

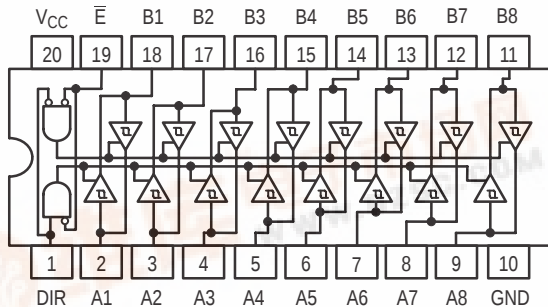
SN74LS245

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 (DIR) 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

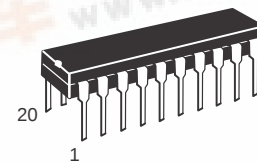


ON Semiconductor

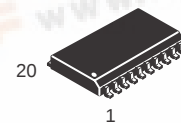
Formerly a Division of Motorola

<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	$V_{CC} = \text{MIN}$
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	μA	$V_{CC} = \text{MAX}$, $V_{OUT} = 2.7 \text{ V}$
I_{OZL}	Output Off Current LOW			-200	μA	$V_{CC} = \text{MAX}$, $V_{OUT} = 0.4 \text{ V}$
I_{IH}	Input HIGH Current	A or B, DR or $\bar{E}$		20	μA	$V_{CC} = \text{MAX}$, $V_{IN} = 2.7 \text{ V}$
		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 ($T_A = 25^\circ\text{C}$, $V_{CC} = 5.0 \text{ V}$, $T_{RISE}/T_{FALL} \leq 6.0 \text{ ns}$)

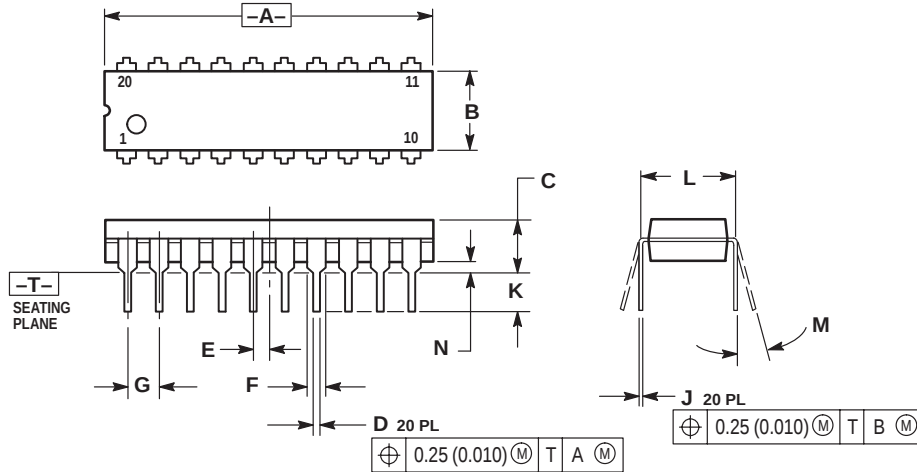
Symbol	Parameter	Limits			Unit	Test Conditions
		Min	Typ	Max		
t_{PLH} t_{PHL}	Propagation Delay, Data to Output		8.0 8.0	12 12	ns	$C_L = 45 \text{ pF}$, $R_L = 667 \Omega$
t_{PZH}	Output Enable Time to HIGH Level		25	40	ns	
t_{PZL}	Output Enable Time to LOW Level		27	40	ns	
t_{PLZ}	Output Disable Time 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

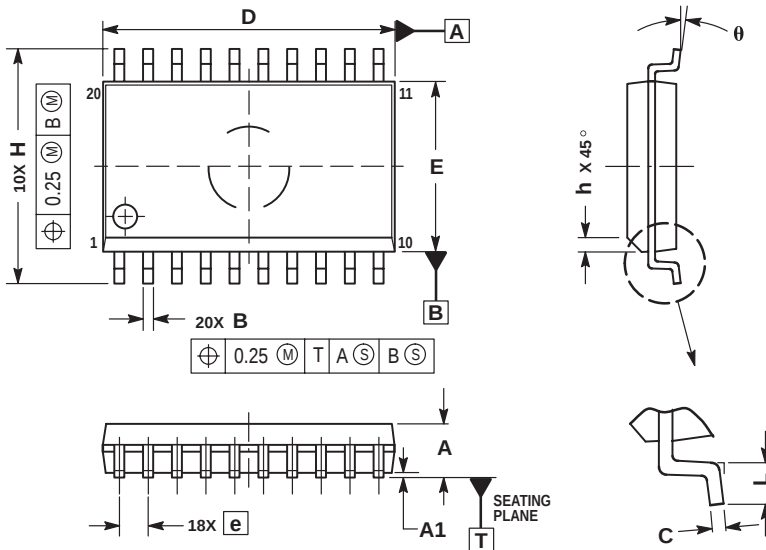
N SUFFIX PLASTIC PACKAGE CASE 738-03 ISSUE E



- 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°



SN74LS245

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer.

PUBLICATION ORDERING INFORMATION

North America Literature Fulfillment:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: ONlit@hibbertco.com

N. American Technical Support: 800-282-9855 Toll Free USA/Canada

EUROPE: LDC for ON Semiconductor – European Support

German Phone: (+1) 303-308-7140 (M–F 2:30pm to 5:00pm Munich Time)
Email: ONlit-german@hibbertco.com
French Phone: (+1) 303-308-7141 (M–F 2:30pm to 5:00pm Toulouse Time)
Email: ONlit-french@hibbertco.com
English Phone: (+1) 303-308-7142 (M–F 1:30pm to 5:00pm UK Time)
Email: ONlit@hibbertco.com

ASIA/PACIFIC: LDC for ON Semiconductor – Asia Support

Phone: 303-675-2121 (Tue–Fri 9:00am to 1:00pm, Hong Kong Time)
Toll Free from Hong Kong 800-4422-3781
Email: ONlit-asia@hibbertco.com

JAPAN: ON Semiconductor, Japan Customer Focus Center
4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan 141-8549
Phone: 81-3-5487-8345

Email: r14153@onsemi.com

Fax Response Line: 303-675-2167
800-344-3810 Toll Free USA/Canada

ON Semiconductor Website: <http://onsemi.com>

For additional information, please contact your local
Sales Representative.

