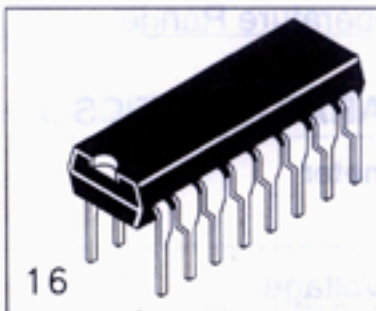
AVG Semiconductors

DDi™

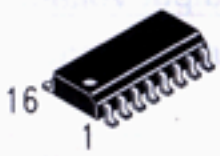
Technical Data

DV74LS257B
DV74ALS257
DV74LS258B
DV74ALS258

Quad 2-1 Data Selector/ Multiplexers with 3-State Outputs



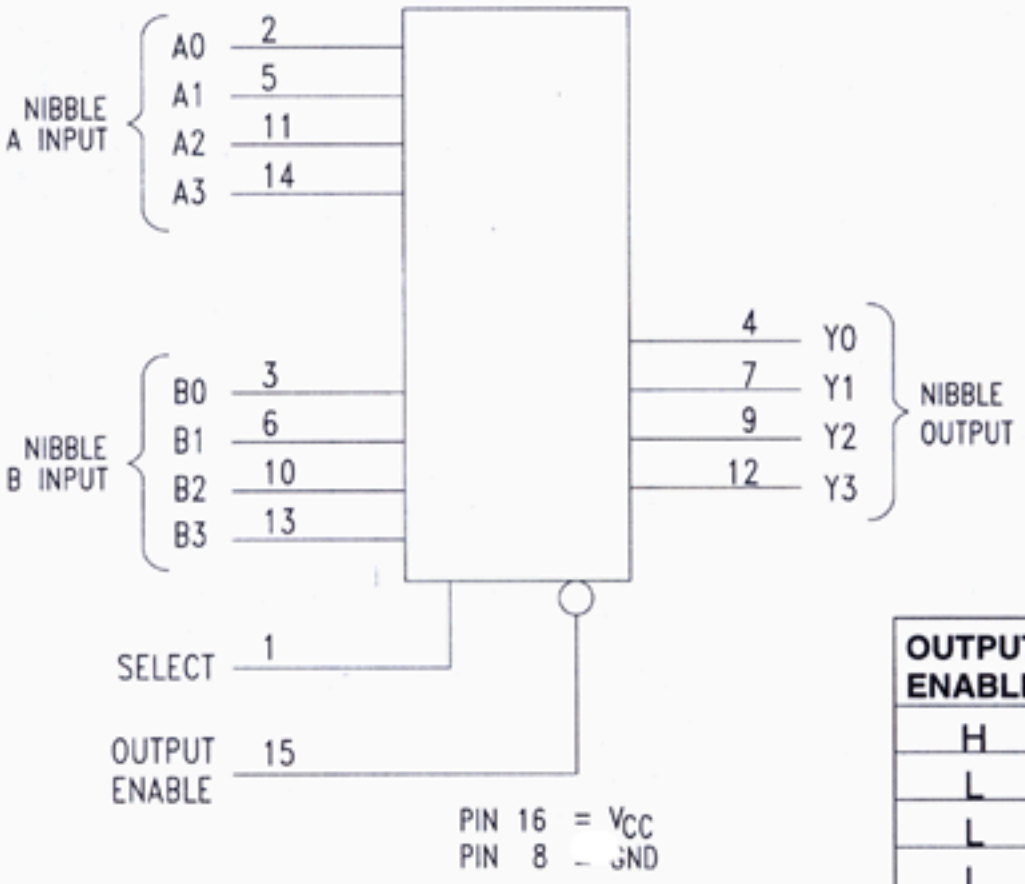
N Suffix
Plastic DIP
AVG-003 Case



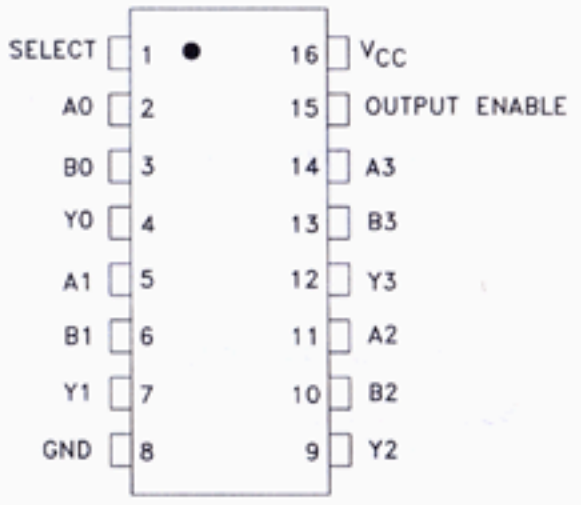
D Suffix
Plastic SOP
AVG-004 Case

In these devices, four bits of data from 2 sources can be selected using a Common Data Selection Input. The devices present the selected data in true(non-inverted) form in the 'LS/ALS 257 and in complentary form (inverted) in the 'LS/ALS 258. The outputs may be switched to a high impedance state with a HIGH on the common Output Enable input, allowing the outputs to interface directly with bus oriented systems.

- **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**



PIN ASSIGNMENT



TRUTH TABLE

OUTPUT ENABLE	INPUTS A	INPUTS B	SELECT INPUT	OUTPUT 257	OUTPUT 258
H	X	X	X	Z	Z
L	X	L	H	L	H
L	X	H	H	H	L
L	L	X	L	L	H
L	H	X	L	H	L

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

ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	LS257B-LS258B	ALS257-ALS258	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
V_{OZ}	Output Voltage - High Impedance	5.5	5.5	V

GUARANTEED OPERATING CONDITIONS

