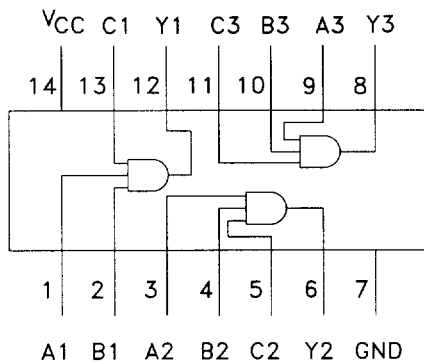
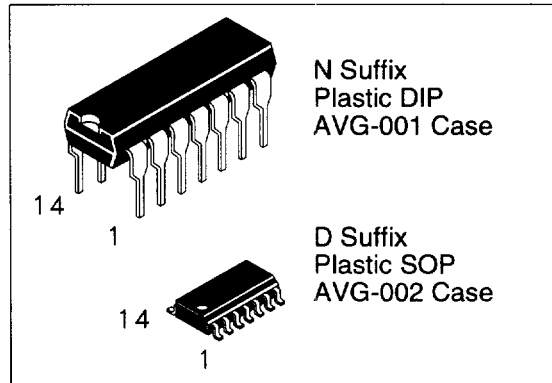


Triple 3-Input NAND Gate with Open Collector Outputs

This device contains three independent gates, each of which performs the logic AND function. The 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

DV74LS15 DV74ALS15A



TRUTH TABLE

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

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

ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	LS15	ALS15A	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	LS15		ALS15A		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}	High Level Input Voltage		0.8		0.8	V
I _{OL}	Low Level Output Current		8.0		8.0	mA
T _A	Ambient Temperature Range	-10 to +70		-10 to +70		°C

DC ELECTRICAL CHARACTERISTICS over full operating conditions

Symbol	Parameter	Conditions	LS15			ALS15A			Unit
			Min	Typ	Max	Min	Typ	Max	
V_{IK}	Input Clamp Voltage	$V_{CC} = \text{min}, I_{IN} = -18 \text{ mA}$			-1.5			-1.5	V
V_{OL}	Low Level Output Voltage	$V_{CC}=\text{min}; I_{OL} =4 \text{ mA}$ $V_{CC}=\text{min}; I_{OL} =8 \text{ mA}$		0.25 0.35	0.4 0.5		0.25 0.35	0.4 0.5	V
I_{OH}	High Level Output Current	$V_{CC}=\text{min}, V_{OH}=\text{max}$			-0.1			-0.1	mA
I_{IH}	High Level Input Current	$V_{CC}=\text{max}, V_{IN}= 2.7\text{V}$ $V_{CC}=\text{max}, V_{IN}= 7\text{V}$			20 0.1			20 0.1	μA mA
					0.1			0.1	mA
I_{IL}	Low Level Input Current	$V_{CC}=\text{max}, V_{IN}=0.4\text{V}$			-0.4			-0.1	mA
I_{CC}	Supply Current Outputs High Outputs Low	$V_{CC}=\text{max}$			3.6		1.0	1.8	mA
					6.6		1.66	3.0	mA

SWITCHING CHARACTERISTICS over full operating conditions

Symbol	Parameter	LS15 $C_L=15\text{pF}$ $R_L=2.0\text{k}\Omega$		ALS15A $C_L= 50 \text{ pF}$ $R_L= 2.0\text{k}\Omega$		Unit
		Min	Max	Min	Max	
t_{PLH}	Turn Off Delay, Input to Output		35	20	45	ns
t_{PHL}	Turn On Delay, Input to Output		35	6	20	ns

SWITCHING WAVEFORMS

