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## 3-INPUT VIDEO SWITCH WITH 6dB AMPLIFIER

### ■ GENERAL DESCRIPTION

The **NJM2246** is three input integrated video switch, which selects one video signal from three input signals.

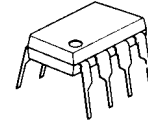
It contains 6dB amplifier and its operating supply voltage range is 4.75 to 13V and bandwidth is 5MHz.

Crosstalk is 65dB (at 4.43MHz).

### ■ FEATURES

- Operating Voltage 4.75 to 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>p-p</sub> Input)
- Package Outline DIP8, DMP8, SIP8
- Bipolar Technology

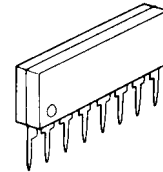
### ■ PACKAGE OUTLINE



**NJM2246D**



**NJM2246M**

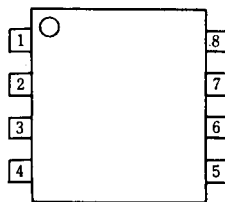


**NJM2246L**

### ■ APPLICATION

- VCR AV-TV Video Disc Player

### ■ PIN CONFIGURATION



**NJM2246D**  
**NJM2246M**

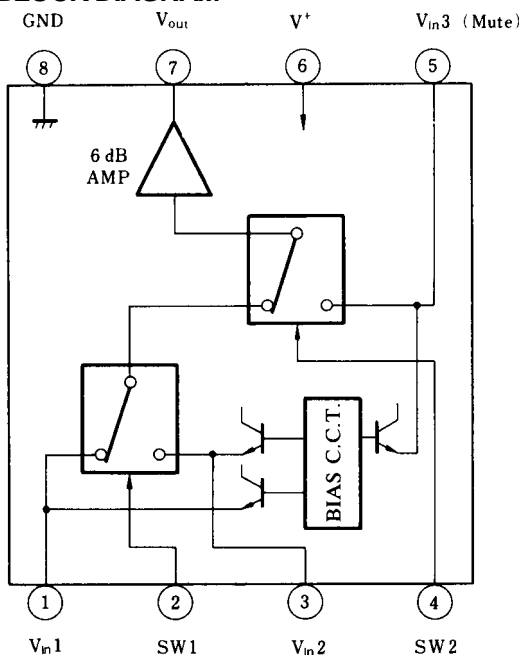


**NJM2246L**

#### 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

SW1	SW2	OUTPUT SIGNAL
L	L	V <sub>IN1</sub>
H	L	V <sub>IN2</sub>
L/H	H	V <sub>IN3</sub>

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

## ■ ABSOLUTE MAXIMUM RATINGS

(Ta = 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	15	V
Power Dissipation	P <sub>D</sub>	(DIP8) 500 (DMP8) 300 (SIP8) 800	mW mW mW
Operating Temperature Range	T <sub>opr</sub>	-40 to +85	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +125	°C

## ■ ELECTRICAL CHARACTERISTICS

(V<sup>+</sup> = 5V, Ta = 25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Recommended Supply Voltage	V <sup>+</sup>		4.75	-	13.0	V
Operating Current	I <sub>CC</sub>	S1=S2=S3=S4=S5=2	9.5	14.0	21.0	mA
Voltage Gain	G <sub>V</sub>	V <sub>in</sub> =1.0V <sub>P-P</sub> , 1MHz, V <sub>o</sub> /V <sub>i</sub> , R <sub>L</sub> =1kΩ	5.7	6.2	6.7	dB
Frequency Characteristics	G <sub>f</sub>	V <sub>in</sub> =1.0V <sub>P-P</sub> , V <sub>o</sub> (10MHz) / V <sub>o</sub> (1MHz) R <sub>L</sub> =1kΩ	-1.0	-	+1.0	dB
Differential Gain	DG	V <sub>in</sub> =1.0V <sub>P-P</sub> , staircase, R <sub>L</sub> =1kΩ	-	0.3	-	%
Differential Phase	DP	V <sub>in</sub> =1.0V <sub>P-P</sub> , staircase, R <sub>L</sub> =1kΩ	-	0.3	-	deg.
Output Offset Voltage	V <sub>off</sub>	S1=S2=S3=2, S5=1→2 V <sub>O</sub> : voltage change	-	-	±60	mV
Crosstalk	CT	V <sub>IN</sub> =1.0V <sub>P-P</sub> , 4.43MHz, V <sub>o</sub> / V <sub>i</sub> (note2)	-	-65	-	dB
Switch Change Voltage	V <sub>CH</sub>	All inside SW : ON	2.4	-	-	V
	V <sub>CL</sub>	All inside SW : OFF	-	-	0.8	V

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

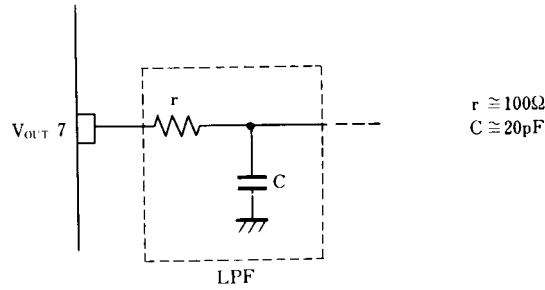
a) S1=1, S2=S3=S4=S5=2    b) S2=S4=1, S1=S3=S5=2    c) S1=S2=2, S3=S5=1, S4=1 or 2

(note2) Tested by the following.

