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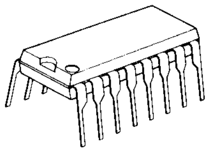
3-INPUT / 2-INPUT VIDEO SWITCH

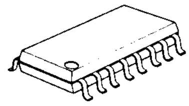
■ GENERAL DESCRIPTION

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 to +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

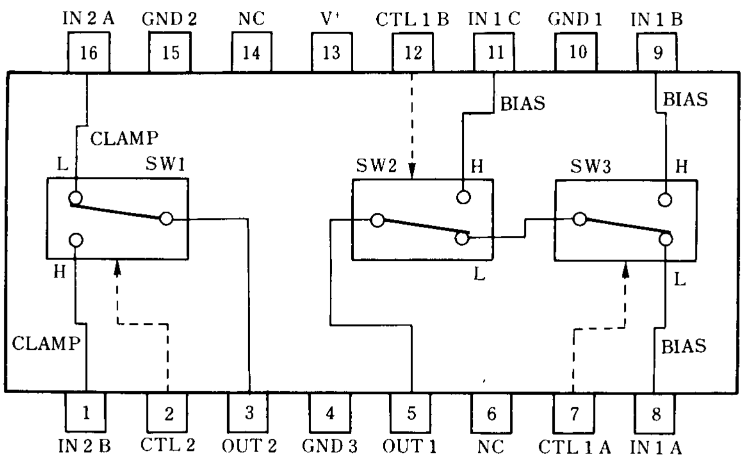
■ RECOMMENDED OPERATING CONDITION

- Operating Voltage V^+ 4.75V to 13.0V

■ APPLICATIONS

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

■ BLOCK DIAGRAM



NJM2513D
NJM2513M

■ MAXIMUM RATINGS

(T_a = 25ºC)

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

■ ELECTRICAL CHARACTERISTICS

(V^+ = 5V, T_a = 25°C)

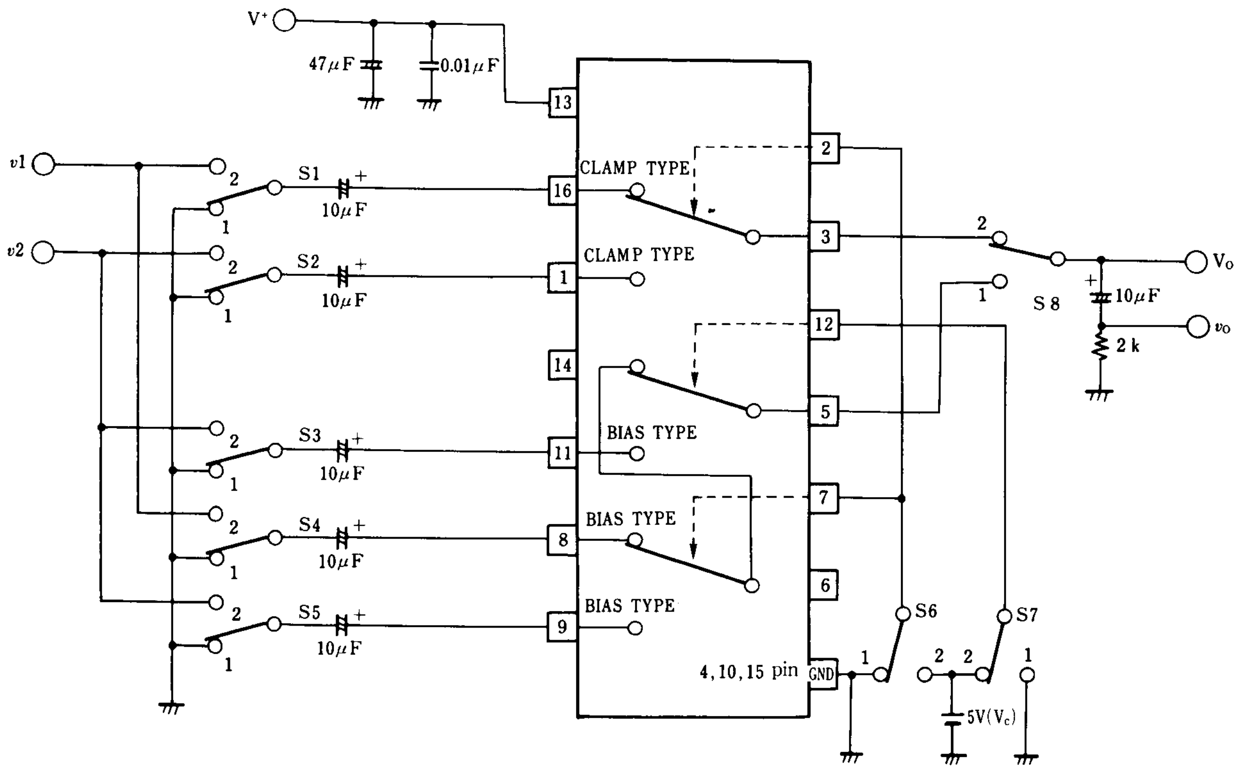
PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current (1)	$I_{CC}1$	V^+ = 5V (Note1)	6.7	9.7	12.7	mA
Operating Current (2)	$I_{CC}2$	V^+ = 9V (Note1)	8.6	12.3	16.0	mA
Voltage Gain	G_V	V_I = 100kHz, $2V_{P-P}$, V_O / V_I	-0.6	-0.1	+0.4	dB
Frequency Gain	G_F	V_I = $2V_{P-P}$, V_O (10MHz) / V_O (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)	$V_{OS}1$	(Note2)	-15	0	+15	mV
Output offset Voltage (2)	$V_{OS}2$	(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

