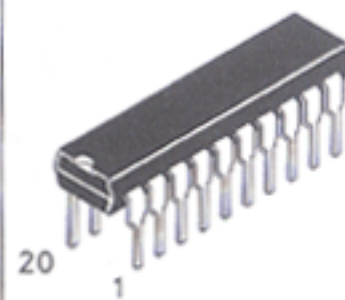


Octal 3-State Noninverting Bus Transceiver

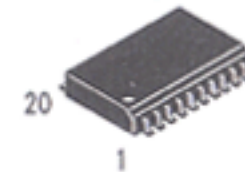
The DV74HC245A and DV74HCT245A are identical in pinout to the LS245. This 3-state non-inverting transceiver is used for 2-way asynchronous communication between data busses. The device has an active-low Output Enable pin, which is used to place the I/O ports into high-impedance states. The Direction control determines whether data flows from A to B or from B to A. The output enable input, when high, disables both A and B ports by placing them in a high "Z" condition.

- Output Drive Capability: 15 LSTTL Loads
- Outputs Directly Interface to CMOS, NMOS, and TTL
- Operating Voltage Range: 2 to 6 V for HC device
- Low Input Current: 1 μ A
- DC, AC parameters guaranteed from -55°C to 125°C

DV74HC245A DV74HCT245A

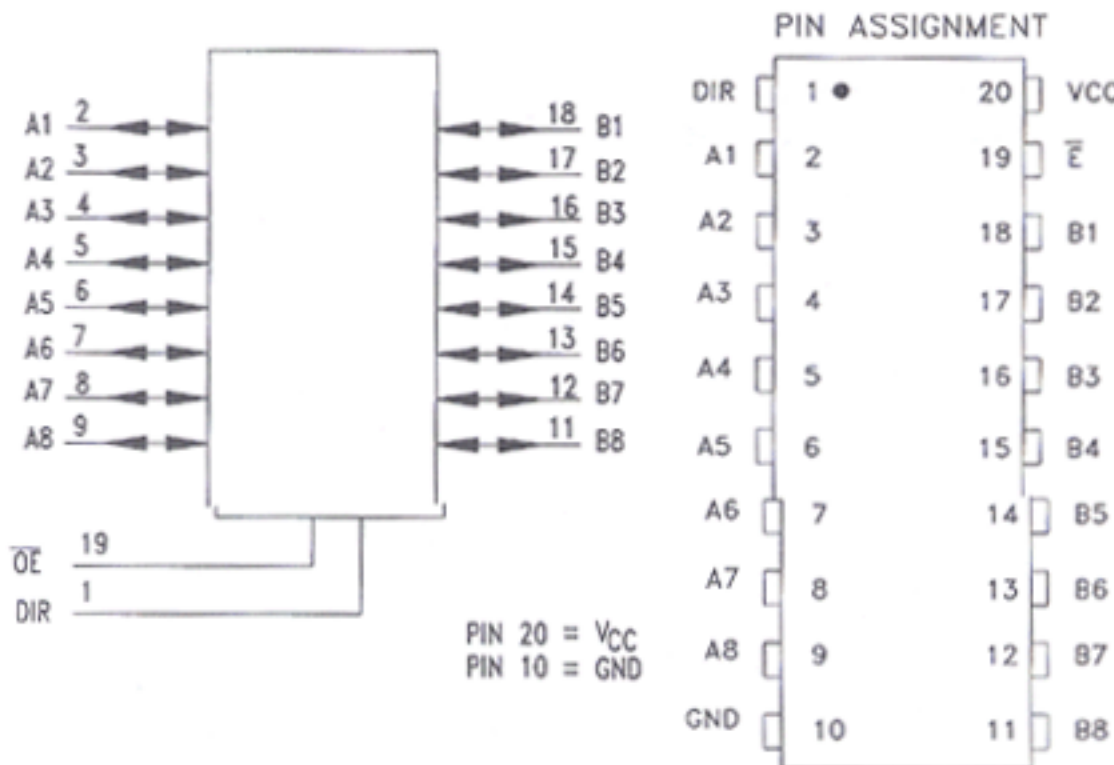


N Suffix
Plastic DIP
AVG-005 Case



DW Suffix
Plastic SOP
AVG-006 Case

245



TRUTH TABLE

Control Inputs		Operation
Output Enable	Direction	
L	L	Data Transmitted from Bus B to Bus A
L	H	Data Transmitted from Bus A to Bus B
H	X	High Z State

