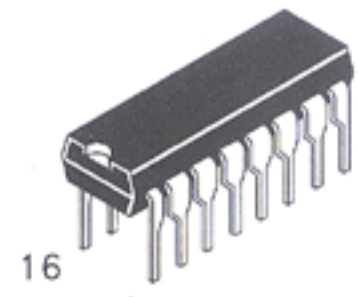
DV74LS153
DV74ALS153

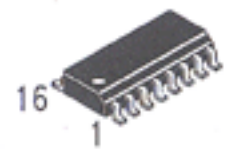
Dual 4-Input Multiplexer with Buffered Outputs

This high speed dual four-input multiplexer contains common select inputs and individual enable inputs for each section. It can select two bits of data from four sources. The two buffered outputs present data in the true (non-inverted) form. In addition to multiplexer operation, this device can generate any two functions of three variables.

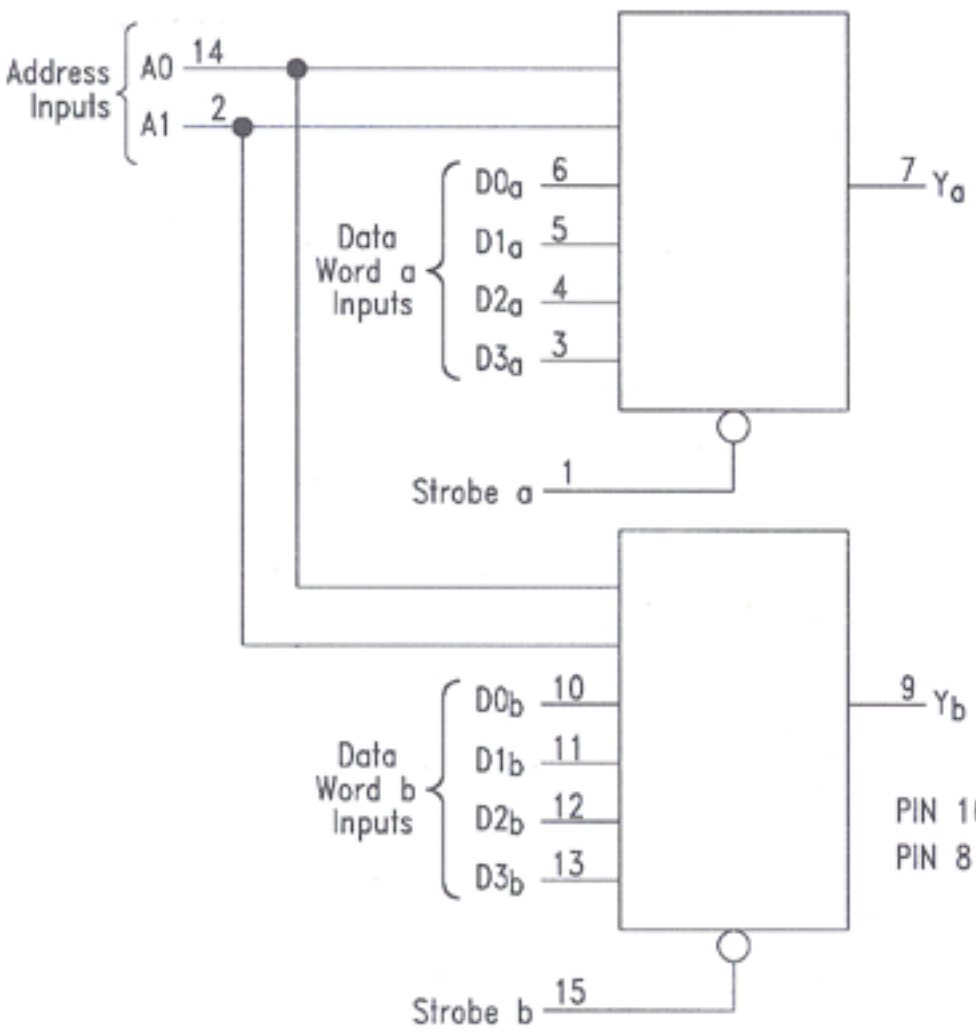
- **AVG's LS operates over extended Vcc from 4.5 to 5.5 V**
- **AVG's LS and ALS both have guaranteed DC and AC specification over full temperature and Vcc range**
- **Switching specifications for ALS at 50 pF**
- **AVG's ALS has the lowest speed power product (4pJ per gate typical) of all logic series**



