

ANALOG FUNCTION SWITCH

GENERAL DESCRIPTION

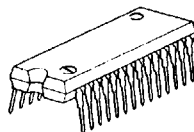
The NJU7311 is a hexad 2-channel and dual 1-channel analog function switch especially suitable for input selector of audio equipments.

The high break down voltage analog switch controlled by 14-bit serial data of logic operating voltage(5V) can ON and OFF of $\pm 15V$ signal.

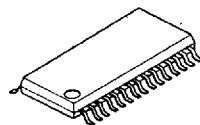
The analog switch is realized superior linearity of on resistance in all voltage range, low distortion and wide dynamic range.

Furthermore, the both of single and dual power supply application provides easy designing.

PACKAGE OUTLINE



NJU7311L

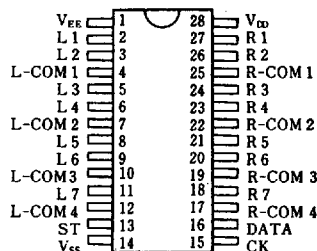


NJU7311M

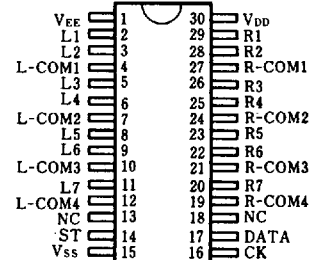
FEATURES

- Analog switch: hexad 2 channel and dual 1 channel.
- High Break Down Voltage $\pm 15V$.
- Low Distortion THD: 0.002% (typ).
- Superior Linearity of ON Resistance.
- Serial Data Control.
- Package Outline SDIP 28 / DMP 30
- C-MOS Technology

PIN CONFIGURATION

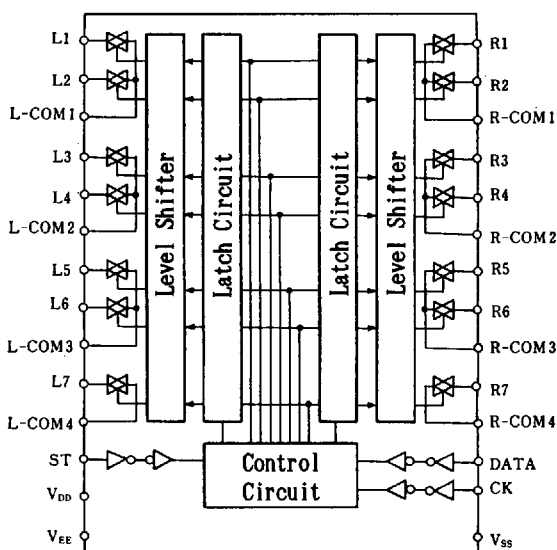


NJU7311L



NJU7311M

BLOCK DIAGRAM



TERMINALS DESCRIPTION

NO.	SYMBOL	F U N C T I O N S	NO.	SYMBOL	F U N C T I O N S
1	V _{EE}	Negative Voltage Supply	15	CK	Clock input
2	L1	Analog switch input/output	16	DATA	Data input
3	L2		17	R-COM4	
4	L-COM1	L1, L2 Common	18	R7	Analog switch input/output
5	L3	Analog switch input/output	19	R-COM3	R5, R6 Common
6	L4		20	R6	
7	L-COM2	L3, L4 Common	21	R5	Analog switch input/output
8	L5	Analog switch input/output	22	R-COM2	R3, R4 Common
9	L6		23	R4	
10	L-COM3	L5, L6 Common	24	R3	Analog switch input/output
11	L7	Analog switch input/output	25	R-COM1	R1, R2 Common
12	L-COM4	L7 Common	26	R2	Analog switch input/output
13	ST	Chip enable	27	R1	
14	VSS	GND	28	VDD	Positive voltage supply

