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.

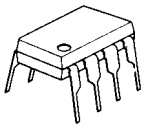
It contains 6dB amplifier and its operating supply voltage range is 4.75 to 13V and bandwidth is 5MHz.

Crosstalk is 65dB (at 4.43MHz).

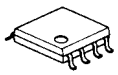
■ FEATURES

● 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 ($1V_{P-P}$ Input)
● Package Outline	DIP8, DMP8, SIP8
● Bipolar Technology	

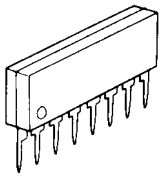
■ PACKAGE OUTLINE



NJM2246D



NJM2246M

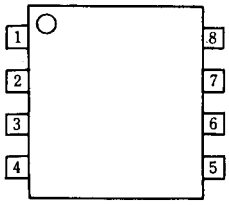


NJM2246L

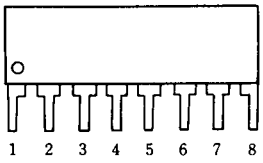
■ APPLICATION

● VCR AV-TV Video Disc Player

■ PIN CONFIGURATION



NJM2246D
NJM2246M

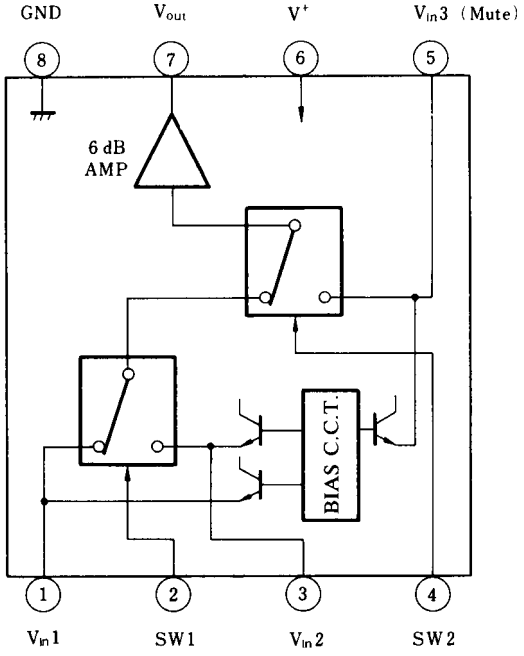


NJM2246L

PIN FUNCTION

1. $V_{In}1$
2. SW1
3. $V_{In}2$
4. SW2
5. $V_{In}3$
6. V^+
7. V_{out}
8. GND

■ BLOCK DIAGRAM



■ INPUT CONTROL SIGNAL-OUTPUT SIGNAL

SW1	SW2	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	P_D	(DIP8) 500 (DMP8) 300 (SIP8) 800	mW mW mW
Operating Temperature Range	T_{opr}	-40 to +85	°C
Storage Temperature Range	T_{stg}	-40 to +125	°C

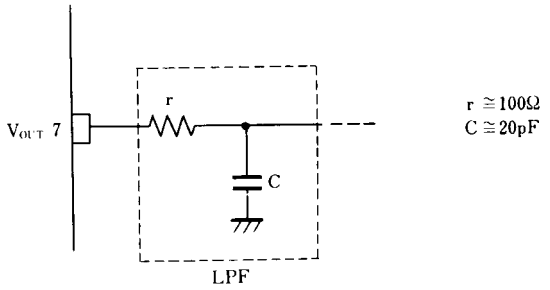
■ ELECTRICAL CHARACTERISTICS (V^+ = 5V, Ta = 25°C)

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	Vin=1.0V_{P-P}, 1MHz, Vo/Vi, R_L=1kΩ	5.5	6.0	6.5	dB
Frequency Characteristics	Gf	Vin=1.0V_{P-P}, Vo(10MHz) / Vo (1MHz) R_L=1kΩ	-1.0	-	+1.0	dB
Differential Gain	DG	Vin=1.0V_{P-P}, staircase, R_L=1kΩ	-	0.3	-	%
Differential Phase	DP	Vin=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}=1.0V_{P-P}, 4.43MHz, Vo / Vi	-	-65	-	dB
Switch Change Voltage	V_{CH}	All inside SW : ON	2.4	-	-	V
	V_{CL}	All inside SW : OFF	-	-	0.8	V

