C-MOS QUAD ANALOG SWITCH

■ GENERAL DESCRIPTION

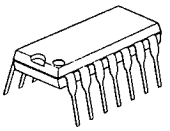
The NJU4066B is a quad bilateral analog switches, which are controlled by independent control signals.

The analog switch is ON during the control signal is "H", and OFF during it is "L".

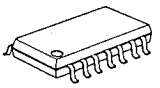
The low on-state resistance and superior transfer characteristics permit input of wide voltage range, consequently it is suitable for analog and digital signal switching, chopper-modulator-demodulator and others.

The NJU4066B is functionally and pin-to-pin compatible with RCA CD4066B and Motorola MC14066B.

■ PACKAGE OUTLINE



NJU4066BD



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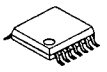

NJU4066BV

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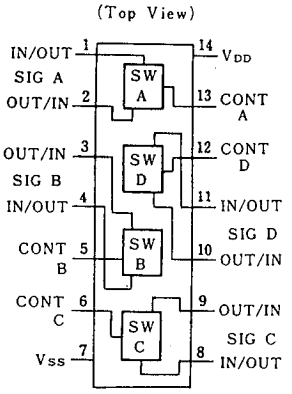
■ FEATURES

- 4 Independent Bilateral Analog Switches
- Low On-state Resistance
- Package Outline -- DIP/DMP/SSOP 14
- C-MOS Technology

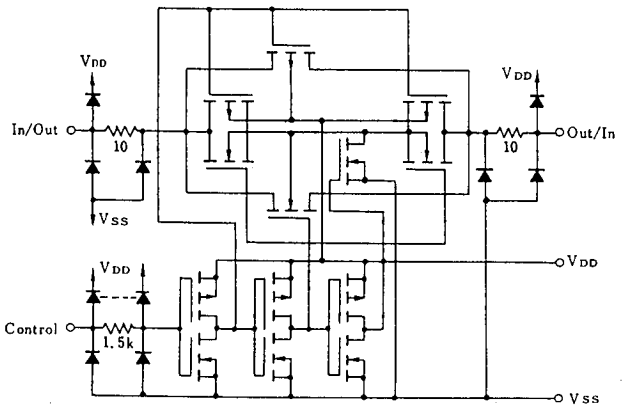
■ PIN CONFIGURATION



■ TERMINAL DESCRIPTION

NO.	SYMBOL	FUNCTION
13,5,6,12	A,B,C,D	Control Inputs
1,2,3,4 8,9,10,11	IN/OUT (OUT/IN)	Signal Input/Output (Output/Input)
14	V_{DD}	Power Supply
7	V_{SS}	Ground

■ EQUIVALENT CIRCUIT



■ TRUTH TABLE

Control Signal	Switch
V_{DD} (1)	ON
V_{SS} (0)	OFF

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{DD}	- 0.5 ～ +20	V
Input Voltage	V_{IN}	- 0.5 ～ V_{DD}+0.5 *	V
Output Voltage	V_O	- 0.5 ～ V_{DD}+0.5 *	V
Input Current	I_{IN}	± 10	mA
Output Current	I_O	± 10	mA
Power Dissipation	P_D	500 (DIP) 200 (DMP) 300 (SSOP)	mW
		100 (Per Gate)	
Operating Temperature	Topr	- 40 ～ + 85	℃
Storage Temperature	Tstg	- 60 ～ + 150	℃

* V_{DD}+0.5V must be 20V or less.

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■ ELECTRICAL CHARACTERISTICS

・ DC Characteristics

(V_{SS}=0V)

PARAMETER	SYMBOL	CONDITIONS	V_{DD} (V)	Ta=-40℃ MIN	MAX	Ta=25℃ MIN	TYP	MAX	Ta=85℃ MIN	MAX	UNIT
Quiescent Current	I_{DD}	V_{IN}=V_{SS} or V_{DD}	5		0.25			0.25		7.5	μA
			10		0.50			0.50		15	
			15		1.0			1.0		30	
			20		5.0			5.0		150	
Low Level Control Input Voltage	V_{ILC}	Io <1μA, Vo=0.5Vor4.5V	5		1			1		1	V
		Vo=1Vor9V	10		2			2		2	
		Vo=1.5or13.5V	15		2			2		2	
High Level Control Input Voltage	V_{IHC}	Io <1μA, Vo=0.5Vor4.5V	5	3.5		3.5			3.5		V
		Vo=1Vor9V	10	7		7			7		
		Vo=1.5or13.5V	15	11		11			11		
Input Current	I_{IN}	V_{IN}=0 or 18V	18		±0.1			±0.1		±1	μA
Operating Voltage				3	18	3		18	3	18	V
On-State Resistance	R_{ON}	V_{SS}=0V, V_{IS}=V_{SS} to V_{DD}	5		850		300	1050		1200	Ω
			10		330		150	400		500	
			15		210		100	240		300	
Off-Channel Leakage Current		V_{SS}=0V, V_{IS}=V_{DD}, Vo=V_{SS}	18		0.1			0.1		1	μA
SW to SW On-State Resistance Difference	$\triangle R_{ON}$	V_{SS}=0V, V_{IS}=V_{SS} to V_{DD}	5				15				Ω
			10				10				
			15				5				

■ SWITCHING CHARACTERISTICS

(Ta=25℃, V_{SS}=0V)

PARAMETER		SYMBOL	CONDITIONS	V_{DD}(V)	MIN	TYP	MAX	UNIT
Propagation Delay Time	In - Out	t_{PHL}	R_L=10kΩ C_L=50pF V_C=V_{DD}	5		20	40	ns
				10		10	20	
				15		7	15	
	Out - In	t_{PLH}		5		20	40	
				10		10	20	
				15		7	15	
Cut-Off Frequency (ON)			R_L=1kΩ, 20log(V_{OUT}/V_{IN})=-3dB V_C=V_{DD}, V_{IS}=5V_{P-P}, V_{SS}=-5V	5		40		MHz
Propagation Delay Time	Control-Out	t_{PZH}	R_L=10kΩ, C_L=50pF V_{IS}=V_{DD}, R_L→V_{SS}	5		35	70	ns
				10		20	40	
				15		15	30	
	Control-Out	t_{PZL}	R_L=10kΩ, C_L=50pF V_{IS}=V_{SS}, R_L→V_{DD}	5		35	70	ns
				10		20	40	
				15		15	30	
Sine-Wave Distortion			R_L=10kΩ, V_{SS}=-5V V_C=V_{DD}, f=1kHz, V_{is}=5V_{P-P}	5		0.05		%
Crosstalk	SW A to B		R_L=1kΩ, 20log(V_{OUT}/V_{IN})=-50dB V_C=V_{SS}=-5V, V_{IS}=5V_{P-P}, R_{IN}=10kΩ	5		8		MHz
	Control-Out		R_L=1kΩ, V_{SS}=0V V_C=10V_{P-P}	10		50		mV
Feedthrough All Channels Off			R_L=1kΩ, 20log(V_{OUT}/V_{IN})=-50dB V_C=V_{SS}=-5V, V_{IS}=5V_{P-P}	5		1		MHz
Input Capacitance		C_{IN}					7.5	pF

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