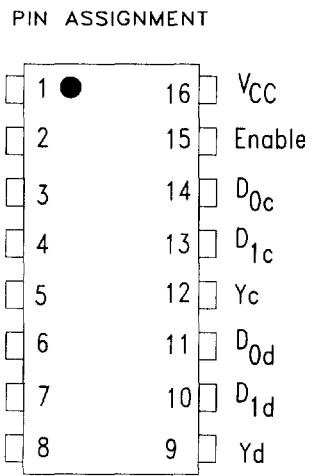
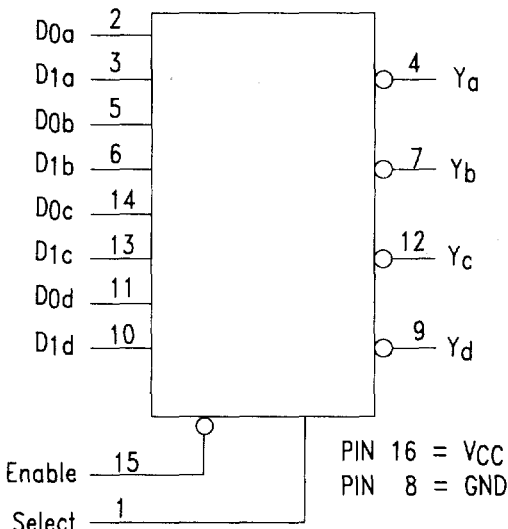
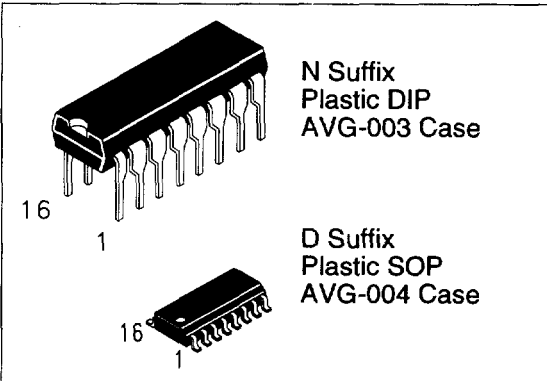


Quad 1 of 2 Line Data Selector/Multiplexer

This high speed Quad two-input Multiplexer selects four bits of data from two sources using the common Select and Enable inputs. The four buffered outputs present the selected input in the inverted form.

- 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

DV74LS158 DV74ALS158



TRUTH TABLE

Inputs				Output
Data		Select	Enable	
D ₀	D ₁	S	\bar{E}	\bar{Y}
X	X	X	H	H
L	X	L	L	H
H	X	L	L	L
X	L	H	L	H
X	H	H	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	LS158	ALS158	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	LS158		ALS158		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

DC ELECTRICAL CHARACTERISTICS over full operating conditions

Symbol	Parameter	Conditions	LS158			ALS158			Units
			Min	Typ	Max	Min	Typ	Max	
V_{IK}	Input Clamp Voltage	$V_{CC} = \text{min}, I_{IN} = -18 \text{ mA}$			-1.5			-1.2	V
V_{OH}	High Level Output Voltage	$V_{CC} = \text{min}, I_{OH} = \text{max}$	$V_{CC} - 2$	3.5		$V_{CC} - 2$			V
V_{OL}	Low Level Output Voltage	$V_{CC} = \text{min}; I_{OL} = 4.0 \text{ mA}$		0.25	0.4		0.25	0.4	V
		$V_{CC} = \text{min}; I_{OL} = 8.0 \text{ mA}$		0.35	0.5		0.35	0.5	V
I_{IH}	High Level Input Current	$V_{CC} = \text{max}, V_{IN} = 2.7 \text{ V}, \text{Data } \overline{\text{E}}, \text{S}$			20 40			20	μA
		$V_{CC} = \text{max}, V_{IN} = 7 \text{ V}, \text{Data } \overline{\text{E}}, \text{S}$			0.1 0.2			0.1 0.2	mA
I_{IL}	Low Level Input Current	$V_{CC} = \text{max}, V_{IN} = 0.4 \text{ V}, \text{Data } \overline{\text{E}}, \text{S}$			-0.4 -0.8			-0.1 -0.2	mA
I_{OS}	Short Circuit Current	$V_{CC} = \text{max}, V_O = 2.25 \text{ V}$	-20		-110	-30		-112	mA
I_{CC}	Supply Current	$V_{CC} = \text{max}$			8.0		5	10	mA

SWITCHING CHARACTERISTICS

Symbol	Parameter	LS158 $C_L = 15 \text{ pF}$		ALS158 $C_L = 50 \text{ pF}$ $R_L = 500 \Omega$		Unit
		Min	Max	Min	Max	
t_{PLH}	Propagation Delay From Select to Output Y		20	5	18	ns
t_{PHL}			24	5	18	
t_{PLH}	Propagation Delay From Data to Output Y		12	4	8	ns
t_{PHL}			15	2	8	
t_{PLH}	Propagation Delay From Enable to Output Y		17	5	18	ns
t_{PHL}			24	5	18	

SWITCHING WAVEFORMS