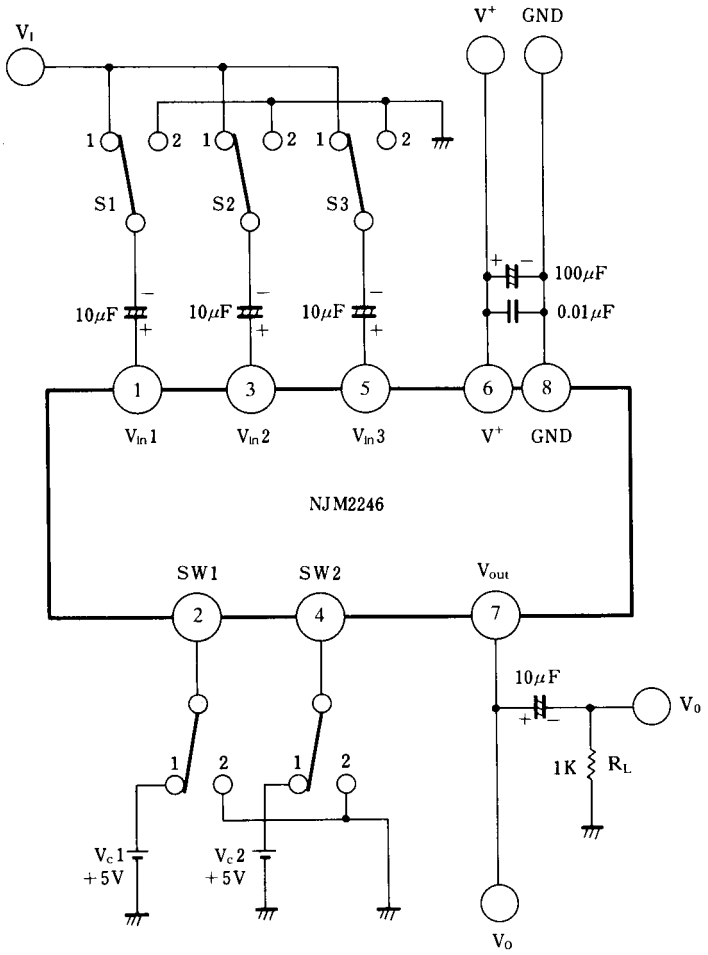
(note)Unless specified, tested with three mode below.
a) S1=1, S2=S3=S4=S5=2 b) S2=S4=1, S1=S3=S5=2 c) S1=S2=2, S3=S5=1, S4=1 or 2

■ APPLICATION

Oscillation Prevention on light loading conditions Recommended under circuit.



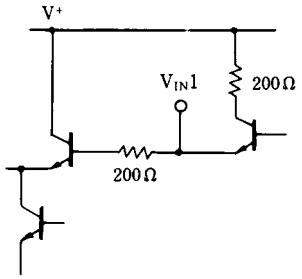
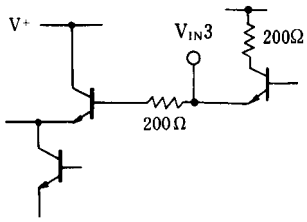
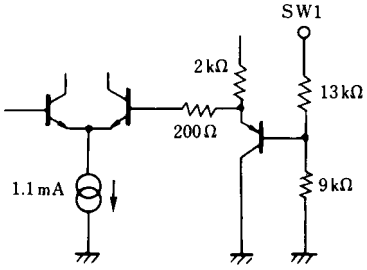
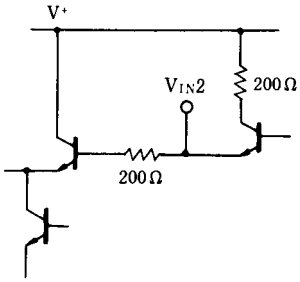
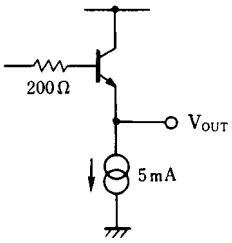
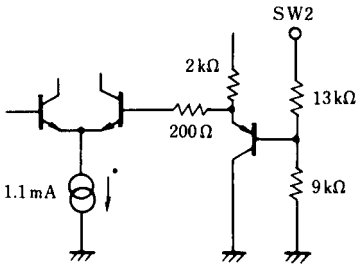
■ TEST CIRCUIT



DC Voltage Each Terminal
Typ. on Test Circuit T_a=25°C

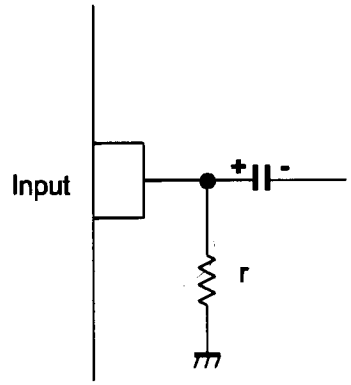
Terminal Name	$V_{IN}1$	SW1	$V_{IN}2$	SW2	$V_{IN}3$	V^+	V_{OUT}	GND
DC Voltage	$\frac{2}{5}V^+$	-	$\frac{2}{5}V^+$	-	$\frac{2}{5}V^+$	-	$\frac{2}{5}V^+$-0.7	-

■ EQUIVALENT CIRCUIT

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

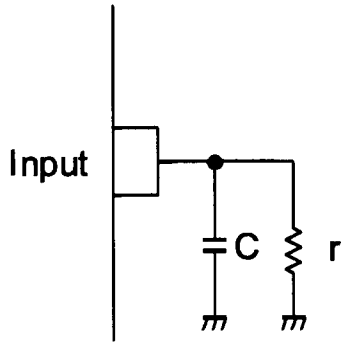
■ APPLICATION

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



C ≅ 10uF
r ≅ 1MΩ

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



C ≅ 0.1uF
r ≅ 1MΩ