

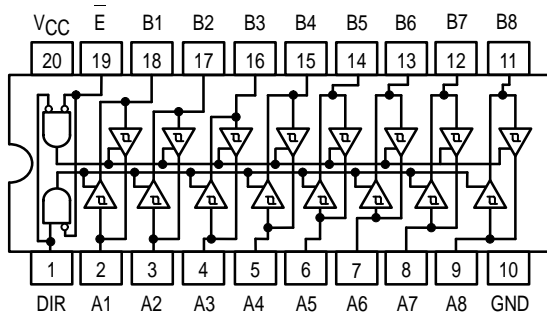


# OCTAL BUS TRANSCEIVER

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)



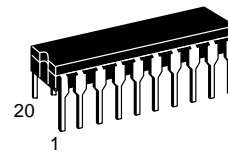
## TRUTH TABLE

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

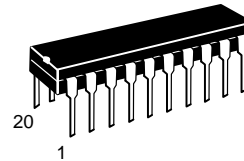
H = HIGH Voltage Level  
 L = LOW Voltage Level  
 X = Immaterial

# SN54/74LS245

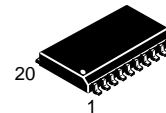
## OCTAL BUS TRANSCEIVER LOW POWER SCHOTTKY



**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	4.5	5.0	5.5	V
		74	4.75	5.0	5.25	
T <sub>A</sub>	Operating Ambient Temperature Range	54	-55	25	125	°C
		74	0	25	70	
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			12	mA
		74			24	

# 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<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			