JRC

ANALOG FUNCTION SWITCH

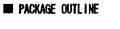
GENERAL DESCRIPTION

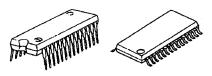
The NJU7312A is a quad 3-channel and dual 2-channel analog function switch, especially suitable for input selector of audio equipments.

The high break down voltage analog switch controlled by 14-bit serial data based on 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.





NJU7312AL

PIN CONFIGURATION

NJU7312AM

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FEATURES

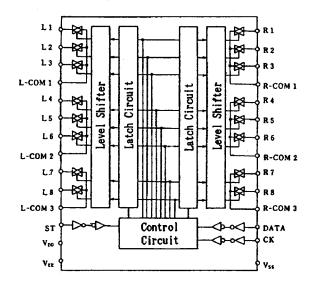
Analog switch: quad 3 channel and dual 2 channel. • - ±15V.

-

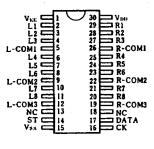
- High Break Down Voltage
- THD: 0.002% (typ). Low Distortion
- Superior Linearity of ON Resistance.
- Serial Data Control.
- Package Outline SDIP 28 / SDMP30
- C-MOS Technology ۲

V L L L L L S -CO' 28 27 26 25 25 23 22 21 20 19 18 17 ⇒ V... ⇒ R 1 ⊃ R 2 R 3 R-COM 1 R4 R5 JR6 JR7 JR7 JR8 DATA DATA CK L-COM 3 ľ ST Vss 16 15

BLOCK DIAGRAM



NJU7312AL



NJU7312AN

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TERMINALS DESCRIPTION

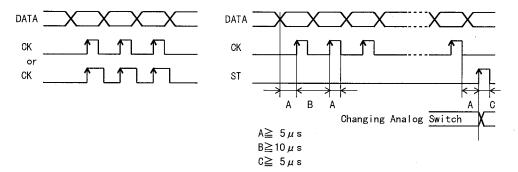
No.		OVMDOL		No.					
DIP	DMP	SYMBOL	FUNCTIONS	DIP	DMP	SYMBOL	FUNCTIONS		
1	1	VEE	Negative Voltage Supply	15	16	CK	Clock input		
2	2	L1	Analog switch input/output	16	17	DATA	Data input		
3	3	L.2		17	19	R-COM3	R7, L8 Common		
4	4	L3		18	20	R8	Analog switch input/output		
5	5	L-COM1	L1, L2, L3 Common	19	21	R7			
6	6	L4	Analog switch input/output	20	22	R-COM2	R4, R5, R6 Common		
7	7	L5		21	23	R6	Analog switch input/output		
8	8	L6		22	24	R5			
9	9	L-COM2	L4, L5, L6 Common	23	25	R4			
10	10	L7	Analog switch input/output	24	26	R-COM1	R1, R2, R3 Common		
11	11	L8		25	27	R3	Analog switch input/output		
12	12	L-COM3	L7, L8 Common	26	28	R2			
13	14	ST	Chip enable	27	29	R1			
14	15	Vss	GND	28	30	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.

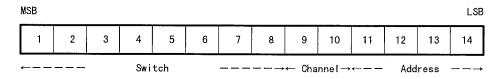
(Detailed Timing)



(2) Data Format

6-20-

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.



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(Switch) Bit1 ~ bit8 select the analog switch ON and OFF

0: switch off 1: switch on

(Channel) Bit9 and 10 select the channel.

bit9	bit10	CHANNEL
1	1	L and R
1	0	R only
0	1	L only

(Address)

Bit11 to 14 select the address. This address select is used for chip selection when this LSI is connected to the common bus line.

Type No.	bit11	bit12	bit13	<u>bit14</u>	
NJU7311A	0	0	0	0	
NJU7312A	1	0	0	0	
NJU7313A	0	1	0	0	

(3) Supply Voltage

The power supply of NJU7312A is divided into two portions of analog switch part and control part. The analog switch part operate by dual power supply (+ and -) and control part is operated by single power supply (+) only.

