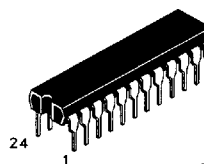


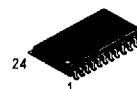
Dual 4-Bit D-Type Edge-Triggered Flip-Flops with Three-State Output

These devices are designed specifically for driving highly-capacitive or relatively low-impedance loads. The high-impedance state and increased high-logic level drive provide these flip-flops with the capability of being connected directly to and driving the bus lines in a bus-organized system without need for interface or pull-up components. They are particularly useful in implementing buffer registers, I/O ports, bi-directional bus drivers, and working registers. The edge-triggered flip-flops enter data on the low-to-high transition of the clock (CP).

DV74ALS874B

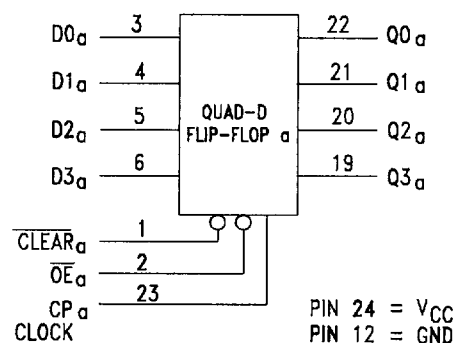


N Suffix
Plastic DIP
AVG-011 Case

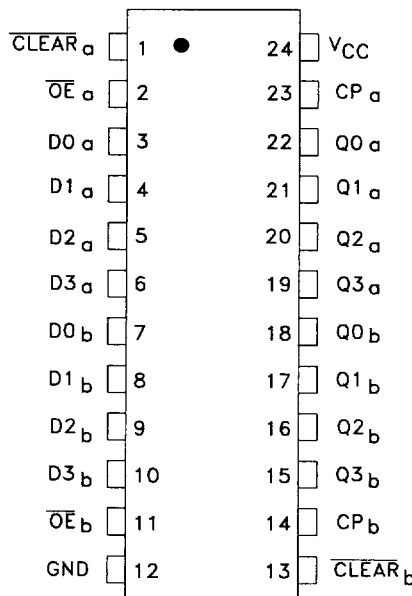


DW Suffix
Plastic SOP
AVG-012 Case

- AVG's LS operates over extended V_{CC} from 4.5 to 5.5 V
- AVG's LS and ALS both have guaranteed DC and AC specification over full temperature and V_{CC} 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



PIN ASSIGNMENT



FUNCTION TABLE				
CLR	D	CP (Clock)	OE	Output Q
X	X	X	H	Z
L	X	X	L	L
H	H	↑	L	L
H	L	L	L	Q ₀

H=High Level Logic
L=Low Level Logic
X=Don't Care
↑=Positive Edge Transition
Q₀= Previous Condition of Q
Z=High Impedance

ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	ALS874B	Unit
V_{CC}	Supply Voltage	+7.0	V
V_{IN}	Input Voltage	-0.5 to +7.0	V
V_{OUT}	Voltage Applied to Disabled Output	5.5	V
T_{STG}	Storage Temperature Range	-65 to +150	°C

GUARANTEED OPERATING CONDITIONS

Symbol	Parameter	ALS874B		Unit
		Min	Max	
V _{CC}	Supply Voltage	4.5	5.5	V
V _{IH}	High Level Input Voltage	2.0		V
V _{IL}	Low Level Input Voltage		0.8	V
I _{OH}	High Level Output Current		-2.6	mA
I _{OL}	Low Level Output Current		24	mA
T _A	Ambient Temperature Range	-10 to + 70		°C

DC ELECTRICAL CHARACTERISTICS over full operating conditions

Symbol	Parameter	Condition	ALS874B			Unit
			Min	Typ	Max	
V _{IK}	Input Clamp Voltage	V _{CC} = 4.5V, I _{IN} =-18 mA			-1.2	V
V _{OH}	High Output Voltage	V _{CC} =4.5V, V _{IL} =V _{IH} , I _{OH} =Max	2.4	3.2		V
V _{OL}	Low Output Voltage, V _{CC} =4.5 V	I _{OL} =12mA		0.25	0.4	V
		I _{OL} =24mA		0.35	0.5	V
I _{IN}	Input Current	V _{CC} = 5.5V, V _{IN} =7.0V			0.1	mA
I _{IH}	High Input Current	V _{CC} =5.5V, V _{IN} = 2.7V			20	μA
I _{IL}	Low I Input Current	V _{CC} =5.5V, V _{IN} =0.4V			-0.2	mA
I _O	Output Short Circuit Current	V _{CC} =5.5V, V _O = 2.25V	-30		-112	mA
I _{OZH}	High Impedance Output Current	V _{CC} =max, V _O = 2.7V			20	μA
I _{OZL}	High Impedance Output Current	V _{CC} =max, V _{IN} = 2V V _O = 0.4V			-20	μA
I _{CC}	Supply Current	V _{CC} =5.5V (Outputs Disabled)		20	32	mA

SWITCHING CHARACTERISTICS over full operating conditions

Symbol	Parameter	ALS874B C _L = 50pF, R _L =500Ω		Unit
		Min	Max	
f _{max}	Maximum Clock Frequency	30		MHz
t _{PLH} t _{PHL}	Propogation Delay Time, From Clock to Any Q	4	14	ns
		4	14	
t _{PZH} t _{PZL}	Output Enable Time From OE to Any Q	4	18	ns
		4	18	
t _{PHZ} t _{PLZ}	Output Disable Time From OE to Any Q	2	10	ns
		3	12	
t _{PHL}	Propogation Delay Time , From Clear to Any Q	5	17	ns
t _w	Pulse Duration CLR low Clock high, low	10		ns
		16.5		
t _{su}	Setup time, data before Clock ↑ Data CLR inactive	15		ns
		10		
t _h	Hold time, data after Clock ↑	0		ns
t _{rec}	Clock Recovery Time after Clear Inactive	10		ns

SWITCHING WAVEFORMS over full operating conditions

