C-MOS QUAD SPST ANALOG SWITCH

■ GENERAL DESCRIPTION

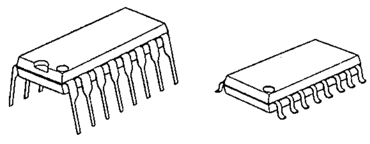
The NJU201A is a quad break-before-make SPST analog switch protected up to 44V operating voltage.

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

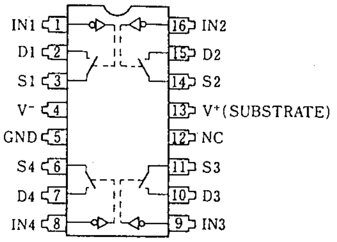


NJU201AD NJU201AM

■ FEATURES

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

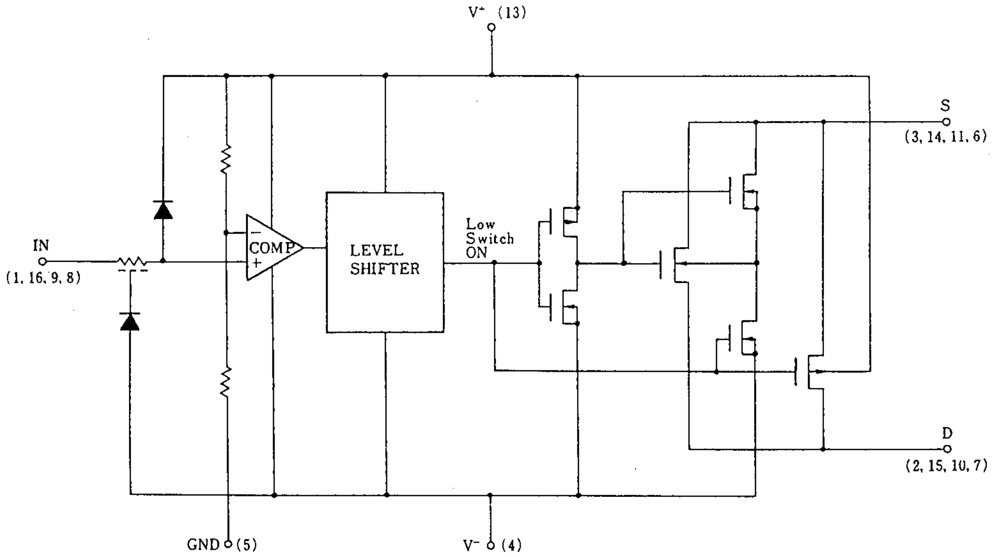
■ PIN CONFIGURATION



■ 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	FUNCTION	No.	SYMBOL	FUNCTION
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

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■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	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	Topr	0 ～ + 70	℃
Storage Temperature Range	Tstg	- 65 ～ + 125	℃

* V^++0.5V must be 44V or less.

■ ELECTRICAL CHARACTERISTICS (DC CHARACTERISTICS)

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

PARAMETER	SYMBOL	CONDITIONS		TYP 25℃	MAX 0℃	MAX 25℃	MAX 70℃	UNIT
Analog Signal Range	V_{ANALOG}			±15		±15	±15	V
On-state Resistance	R_{ON}	V_{IN}=0.8V, I_S=-1mA	V_D=10V	50	100	100	125	Ω
			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		

■ SWITCHING CHARACTERISTICS

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

PARAMETER	SYMBOL	CONDITIONS		TYP 25℃	MAX 0℃	MAX 25℃	MAX 70℃	UNIT
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	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) +C_S(on)		V_D=V_S=0V, V_I=0V	16				
Off Isolation	OIRR	V_S=2V_{P-P}, f=100kHz, R_L=75Ω		70				dB
Channel-to-channel Crosstalk	CCRR			90				

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