SGS-THOMSON MICROELECTRONICS

T74LS245

OCTAL BUS TRANSCEIVER

- 2-WAY ASYNCHRONOUS DATA BUS COMUNICATION
- HYSTERESIS INPUTS TO IMPROVE NOISE IMMUNITY
- INPUT DIODES LIMIT HIGH-SPEED TERMINATION EFFECTS

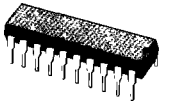
DESCRIPTION

The T74LS245 is an Octal Bus Transceiver intended for 8-line asynchronous 2-way data communication between data buses. Direction Input (DR) takes over the transmission of Data from bus A to bus B or bus B to bus A depending on its logic level. Enable input is usable for isolation of the buses.

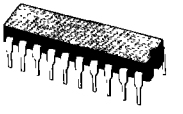
TRUTH TABLE

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

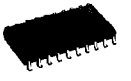
H= HIGH Voltage Level L = LOW Voltage Level X = Don't Care



B1
(Plastic Package)



D1
(Ceramic Package)



M1
(Micro Package)

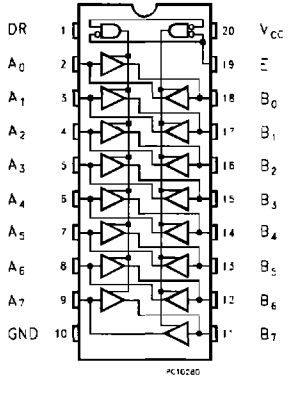
C1
(Plastic Chip Carrier)

ORDER CODES :

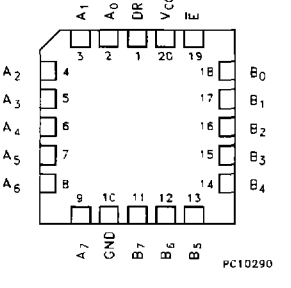
T74LS245 D1 T74LS245 C1
T74LS245 B1 T74LS245 M1

PIN CONNECTION (top view)

DUAL IN LINE



CHIP CARRIER



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	− 0.5 to + 7	V
V_I	Input Voltage, Applied to Input	− 0.5 to + 15	V
V_O	Output Voltage, Applied to Output	− 0.5 to + 10	V
I_I	Input Current, Into Inputs	− 30 to + 5	mA
I_O	Output Current, Into Outputs	50	mA

Stresses in excess of those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions in excess of those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

GUARANTEED OPERATING RANGE

Part Numbers	Supply Voltage			Temperature
	Min.	Typ.	Max.	
T74LS245XX	4.75 V	5.0 V	5.25 V	0 °C to + 70 °C

XX = package type.

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE

Symbol	Parameter	Limits			Test Condition (note 1)	Unit
		Min.	Typ. (*)	Max.		
V_{IH}	Input HIGH Voltage	2.0			Guaranteed Input HIGH Voltage for all Inputs	V
V_{IL}	Input LOW Voltage			0.8	Guaranteed Input LOW Voltage for all Inputs	V
$V_{T+} - V_{T-}$	Hysteresis	0.2	0.4		V_{CC} = MIN	V
V_{CD}	Input Clamp Diode Voltage		- 0.65	- 1.5	V_{CC} = MIN, I_{IN} = -18 mA	V
V_{OH}	Output HIGH Voltage	2.4 2.0	3.4		V_{CC} = MIN, I_{OH} = - 3.0 mA V_{CC} = MIN, I_{OH} = - 15 mA	V
V_{OL}	Output LOW Voltage		0.25	0.4	I_{OL} = 12 mA; V_{CC} = MIN	V
			0.35	0.5	I_{OL} = 24 mA; V_{IN} = V_{IH} or V_{IL} per Truth Table	V
I_{OZH}	Output Off Current HIGH			20	V_{CC} = MAX, V_{IN} = 2.7 V	µA
I_{OZL}	Output Off Current LOW			- 200	V_{CC} = MAX, V_{IN} = 0.4 V	µA
I_{IH}	Input HIGH Current A or B, $\overline{DR}$ or $\overline{E}$ DR or $\overline{E}$ A or B			 20 0.1 0.1	 V_{CC} = MAX, V_{IN} = 2.7 V V_{CC} = MAX, V_{IN} = 7.0 V V_{CC} = MAX, V_{IN} = 5.5 V	 µA mA mA
I_{IL}	Input LOW Current			- 0.2	V_{CC} = MAX, V_{IN} = 0.4 V	mA
I_{OS}	Output Short Circuit Current (note 2)	- 40		- 225	V_{CC} = MAX, V_{OUT} = 0 V	mA
I_{CC}	Power Supply Current Total, Output HIGH Total, Output LOW Total at HIGH Z			 70 90 95	V_{CC} = MAX	mA

Notes : 1) Conditions for testing, not shown in the Table, are chosen to guarantee operation under "worst case" conditions.
2) Not more than one output should be shorted at a time.
(*) Typical values are at V_{CC} = 5.0 V, T_A = 25 °C.

AC CHARACTERISTICS: $T_A = 25\ ^{o}C$

Symbol	Parameter	Limits			Test Conditions	Units
		Min.	Typ.	Max.		
t_{PLH} t_{PHL}	Propagation Delay, Clock to Outputs		8.0 8.0	12 12	CL = 45 pF RL = 667 Ω	ns
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	CL = 5.0 pF	ns
t_{PHZ}	Output Disable Time from HIGH Level		15	25		ns