

Available Q2, 1995

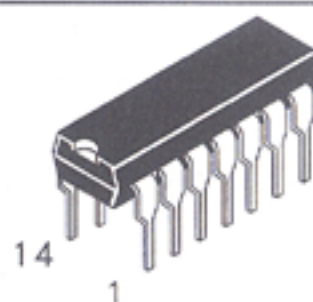
Quad Analog Switch/ Quad Multiplexer

The DV4066B consists of four independent switches capable of controlling either digital or analog signals. Input voltage swings as large as full supply voltage can be controlled via each independent control input.

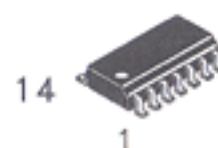
This device finds use in signal gating, chopper, modulator, demodulator and CMOS logic implementation.

- Operating Voltage Range = 3.0 Vdc to 18 Vdc
- All Outputs Buffered
- Diode Protection on All Inputs
- Highest Noise Immunity at 12V supply

DV4066B



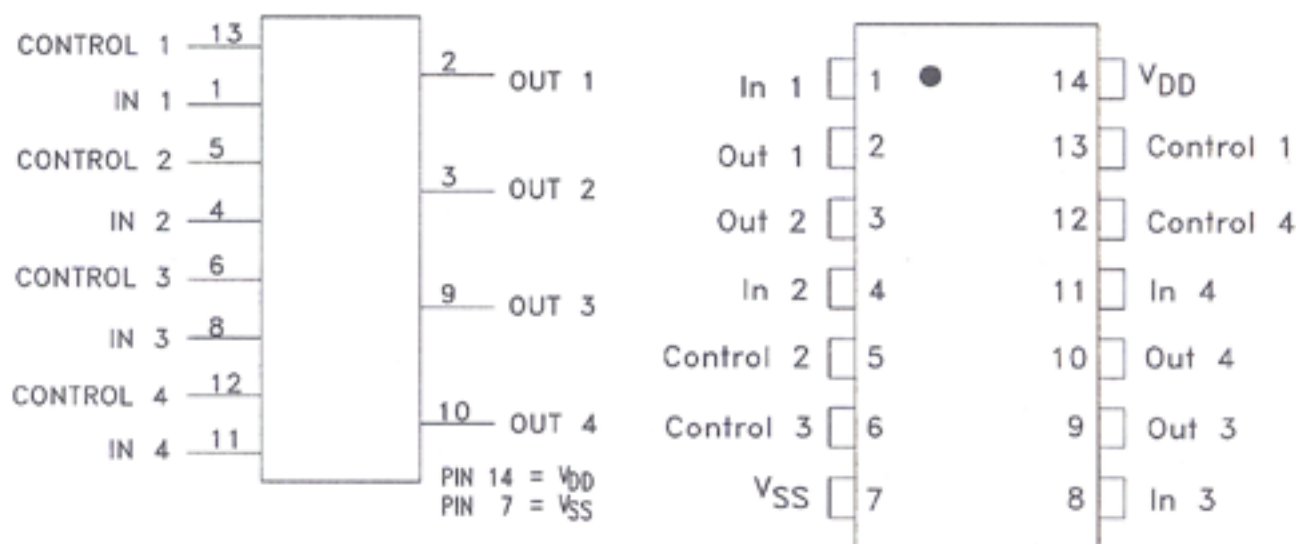
N Suffix
Plastic DIP
AVG-001 Case



D Suffix
Plastic SOP
AVG-002 Case

4066B

PIN ASSIGNMENT



TRUTH TABLE

CONTROL	SWITCH
0	OFF
1	ON

ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	Value	Unit
V_{DD}	DC Supply Voltage (Referenced to V_{EE} , $V_{SS} \geq V_{EE}$)	-0.5 to 18.0	V
V_{IN} , V_{OUT}	Input or Output Voltage (DC or Transient) (Referenced to V_{SS} for Control Inputs and V_{EE} for Switch I/O)	-0.5 to $V_{DD} + 0.5$	V
I_{IN}	Input Current (DC or Transient), per Control Pin	± 10	mA
I_{SW}	Current Through Switch	± 25	mA
P_D	Power Dissipation in Still Air, Per Package Derating: 12mW/°C from 65°C to 85°C	500	mW
T_{STG}	Storage Temperature Range	-65 to +150	°C
TL	Lead Temperature, 8 Second Soldering	260	°C

