3-INPUT VIDEO SWITCH WITH 75Ω DRIVER

■ GENERAL DESCRIPTION

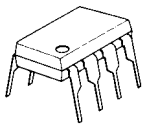
The **NJM2244** is a three input integrated video switch, which selects one video signal from three input signals.

It contains driver circuit for 75Ω load and is able to connect to TV monitor.

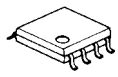
Its operating supply voltage range is 5 to 12v and bandwidth is 10MHz. Crosstalk is 70dB (at 4.43MHz).

NJM2244 contains clamp function and it can be operated while setting DC level fixed in position of the video signal.

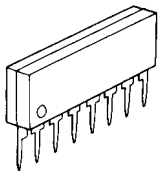
■ PACKAGE OUTLINE



NJM2244D



NJM2244M



NJM2244L

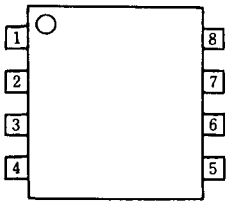
■ FEATURES

- Operating Voltage 4.75 to 13V
- 3 input - 1 Output
- Internal Driver Circuit for 75Ω Impedance
- Muting Function available
- Internal Clamp Function
- Low power Dissipation 16.5mA
- Cross-talk 70dB (at 4.43MHz)
- Wide Frequency Range 10MHz ($2V_{P-P}$ Input)
- Package Outline DIP8, DMP8, SIP8
- Bipolar Technology

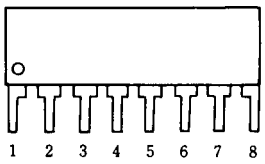
■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player

■ PIN CONFIGURATION



NJM2244D
NJM2244M



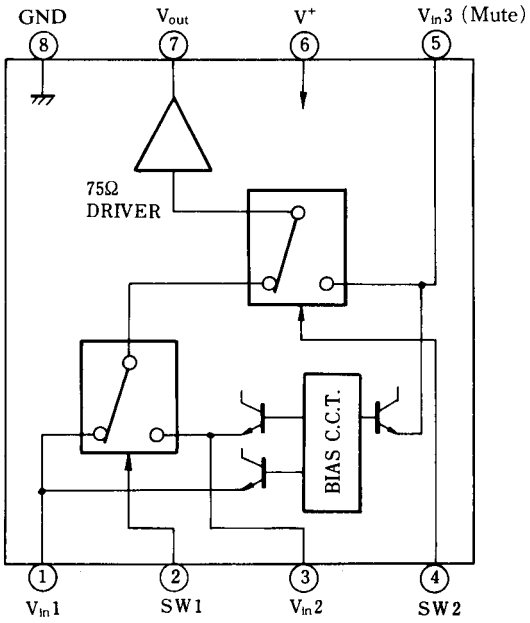
NJM2244L

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

Pin Connection



■ 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 = 25ºC)

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}	-20 to +75	ºC
Storage Temperature Range	T_{stg}	-40 to +125	ºC

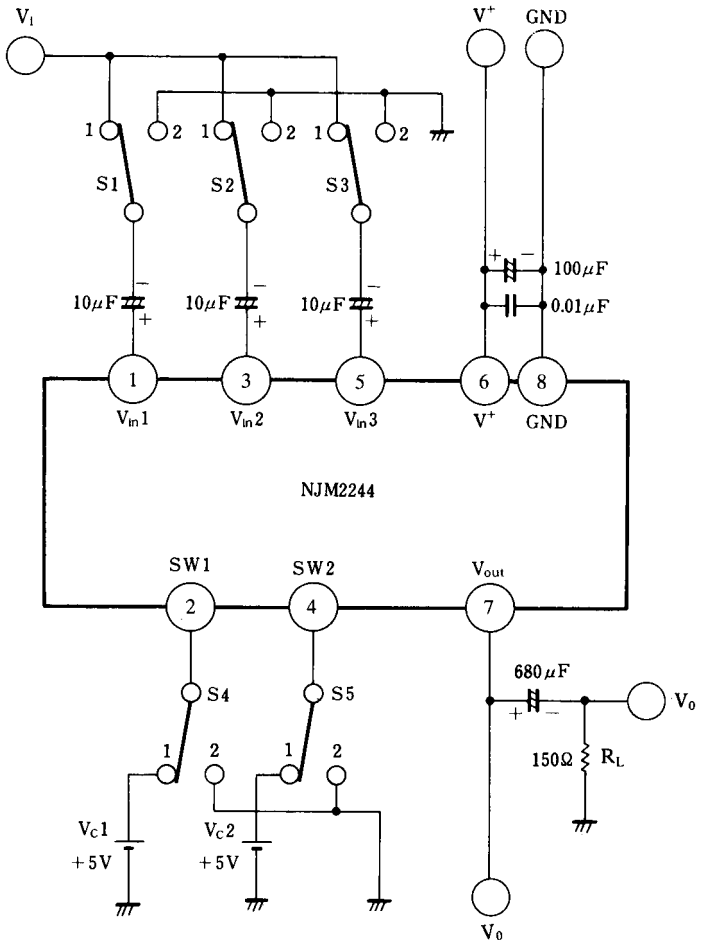
■ ELECTRICAL CHARACTERISTICS (V^+ = 5V, Ta = 25ºC)

