## JRC

# NJM2513

# 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).

#### FEATURES

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

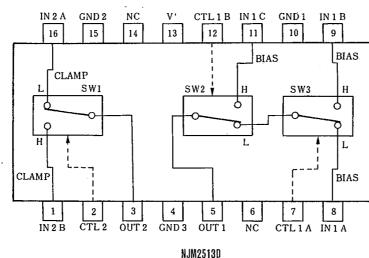
## RECOMMENDED OPERATING CONDITION

Operating Voltage
V<sup>+</sup>
4.75~13.0V

#### APPLICATIONS

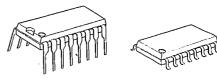
**BLOCK DIAGRAM** 

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



#### NJM25130 NJM2513M

#### PACKAGE OUTLINE



NJM2513D

NJM2513M

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# NJM2513

#### MAXIMUM RATINGS (Ta=25℃) PARAMETER SYMBOL RATINGS UNIT V Supply Voltage 14 ٧ PD (DIP16) 700 Power Dissipation mW (DMP16) 350 m₩ Topr -40~+85 °C Operating Temperature Range Tstg -40~+125 °C Storage Temperature Range

#### ELECTRICAL CHARACTERISTICS

#### $(V^+=5V, Ta=25^{\circ}C)$

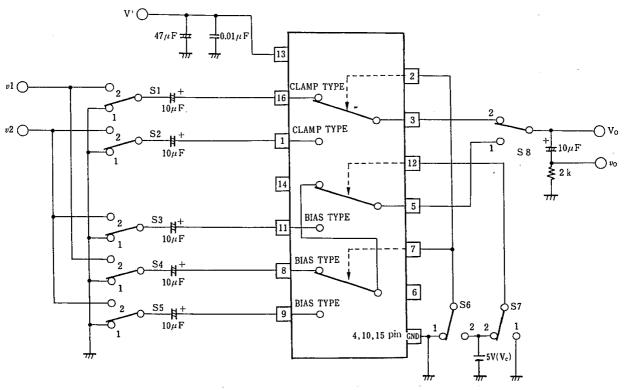
SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
lccl	V+=5V (Notel)	6.7	9.7	12.7	mA
lcc2	V <sup>+</sup> =9V (Notel)	8.6	12.3	16.0	mA
Gv	$V_1 = 100 \text{kHz}, 2 V_{P-P}, V_0 / V_1$	-0.6	-0.1	+0.4	dB
GF	$V_1 = 2V_{P-P}, V_0(10MHz)/V_0(100kHz)$	-1.0	0	+1.0	dB
DG	$V_1 = 2V_{P-P}$ , Standerd Staircase Signal		0.3	_	%
DP	$V_1 = 2V_{P-P}$ , Standerd Staircase Signal	.   -	0.3	_	deg
Vosl	(Note2)	-15	0	+15	mV
Vos2	(Note3)	-25	0	+25	mν
СТ	$V_1 = 2V_{P-P}, 4.43MHz, V_0/V_1$		75		dB
Vсн	All inside Switches ON	2.5		—	v v
VCL.	All inside Switches OFF	-	_	1.0	v
	lcc1 lcc2 Gv GF DG DP Vos1 Vos2 CT Vc11	Icc1 $V^+=5V$ (Note1)Icc2 $V^+=9V$ (Note1)Gv $V_1 = 100kHz, 2V_{P-P}, V_0/V_1$ GF $V_1 = 2V_{P-P}, V_0(10MHz)/V_0(100kHz)$ DG $V_1 = 2V_{P-P}, Standerd Staircase SignalDPV_1 = 2V_{P-P}, Standerd Staircase SignalVos1(Note2)Vos2(Note3)CTV_1 = 2V_{P-P}, 4.43MHz, V_0/V_1Vc11All inside Switches ON$	Icc1     V*=5V (Note1)     6.7       Icc2     V*=9V (Note1)     8.6       Gv     V1 = 100kHz, 2VP-P, V0/V1     -0.6       GF     V1 = 2VP-P, V0 (10MHz)/V0 (100kHz)     -1.0       DG     V1 = 2VP-P, Standerd Staircase Signal        Vos1     (Note2)     -15       Vos2     (Note3)     -25       CT     V1 = 2VP-P, 4.43MHz, V0/V1        Vc11     All inside Switches ON     2.5	Icc1 $V^+=5V$ (Note1)6.79.7Icc2 $V^+=9V$ (Note1)8.612.3Gv $V_1 = 100 \text{kHz}, 2V_{P-P}, V_0/V_1$ $-0.6$ $-0.1$ GF $V_1 = 2V_{P-P}, V_0(10MHz)/V_0(100 \text{kHz})$ $-1.0$ 0DG $V_1 = 2V_{P-P}, \text{ Standerd Staircase Signal}$ $ 0.3$ DP $V_1 = 2V_{P-P}, \text{ Standerd Staircase Signal}$ $ 0.3$ Vos1(Note2) $-15$ 0Vos2(Note3) $-25$ 0CT $V_1 = 2V_{P-P}, 4.43 \text{MHz}, V_0/V_1$ $ -75$ Vc11All inside Switches ON $2.5$ $-$	Icc1 $V^+=5V$ (Note1)6.79.712.7Icc2 $V^+=9V$ (Note1)8.612.316.0Gv $V_1 = 100 \text{kHz}, 2V_{P-P}, V_O/V_1$ $-0.6$ $-0.1$ $+0.4$ GF $V_1 = 2V_{P-P}, V_O(10MHz)/V_O(100kHz)$ $-1.0$ $0$ $+1.0$ DG $V_1 = 2V_{P-P}, \text{ Standerd Staircase Signal}$ $ 0.3$ $-$ DP $V_1 = 2V_{P-P}, \text{ Standerd Staircase Signal}$ $ 0.3$ $-$ Vos1(Note2) $-15$ $0$ $+15$ Vos2(Note3) $-25$ $0$ $+25$ CT $V_1 = 2V_{P-P}, 4.43 \text{MHz}, V_O/V_1$ $ -75$ $-$ Vc11All inside Switches ON $2.5$ $ -$

