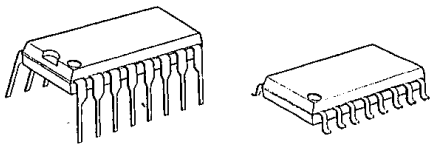
3-INPUT/2-INPUT VIDEO SWITCH

■ GENERAL DESCRIPTION

The NJM2513 is a switching IC for switching over from one audio or video input signal to another. Internalizing 3 input-1 output, and 2 input-1 output and then each set can be operated independently. Side of 2 input-1 output are "Clamp type", and they can be operated while setting DC level fixed in position of the video signal. It is a higher efficiency video switch, featuring the operating voltage 4.75 to 13V, the frequency feature 10MHz, and then the Crosstalk 75dB (at 4.43MHz).

■ PACKAGE OUTLINE



NJM2513D NJM2513M

■ FEATURES

- Operating Voltage (+4.75V~+13V)
- 3 Input-1 Output/2 Input-1 output
- Crosstalk 75dB(at 4.43MHz)
- Wide Bandwidth Frequency 10MHz($2V_{P-P}$ Input)
- Package Outline DIP16, DMP16
- Bipolar Technology

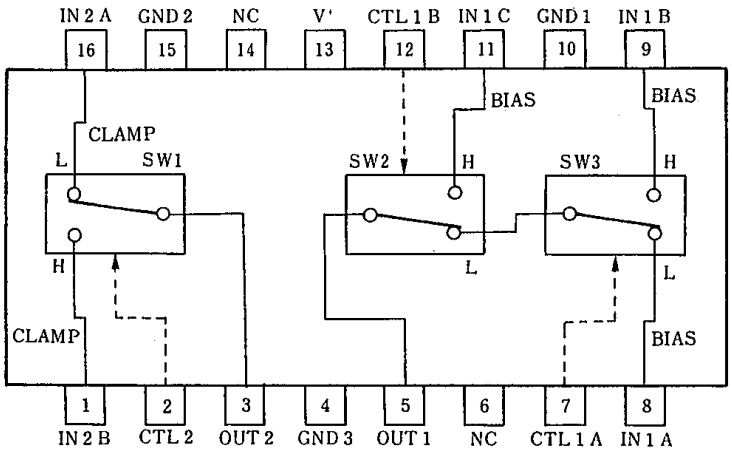
■ RECOMMENDED OPERATING CONDITION

● Operating Voltage	V^+	4.75~13.0V

■ APPLICATIONS

- VCR, Video Camera, AV-TV, Video Disk Player.

■ BLOCK DIAGRAM



NJM2513D
NJM2513M

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■ MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	14	V
Power Dissipation	P_D	(DIP16) 700	mW
		(DMP16) 350	mW
Operating Temperature Range	T_{opr}	−40～+85	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

■ ELECTRICAL CHARACTERISTICS

(V^+=5V, Ta=25℃)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current (1)	I_{CC1}	V^+=5V (Note1)	6.7	9.7	12.7	mA
Operating Current (2)	I_{CC2}	V^+=9V (Note1)	8.6	12.3	16.0	mA
Voltage Gain	G_V	V_I =100kHz, $2V_{P-P}$, V_O/V_I	−0.6	−0.1	+0.4	dB
Frequency Gain	G_F	V_I =$2V_{P-P}$, V_O(10MHz)/V_O(100kHz)	−1.0	0	+1.0	dB
Differential Gain	DG	V_I =$2V_{P-P}$, Standerd Staircase Signal	—	0.3	—	%
Differential Phasa	DP	V_I =$2V_{P-P}$, Standerd Staircase Signal	—	0.3	—	deg
OutPut offset Voltage (1)	V_{OS1}	(Note2)	−15	0	+15	mV
OutPut offset Voltage (2)	V_{OS2}	(Note3)	−25	0	+25	mV
Crosstalk	CT	V_I =$2V_{P-P}$, 4.43MHz, V_O/V_I	—	−75	—	dB
Switch Change Over Voltage	V_{CH}	All inside Switches ON	2.5	—	—	V
Switch Change Over Voltage	V_{CL}	All inside Switches OFF	—	—	1.0	V

