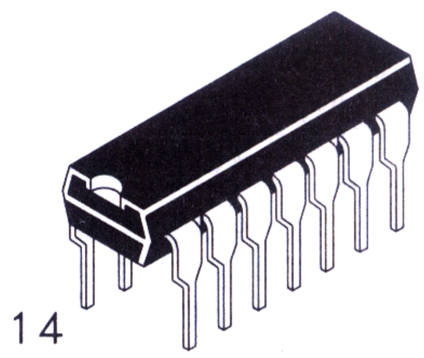
QUAD 2-INPUT AND GATE

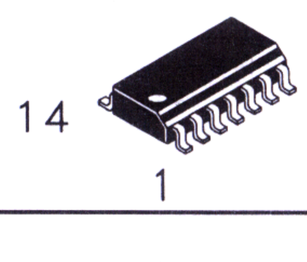
DV74LS08
DV74ALS08

This device contains four indpendent 2-input AND gates.

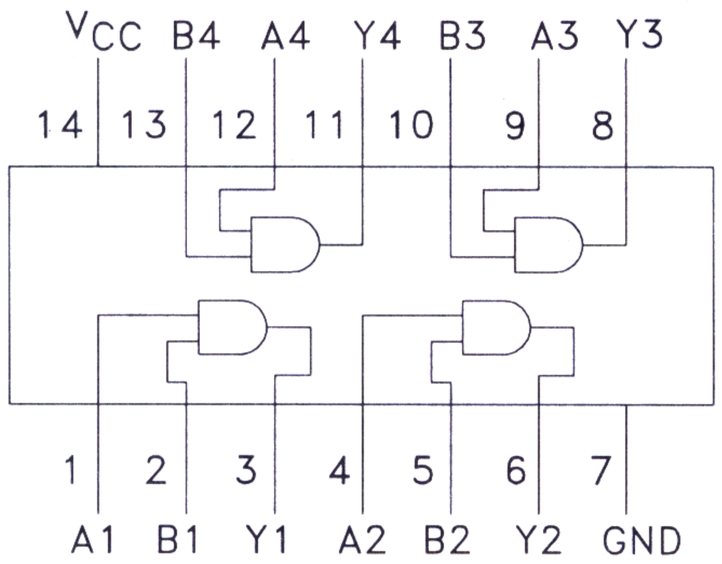
- **AVG's LS operates over extended Vcc from 4.5 to 5.5 V**
- **AVG's LS and ALS both have guaranteed DC and AC specification over full temperature and Vcc range**
- **Switching specifications for ALS at 50 pF**
- **AVG's ALS has the lowest speed power product (4pJ per gate typical) of all logic series**



N Suffix
Plastic DIP
AVG-001 Case



D Suffix
Plastic SOP
AVG-002 Case



TRUTH TABLE

Y = AB

Inputs		Outputs
A	**B**	**Y**
H	H	H
L	X	L
X	L	L

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	LS08	ALS08	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

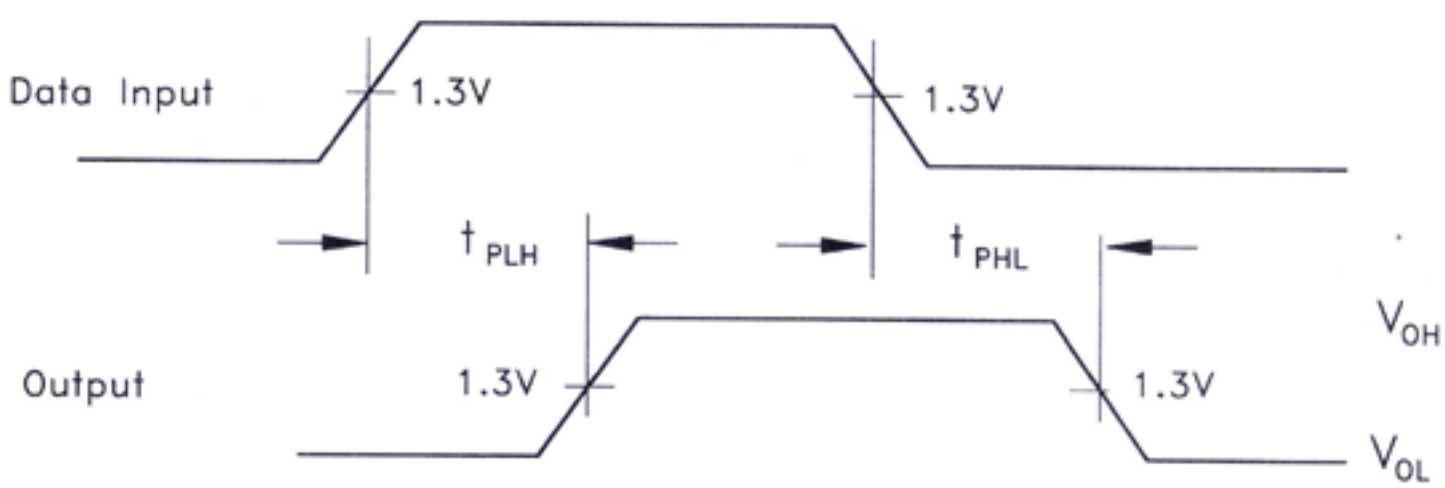
Symbol	Parameter	LS08		ALS08		Unit
		Min	Max	Min	Max	
V_{CC}	Supply Voltage	4.5	5.5	4.5	5.5	V
V_{IH}	High Level Input Voltage	2.0		2 .0		V
V_{IL}	Low Level Input Voltage		0.8		0.8	V
I_{OH}	High Level Output Current		–0.4		–0.4	mA
I_{OL}	Low Level Output Current		8.0		8.0	mA
T_A	Ambient Temperature Range	–10 to +70		–10 to + 70		°C

08

DC ELECTRICAL CHARACTERISTICS over full operating conditions

Symbol	Parameter	Conditions	LS08			ALS08			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 V_{CC}=min;I_{OL}= 4 mA V_{CC}=min; I_{OL}=8 mA		 0.25 0.35	 0.4 0.5		 0.25 0.35	 0.4 0.5	 V V
I_{IH}	High Level Input Current	V_{CC}=max, V_{IN}= 2.7V			20			20	µA
		V_{CC}=max, V_{IN}= 7V			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	Output Short Circuit Current	V_{CC}=max, V_{OUT}=2.25V	−20		−110	−30		−112	mA
I_{CC}	Supply Current Outputs High Outputs Low	V_{CC}=max			 4.8 8.8		 1.3 2.2	 2.4 4.0	mA

SWITCHING CHARACTERISTICS over full operating conditions

Symbol	Parameter	From	To	LS08 CL=15 pF		ALS08 CL=50pF RL = 500Ω		Unit
				Min	Max	Min	Max	
t_{PLH}	Propagation Delay Time, Low to High Level Output	Input	Output		15	4	14	ns
t_{PHL}	Propagation Delay Time, High to Low Level Output	Input	Output		20	3	10	ns

SWITCHING WAVEFORMS