

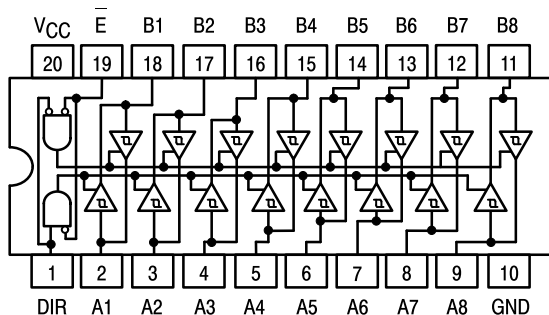


# OCTAL BUS TRANSCEIVER

The SN54/74LS245 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 (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)



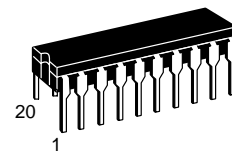
## TRUTH TABLE

INPUTS		OUTPUT
E	DIR	
L	L	Bus B Data to Bus A
L	H	Bus A Data to Bus B
H	X	Isolation

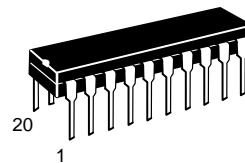
H = HIGH Voltage Level  
L = LOW Voltage Level  
X = Immaterial

## SN54/74LS245

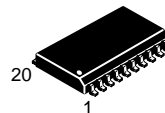
## OCTAL BUS TRANSCEIVER LOW POWER SCHOTTKY



**J SUFFIX**  
CERAMIC  
CASE 732-03



**N SUFFIX**  
PLASTIC  
CASE 738-03



**DW SUFFIX**  
SOIC  
CASE 751D-03

## ORDERING INFORMATION

SN54LSXXXJ Ceramic  
SN74LSXXXN Plastic  
SN74LSXXXDW SOIC

## GUARANTEED OPERATING RANGES

Symbol	Parameter		Min	Typ	Max	Unit
V <sub>CC</sub>	Supply Voltage	54 74	4.5 4.75	5.0 5.0	5.5 5.25	V
T <sub>A</sub>	Operating Ambient Temperature Range	54 74	-55 0	25 25	125 70	°C
I <sub>OH</sub>	Output Current — High	54, 74			-3.0	mA
		54 74			-12 -15	mA
I <sub>OL</sub>	Output Current — Low	54, 74			12 24	mA
		54 74				

# SN54/74LS245

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

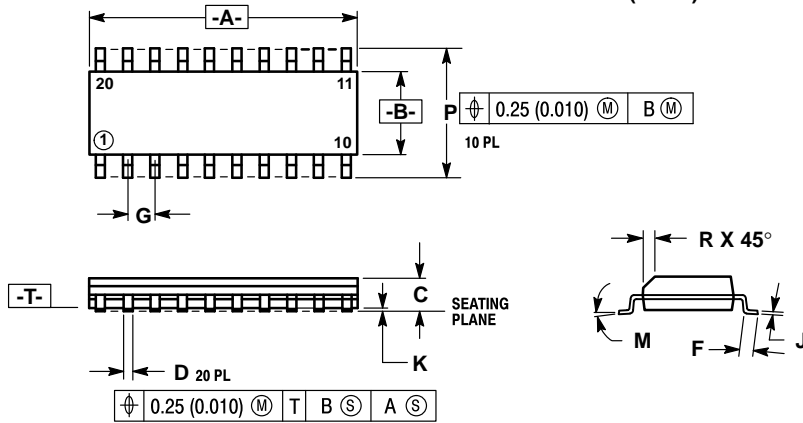
Symbol	Parameter		Limits			Unit	Test Conditions	
			Min	Typ	Max			
V <sub>IH</sub>	Input HIGH Voltage		2.0			V	Guaranteed Input HIGH Voltage for All Inputs	
V <sub>IL</sub>	Input LOW Voltage	54			0.7	V	Guaranteed Input LOW Voltage for All Inputs	
		74			0.8			
V <sub>T+</sub> –V <sub>T–</sub>	Hysteresis		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	54, 74	2.4	3.4		V	V <sub>CC</sub> = MIN, I <sub>OH</sub> = –3.0 mA	
		54, 74	2.0			V	V <sub>CC</sub> = MIN, I <sub>OH</sub> = MAX	
V <sub>OL</sub>	Output LOW Voltage	54, 74		0.25	0.4	V	I <sub>OL</sub> = 12 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
		74		0.35	0.5	V	I <sub>OL</sub> = 24 mA	
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 E			20	μA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 2.7 V	
		DR or 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			