(Note1) S1=S2=S3=S4=S5=S6=S7=1

(Note2) S1=S2=S3=S4=S5=1, S8=2, S7=1, S6=1→2 Measure the output DC voltage difference

(Note3) S1=S2=S3=S4=S5=1, S8=1, S7=1, S6=1→2 (S6=1, S7=1→2) Measure the output DC voltage difference

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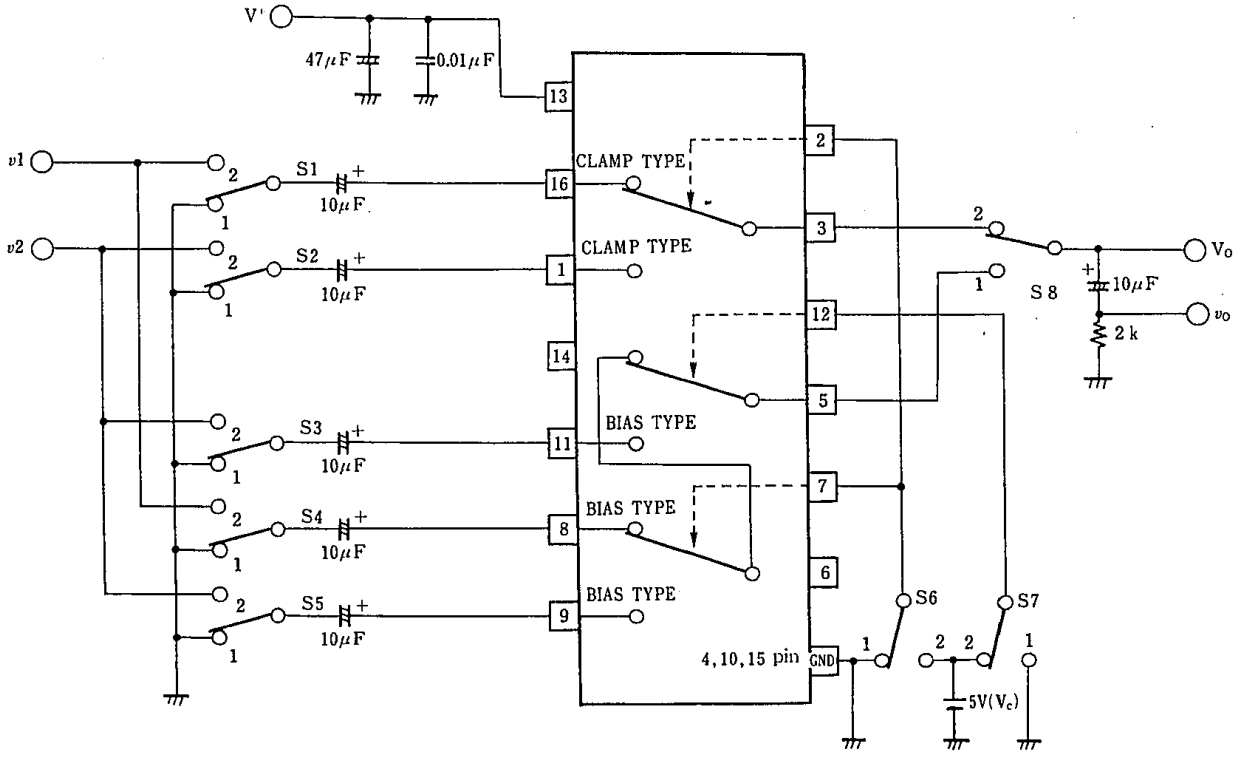
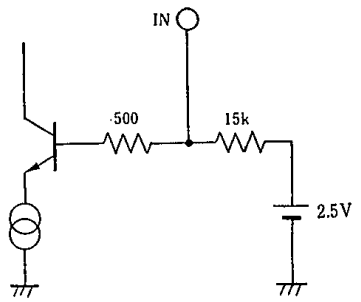
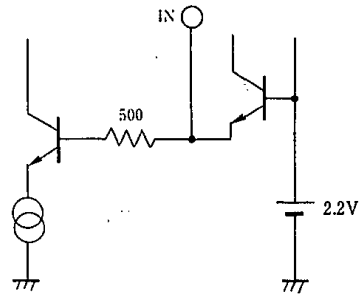
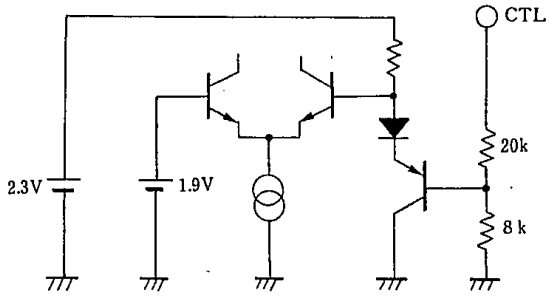
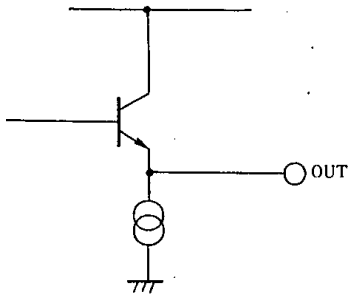
■ TEST CIRCUIT



