3 – INPUT VIDEO SWITCH

GENERAL DESCRIPTION

The **NJM2249** is 3-input video switch for video and audio signal. One input terminals has sink-chip clamp function and so it is applied to fixed DC level of video signal. Two other input terminals are transistor base input for luminant signal and so luminant level may be easily fixed by outer circuit. Its operating supply voltage range is 4.75 to 13V and bandwidth is 10MHz. Cross-talk is 70dB (at 4.43MHz).

■ FEATURES

- Operating Voltage (V⁺ = +4.75V to +13V)
- 3 Input 1 Output
- Internal Clamp Function (V_{IN}1)
- Internal Luminance Signal Control Function (V_{IN}2, V_{IN}3)
- Cross talk 70dB (at 4.43MHz)
- Wide Frequency Range
- Package Outline DIP8, DMP8, SIP8, SSOP8
- Bipolar Technology

■ APPLICATION

• VCR, Video Camera, AV-TV, Video Disc Player

NJM2249D NJM2249M NJM2249V 8

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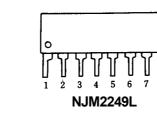
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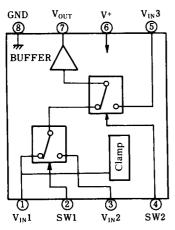
■ PIN CONFIGURATION



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PIN FUNCTION 1. Vin 1 2. SW 1 3. Vin 2 4. SW 2 5. Vin 3 6. V⁺ 7. Vout 8. GND

BLOCK DIAGRAM



■ INPUT CONTROL SIGNAL-OUTPUT SIGNAL

SW1	SW2	OUTPUT SIGNAL
L	L	V _{IN} 1
Н	L	V _{IN} 2
L/H	Н	V _{IN} 3

PACKAGE OUTLINE





NJM2249D

NJM2249M





NJM2249V

NJM2249L

■ ABSOLUTE MAXIMUM RATINGS

■ ABSOLUTE MAXIMUM RA	$(T_a = 25^{\circ}C)$		
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	15	V
Power Dissipation	PD	(DIP8) 500	mW
		(DMP8) 300	mW
		(SSOP8) 250	mW
		(SIP8) 800	mW
Operating Temperature Range	T _{opr}	-20 to +75	°C
Storage Temperature Range	T_{stg}	-40 to +125	٦°

ELECTRICAL CHARACTERISTICS

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PARAMETERS	SYMBOLS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	
Recommended Supply Voltage	V ⁺		4.75	-	13.0	V	
Operating Current	Icc	S1 = S2 = S3 = S4 = S5 = 1	-	10.5	13.0	mA	
Voltage Gain	Gv	$V_1 = 2.5V_{P-P}$, 100kHz, V_0 / V_1	-0.5	-	+0.5	dB	
Frequency Characteristics	Gf	$V_1 = 2.0V_{P-P}, V_0 (10MHz) / V_0 (100MHz)$	-1.0	0	+1.0	dB	
Differential Gain	DG	$V_1 = 2V_{P-P}$, Staircase signal	-	0	-	%	
Differential Phase	DP	$V_1 = 2V_{P-P}$, Staircase signal	-	0	-	deg	
Cross-talk	СТ	$V_1 = 2.0V_{P-P}, 4.43MHz, V_0 / V_1(Note 1)$	-	-70	-	dB	
Switch Change Voltage	V _{CH}	All inside SW : ON	2.4	-	-	V	
	V _{CL}	All inside SW : OFF	-	-	0.8	V	
Output Impedance	Ro		-	10	-	Ω	

(Note 1): Tested on all combination except three below.

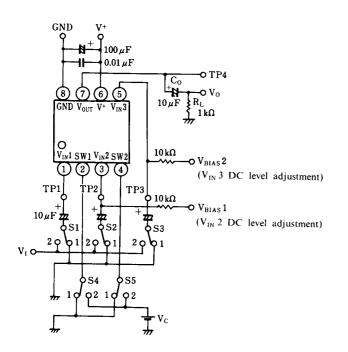
a) S1 = 2, S4 = S5 = 1 b) S2 = 2, S4 = 2, S5 = 1 c) S3 = 2, S5 = 2

(Note 2): Unless specified, tested with $V_{BIAS}1 = V_{BIAS}2 = 3V$.

(Note 3): If it is not shown about switch condition, it is tested on three condition below.

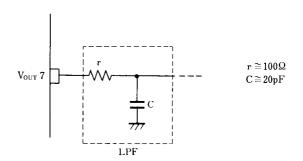
a) S1 = 2, S2 = S3 = S4 = S5 = 1 b) S1 = 1, S2 = 2, S3 = 1, S4 = 2, S5 = 1 c) S1 = S2 = 1, S3 = 2, S4 = 1 or 2, S5 = 2 (Note 4): $V_{IN}1$ clamp voltage is about 2/5 of supply voltage (about 2.0V if $V^+ = 5V$).

■ TEST CIRCUIT



■ SPECIAL CARES TO BE TAKEN WHEN APPLICATION

Oscillation Prevention on light loading conditions Recommended under circuit.



 $(V^{+} = 5V/T_{-} = 25^{\circ}C)$

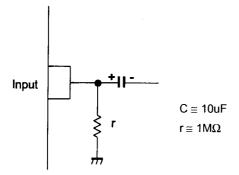
NJM2249

■ TERMINAL FUNCTION

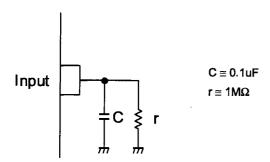
PIN NO.	PIN SYMBOL	EQUIVALENT CIRCUIT	PIN NO.	PIN SYMBOL	EQUIVALENT CIRCUIT
1	V _{IN} 1	V+ V _{IN} 1 \$200Ω 200Ω	5	V _{IN} 3	
2	SW1	2kΩ 2kΩ 13kΩ 1.1 mA 777 777 777 777 777 777	6	V ⁺	
3	V _{IN} 2		7	Vour	200Ω 5 mA
4	SW2	SW2 2kΩ 2kΩ 13kΩ 1.1mA 9kΩ	8	GND	

■ APPLICATION

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



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



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