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New Japan Radio Co.,Ltd.

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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).

■ PACKAGE OUTLINE





NJM2249D

NJM2249M

■ 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



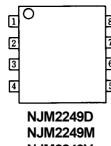
NJM2249V

NJM2249L

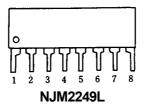
■ APPLICATION

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

■ PIN CONFIGURATION







PIN FUNCTION

1. Vin 1

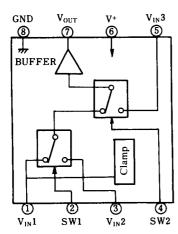
3. VIN 2

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

NJM2249

■ ABSOLUTE MAXIMUM RATINGS

 $(T_a = 25^{\circ}C)$

PARAMETER	SYMBOL	RATINGS	UNIT	
Supply Voltage	V ⁺	15	V	
Power Dissipation	P_D	(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	°C	

■ ELECTRICAL CHARACTERISTICS

 $(V^{+} = 5V, T_a = 25^{\circ}C)$

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	G _V	$V_1 = 2.5V_{P-P}$, 100kHz, V_0 / V_1	-0.5	-	+0.5	dB
Frequency Characteristics	Gf	$V_1 = 2.0V_{P-P}, V_O (10MHz) / V_O (100MHz)$	-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	CT	$V_1 = 2.0 V_{P-P}, 4.43 MHz, V_O / V_1 (Note 1)$	-	-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.

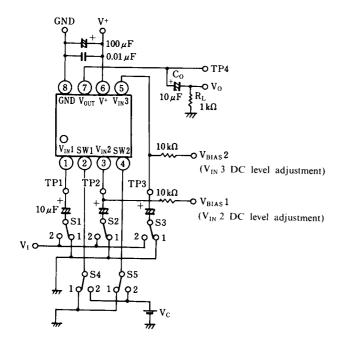
a) S1 = 2, S2 = S3 = S4 = S5 = 1 b) S1 = 1, S2 = 2, S3 = 1, S4 = 2, S5 = 1 c) S1 = S2 = 1, S3 = 2, S4 = 1 or 2, S5 = 2

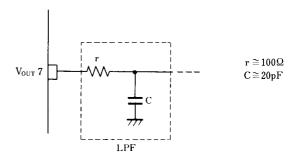
(Note 4): $V_{IN}1$ clamp voltage is about 2 / 5 of supply voltage (about 2.0V if $V^+ = 5V$).

■ TEST CIRCUIT

■ SPECIAL CARES TO BE TAKEN WHEN APPLICATION

Oscillation Prevention on light loading conditions Recommended under circuit.



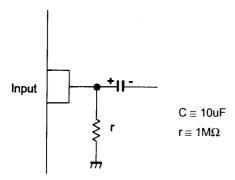


■ TERMINAL FUNCTION

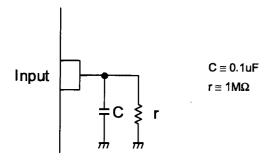
PIN NO.	PIN SYMBOL	EQUIVALENT CIRCUIT	PIN NO.	PIN SYMBOL	EQUIVALENT CIRCUIT
1	V _{IN} 1	V _{1N} 1 ≥ 200 Ω	5	V _{IN} 3	V+ V _{IN} 3 200Ω
2	SW1	2kΩ 3 13kΩ 13kΩ 13kΩ 9kΩ	6	V ⁺	
3	V _{IN} 2	V ⁺ V _{IN} 2 O	7	Vouт	200Ω V _{OUT} 5 mA
4	SW2	2kΩ 13kΩ 13	8	GND	

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



[CAUTION]
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