

3-INPUT VIDEO SWITCH WITH 75Ω DRIVER

■ GENERAL DESCRIPTION

The **NJM2244** is a three input integrated video switch which selects one video or audio 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.

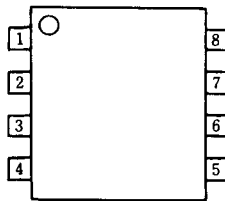
■ FEATURES

- 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

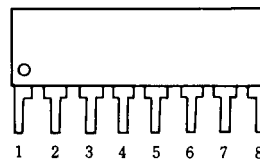
■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player

■ PIN CONFIGURATION



NJM2244D
NJM2244M



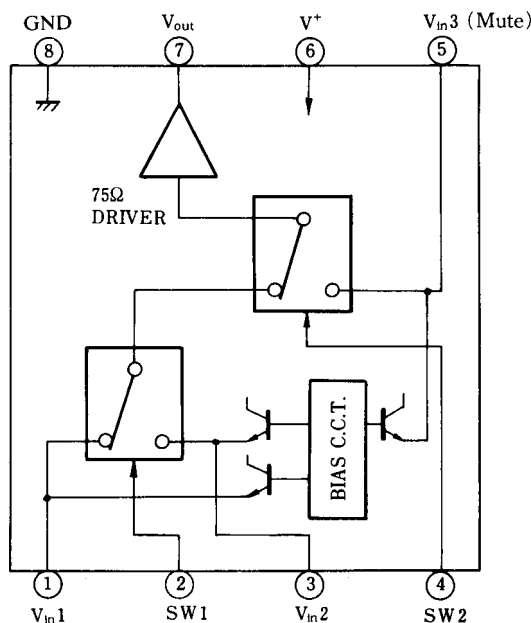
NJM2244L

PIN FUNCTION

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

■ BLOCK DIAGRAM

Pin Connection



■ INPUT CONTROL SIGNAL-OUTPUT SIGNAL

| SW1 | SW2 | OUTPUT SIGNAL |
|-----|-----|------------------|
| L | L | V _{IN1} |
| H | L | V _{IN2} |
| L/H | H | V _{IN3} |

note): Input clamp Voltage is about 2/5 of Supply Voltage

NJM2244

■ 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} | -20 to +75 | °C |
| Storage Temperature Range | T _{stg} | -40 to +125 | °C |

■ ELECTRICAL CHARACTERISTICS

(V⁺ = 5V, Ta = 25°C)

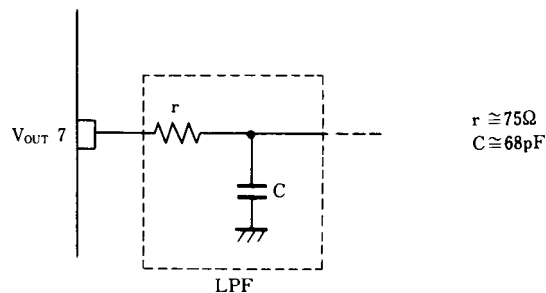
| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------------|------------------|---|------|------|------|------|
| Recommended Supply Voltage | V ⁺ | | 4.75 | - | 13.0 | V |
| Operating Current | I _{CC} | S1 = S2 = S3 = S4 = S5 = 2 | 11.5 | 16.5 | 22.0 | mA |
| Voltage Gain | G _V | V _{in} = 2.0V _{P-P} , 100kHz, V _O / V _i , R _L = 150Ω | -0.8 | -0.3 | +0.2 | dB |
| Frequency Characteristics | G _f | V _{in} = 2.0V _{P-P} , V _O (10MHz) / V _O (100kHz), R _L = 150Ω | -1.0 | - | +1.0 | dB |
| Differential Gain | DG | V _{in} = 2.0V _{P-P} , staircase, R _L = 150Ω | - | 0.3 | - | % |
| Differential Phase | DP | V _{in} = 2.0V _{P-P} , staircase, R _L = 150Ω | - | 0.3 | - | deg. |
| Output Offset Voltage | V _{off} | S1 = S2 = S3 = 2, S5 = 1 → 2V _o : Voltage change | - | 0 | ±30 | mV |
| Crosstalk | CT | V _{in} = 2V _{P-P} , 4.43MHz, V _o / V _i | - | -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.

