

3-INPUT VIDEO SWITCH WITH 75Ω DRIVER

■ GENERAL DESCRIPTION

The **NJM2243** 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 9 to 12V and bandwidth is 10MHz. Crosstalk is 70dB (at 4.43MHz).

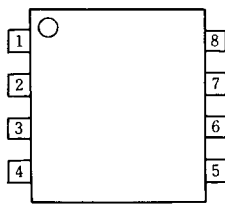
■ FEATURES

- Operating Voltage 9 to 13V
- 3 input-1 Output
- Internal Driver Circuit for 75Ω Impedance
- Muting Function available
- Low power Dissipation 15mA
- Cross-talk 70dB (at 4.43MHz)
- Wide Frequency Range 10MHz
- Package Outline DIP8, DMP8, SIP8
- Bipolar Technology

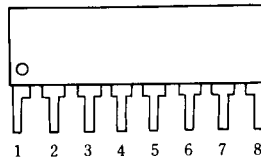
■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player

■ PIN CONFIGURATION



NJM2243D
NJM2243M



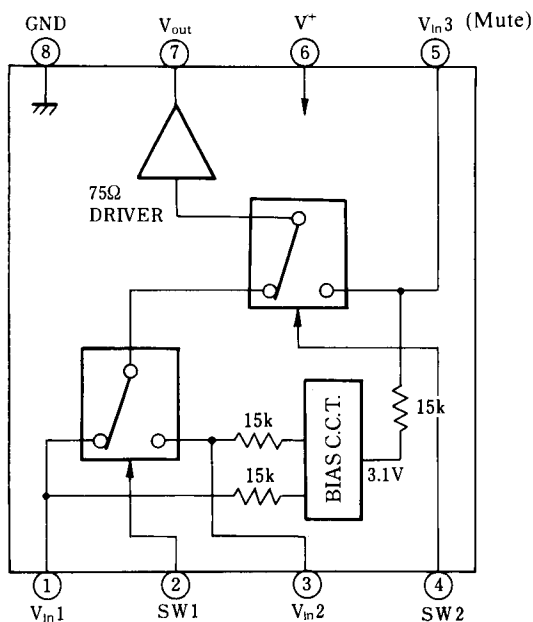
NJM2243L

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} |

NJM2243

■ 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⁺ = 9V, Ta = 25°C)

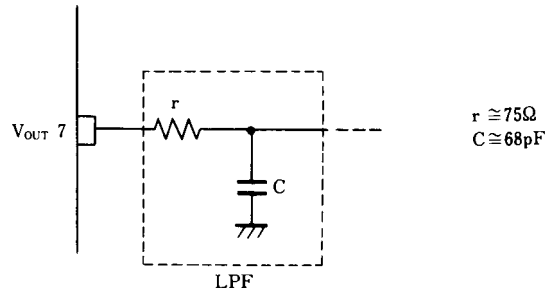
| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------------|------------------|--|------|------|------|------|
| Recommended Supply Voltage | V ⁺ | | 8.5 | - | 13.0 | V |
| Operating Current | I _{CC} | S1 = S2 = S3 = S4 = S5 = 2 | 13.0 | 18.5 | 25.0 | mA |
| Voltage 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 = 1kΩ | -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 | - | - | ±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 |
| Input Impedance | R _i | | - | 15 | - | kΩ |

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

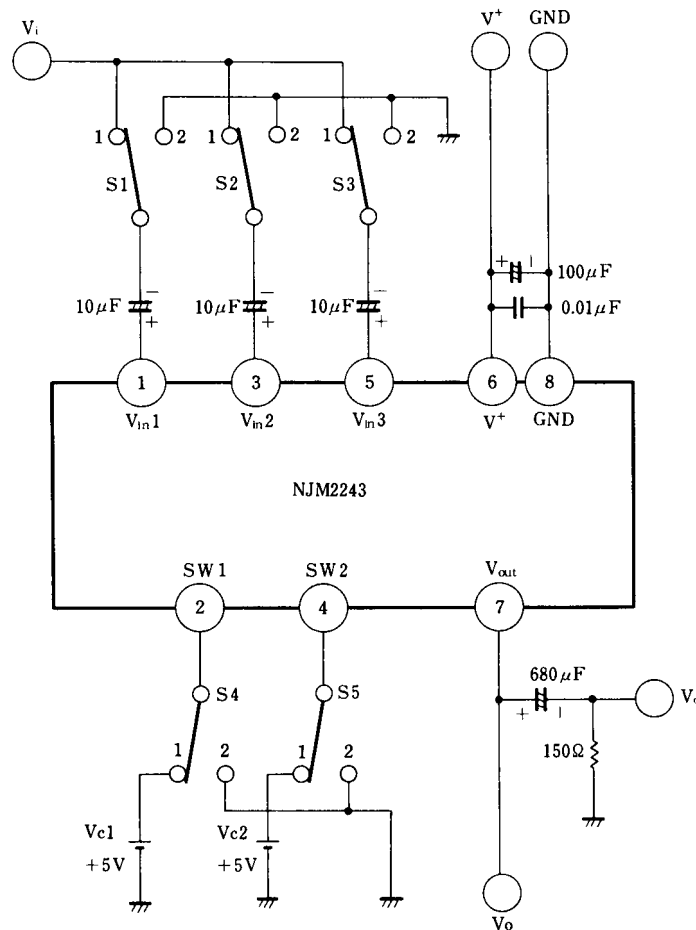
a) S1 = 1, S2 = S3 = S4 = S5 = 2 b) S2 = S4 = 1, S1 = S3 = S5 = 2 c) S3 = S5 = 1, S1 = S2 = 2, S4 = 1 or 2

APPLICATION

Oscillation Prevention on light loading conditions
 Recommended under circuit



TEST CIRCUIT



DC Voltage Each Terminal
 Typ. On Test Circuit $T_a = 25^\circ\text{C}$

| Terminal Name | V_{IN1} | SW1 | V_{IN2} | SW2 | V_{IN3} | V^+ | V_{OUT} | GND |
|---------------|-------------------|-----|-------------------|-----|-------------------|-------|-------------------------|-----|
| DC Voltage | $\frac{3}{5} V^+$ | - | $\frac{3}{5} V^+$ | - | $\frac{3}{5} V^+$ | - | $\frac{2}{5} V^+ - 0.7$ | - |

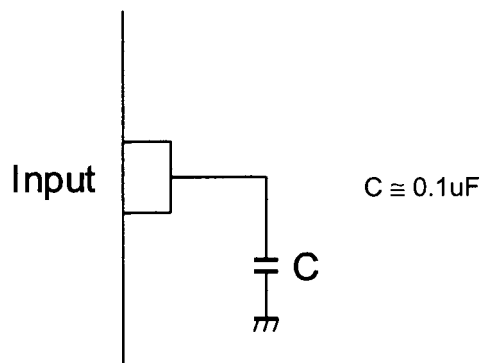
NJM2243

■ 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 0.1uF capacitor between INPUT and GND for bias type input at mute mode.



[CAUTION]

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