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

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

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

### TEST CIRCUIT



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

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**TERMINAL EXPLANATION** 

'IN NO.	PIN NAME	VOLTAGE	INSIDE EQUIVALENT CIRCUIT	
8 9 11	IN 1 A IN 1 B IN 1 C (Input)	$\begin{array}{c} 2.5V\\ \left(\frac{1}{2}V^{+}\right)\end{array}$	IN 0 15k 15k 2.5V 777 777 2.5V	
16 1	IN 2 A IN 2 B (Input)			
7 12 2	CTL 1 A CTL 1 B CTL 2 (Switching)		2.3V 7/77 7/7 7/7 7/7 7/7 7/7 7/7 7/7	
5	OUT 1 (Output)	$1.8V \\ \left(\frac{1}{2}V^{+}-0.7\right)$		
3	OUT 2 (Output)	$\left(\frac{3}{10}V^+ - 0.7\right)$		
13	V+	5 V		
15 4 10	GND 1 GND 2 GND 3			

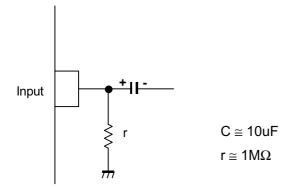
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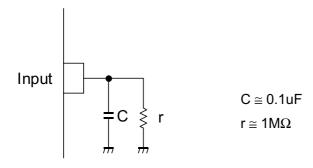
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# ■APPLICATION

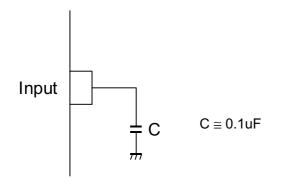
This IC requires  $1M\Omega$  resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



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



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



[CAUTION]
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given for information, without any guarantee
as regards either mistakes or omissions. The
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