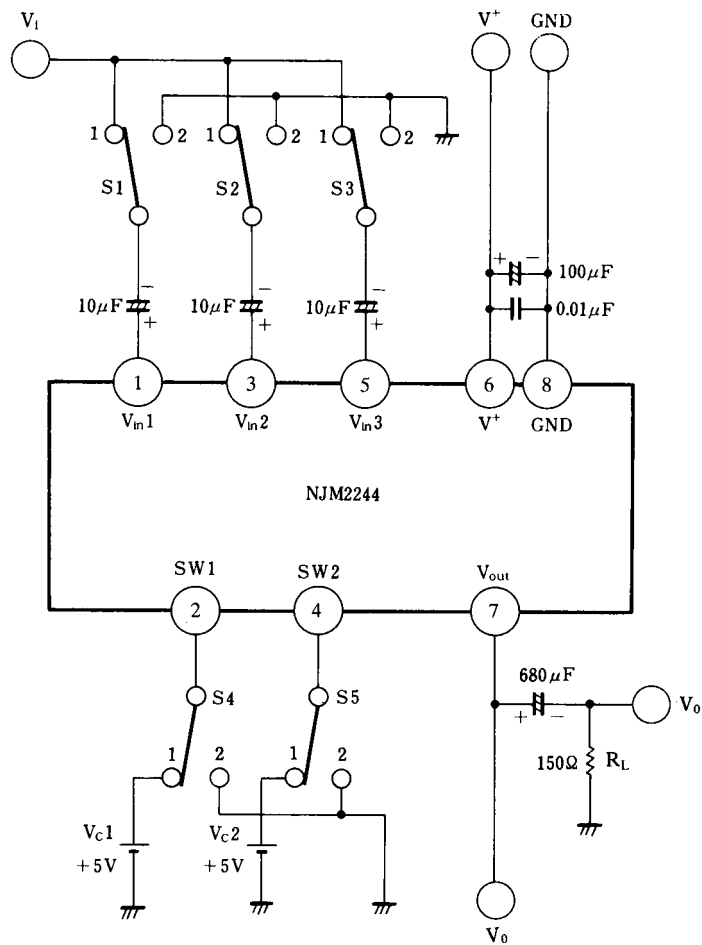
a) S1 = 1, S2 = S3 = S4 = S5 = 2 b) S2 = S4 = 1, S1 = S3 = S5 = 2 c) S1 = S2 = 2, S3 = S5 = 1, S4 = 1 or 2

■ APPLICATION

Oscillation Prevention on light loading conditions
Recommended under circuit



■ TEST CIRCUIT



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

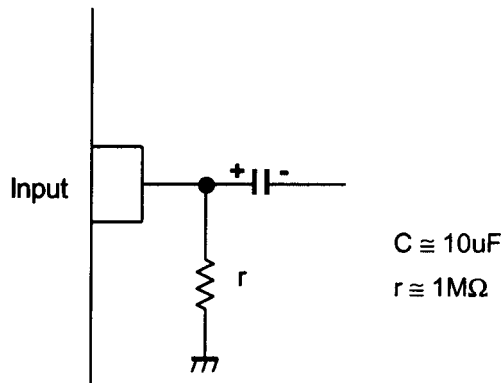
| Terminal Name | V _{IN1} | SW1 | V _{IN2} | SW2 | V _{IN3} | V ⁺ | V _{OUT} | GND |
|---------------|-------------------|-----|-------------------|-----|-------------------|----------------|-------------------------|-----|
| DC Voltage | $\frac{2}{5} V^+$ | - | $\frac{2}{5} V^+$ | - | $\frac{2}{5}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

■ EQUIVALENT CIRCUIT

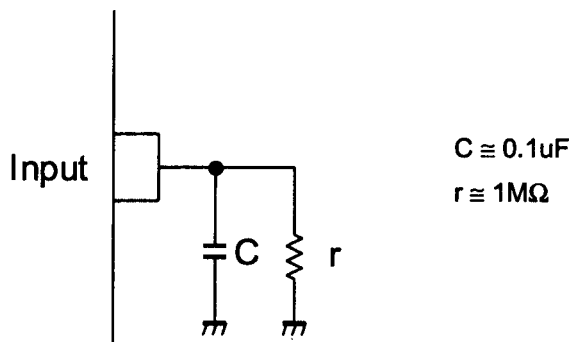
| PIN NO. | PIN FUNCTION | INSIDE EQUIVALENT CIRCUIT | PIN NO. | PIN FUNCTION | INSIDE EQUIVALENT CIRCUIT |
|---------|------------------|---------------------------|---------|----------------------------|---------------------------|
| 1 | V _{IN1} | | 5 | V _{IN3} (Mute) | |
| 2 | SW1 | | 6 | V+ | _____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

■ APPLICATION

This IC requires $1M\Omega$ 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, $1M\Omega$ resistance between INPUT and GND for clamp type input at mute mode.



[CAUTION]

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