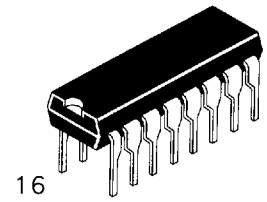
8-Input Multiplexer

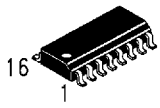
DV74LS151
DV74ALS151

This device is a high speed 8-input Digital Multiplexer which provides the ability to select one bit of data from up to eight sources. This multiplexer can be used as a universal function generator of any logic function of four variables. Both assertion and negation outputs are provided.

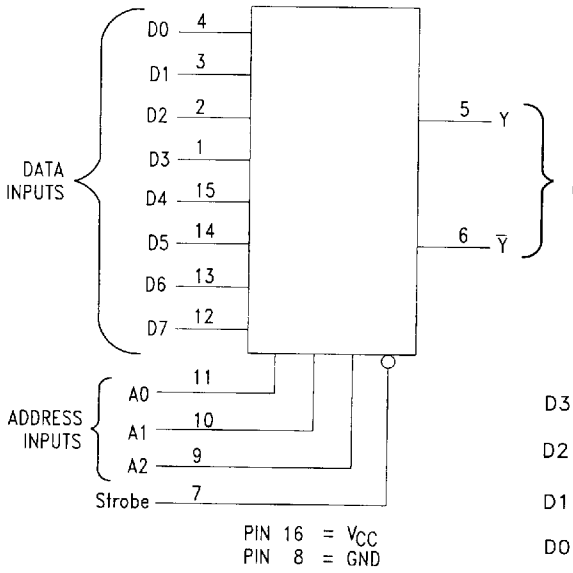
- **AVG's LS operates over extended Vcc from 4.5 to 5.5 V**
- **AVG's LS and ALS both have guaranteed DC and AC specification over full temperature and Vcc range**
- **Switching specifications for ALS at 50 pF**
- **AVG's ALS has the lowest speed power product (4pJ per gate typical) of all logic series**



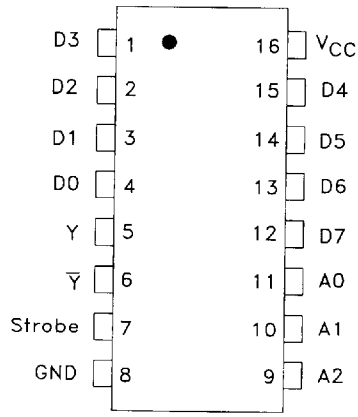
N Suffix
Plastic DIP
AVG-003 Case



D Suffix
Plastic SOP
AVG-004 Case



PIN ASSIGNMENT



TRUTH TABLE

Inputs				Outputs	
Select			Strobe		
A2	A1	A0		Y	$\overline{Y}$
X	X	X	H	L	H
L	L	L	L	D0	$\overline{D0}$
L	L	H	L	D1	$\overline{D1}$
L	H	L	L	D2	$\overline{D2}$
L	H	H	L	D3	$\overline{D3}$
H	L	L	L	D4	$\overline{D4}$
H	L	H	L	D5	$\overline{D5}$
H	H	L	L	D6	$\overline{D6}$
H	H	H	L	D7	$\overline{D7}$

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

ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	LS151	ALS151	Unit
V_{CC}	Supply Voltage	7.0	7.0	V
V_{IN}	Input Voltage	−0.5 to +7	7.0	V
T_{STG}	Storage Temperature Range	−65 to +150	−65 to +150	°C

GUARANTEED OPERATING CONDITIONS

Symbol	Parameter	LS151		ALS151		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		–0.4		–2.6	mA
I_{OL}	Low Level Output Current		8.0		24.0	mA
T_A	Ambient Temperature Range	–10 to +70		–10 to +70		°C

DC ELECTRICAL CHARACTERISTICS over full operating range

Symbol	Parameter	Conditions	LS151			ALS151			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}= max	Vcc-2	3.5		Vcc-2			V
V_{OL}	Low Level Output Voltage (V_{IN}=V_{IL} or V_{IH} per truth table)	V_{CC}=min; I_{OL} =4.0mA		0.25	0.4		0.25	0.4	V
		V_{CC}=min; I_{OL} =8.0 mA		0.35	0.5		0.35	0.5	V
I_{IH}	High Level Input Current	V_{CC}=max, V_{IH}=2.7V			20			20	µA
		V_{CC}=max, V_{IH}= 7			0.1			0.1	mA
I_{IL}	Low Level Input Current	V_{CC}=max, V_{IN}=0.4V			–0.4			–0.1	mA
I_O	Short Circuit Current	V_{CC}=max, V_O=2.25 V	–20		–110	–30		–112	mA
I_{CC}	Supply Current	V_{CC}=max			10		7.5	12	mA

SWITCHING CHARACTERISTICS over full operating range

Symbol	Parameter	LS151 C_L=15pF		ALS151 C_L= 50 pF R_L= 500Ω		Unit
		Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation Delay Address to Y		43 30	4 8	18 24	ns
t_{PLH} t_{PHL}	Propagation Delay From Any D to Output Y		42 32	3 5	10 15	ns
t_{PLH} t_{PHL}	Propagation Delay From Strobe to Output Y		32 26	4 4	18 19	ns

SWITCHING WAVEFORMS