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New Japan Radio Co.,Ltd.

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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.

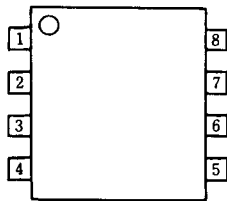
■ FEATURES

- 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

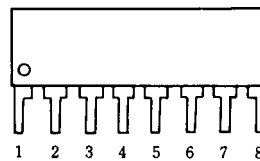
■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player

■ PIN CONFIGURATION



NJM2244D
NJM2244M



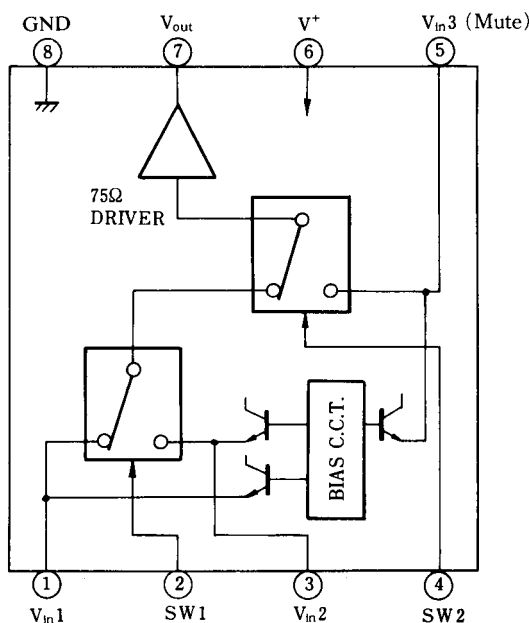
NJM2244L

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

■ 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

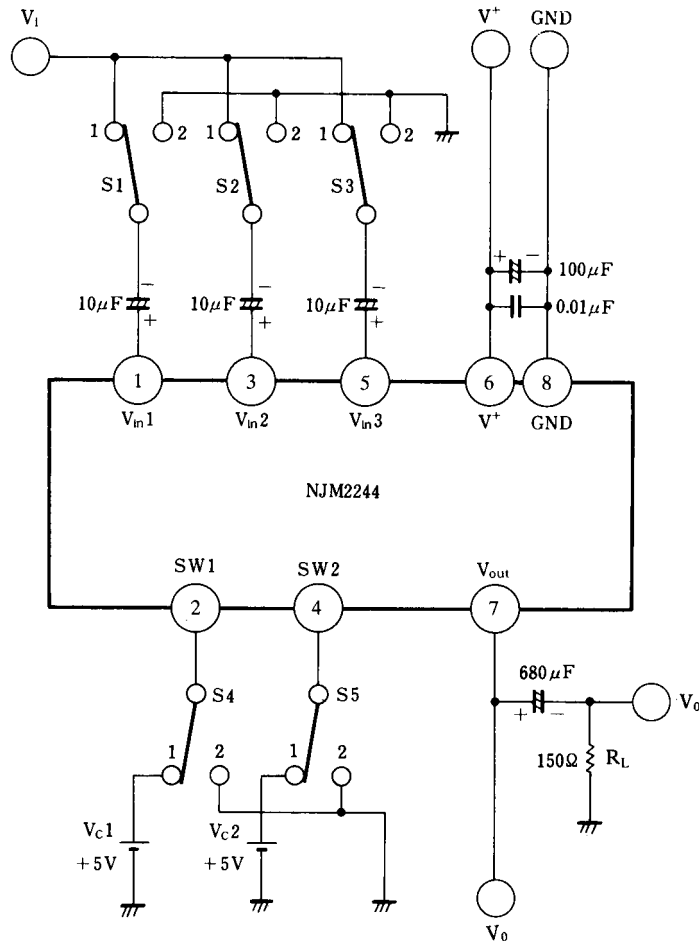
(V⁺ = 5V, Ta = 25°C)

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

■ TEST CIRCUIT

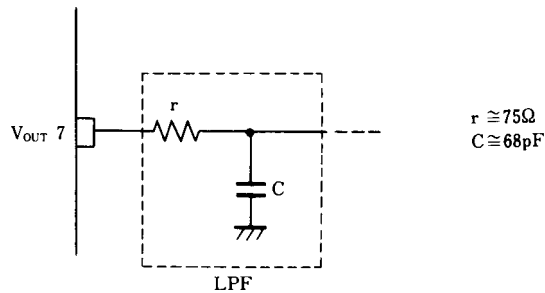


DC Voltage Each Terminal
Typ. on Test Circuit $T_a = 25^\circ\text{C}$

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

■ APPLICATION

Oscillation Prevention on light loading conditions
Recommended under circuit



■ MUTE

Use pin5 as mute terminal.
Pin5: connect to GND via a capacitor (0.1µF), and SW2 to high.

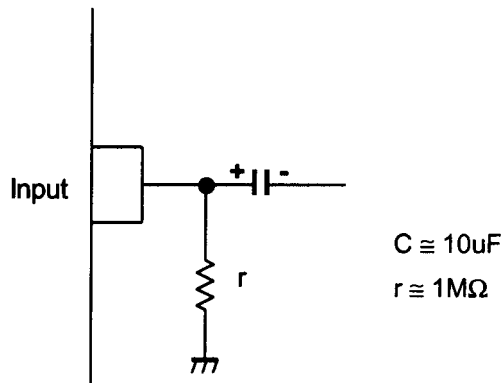
NJM2244

■ EQUIVALENT CIRCUIT

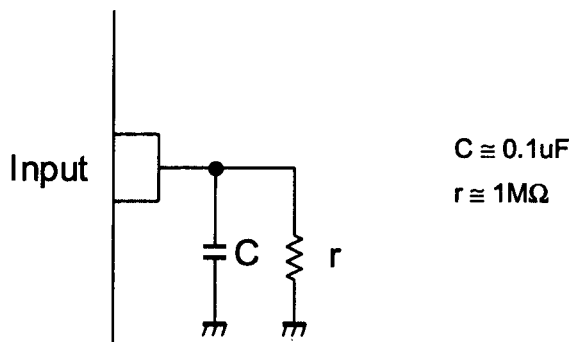
PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT	PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	V _{IN1}		5	V _{IN3} (Mute)	
2	SW1		6	V ⁺	_____
3	V _{IN2}		7	V _{OUT}	
4	SW2		8	GND	_____

■ 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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