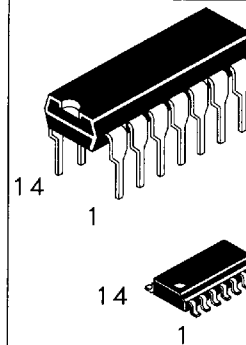


3-State Quad Bus Transceiver

The DV74LS242, DV74ALS242B, DV74LS243A and DV74ALS243A are Quad Bus Transceivers with 3-States to be used for 4-line asynchronous 2-way data communications between data buses.

- AVG's LS operates over extended Vcc from 4.5 to 5.5 V
- AVG's LS and ALS both have guaranteed DC and AC specification over full temperature and Vcc range
- Switching specifications for ALS at 50 pF
- AVG's ALS has the lowest speed power product (4pJ per gate typical) of all logic series
- Tristate Driver with 24mA Output Drive I_{OL}

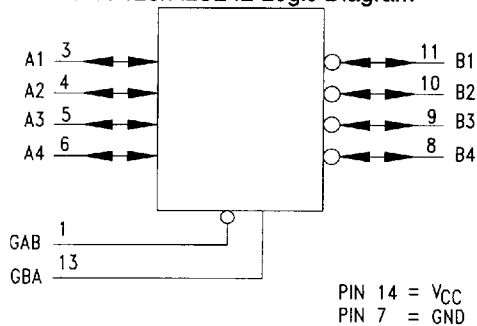
DV74LS242
DV74ALS242B
DV74LS243
DV74ALS243A



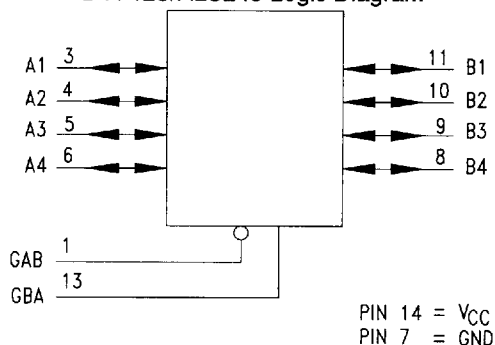
N Suffix
Plastic DIP
AVG-001 Case

D Suffix
Plastic SOP
AVG-002 Case

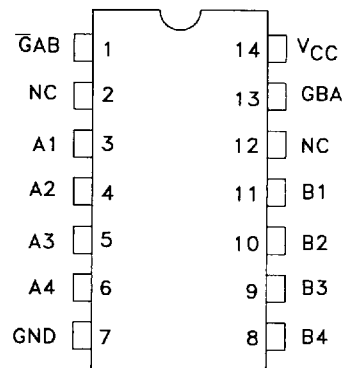
DV74LS/ALS242 Logic Diagram



DV74LS/ALS243 Logic Diagram



PIN ASSIGNMENT



LS242-ALS242B
TRUTH TABLE

INPUTS		OUTPUT	INPUTS		OUTPUT
GAB	D		GAB	D	
L	L	H	L	X	Z
L	H	L	H	L	H
H	X	Z	H	H	L

H=High Level Logic
L=Low Level Logic
Z=High Impedance State

LS243-ALS243A
TRUTH TABLE

INPUTS		OUTPUT	INPUTS		OUTPUT
GAB	D		GAB	D	
L	L	L	L	X	Z
L	H	H	H	L	L
H	X	Z	H	H	H

H=High Level Logic
L=Low Level Logic
Z=High Impedance State

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	LS242, 243	ALS242B, 243A	Unit
V _{CC}	Supply Voltage	7.0	7.0	V
V _{IN}	Input Voltage	7.0	7.0	V
T _{STG}	Storage Temperature Range	-65 to +150	-65 to +150	°C