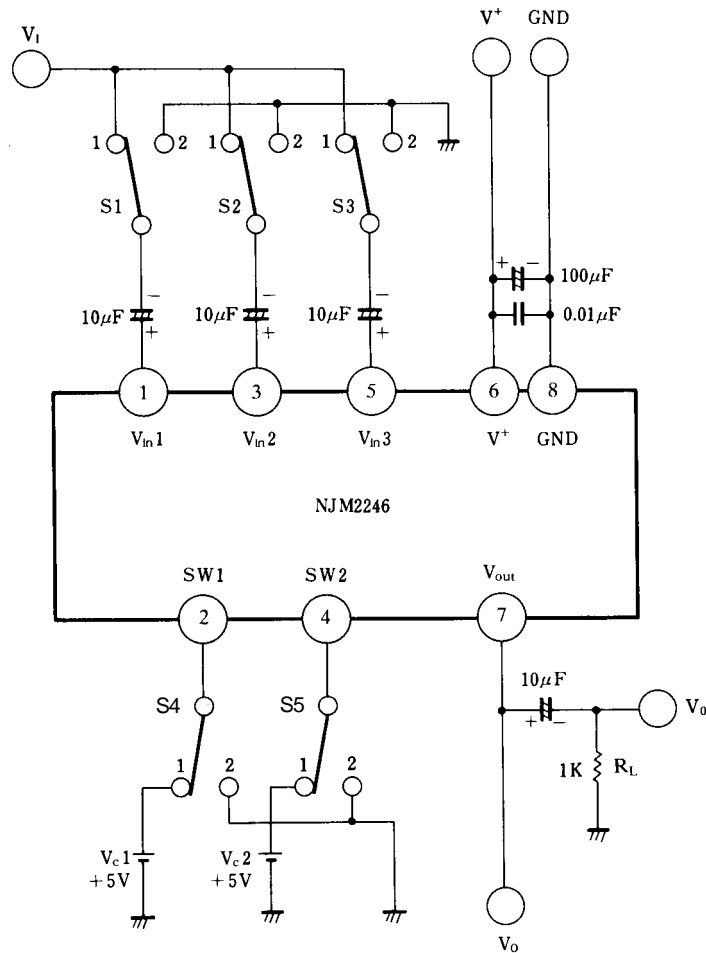
- a) S1=S4=1, S2=S3=2, S5=1 and 2
- b) S2=1, S1=S3=S4=2, S5=1 and 2
- C) S3=1, S1=S2=S5=2, S4=1 and 2

## APPLICATION

Oscillation Prevention on light loading conditions Recommended under circuit.



## TEST CIRCUIT



DC Voltage Each Terminal  
Typ. on Test Circuit  $T_a=25^\circ C$

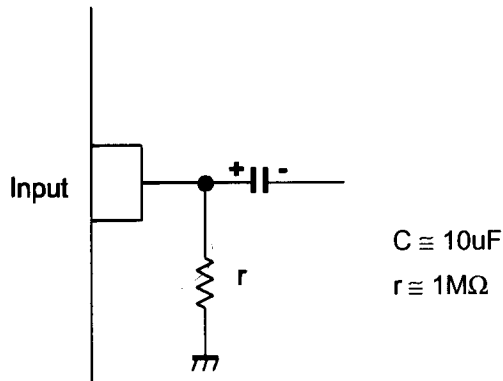
Terminal Name	$V_{IN1}$	SW1	$V_{IN2}$	SW2	$V_{IN3}$	$V^+$	$V_{OUT}$	GND
DC Voltage	$\frac{2}{5} V^+$	-	$\frac{2}{5} V^+$	-	$\frac{2}{5} V^+$	-	$\frac{2}{5} V^+ - 0.7$	-

## ■ EQUIVALENT CIRCUIT

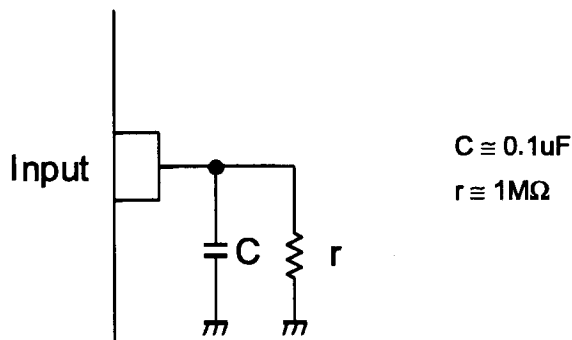
PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT	PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	$V_{IN1}$		5	$V_{IN3}$ (Mute)	
2	SW1		6	$V^+$	
3	$V_{IN2}$		7	$V_{OUT}$	
4	SW2		8	GND	

## ■ APPLICATION

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



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



**[CAUTION]**

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