

### 3-INPUT VIDEO SWITCH WITH 6dB AMPLIFIER

■ GENERAL DESCRIPTION

The NJM2246 is three input integrated video switch which selects one video or audio signal from three input signals. It contains 6dB amplifier and its operating supply voltage range is 4.75 to 13V and bandwidth is 5MHz. Crosstalk is 65dB (at 4.43MHz).

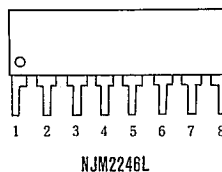
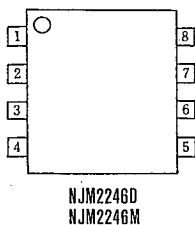
■ FEATURES

- Operating Voltage 4.75~13V
- 3 Input-1 Output
- Internal 6dB Amplifier
- Muting Function available
- Internal Clamp Function
- Cross-talk 65dB(at 4.43MHz)
- Wide Frequency Range 5MHz(1V<sub>PP</sub> Input)
- Package Outline DIP8, DMP8, SIP8
- Bipolar Technology

■ APPLICATION

- VCR, AV-TV Video Disc Player

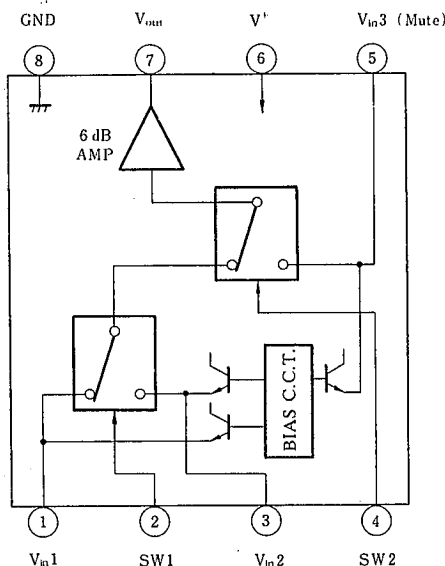
■ PIN CONFIGURATION



PIN FUNCTION

1. V<sub>in1</sub>
2. SW1
3. V<sub>in2</sub>
4. SW2
5. V<sub>in3</sub>
6. V<sup>+</sup>
7. V<sub>out</sub>
8. GND

■ BLOCK DIAGRAM



■ INPUT CONTROL SIGNAL-OUTPUT SIGNAL

SW 1	SW 2	OUTPUT SIGNAL
L	L	V <sub>IN 1</sub>
H	L	V <sub>IN 2</sub>
L/H	H	V <sub>IN 3</sub>

note): Input clamp voltage is about 2/5 of supply voltage.

## ■ ABSOLUTE MAXIMUM RATINGS

( $T_a=25^\circ\text{C}$ )

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+$	15	V
Power Dissipation	$P_D$	(DIP8) 500	mW
		(DMP8) 300	mW
		(SIP8) 800	mW
Operating Temperature Range	$T_{opr}$	$-40 \sim +85$	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-40 \sim +125$	$^\circ\text{C}$

## ■ ELECTRICAL CHARACTERISTICS

( $V^+=5\text{V}$ ,  $T_a=25^\circ\text{C}$ )

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Recommended Supply Voltage	$V^+$		4.75	—	13.0	V
Operating Current	$I_{CC}$	$S1=S2=S3=S4=S5=2$	9.5	14.0	21.0	mA
Voltage Gain	$G_v$	$V_{in}=1.0V_{p-p}$ , 1MHz, $V_o/V_i$ , $R_L=1k\Omega$	5.5	6.0	6.5	dB
Frequency Characteristic	$G_f$	$V_{in}=1.0V_{p-p}$ , $V_o(10\text{MHz})/V_o(1\text{MHz})$ , $R_L=1k\Omega$	-1.0	—	+1.0	dB
Differential Gain	DG	$V_{in}=1.0V_{p-p}$ , staircase, $R_L=1k\Omega$	—	0.3	—	%
Differential Phase	DP	$V_{in}=1.0V_{p-p}$ , staircase, $R_L=1k\Omega$	—	0.3	—	deg.
Output Offset Voltage	$V_{off}$	$S1=S2=S3=2$ , $S5=1 \rightarrow 2$ $V_O$ :voltage change	—	—	$\pm 60$	mV
Crosstalk	CT	$V_{in}=1V_{p-p}$ , 4.43MHz, $V_o/V_i$	—	-65	—	dB
Switch Change Voltage	$V_{CH}$	All inside SW:ON	2.4	—	—	V
	$V_{CL}$	All inside SW:OFF	—	—	0.8	V

