

# 54LS/74LS242 54LS/74LS243

## QUAD BUS TRANSCEIVER

(With 3-State Outputs)

**DESCRIPTION** — The 'LS242 and '243 are quad bus transmitters/receivers designed for 4-line asynchronous 2-way data communications between data buses.

- HYSTERESIS AT INPUTS TO IMPROVE NOISE IMMUNITY
- 2-WAY ASYNCHRONOUS DATA BUS COMMUNICATION
- INPUT CLAMP DIODES LIMIT HIGH SPEED TERMINATION EFFECTS
- FULLY TTL AND CMOS COMPATIBLE

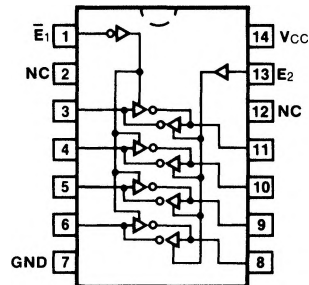
**ORDERING CODE:** See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	MILITARY GRADE	PKG TYPE
		V <sub>CC</sub> = +5.0 V ±5%, T <sub>A</sub> = 0°C to +70°C	V <sub>CC</sub> = +5.0 V ±10%, T <sub>A</sub> = -55°C to +125°C	
Plastic DIP (P)	A	74LS242PC		9A
	B	74LS243PC		
Ceramic DIP (D)	A	74LS242DC	54LS242DM	6A
	B	74LS243DC	54LS243DM	
Flatpak (F)	A	74LS242FC	54LS242FM	3I
	B	74LS243FC	54LS243FM	

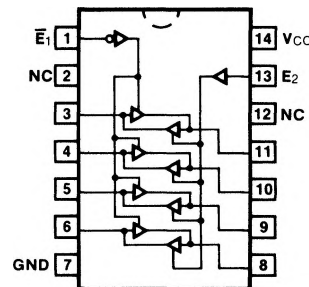
**INPUT LOADING/FAN-OUT:** See Section 3 for U.L. definitions

PINS	54/74LS (U.L.) HIGH/LOW
Inputs	0.5/0.125
Outputs	75/15 (7.5)

### CONNECTION DIAGRAMS PINOUT A



### PINOUT B



## TRUTH TABLES

## 'LS242

INPUTS		OUTPUT	INPUTS		OUTPUT
$\bar{E}_1$	D		$E_2$	D	
L	L	H	L	X	Z
L	H	L	L	X	Z
H	X	Z	H	L	H
H	X	Z	H	H	L

## 'LS243

INPUTS		OUTPUT	INPUTS		OUTPUT
$\bar{E}_1$	D		$E_2$	D	
L	L	L	L	X	Z
L	H	H	L	X	Z
H	X	Z	H	L	L
H	X	Z	H	H	H

H = HIGH Voltage Level L = LOW Voltage Level X = Immaterial Z = High Impedance

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

SYMBOL	PARAMETER		54/74LS		UNITS	CONDITIONS
			Min	Max		
VOH	Output HIGH Voltage	XM	2.0		V	V <sub>CC</sub> = Min V <sub>IH</sub> = 2.0 V V <sub>IL</sub> = 0.5 V
		XC	2.0			
VOH	Output HIGH Voltage		2.4		V	I <sub>OH</sub> = -3.0 mA, V <sub>CC</sub> = Min V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub> per Truth Table
I <sub>OS</sub>	Output Short Circuit Current		-40	-225	mA	V <sub>CC</sub> = Max, V <sub>OUT</sub> = 0 V
I <sub>CC</sub>	Power Supply Current	HIGH		38	mA	V <sub>CC</sub> = Max
		LOW		50		
		OFF	('242)	50		
		OFF	('243)	54		

AC CHARACTERISTICS: V<sub>CC</sub> = +5.0 V, T<sub>A</sub> = +25°C (See Section 3 for waveforms and load configurations)

SYMBOL	PARAMETER		54/74LS		UNITS	CONDITIONS
			C <sub>L</sub> = 45 pF			
			Min	Max		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay Data to Output ('242)			14 18	ns	Figs. 3-1, 3-4
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay Data to Output ('243)			18 18	ns	Figs. 3-1, 3-5
t <sub>PZH</sub> t <sub>PZL</sub>	Output Enable Time			23 30	ns	Figs. 3-3, 3-11, 3-12 R <sub>L</sub> = 667 Ω
t <sub>PLZ</sub> t <sub>PHZ</sub>	Output Disable Time			25 18	ns	Figs. 3-3, 3-11, 3-12 R <sub>L</sub> = 667 Ω, C <sub>L</sub> = 5 pF