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	11.5	16.5	22.0	mA
Voltage Gain	G_V	Vin = 2.0V_{P-P}, 100kHz, VO / Vi, R_L = 150Ω	-0.8	-0.3	+0.2	dB
Frequency Characteristics	G_f	Vin = 2.0V_{P-P}, V_O (10MHz) / V_O (100kHz), R_L = 150Ω	-1.0	-	+1.0	dB
Differential Gain	DG	Vin = 2.0V_{P-P}, staircase, R_L = 150Ω	-	0.3	-	%
Differential Phase	DP	Vin = 2.0V_{P-P}, staircase, R_L = 150Ω	-	0.3	-	deg.
Output Offset Voltage	V_{off}	S1 = S2 = S3 = 2, S5 = 1 → 2Vo : Voltage change	-	0	±30	mV
Crosstalk	CT	Vin = 2V_{P-P}, 4.43MHz, Vo / Vi	-	-70	-	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

■ TEST CIRCUIT



DC Voltage Each Terminal

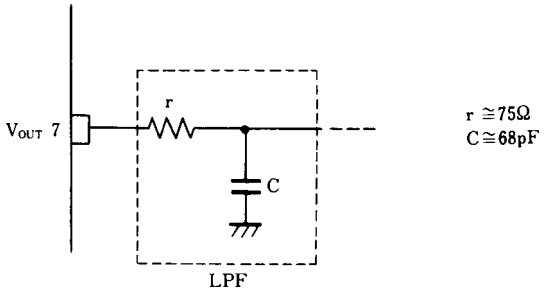
Typ. on Test Circuit Ta = 25ºC

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	-

■ APPLICATION

Oscillation Prevention on light loading conditions

Recommended under circuit

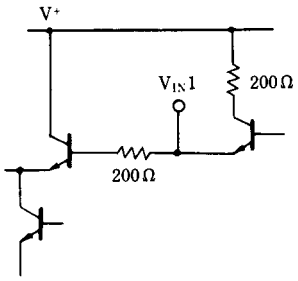
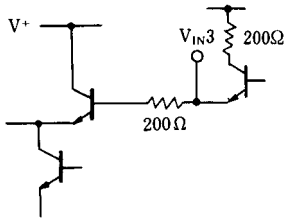
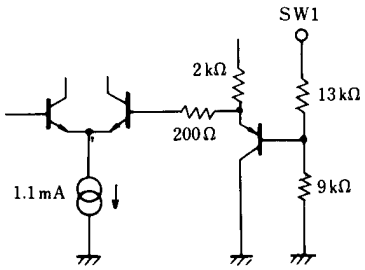
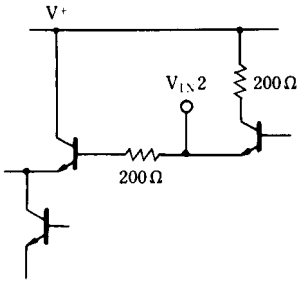
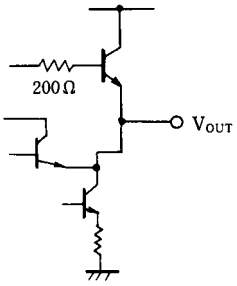
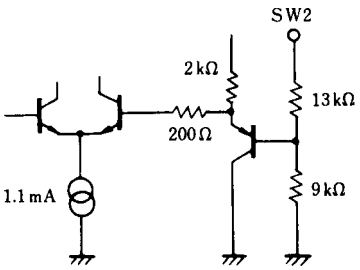


■ MUTE

Use pin5 as mute terminal.

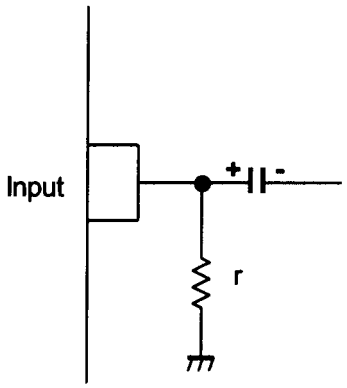
Pin5: connect to GND via a capacitor (0.1uF), and SW2 to high.

■ 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	

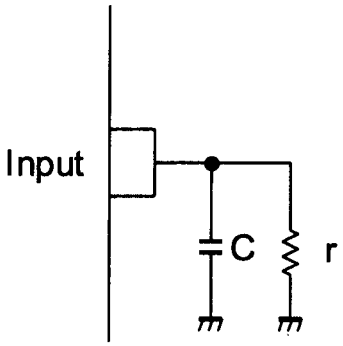
■ **APPLICATION**

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