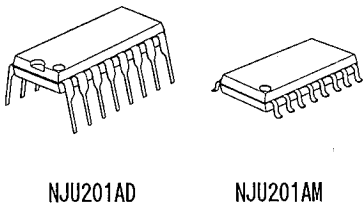


# C-MOS QUAD SPST ANALOG SWITCH

## ■ 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.

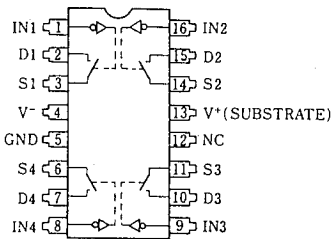
## ■ PACKAGE OUTLINE



## ■ FEATURES

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

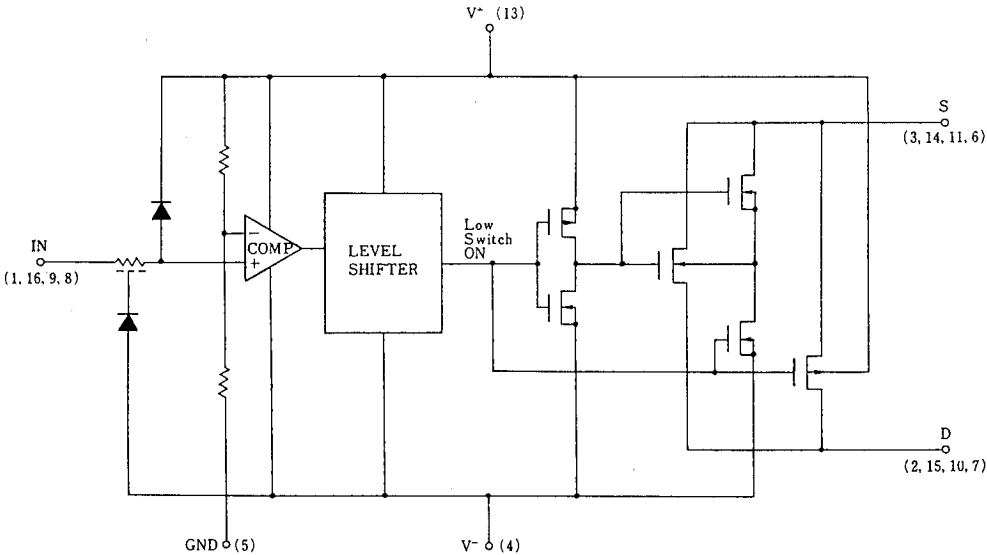
## ■ PIN CONFIGURATION



## ■ 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.

# ■ 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 <sup>-</sup>	Negative (V <sup>-</sup> ) Power Supply	12	NC	Non Connection
5	GND	Ground	13	V <sup>+</sup>	Positive (V <sup>+</sup> ) 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 <sup>+</sup> - V <sup>-</sup>	44	V
	V <sup>+</sup> - GND	19	
	GND - V <sup>-</sup>	25	
Input Voltage	V <sub>I</sub> , V <sub>S</sub> , V <sub>D</sub>	V <sup>-</sup> -0.5 ~ V <sup>+</sup> +0.5 *	V
Input Current	I <sub>I</sub>	30	mA
	I <sub>S</sub> , I <sub>D</sub> Continuous	20	
	Peak Value (PW=1ms, Duty0.1)	70	
Power Dissipation	P <sub>D</sub>	500 (DIP)/ 200 (DMP)	mW
Operating Temperature Range	T <sub>opr</sub>	0 ~ + 70	°C
Storage Temperature Range	T <sub>stg</sub>	- 65 ~ + 125	°C

\* V<sup>+</sup>+0.5V must be 44V or less.

# ELECTRICAL CHARACTERISTICS (DC CHARACTERISTICS)

(  $V^+=15V$  ,  $V^-=-15V$  ,  $GND=0V$  )

P A R A M E T E R	S Y M B O L	C O N D I T I O N S		TYP	M A X				U N I T
				25℃	0℃	25℃	70℃		
Analog Signal Range	V <sub>ANALOG</sub>			±15		±15	±15	V	
On-state Resistance	R <sub>ON</sub>	V <sub>IN</sub> =0.8V I <sub>S</sub> =-1mA	V <sub>D</sub> =10V	50	100	100	125	Ω	
			V <sub>D</sub> =-10V	50	100	100	125		
Source-off Leakage Current	I <sub>S</sub> (off)	V <sub>I</sub> =2.4V	V <sub>S</sub> =14V, V <sub>D</sub> =-14V	0.01		5	100	nA	
			V <sub>S</sub> =-14V, V <sub>D</sub> =14V	-0.02		- 5	-100		
Drain-off Leakage Current	I <sub>D</sub> (off)	V <sub>I</sub> =2.4V	V <sub>D</sub> =14V, V <sub>S</sub> =-14V	0.01		5	100	nA	
			V <sub>D</sub> =-14V, V <sub>S</sub> =14V	-0.02		- 5	-100		
Drain-on Leakage Current	I <sub>D</sub> (on)	V <sub>I</sub> =0.8V	V <sub>D</sub> =V <sub>S</sub> =14V	0.1		5	200	nA	
			V <sub>D</sub> =V <sub>S</sub> =-14V	-0.15		- 5	-200		
Input Current	I <sub>IH</sub>	V <sub>I</sub> =2.4V	-0.0004		- 1	- 10	μA		
		V <sub>I</sub> =15V	0.003		1	10			
	I <sub>IL</sub>	V <sub>I</sub> =0V	-0.0004		- 1	- 10			
Quiescent Current	I <sup>+</sup>	V <sub>I</sub> =0 or 2.4V	0.9		2		mA		
	I <sup>-</sup>		-0.3		- 1				

# 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	$t_{on}$	$R_L=1k\Omega$ , $C_L=35pF$		480		600		ns	
Turn-off Time	$t_{off}$			370		450			
Charge Injection	Q	$C_L=1000pF$ , $V_{GEN}=0V$ , $R_{GEN}=0\Omega$		20				pC	
Source-Off Capacit.	$C_S(off)$	$f=100kHz$	$V_S=0V$ , $V_I=5V$	5				pF	
Drain-Off Capacit.	$C_D(off)$		$V_D=0V$ , $V_I=5V$	5					
Channel-On Capacitance	$C_D(on)$		$V_D=V_S=0V$ , $V_I=0V$	16					
	$+C_S(on)$								
Off Isolation	OIRR	$V_S=2V_{P-P}$ , $f=100kHz$ , $R_L=75\Omega$		70				dB	
Channel-to-channel Crosstalk	CCRR			90					

## MEMO

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