AVG Semiconductors

DDi™

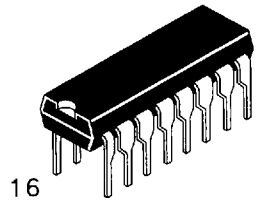
Technical Data

Quad 2-Input Multiplexer with Storage

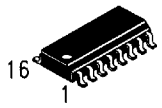
DV74LS298
DV74ALS298

This device is the equivalent of a Quad 2-Input Multiplexer followed by a Quad 4-Bit Edge Triggered Register. It provides a common select input between two data sources and requires a negative going clock transition for data latching

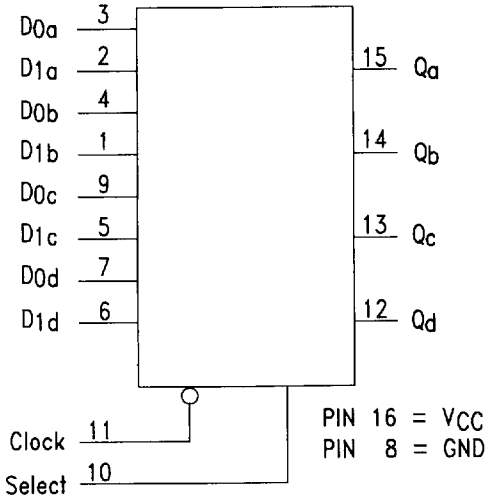
- **AVG's LS operates over extended Vcc from 4.5 to 5.5 V**
- **AVG's LS and ALS both have guaranteed DC and AC specification over full temperature and Vcc range**
- **Switching specifications for ALS at 50 pF**
- **AVG's ALS has the lowest speed power product (4pJ per gate typical) of all logic series**



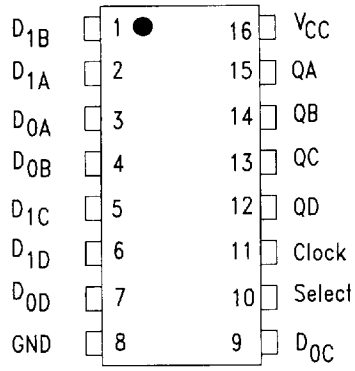
N Suffix
Plastic DIP
Case
AVG-003 Case



D Suffix
Plastic SOP
Case
AVG-004 Case



PIN ASSIGNMENT



TRUTH TABLE

INPUTS			OUTPUT
S	D_0	D_1	Q
l	l	X	L
l	h	X	H
h	X	l	L
h	X	h	H

L=LOW Voltage Level
H=HIGH Voltage Level
X=Don't Care
l=LOW Voltage Level one setup prior to the HIGH to LOW clock transition
h=HIGH Voltage Level one setup prior to the HIGH to LOW clock transition
* Select HIGH selects D1's and must be set up prior to ↓.

ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	LS298	ALS298	Unit
V_{CC}	Supply Voltage	7.0	7.0	V
V_{IN}	Input Voltage	–0.5 to +7.0	–0.5 to +7.0	V
T_{STG}	Storage Temperature Range	–65 to +150	–65 to +150	°C

RECOMMENDED OPERATING CONDITIONS over full range

Symbol	Parameter	LS298		ALS298		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_{OL}	Low Level Output Current		8.0		8.0	mA
I_{OH}	High Level Output Current		–0.4		–0.4	mA
T_A	Ambient Temperature Range	–10 to +70		–10 to +70		°C

DC ELECTRICAL CHARACTERISTICS over ambient temperature range

Symbol	Parameter	Conditions	LS298			ALS298			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	V_{CC}-2	3.5		V_{CC}-2	3.5		V
V_{OL}	Low Level Output Voltage	V_{CC}=min; I_{OL} =4.0mA		0.25	0.4		0.25	0.4	V
		V_{CC}=min; I_{OL} =8.0 mA		0.35	0.5		0.35	0.5	V
I_{IH}	High Level Input Current	V_{CC}=max, V_{IH}=2.7V			20			20	µA
	High Level Input Current	V_{CC}=max, V_{IH}= 7.0V			0.1			0.1	mA
I_{IL}	Low Level Input Current	V_{CC}=max, V_{IN}=0.4V			−0.4			−0.4	mA
I_{OS}	Short Circuit Current	V_{CC}=max, V_O=2.25V	−20		−110	−30		−100	mA
I_{CC}	Supply Current	V_{CC}=max			21			24	mA

SWITCHING CHARACTERISTICS

Symbol	Parameter	LS298 C_L=15pF		ALS298 C_L=50pF		Unit
		Min	Max	Min	Max	
t_{PLH}	Propagation Delay, Clock to Output		27		22	ns
t_{PHL}			32		24	

AC SETUP REQUIREMENTS

Symbol	Parameter	LS298		ALS298		Unit
		Min	Max	Min	Max	
t_w	Pulse Width	20		16		ns
ts	Data Setup Time	15		12		ns
ts	Select Setup Time	25		20		ns
th	Data Hold Time	5.0		5		ns
th	Select Hold Time	0		0		ns

SWITCHING WAVEFORMS