# C-MOS QUAD SPST ANALOG SWITCH

■ GENERAL DESCRIPTION

The NJU211 is a quad break-before-make SPST analog switch protected up to 40V operating voltage.
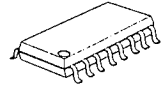
Each switch is controlled by TTL or C-MOS compatible input, and the input threshold level can be adjusted by external voltage supply control.

The NJU211 is functionally and pin-to-pin compatible with SILICONIX DG211A.
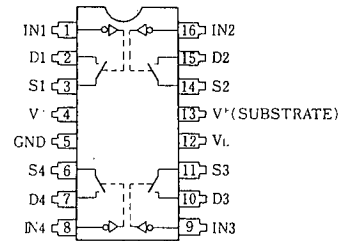
■ PACKAGE OUTLINE
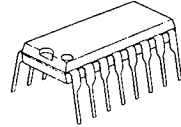
NJU211D   NJU211M

■ FEATURES

- High Break Down Voltage — 40V
- Input Threshold Voltage Adjustable
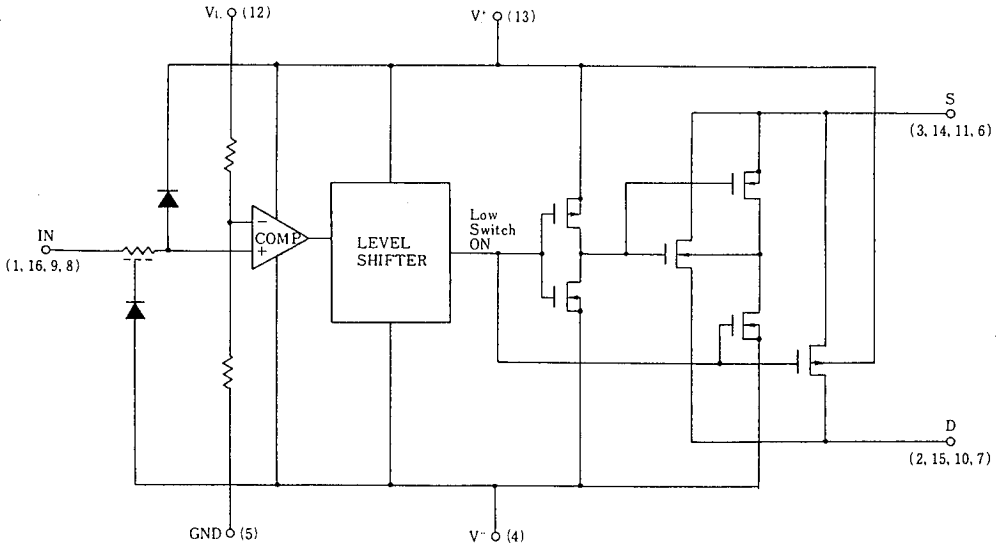- Package Outline   — DIP/DMP 16
- C-MOS Technology

■ PIN CONFIGURATION

IN1	1	16	IN2
D1	2	15	D2
S1	3	14	S2
V⁻	4	13	V⁺(SUBSTRATE)
GND	5	12	V_L
S4	6	11	S3
D4	7	10	D3
IN4	8	9	IN3

■ TRUTH TABLE

Logic (In)	Switch
0	ON
1	OFF

■ EQUIVALENT CIRCUIT

V_L ○ (12)   V⁺ ○ (13)

S
(3, 14, 11, 6)

IN
(1, 16, 9, 8)

COMP

LEVEL SHIFTER

Low Switch ON

D
(2, 15, 10, 7)

GND ○ (5)   V⁻ ○ (4)

* Logic input threshold voltage V_{TH} is about $V_L \times 0.384(V)$.
  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⁻	Negative (V⁻) Power Supply	12	V$_L$	Threshold Level Control Voltage Supply
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

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

P A R A M E T E R	SYMBOL	R A T I N G S	UNIT
Supply Voltage	V⁺ – V⁻	40	V
	V⁺ – GND	19	
	GND – V⁻	25	
Threshold Control Voltage	V$_L$ – GND	$-0.5 \sim$ V⁺+0.5 ＊	
Input Voltage	V$_I$,V$_S$,V$_D$	V⁻$-0.5 \sim$ 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	$0 \sim + 70$	℃
Storage Temperature Range	Tstg	$- 65 \sim + 125$	℃

＊ V⁺+0.5V must be 40V or less.

■ ELECTRICAL CHARACTERISTICS (DC CHARACTERISTICS)

(V^+=15V , V^-=-15V , GND=0V , V_L=5V)

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	105		175		Ω
			V_D=-10V	115		175		
Source-off Leakage Current	I_S(off)	V_I=2.4V	V_S=14V,V_D=-14V	0.01		5		nA
			V_S=-14V,V_D=14V	-0.02		- 5		
Drain-off Leakage Current	I_D(off)	V_I=2.4V	V_D=14V,V_S=-14V	0.01		5		nA
			V_D=-14V,V_S=14V	-0.02		- 5		
Drain-on Leakage Current	I_D(on)	V_I=0.8V	V_D=V_S=14V	0.1		5		nA
			V_D=V_S=-14V	-0.15		- 5		
Input Current	I_{IH}	V_I=2.4V		-0.0004		- 1		μA
		V_I=15V		0.003		1		
	I_{IL}	V_I=0V		-0.0004		- 1		
Quiescent Current	I^+	V_I=0 or 2.4V		0.35		0.68		mA
	I^-			0.30		0.68		
	I_L			0.5		1.2		

■ SWITCHING CHARACTERISTICS

(V^+=15V , V^-=-15V , GND=0V , V_L=5V)

PARAMETER	SYMBOL	CONDITIONS		TYP 25℃	MAX 0℃	MAX 25℃	MAX 70℃	UNIT
Turn-on Time	t_{on}	R_L=1kΩ, C_L=35pF		460		1000		ns
Turn-off Time	t_{off}			360		500		
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}, R_L=75Ω		70				dB
Channel-to-channel Crosstalk	CCRR			90				

NJU211

MEMO

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Analogue Switch ICs *category:*

Click to view products by Nisshinbo *manufacturer:*

Other Similar products are found below :

FSA3051TMX NLAS4684FCTCG NLAS5223BLMNR2G NLX2G66DMUTCG 425541DB 425528R 099044FB NLAS5123MNR2G
PI5A4157CEX NLAS4717EPFCT1G PI5A3167CCEX SLAS3158MNR2G PI5A392AQE PI5A4157ZUEX PI5A3166TAEX FSA634UCX
XS3A1T3157GMX TC4066BP(N,F) DG302BDJ-E3 PI5A100QEX HV2605FG-G HV2301FG-G RS2117YUTQK10 RS2118YUTQK10
RS2227XUTQK10 ADG452BRZ-REEL7 MAX4066ESD+ MAX391CPE+ MAX4730EXT+T MAX314CPE+ BU4066BCFV-E2
MAX313CPE+ BU4S66G2-TR NLASB3157MTR2G TS3A4751PWR NLAST4599DFT2G NLAST4599DTT1G DG300BDJ-E3
DG2503DB-T2-GE1 TC4W53FU(TE12L,F) 74HC2G66DC.125 DG3257DN-T1-GE4 ADG619BRMZ-REEL ADG1611BRUZ-REEL7
DG2535EDQ-T1-GE3 LTC201ACN#PBF 74LV4066DB,118 ISL43410IUZ FSA2275AUMX DIO1500WL12