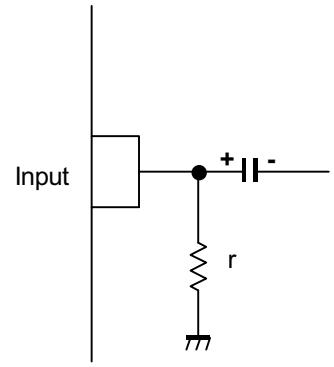
This IC requires 1MΩ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.

■ TERMINAL EXPLANATION

PIN NO.	PIN NAME	VOLTAGE	INSIDE EQUIVALENT CIRCUIT
8 9 11	IN 1 A IN 1 B IN 1 C (Input)	2.5V $\left(\frac{1}{2}V^+\right)$	
16 1	IN 2 A IN 2 B (Input)	1.5V $\left(\frac{3}{10}V^+\right)$	
7 12 2	CTL 1 A CTL 1 B CTL 2 (Switching)		
5	OUT 1 (Output)	1.8V $\left(\frac{1}{2}V^+-0.7\right)$	
3	OUT 2 (Output)	0.8V $\left(\frac{3}{10}V^+-0.7\right)$	
13	V^+	5 V	
15 4 10	GND 1 GND 2 GND 3		

■APPLICATION

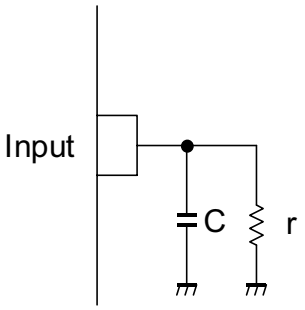
This IC requires 1MΩ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



C ≅ 10uF

r ≅ 1MΩ

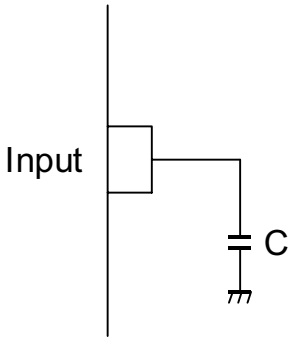
This IC requires 0.1uF capacitor between INPUT and GND, 1MΩ resistance between INPUT and GND for clamp type input at mute mode.



C ≅ 0.1uF

r ≅ 1MΩ

This IC requires 0.1uF capacitor between INPUT and GND for bias type input at mute mode.



C ≅ 0.1uF