

3-INPUT VIDEO SWITCH WITH 6dB AMPLIFIER

GENERAL DESCRIPTION

The NJM2246 is three input integrated video switch with 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).

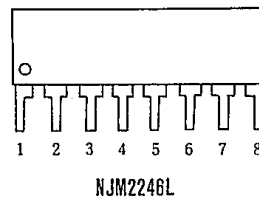
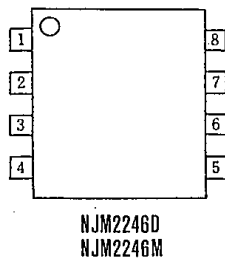
FEATURES

- 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_{P-P} Input)
- Package Outline DIP8, DMP8, SIP8
- Bipolar Technology

APPLICATION

- VCR, AV-TV Video Disc Player

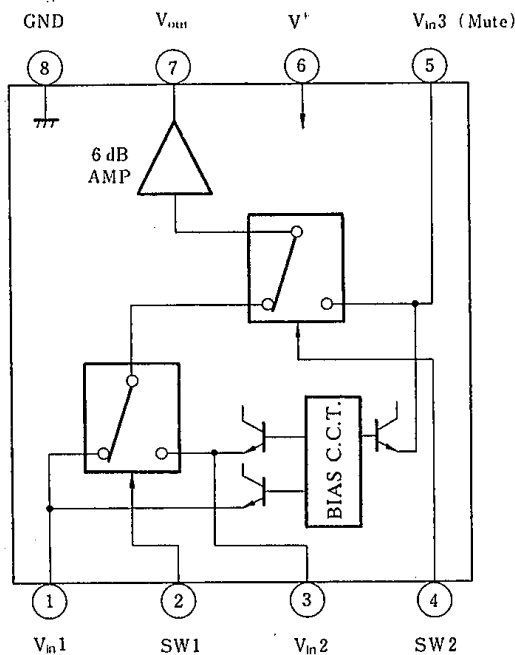
PIN CONFIGURATION



PIN FUNCTION

1. V_{in1}
2. SW1
3. V_{in2}
4. SW2
5. V_{in3}
6. V⁺
7. V_{out}
8. GND

BLOCK DIAGRAM



INPUT CONTROL SIGNAL-OUTPUT SIGNAL

SW 1	SW 2	OUTPUT SIGNAL
L	L	V _{IN 1}
H	L	V _{IN 2}
L/H	H	V _{IN 3}

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

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V*	15	V
Power Dissipation	Pd	(DIP8) 500	mW
		(DMP8) 300	mW
		(SIP8) 800	mW
Operating Temperature Range	Topr	-40 ~ +85	°C
Storage Temperature Range	Tstg	-40 ~ +125	°C

■ ELECTRICAL CHARACTERISTICS

(V*=5V, Ta=25°C)

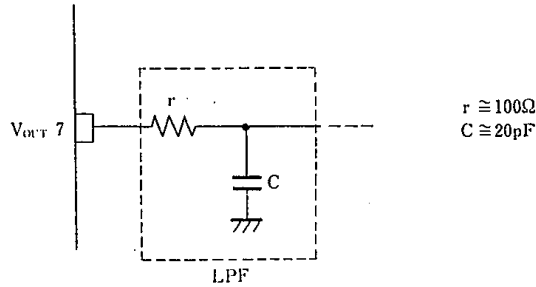
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Recommended Supply Voltage	V*		4.75	—	13.0	V
Operating Current	I _{CC}	S1=S2=S3=S4=S5=2	9.5	14.0	21.0	mA
Voltage Gain	G _v	V _{in} =1.0V _{p-p} , 1MHz, V _o /V _i , R _L =1kΩ	5.5	6.0	6.5	dB
Frequency Characteristic	G _f	V _{in} =1.0V _{p-p} , V _o (10MHz)/V _o (1MHz)R _L =1kΩ	-1.0	—	+1.0	dB
Differential Gain	DG	V _{in} =1.0V _{p-p} , staircase, R _L =1kΩ	—	0.3	—	%
Differential Phase	DP	V _{in} =1.0V _{p-p} , staircase, R _L =1kΩ	—	0.3	—	deg.
Output Offset Voltage	V _{off}	S1=S2=S3=2, S5=1→2 V _O :voltage change	—	—	±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.