Symbol	Parameter	LS257B-258B		ALS257-258		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		−2.6		−2.6	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		LS257B-258B			ALS2457-258			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}= −2.6mA		2.4	3.1		2.4	3.2		V
V_{OL}	Low Level Output Voltage	V_{CC}=min; I_{OL} =12mA			0.25	0.4		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				20			20	µA
I_{OZL}	Output Off Current LOW	V_{CC}=max, V_{OUT}=0.4V				−20			−20	µA
I_{IH}	High Level Input Current	V_{CC}=max, V_{IN}=2.7V	Other Inputs Select Inputs			20 40			20 20	µA
		V_{CC}=max, V_{IN}=7.0V	Other Inputs Select Inputs			0.1 0.2			0.1 0.1	mA
I_{IL}	Low Level Input Current	V_{CC}=max, V_{IN}=0.4V	Other Inputs Select Inputs			−0.4 −0.8			−0.1 −0.1	mA
I_O	Short Circuit Current	VCC=max, V_O=2.25		−30		−130	−30		−112	mA
I_{CC}	Supply Current V_{CC}=max	Output HIGH	**257**			12			6	mA
		Output LOW				18			12	
		At High Impedence				19			14	
		Output HIGH	**258**			9			4	
		Output LOW				15			11	
		At High Impedence				16			13	

SWITCHING CHARACTERISTICS over full operating range

Symbol	Parameter	LS257-258 C_L=45pF RL=667Ω		ALS257-258 C_L= 50 pF R_1=R_2=500		Unit
		Min	Max	Min	Max	
t_{PLH}	Propagation Delay, Data to Output		13	2	10	ns
t_{PHL}			17	2	12	
t_{PLH}	Propagation Delay, Select to Output		21	7	18	ns
t_{PHL}			24	6	22	
t_{PZH}	Output Enable Time		30	4	16	ns
t_{PZL}			30	5	18	
t_{PLZ}	Output Disable Time, CL=5.0pF		25	4	15	ns
t_{PHZ}			30	2	10	

SWITCHING WAVEFORMS