The analog switch part can be also operated by single power supply. In this case, the supply voltage should be half of dual supply operation mode.

Furthermore , the CK , DATA and ST terminals realize direct interface with 5V operated family

because of its input threshold level is adjusted.

Dual Power Supply (+ and -)

+15 V VDD VDD DATA CK л ST \sim ____ V 55 V_{SS} NJU7312A NJU7312A VEE VEE -15V -∽-ST-СК- \sim DATA-

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Single Power Supply (+)

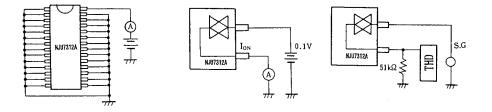


ME ABSOLUTE MAXIMUM RATINGS (Ta=25℃) PARAMETER UNIT SYMBOL RATINGS $\begin{array}{c} V_{\rm DD} & - & V_{\rm EE} \\ V_{\rm DD} & - & V_{\rm SS} \\ V_{\rm EE} & - & V_{\rm SS} \end{array}$ 34 +17 -17 Supply Voltage ۷ Input Voltage VIN $V_{ss}-0.3 \sim V_{DD}+0.3$ ۷ $P_{\rm D}$ 300 Power Dissipation m₩ -30 ~ +75 °C **Operating Temperature** Topr -40 ~ +125 °C Storage Temperature Tstg

ELECTRICAL CHARACTERISTICS

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

LOTATORE ORANAOTENTOTIOO			01, 100	VI, ILL	101, 14	20 0
PARAMETER	SYMBOL	CONDITIONS	MIN	ТҮР	MAX	UNIT
Operating Voltage	V _{DD} -V _{SS} V _{EE} -V _{SS}		-16		16 -8	۷
Operating Current	DD	V_{DD} =+16V, V_{EE} =-16V, V_{SS} =0V			3	mA
Back-Up Voltage	Vв		4		16	۷
Back-Up Current	lв	V _{DD} =+4V, V _{SS} =V _{EE} =0V, Circ.1			10	μA
High-Level Input Voltage	VIH	CK, DATA, ST Terminals	4		16	۷
Low-Level Input Voltage	VIL	CK, CATA, ST Terminals	0		1	۷
Min. Operating Pulse Width	tMIN		5			μS
Switch ON Resistance	Ron	Circ.2		100	200	Ω
Total Harmonic Distortion	THD	f _{1N} =20~20kHz,V _{1N} =1V _{rms} Circ.3		0.002	0.005	%



(Circ.1)







MEMO

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PI5A100QEX DG9233EDY-GE3 NLAS4684FCTCG NLAS5223BLMNR2G NLV74HC4066ADR2G MC74HC4067ADTG NCN2612BMTTWG NLX2G66DMUTCG NS5A4684SMNTAG 732480R 733995E 425541DB 425528R 099044FB FSA221UMX MAX4888ETI+T NLAS5123MNR2G NLAS7222AMTR2G MAX14807ECB+ MAX4968ECM+ PI5A4157CEX NLV14066BDG LC78615E-01US-H PI5A4599BCEX PI5A3157BZUEX NLAS4717EPFCT1G PI5A3167CCEX MAX4744ELB+T MAX4802ACXZ+ SLAS3158MNR2G PI5A392AQE MAX4744HELB+T PI5A4157ZUEX MC74HC4067ADTR2G PI5A4158ZAEX PI5A3166TAEX MAX4901EBL+T MAX14510EEVB+T PI3A3899ZTEX MAX4996ETG+T MAX4889AETO+T MAX14508EEVB+T MAX4701ETE+T MAX4996LETG+T NLX2G66FCTAG TMUX136RSER HV2605FG-G ISL43141IRZ DG302BDJ-E3 ADG741BKSZ-REEL