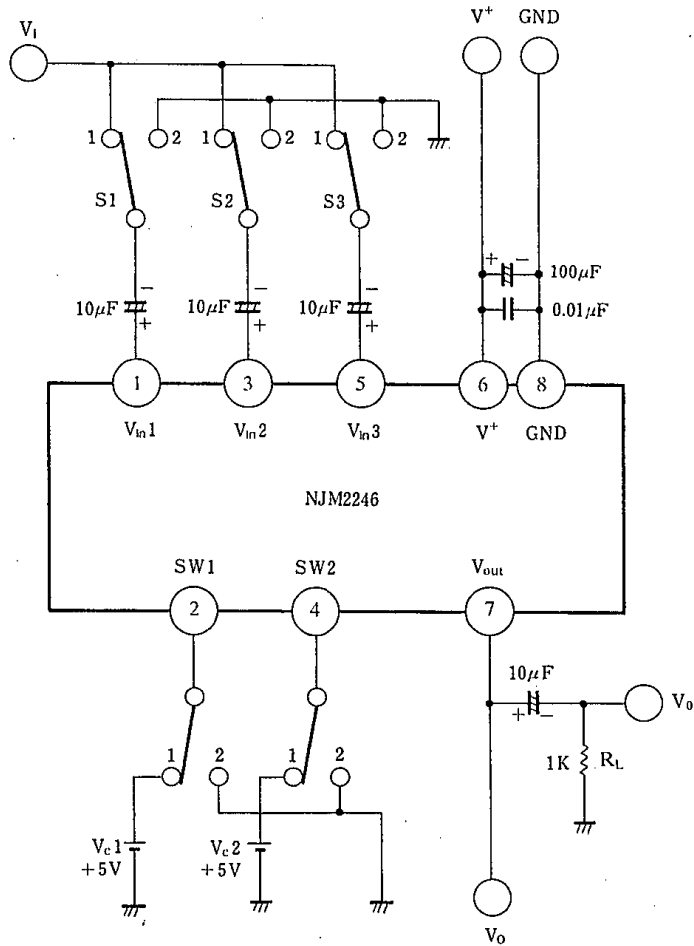
a) S1=1, S2=S3=S4=S5=2 b) S2=S4=1, S1=S3=S5=2 c) S1=S2=2, S3=S5=1, S4=1 or 2

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

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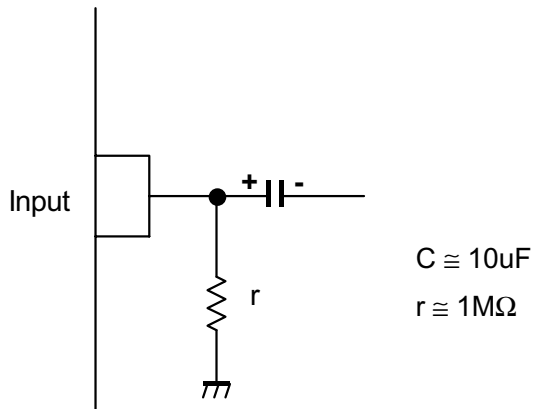
■ EQUIVALENT CIRCUIT

PIN NO. PIN	FUNCTION	INSIDE EQUIVALENT CIRCUIT	PIN NO. PIN	FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	V _{IN1}		5	V _{IN3} (Mute)	
2	SW 1		6	V ⁺	
3	V _{IN2}		7	V _{OUT}	
4	SW 2		8	GND	

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■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.

