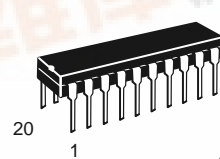


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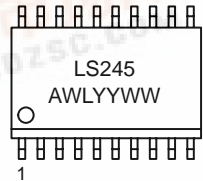
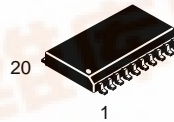
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**LOW  
POWER  
SCHOTTKY**

### MARKING DIAGRAMS



PDIP-20  
N SUFFIX  
CASE 738



SOIC-20  
DW SUFFIX  
CASE 751D

A = Assembly Location  
WL = Wafer Lot  
YY = Year  
WW = Work Week

### ORDERING INFORMATION

Device	Package	Shipping
SN74LS245N	PDIP-20	1440 Units/Box
SN74LS245DW	SOIC-20	2500/Tape & Reel



## SN74LS245

### DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

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

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

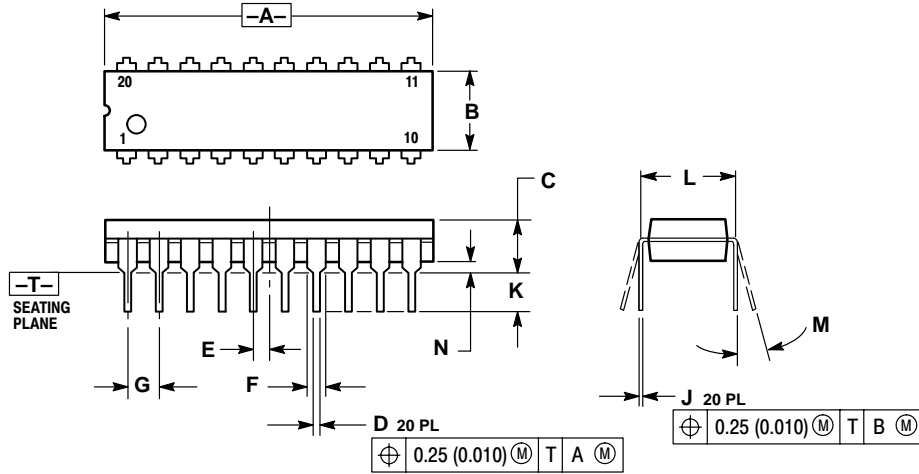
### AC CHARACTERISTICS (T<sub>A</sub> = 25°C, V<sub>CC</sub> = 5.0 V, T<sub>RISE</sub>/T<sub>FALL</sub> ≤ 6.0 ns)

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

# SN74LS245

## PACKAGE DIMENSIONS

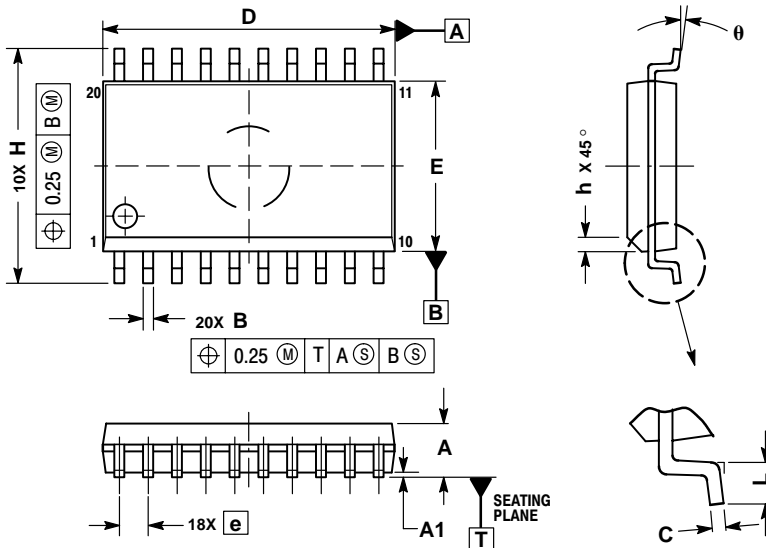
### N SUFFIX PLASTIC PACKAGE CASE 738-03 ISSUE E



- 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
theta	0°	7°

# SN74LS245

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