GUARANTEED OPERATING CONDITIONS

Symbol	Parameter	LS242, 243		ALS242B, 243A		Unit
		Min	Max	Min	Max	
V _{CC}	Supply Voltage	4.5	5.5	4.5	5.5	V
V _{IH}	High Level Input Voltage	2.0		2.0		V
V _{IL}	Low Level Input Voltage		0.8		0.8	V
I _{OH}	High Level Output Current		-15		-15	mA
I _{OL}	Low Level Output Current		24		24	mA
T _A	Ambient Temperature Range	-10 to +70		-10 to +70		°C

DC ELECTRICAL CHARACTERISTICS over full operating range

Symbol	Parameter	Conditions	LS24, 243			ALS242B, 243A			Unit
			Min	Typ	Max	Min	Typ	Max	
V _{IK}	Input Clamp Voltage	V _{CC} = min, I _{IN} = -18 mA			-1.5			-1.5	V
V _{OH}	High Level Output Voltage	V _{CC} =min, I _{OH} = -2.0mA	2.5			2.5			V
		V _{CC} =min, I _{OH} =-3.0mA	2.4	3.4		2.4	3.2		
		V _{CC} =min, I _{OH} =-15mA	2.0			2.0			
V _{OL}	Low Level Output Voltage (V _{IN} =V _{IL} or V _{IH} per truth table)	V _{CC} =min; I _{OL} =12mA		0.25	0.4				V
		V _{CC} =min; I _{OL} =24mA		0.35	0.5		0.35	0.5	
I _{OZH}	Output Off Current HIGH	V _{CC} =max, V _{OUT} =2.7V			40			20	μA
I _{OZL}	Output Off Current LOW	V _{CC} =max, V _{OUT} =0.4V			-200			-20	μA
I _{IH}	High Level Input Current	V _{CC} =max, V _{IN} =2.7V			20			20	μA
		V _{CC} =max, V _{IN} =7.0V $\bar{E}_1, \bar{E}_2$			0.1			0.1	mA
		V _{CC} =max, V _{IN} =5.5V D Input			0.1			0.1	
I _{IL}	Low Level Input Current	V _{CC} =max, V _{IN} =0.4V 242			-0.2			-0.1	mA
		243			-0.2			-0.1	
I _O	Short Circuit Current	V _{CC} =max, V _O =2.25	-40		-225	-30		-112	mA
I _{CC}	Supply Current V _{CC} =max	Output HIGH			38		10	16	mA
		Output LOW			50		14	21	
		At High Impedence			50		12	19	
		Output HIGH			38		15	25	
		Output LOW			50		20	30	
		At High Impedence			54		21	32	

SWITCHING CHARACTERISTICS

Symbol	Parameter	LS242 V _{CC} =5.0V C _L =45pF R _L =667Ω T _A =25°C			ALS242B V _{CC} =4.5V to 5.5V C _L = 50 pF R ₁ =R ₂ = 500Ω T _A = MIN to MAX			Unit
		Min	Typ	Max	Min	Typ	Max	
t _{PLH}	Propagation Delay, Data to Output		9.0	14	2		11	ns
t _{PHL}			12	18	2		10	
t _{PZH}	Output Enable Time		15	23	4		18	ns
t _{PZL}			20	30	7		21	
t _{PLZ}	Output Disable Time		15	25	2		12	ns
t _{PHZ}			10	18	2		14	

Symbol	Parameter	LS243 V _{CC} =5.0V C _L =45pF R _L =667Ω T _A =25°C			ALS243A V _{CC} =4.5V to 5.5V C _L = 50 pF R _L = 500Ω T _A = MIN to MAX			Unit
		Min	Typ	Max	Min	Typ	Max	
t _{PLH}	Propagation Delay, Data to Output		12	18	4		11	ns
t _{PHL}			12	18	4		11	
t _{PZH}	Output Enable Time		15	23	7		20	ns
t _{PZL}			20	20	7		20	
t _{PLZ}	Output Disable Time		15	25	3		22	ns
t _{PHZ}			10	18	2		14	

SWITCHING WAVEFORMS