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		

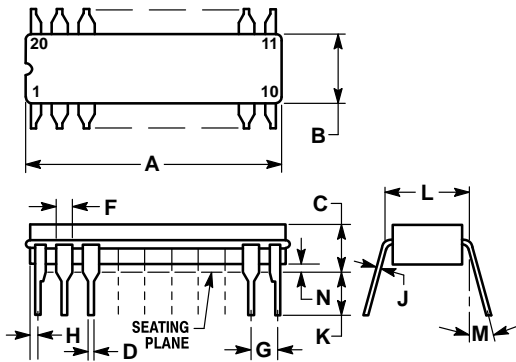
**Case 751D-03 DW Suffix**  
**20-Pin Plastic**  
**SO-20 (WIDE)**



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: MILLIMETER.
  3. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
  4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
  5. 751D-01, AND -02 OBSOLETE, NEW STANDARD 751D-03.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	12.65	12.95	0.499	0.510
B	7.40	7.60	0.292	0.299
C	2.35	2.65	0.093	0.104
D	0.35	0.49	0.014	0.019
F	0.50	0.90	0.020	0.035
G	1.27 BSC	0.050 BSC		
J	0.25	0.32	0.010	0.012
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	10.05	10.55	0.395	0.415
R	0.25	0.75	0.010	0.029

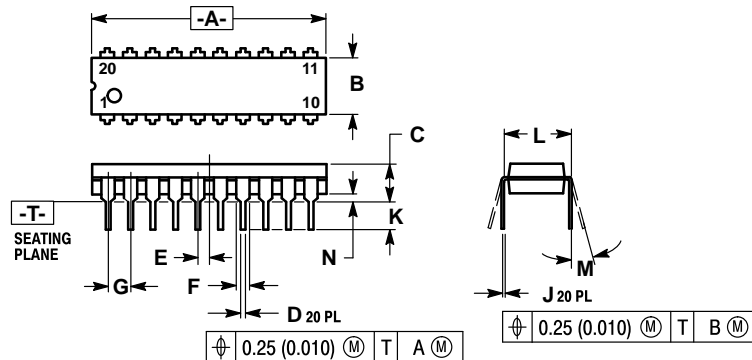
**Case 732-03 J Suffix**  
**20-Pin Ceramic Dual In-Line**



- NOTES:
1. LEADS WITHIN 0.25 mm (0.010) DIA., TRUE POSITION AT SEATING PLANE, AT MAXIMUM MATERIAL CONDITION.
  2. DIM L TO CENTER OF LEADS WHEN FORMED PARALLEL.
  3. DIM A AND B INCLUDES MENISCUS.


	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	23.88	25.15	0.940	0.990
B	6.60	7.49	0.260	0.295
C	3.81	5.08	0.150	0.200
D	0.38	0.56	0.015	0.022
F	1.40	1.65	0.055	0.065
G	2.54 BSC	0.100 BSC		
H	0.51	1.27	0.020	0.050
J	0.20	0.30	0.008	0.012
K	3.18	4.06	0.125	0.160
L	7.62 BSC	0.300 BSC		
M	0°	15°	0°	15°
N	0.25	1.02	0.010	0.040

**Case 738-03 N Suffix**  
**20-Pin Plastic**



- 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.
  5. 738-02 OBSOLETE, NEW STANDARD 738-03.

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

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SYMBOL	SW1	SW2
tpZH	Open	Closed
tpZL	Closed	Open
tpLZ	Closed	Closed