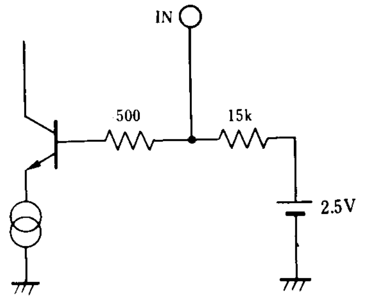
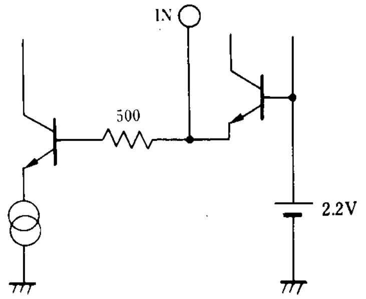
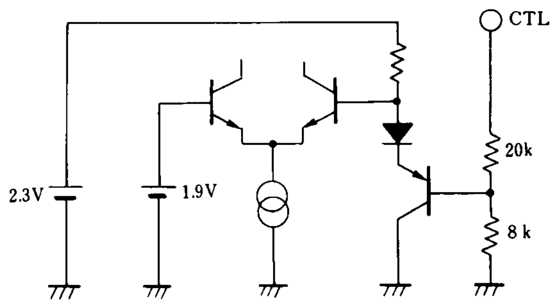
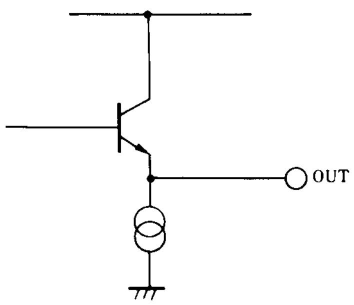
(Note2) S1 = S2 = S3 = S4 = S5 = 1, S8 = 2, S7 = 1, S6 = 1→2 Measure the output DC voltage difference

(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

■ TEST CIRCUIT

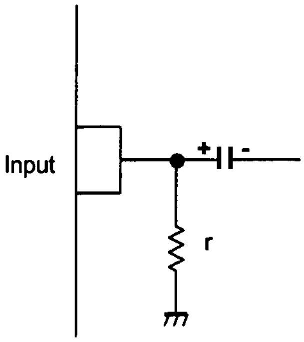


■ TERMINLAL EXPLANATION

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 1A CTL 1B CTL 2 〔Switching〕		
5	OUT1 [Output]	1.8V $\left(\frac{1}{2}V^{+}-0.7\right)$	
3	OUT2 [Output]	0.8V $\left(\frac{3}{10}V^{+}-0.7\right)$	
13	V^{+}	5V	
15 4 10	GND 1 GND 2 GND 3		

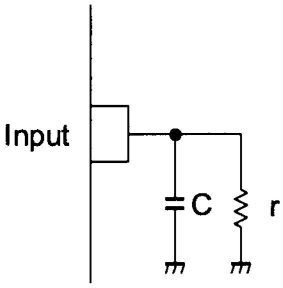
■ APPLICATION

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



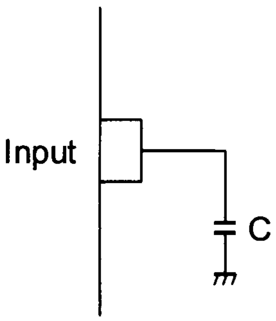
C ≅ 10uF
r ≅ 1MΩ

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



C ≅ 0.1uF