N Suffix
Plastic DIP
AVG-003 Case

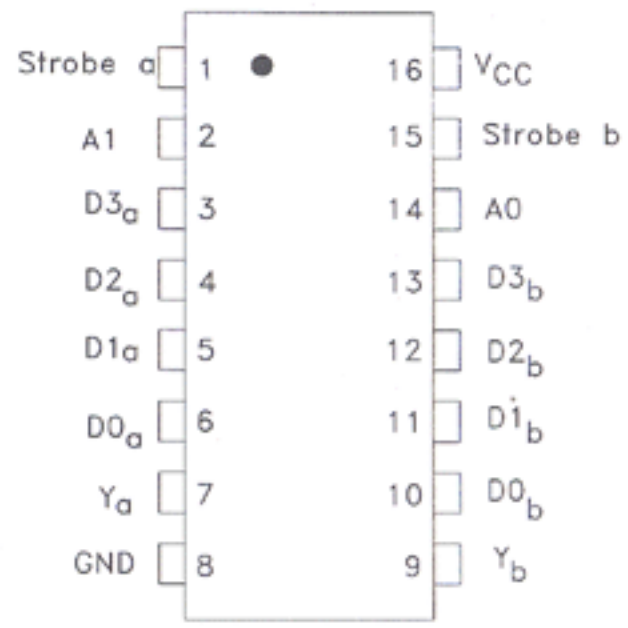


D Suffix
Plastic SOP
AVG-004 Case



Inputs							Output
Address		Data				Strobe	
A1	A0	DO	D1	D2	D3		Y
X	X	X	X	X	X	H	L
L	L	L	X	X	X	L	L
L	L	H	X	X	X	L	H
L	H	X	L	X	X	L	L
L	H	X	H	X	X	L	H
H	L	X	X	L	X	L	L
H	L	X	X	H	X	L	H
H	H	X	X	X	L	L	L
H	H	X	X	X	H	L	H

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	LS153	ALS153	Unit
V_{CC}	Supply Voltage	7.0	7.0	V
V_{IN}	Input Voltage	–0.5 to +7.0	7.0	V
T_{STG}	Storage Temperature Range	–65 to +150	–65 to +150	°C

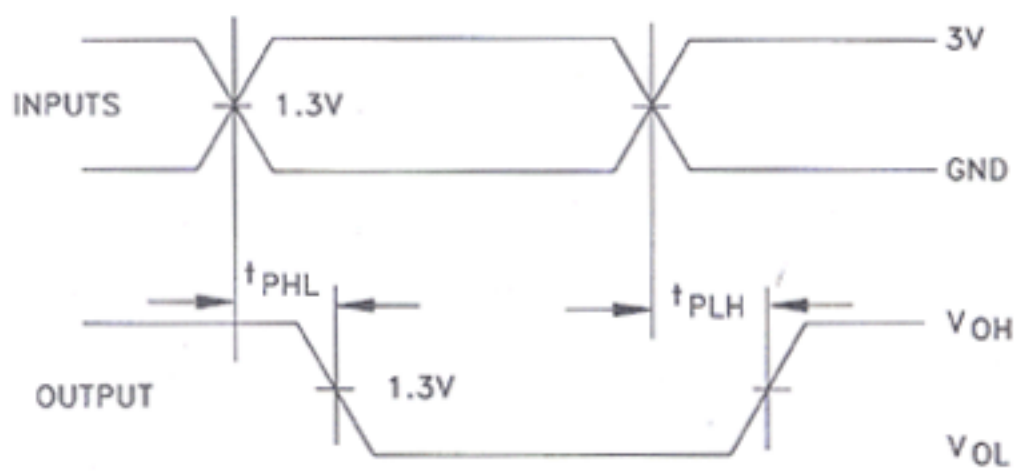
GUARANTEED OPERATING CONDITIONS

Symbol	Parameter	LS153		ALS153		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	mA
T_A	Ambient Temperature Range	–10 to +70		–10 to +70		°C

DC ELECTRICAL CHARACTERISTICS over full operating conditions

Symbol	Parameter	Conditions	LS153			ALS153			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_{CC}=min; I_{OL} =4.0mA		0.25	0.4				V
		V_{CC}=min; I_{OL} =8.0 mA		0.35	0.5				V
		V_{CC}=min; I_{OL} =12mA					0.25	0.4	V
		V_{CC}=min; I_{OL} =24 mA					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	VCC=max, V_O=2.25 V	-20		-110	–30		–112	mA
I_{CC}	Supply Current	V_{CC}=max			10		7.5	14	mA

SWITCHING CHARACTERISTICS over full operating range

Symbol	Parameter	LS153 C_L=15pF		ALS153 C_L= 50 pF R_L= 500Ω		Unit
		Min	Max	Min	Max	
t_{PLH}	Propagation Delay		29	5	21	ns
t_{PHL}	From Address (A_0 or A_1) to Output Y		38	5	21	
t_{PLH}	Propagation Delay		15	3	10	ns
t_{PHL}	From Data to Output Y		26	4	15	
t_{PLH}	Propagation Delay		24	5	18	ns
t_{PHL}	From Strobe to Output Y		32	5	18	

SWITCHING WAVEFORMS