H = High Logic Level
L = Low Logic Level
X = Don't Care
Z = High Impedance

ABSOLUTE MAXIMUM RATINGS

Maximum ratings are those values beyond which damage to the device may occur.

Symbol	Parameters	Value	Unit
VCC	DC Supply Voltage (Referenced to GND)	- 0.5 to + 7.0	V
VIN	DC Input Voltage (Referenced to GND)	- 1.5 to VCC + 1.5	V
VOUT	DC Output Voltage (Referenced to GND)	- 0.5 to VCC + 0.5	V
IIN	DC Input Current, per Pin	± 20	mA
IOUT	DC Output Sink/Source Current, per Pin	± 35	mA
ICC	DC Supply Current, VCC and GND Pins	± 75	mA
PD	Power Dissipation in Still Air, Plastic DIP SOP Package	750 500	mW
Tstg	Storage Temperature	- 65 to +150	°C
TL	Lead Temperature, 1mm from Case for 10 seconds	260	°C

GUARANTEED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V _{CC}	DC Supply Voltage HC(HCT), Referenced to GND	2.0(4.5)	6.0(5.5)	V
V _{IN} , V _{OUT}	DC Input Voltage, Output Voltage ,Referenced to GND	0	V _{CC}	V
T _A	Ambient Temperature	-55	+125	°C
t _r , t _f	Input Rise and Fall Time: HC: V _{CC} =2.0V HCT: V _{CC} =5.5V / HC: V _{CC} =4.5V HC: V _{CC} =6.0V	0 0 0	1000 500 400	ns

HC- 245A

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V _{CC} (V)	Guaranteed Limits			Unit
				25°C to -55°C	≤ 85°C	≤ 125°C	
V _{IH}	Minimum High Level Input Voltage	V _{OUT} = V _{CC} -0.1 V I _{OUT} ≤ 20 μA	2.0 4.5 6.0	1.5 3.15 4.2	1.5 3.15 4.2	1.5 3.15 4.2	V
V _{IL}	Maximum Low Level Input Voltage	V _{OUT} = 0.1V I _{OUT} ≤ 20 μA	2.0 4.5 6.0	0.5 1.35 1.8	0.5 1.35 1.8	0.5 1.35 1.8	V
V _{OH}	Minimum High Level Output Voltage	V _{IN} = V _{IH} I _{OUT} ≤ 20 μA	2.0 4.5 6.0	1.9 4.4 5.9	1.9 4.4 5.9	1.9 4.4 5.9	V
		V _{IN} = V _{IH} I _{OUT} ≤ 6.0 mA I _{OUT} ≤ 7.8 mA	4.5 6.0	3.98 5.48	3.84 5.34	3.70 5.20	V
V _{OL}	Maximum Low Level Output Voltage	V _{IN} = V _{IL} I _{OUT} ≤ 20 μA	2.0 4.5 6.0	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	V
		V _{IN} = V _{IL} I _{OUT} ≤ 6.0 mA I _{OUT} ≤ 7.8 mA	4.5 6.0	0.26 0.26	0.33 0.33	0.40 0.40	V
I _{IN}	Maximum Input Leakage Current	V _{IN} =V _{CC} or GND	6.0	±0.1	±1.0	±1.0	μA
I _{OZ}	Maximum 3-State Current (Output in High Impedance State)	V _{IN} =V _{IL} or V _{IH} V _{OUT} =V _{CC} or GND, I/O Pins	6.0	±0.5	±5.0	±10.0	mA
I _{CC}	Maximum Quiescent Supply Current	V _{IN} = V _{CC} or GND I _{OUT} = 0 μA	6.0	4	40	160	μA