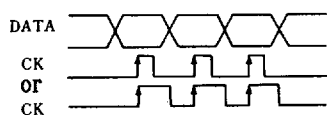
FUNCTIONAL DESCRIPTION

(1) Timing of DATA, CK, ST

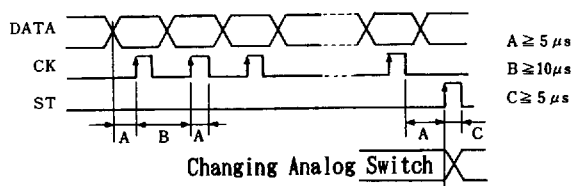
The Serial Input Data is input to internal shift register sequentially synchronized by clock signal rising edge input from CK terminal(100 kHz max.).

The Serial Input Data in the shift register is transferred to latch circuit and renew by synchronized rising edge of Chip enable signal input from ST terminal.

(Timing Chart)

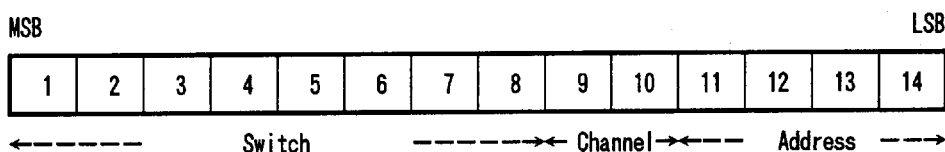


(Detailed Timing)



(2) Data Format

The 14-bit serial data strings format from MSB to LSB are 8-bit analog switch control data, 2-bit right and left channel selection data and 4-bit address data.



ABSOLUTE MAXIMUM RATINGS

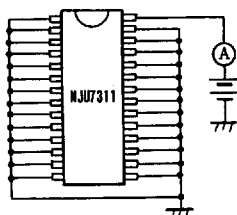
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{DD} - V_{EE}$ $V_{DD} - V_{SS}$ $V_{EE} - V_{SS}$	34 +17 -17	V
Input Voltage	V_{IN}	$V_{SS}-0.3 \sim V_{DD}+0.3$	V
Power Dissipation	P_D	300	mW
Operating Temperature	T_{opr}	$-30 \sim +75$	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	$-40 \sim +125$	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

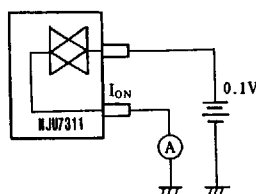
 $(V_{DD}=+16\text{V}, V_{SS}=0\text{V}, V_{EE}=-16\text{V}, T_a=25^{\circ}\text{C})$

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	$V_{DD}-V_{SS}$ $V_{EE}-V_{SS}$		8 -16		16 -8	V
Operating Current	I_{DD}	$V_{DD}=+16\text{V}, V_{EE}=-16\text{V}, V_{SS}=0\text{V}$			3	mA
Back-Up Voltage	V_B		4		16	V
Back-Up Current	I_B	$V_{DD}=+4\text{V}, V_{SS}=V_{EE}=0\text{V}, \text{Circ.1}$			10	μA
High-Level Input Voltage	V_{IH}	CK, DATA, ST Terminals	4		16	V
Low-Level Input Voltage	V_{IL}	CK, CATA, ST Terminals	0		1	V
Min. Operating Pulse Width	t_{MIN}		5			μS
Switch ON Resistance	R_{ON}	Circ.2		100	200	Ω
Total Harmonic Distortion	THD	$f_{IN}=20 \sim 20\text{kHz}, V_{IN}=1\text{V}_{rms}$ Circ.3		0.002	0.005	%

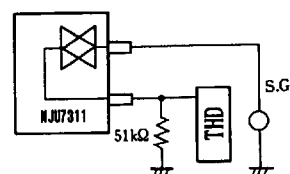
MEASUREMENT CIRCUIT DIAGRAMS



(Circ.1)



(Circ.2)



(Circ.3)