ELECTRICAL CHARACTERISTICS

Sym- bol	Parameter	Conditions	V _{DD}	Guaranteed Limits							Unit
				-40°C		25°C			85°C		
				Min	Max	Min	Typ	Max	Min	Max	
Supply Requirements (Voltages referenced to V _{SS})											
V _{DD}	Power Supply Voltage Range	V _{DD} -3.0≥V _{SS} ≥V _{EE}	-	3.0	18	3.0	-	18	3.0	18	V
I _{DD}	Quiescent Current, Per Package	Control Inputs: V _{IN} =V _{SS} or V _{DD} Switch I/O: V _{SS} ≤V _{I/O} ≤V _{DD} , and ΔV _{Switch} ≤500mV*	5.0 10 15	- - -	1 2 4	- - -	0.005 .010 .015	1 2 4	- - -	7.5 15 30	μA
Control Inputs (Voltages referenced to V _{SS})											
V _{IL}	Low - Level Input Voltage	R _{ON} =Per Spec I _{OFF} =Per Spec	5.0 10 15	- - -	1.5 3.0 4.0	- - -	2.25 4.50 6.75	1.5 3.0 4.0	- - -	1.5 3.0 4.0	V
V _{IH}	High - Level Input Voltage	R _{ON} =Per Spec I _{OFF} =Per Spec	5.0 10 15	3.5 7.0 11	- - -	3.5 7.0 11	2.75 5.50 8.25	- - -	3.5 7.0 11	- - -	V
I _{IN}	Input Leakage Current	V _{IN} = 0 or V _{DD}	15		±0.3	-	±0.00001	±0.3	-	±1.0	μA
C _{IN}	Input Capacitance		-	-	-	-	5.0	7.5	-	-	pF
Switches IN/OUT (Voltages Referenced to V _{SS})											
V _{I/O}	Recommended Peak-to-Peak Voltage Into or Out of the Switch	Channel On or Off	-	0	V _{DD}	0	-	V _{DD}	0	V _{DD}	V _{PP}
ΔV _{Switch}	Recommended Static or Dynamic Voltage Across the Switch*	Channel On	-	0	600	0	-	600	0	300	mV
V _{OO}	Output Offset Voltage	V _{IN} =0V, No Load	-	-	-	-	10	-	-	-	μV
R _{ON}	On Resistance	ΔV _{Switch} ≤500mV* V _{IN} =V _{IL} or V _{IH} (Control), V _{IN} =0 to V _{DD} (Switch)	5.0 10 15	- - -	880 450 250	- - -	250 120 80	1050 500 280	- - -	1200 520 300	Ω
ΔR _{ON}	Δ On Resistance Any two Channels in the same package		5.0 10 15	- - -	70 50 45	- - -	25 10 10	70 50 45	- - -	135 95 65	Ω
I _{OFF}	Off-Channel Leakage Current	V _{IN} =V _{IL} or V _{IH} Channel to Channel or Any One Channel	15	-	±300	-	±0.05	±300	-	±1000	nA
C _{I/O}	Capacitance, Switch I/O	Switch Off	-	-	-	-	10	-	-	-	pF
C _{I/O}	Capacitance, Feedthrough (Channel Off)		-	-	-	-	0.47	-	-	-	pF

* For voltage drops across the switch > 600 mV (>300 mV at high temperature), excessive V_{DD} current may be drawn; i.e. the current out of the switch may contain both V_{DD} and switch input components. The reliability of the device will be unaffected unless the Maximum Ratings are exceeded.

SWITCHING CHARACTERISTICS ($C_L=50\text{pF}$, $T_A=25^\circ\text{C}$)

Symbol	Characteristic	V_{DD}		Typ	Max	Unit
t_{PLH} , t_{PHL}	Propagation Delay Times Input to Output ($R_L = 10\text{k}\Omega$)	5.0 10 15	- - -	20 10 7.0	40 20 15	ns
t_{PHZ} , t_{PLZ}	Control to Output ($R_L = 1\text{k}\Omega$) Output "1" or "0" to High Impedance	5.0 10 15	- - -	40 35 30	80 70 60	ns
t_{PZH} , t_{PZL}	High Impedance to "1" or "0" Level	5.0 10 15	- - -	60 20 15	120 40 30	ns
-	Second Harmonic Distortion $V_{SS}=-5\text{Vdc}$ ($R_L = 10\text{k}\Omega$, $f = 1\text{kHz}$) $V_{IN} = 1.77\text{Vdc}$, RMS Centered @ 0.0Vdc	5.0		0.1	-	%
BW	Bandwidth (Switch ON) $V_{SS}=-5\text{Vdc}$ ($R_L = 1\text{k}\Omega$, $V_{IN} = 5\text{V}_{p-p}$, $C_L = 50\text{pF}$) $20 \text{ Log } V_{OUT}/V_{IN} = -3\text{ dB}$	5.0		65	-	MHz
-	Feedthrough Attenuation (Switch OFF) $V_{SS}=-5\text{Vdc}$ ($R_L = 1\text{k}\Omega$, $V_{IN} = 5\text{V}_{p-p}$, $f_{in} = 1.0\text{MHz}$)	5.0		-50	-	dB
-	Channel Separation ($R_L = 1\text{k}\Omega$, $V_{IN} = 5\text{V}_{p-p}$, $f_{in} = 8.0\text{MHz}$)	5.0		-50	-	dB
-	Crosstalk, Control Input to Signal Output $V_{SS}=-5\text{Vdc}$ ($R_1 = 1\text{k}\Omega$, $R_L = 10\text{k}\Omega$, Control $t_{TLH} = t_{THL} = 20\text{ns}$)	5.0	-	300	-	mV_{p-p}

SWITCHING WAVEFORMS