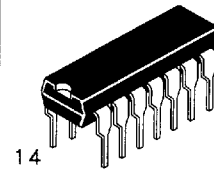


QUAD 2-INPUT NAND GATE with Open Collector Outputs

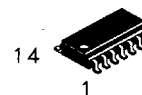
This device contains four independent 2-input NAND gates. Open collector outputs require external pull-up resistors for proper logical operation.

- 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

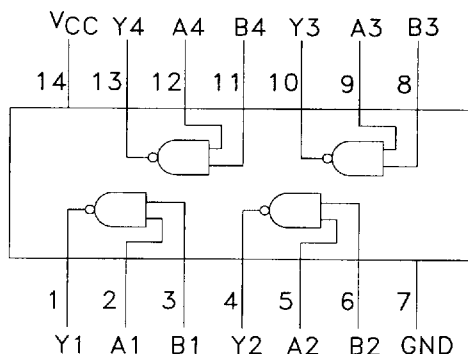
DV74LS01 DV74ALS01



N Suffix
Plastic DIP
AVG-001 Case



D Suffix
Plastic SOP
AVG-002 Case



TRUTH TABLE

$$Y = \overline{AB}$$

Inputs		Outputs
A	B	Y
L	X	H
X	L	H
H	H	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	LS01	ALS01	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	LS01		ALS01		Unit
		Min	Max	Min	Max	
V _{CC}	Supply Voltage	4.5	5.5	4.5	5.5	V
V _{OH}	High Level Output Voltage		5.5		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 _{OL}	Low Level Output Current		8.0		8	mA
T _A	Ambient Temperature Range	-10 to +70		-10 to + 70		°C

DC ELECTRICAL CHARACTERISTICS over full operating conditions

Symbol	Parameter	Conditions	LS01			ALS01			Unit
			Min	Typ	Max	Min	Typ	Max	
V_{IK}	Input Clamp Voltage	$V_{CC} = \min, I_{IN} = -18 \text{ mA}$			-1.5			-1.5	V
V_{OL}	Low Level Output Voltage	$V_{CC} = \min$							
		$V_{CC} = \min; I_{OL} = 4 \text{ mA}$		0.25	0.4		0.25	0.4	V
		$V_{CC} = \min; I_{OL} = 8 \text{ mA}$		0.35	0.5		0.35	0.5	V
I_{OH}	High Level Output Current	$V_{CC} = \min, V_{OH}, \max$			100			100	μA
I_{IH}	High Level Input Current	$V_{CC} = \max, V_{IN} = 2.7 \text{ V}$			20			20	μA
		$V_{IN} = 7.0 \text{ V}$			0.1			0.1	mA
I_{IL}	Low Level Input Current	$V_{CC} = \max, V_{IN} = 0.4 \text{ V}$			-0.4			-0.1	mA
I_{CC}	Supply Current, Outputs High	$V_{CC} = \max$			1.6		0.43	0.85	mA
					4.4		1.62	3.0	

SWITCHING CHARACTERISTICS over full operating conditions

Symbol	Parameter	From	To	LS01 $CL = 15 \text{ pF}$, $RL = 2 \text{ K}\Omega$		ALS01 $CL = 50 \text{ pF}$, $RL = 2 \text{ K}\Omega$		Unit
				Min	Max	Min	Max	
t_{PLH}	Propagation Delay Time, Low to High Level Output	Input	Output		32	23	54	ns
t_{PHL}	Propagation Delay Time, High to Low Level Output	Input	Output		28	8	28	ns

SWITCHING WAVEFORMS