

C-MOS QUAD SPST ANALOG SWITCH

■ GENERAL DESCRIPTION

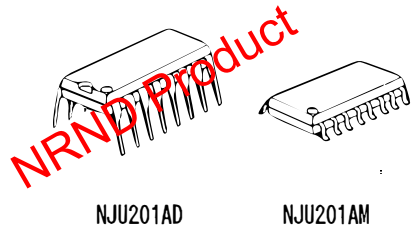
The NJU201A is a quad break-before-make SPST analog switch protected up to 44V operating voltage.

All switches are controlled by TTL or C-MOS compatible input.

The low on-state resistance is about half compare with the NJU7301.

The NJU201A is functionally and pin-to-pin compatible with SILICONIX DG201A.

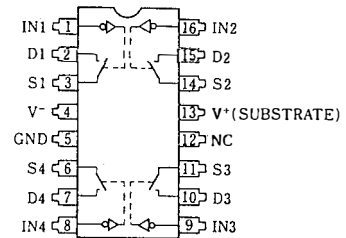
■ PACKAGE OUTLINE



■ FEATURES

- High Break Down Voltage -- 44V
- Low On-state Resistance
- Package Outline -- DIP/DMP 16
- C-MOS Technology

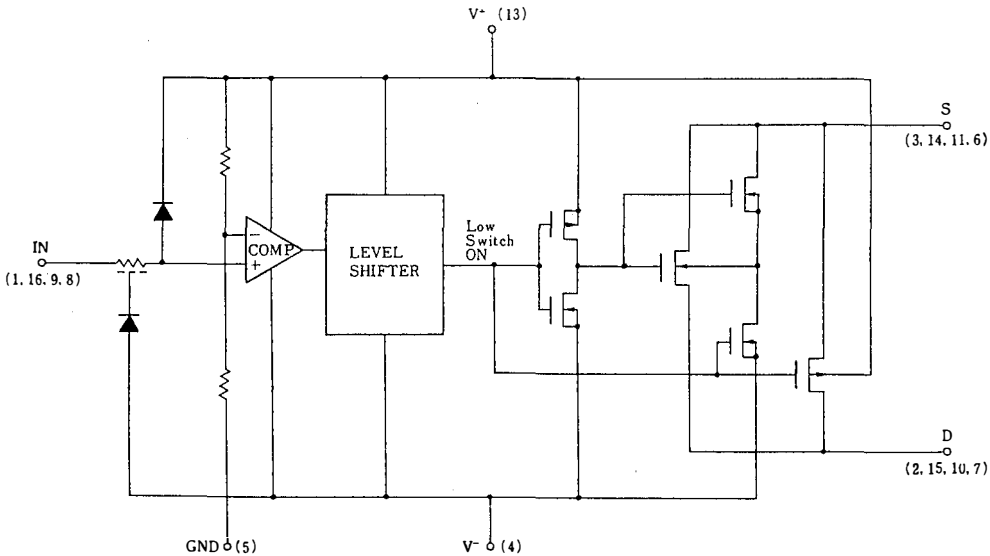
■ PIN CONFIGURATION



■ TRUTH TABLE

Logic (In)	Switch
0	ON
1	OFF

■ EQUIVALENT CIRCUIT



* Logic input threshold voltage V_{TH} is about $V^+ \times 0.128(V)$.
When the designing, enough margin is required.

6

■ TERMINAL DESCRIPTION

No.	SYMBOL	F U N C T I O N	No.	SYMBOL	F U N C T I O N
1	IN1	Control Signal Input	9	IN3	Control Signal Input
2	D1	Input/Output 1	10	D3	Input/Output 3
3	S1		11	S3	
4	V ⁻	Negative (V ⁻) Power Supply	12	NC	Non Connection
5	GND	Ground	13	V ⁺	Positive (V ⁺) Power Supply
6	S4	Input/Output 4	14	S2	Input/Output 2
7	D4		15	D2	
8	IN4	Control Signal Input	16	IN2	Control Signal Input

6

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

P A R A M E T E R	SYMBOL	R A T I N G S	UNIT
Supply Voltage	V ⁺ - V ⁻	44	V
	V ⁺ - GND	19	
	GND - V ⁻	25	
Input Voltage	V _I , V _S , V _D	V ⁻ -0.5 ~ V ⁺ +0.5 *	V
Input Current	I _I	30	mA
	I _S , I _D Continuous	20	
	Peak Value (PW=1ms, Duty0.1)	70	
Power Dissipation	P _D	500 (DIP)/ 200 (DMP)	mW
Operating Temperature Range	T _{opr}	0 ~ + 70	°C
Storage Temperature Range	T _{stg}	- 65 ~ + 125	°C

* V⁺+0.5V must be 44V or less.

■ ELECTRICAL CHARACTERISTICS (DC CHARACTERISTICS)

(V⁺=15V , V⁻=-15V , GND=0V)

PARAMETER	SYMBOL	CONDITIONS	TYP	MAX			UNIT	
			25°C	0°C	25°C	70°C		
Analog Signal Range	V _{ANALOG}		±15		±15	±15	V	
On-state Resistance	R _{ON}	V _{IN} =0.8V V _D =10V	50	100	100	125	Ω	
		I _S =-1mA V _D =-10V	50	100	100	125		
Source-off Leakage Current	I _{S(off)}	V _I =2.4V	V _S =14V, V _D =-14V	0.01		5	100	nA
			V _S =-14V, V _D =14V	-0.02		-5	-100	
Drain-off Leakage Current	I _{D(off)}	V _I =2.4V	V _D =14V, V _S =-14V	0.01		5	100	nA
			V _D =-14V, V _S =14V	-0.02		-5	-100	
Drain-on Leakage Current	I _{D(on)}	V _I =0.8V	V _D =V _S =14V	0.1		5	200	nA
			V _D =V _S =-14V	-0.15		-5	-200	
Input Current	I _{IH}	V _I =2.4V	-0.0004		-1	-10	μA	
		V _I =15V	0.003		1	10		
	I _{IL}	V _I =0V	-0.0004		-1	-10		
Quiescent Current	I ⁺	V _I =0 or 2.4V	0.9		2		mA	
	I ⁻		-0.3		-1			

6

■ SWITCHING CHARACTERISTICS

(V⁺=15V , V⁻=-15V , GND=0V)

PARAMETER	SYMBOL	CONDITIONS	TYP	MAX			UNIT	
			25°C	0°C	25°C	70°C		
Turn-on Time	t _{on}	R _L =1kΩ, C _L =35pF	480		600		ns	
Turn-off Time	t _{off}		370		450			
Charge Injection	Q	C _L =1000pF, V _{GEN} =0V, R _{GEN} =0Ω	20				pC	
Source-Off Capacit.	C _{S(off)}	f=100kHz	5				pF	
Drain-Off Capacit.	C _{D(off)}							V _S =0V, V _I =5V
Channel-On Capacitance	C _{D(on)} +C _{S(on)}							V _D =0V, V _I =5V
Off Isolation	OIRR	V _S =2V _{P-P} , f=100kHz, R _L =75Ω	70				dB	
Channel-to-channel Crosstalk	CCRR		90					

I N
he specificatio s o this databoo are o y
ie for i for atio , ithout a y uara tee
as re ards either ista es or o issio s he
applicatio circuits i this databoo are
described o y to sho represe tati e usa es
of the product a d ot i te ded for the
uara tee or per issio of a y ri ht i cudi
the i dustria ri hts