AC CHARACTERISTICS over full operating conditions (C_L=50pF, Input t_r=t_f=6.0ns)

Symbol	Parameter	V _{CC} (V)	Guaranteed Limits			Unit
			25° C to -55°C	≤ 85°C	≤ 125°C	
t _{PLH} , t _{PHL}	Maximum Propagation Delay A to B or B to A	2.0 4.5 6.0	75 15 13	100 20 16	110 22 20	ns
t _{PLZ} , t _{PHZ}	Maximum Propagation Delay Output Disable or Direction to Output	2.0 4.5 6.0	110 22 20	140 28 24	165 33 28	ns
t _{PZL} , t _{PZH}	Maximum Propagation Delay Direction or Output Enable to Output	2.0 4.5 6.0	110 22 19	140 28 24	165 33 28	ns

Symbol	Parameter	V _{CC} (V)	Guaranteed Limits			Unit
			25° C to -55° C	≤ 85° C	≤ 125° C	
t _{TLH} t _{THL}	Maximum Output Transition Time, Any Output	2.0 4.5 6.0	60 12 10	75 15 13	90 18 15	ns
C _{IN}	Maximum Input Capacitance		10	10	10	pF
C _{OUT}	Maximum Three-State Output Capacitance (Output in High-Impedance State)		15	15	15	pF

C _{PD}	Power Dissipation Capacitance (Output in High-Impedance) Used to determine the no-load dynamic power consumption: $P_D = C_{PD} V_{CC}^2 f + I_{CC} V_{CC}$	Typical @ 25oC, V _{CC} = 5.0 V	pF
		40	