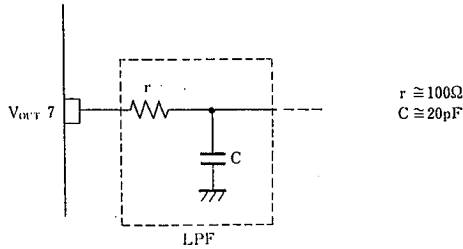
(note) Unless specified, tested with three mode below.

- a)  $S1=1$ ,  $S2=S3=S4=S5=2$  b)  $S2=S4=1$ ,  $S1=S3=S5=2$  c)  $S1=S2=2$ ,  $S3=S5=1$ ,  $S4=1$  or 2

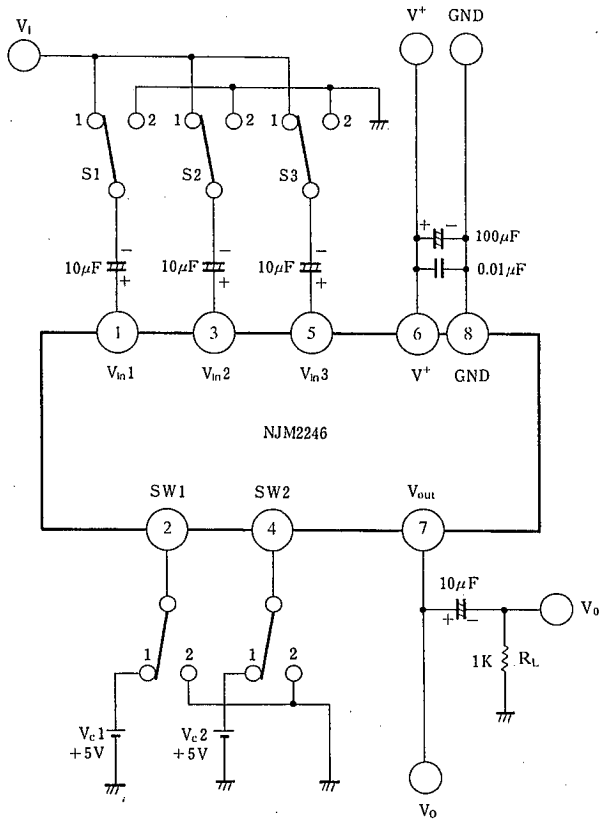
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## ■ APPLICATION

Oscillation Prevention on light loading conditions Recommended under 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.



## ■ TEST CIRCUIT



DC Voltage Each Terminal  
 Typ. on Test Circuit  $T_a \approx 25^\circ\text{C}$

Terminal Name	V <sub>IN1</sub>	SW1	V <sub>IN2</sub>	SW2	V <sub>IN3</sub>	V <sup>+</sup>	V <sub>OUT</sub>	GND
DC Voltage	$\frac{2}{3} V^+$	—	$\frac{2}{3} V^+$	—	$\frac{2}{3} V^+$	—	$\frac{2}{3} V^+ - 0.7$	—

## ■ EQUIVALENT CIRCUIT

PIN NO. PIN	FUNCTION	INSIDE EQUIVALENT CIRCUIT	PIN NO. PIN	FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	V <sub>IN1</sub>		5	V <sub>IN3</sub> (Mute)	
2	SW 1		6	V <sup>+</sup>	
3	V <sub>IN2</sub>		7	V <sub>OUT</sub>	
4	SW 2		8	GND	

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## MEMO

[CAUTION]

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