HCT - 245A

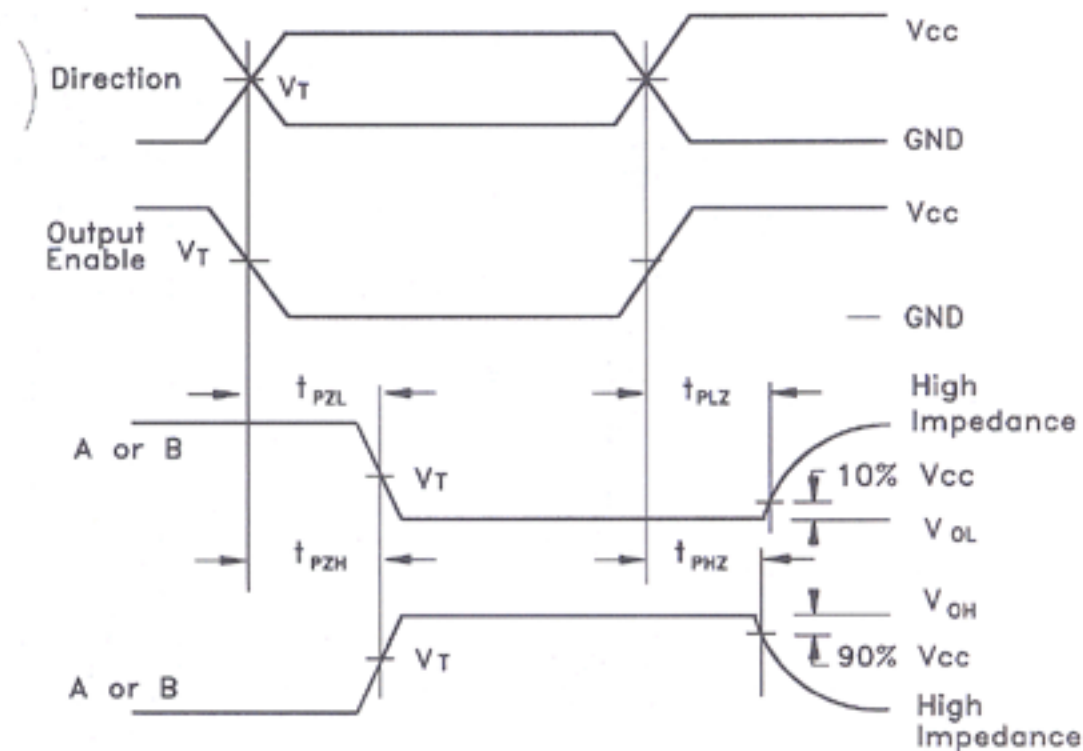
DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V _{CC} (V)	Guaranteed Limits			Unit
				25°C to -55°C	≤ 85°C	≤ 125°C	
V _{IH}	Minimum High Level Input Voltage	V _{OUT} = V _{CC} - 0.1 V I _{OUT} ≤ 20 μA	4.5 5.5	2.0 2.0	2.0 2.0	2.0 2.0	V
V _{IL}	Maximum Low Level Input Voltage	V _{OUT} = 0.1 V or V _{CC} - 0.1 V I _{OUT} ≤ 20 μA	4.5 5.5	0.8 0.8	0.8 0.8	0.8 0.8	V
V _{OH}	Minimum High Level Output Voltage	V _{IN} = V _{IH} I _{OUT} ≤ 20 μA	4.5 5.5	4.4 5.4	4.4 5.4	4.4 5.4	V
		V _{IN} = V _{IH} I _{OUT} ≤ 6.0 mA	4.5	3.98	3.84	3.70	V
V _{OL}	Maximum Low Level Output Voltage	V _{IN} = V _{IL} I _{OUT} ≤ 20 μA	4.5 5.5	0.1 0.1	0.1 0.1	0.1 0.1	V
		V _{IN} = V _{IL} I _{OUT} ≤ 6.0 mA	4.5	0.26	0.33	0.40	V
I _{IN}	Maximum Input Leakage Current	V _{IN} = V _{CC} or GND, Pins 1 or 19	5.5	±0.1	±1.0	±1.0	μA
I _{OZ}	Maximum 3-State Current (Output in High Impedance State)	V _{IN} = V _{IL} or V _{IH} V _{OUT} = V _{CC} or GND, I/O Pins	5.5	±0.5	±5.0	±10.0	mA
I _{CC}	Maximum Quiescent Supply Current	V _{IN} = V _{CC} or GND I _{OUT} = 0 μA	6.0	4	40	160	μA
ΔI _{CC}	Additional Quiescent Supply Current (per Package)	V _{IN} = 2.4 V, Any One Input V _{IN} = V _{CC} or GND, Other Inputs I _{OUT} = 0 μA	5.5		-55°C to 25°C 2.9	25°C to 125°C 2.4	mA

AC CHARACTERISTICS ($V_{CC}=5.0 \pm 10\%$, $C_L=50$ pF, Input $t_r = t_f = 6.0$ ns)

Symbol	Parameter	V _{CC} V	Guaranteed Limits			Unit
			25°C to – 55°C	≤ 85°C	≤ 125° C	
t _{PLH} , t _{PHL}	Maximum Propagation Delay A to B or B to A	5.0	22	28	33	ns
t _{PLZ} , t _{PHZ}	Maximum Propagation Delay Time, Output Disable to A or B	5.0	32	40	48	ns
t _{TZL} , t _{TZH}	Maximum Propagation Delay Time, Output Enable to A or B	5.0	30	38	45	ns
t _{TLH} , t _{THL}	Maximum Output Transition Time, any Output	5.0	12	15	18	ns
C _{IN}	Maximum Input Capacitance		10	10	10	pF
C _{OUT}	Maximum Three-State Output Capacitance (I/O in High-Impedance State)		15	15	15	pF
C _{PD}	Power Dissipation Capacitance (Per Enabled Output) Used to determine the no-load dynamic power consumption: $P_D = C_{PD} V_{CC}^2 f + I_{CC} V_{CC}$		Typical @ 25°C, V _{CC} = 5.0 V			pF
			45			

SWITCHING WAVEFORMS



Input threshold voltage, $V_T = 50\% V_{CC}$ for HC; 1.3V for HCT
 $V_H = V_{CC}$ for HC, 3V for HCT