

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



# Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China









# 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<sup>+</sup> = +4.75V to +13V)
- 3 Input 1 Output
- Internal Clamp Function (V<sub>IN</sub>1)
- Internal Luminance Signal Control Function (V<sub>IN</sub>2, V<sub>IN</sub>3)
- Cross talk 70dB (at 4.43MHz)
- Wide Frequency Range
- Package Outline DIP8, DMP8, SIP8, SSOP8
- Bipolar Technology



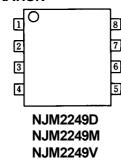
# NJM2249V

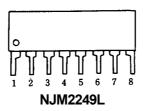
NJM2249L

# **■ APPLICATION**

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

# **■ PIN CONFIGURATION**





#### PIN FUNCTION

1. Vin 1

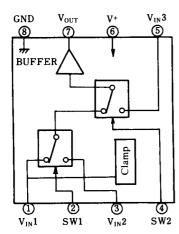
3. Vin 2

4. SW 2

7. V<sub>OUT</sub>

8. GND

# **■ BLOCK DIAGRAM**



# ■ INPUT CONTROL SIGNAL-OUTPUT SIGNAL

SW1	SW2	OUTPUT SIGNAL
L	L	V <sub>IN</sub> 1
Н	L	V <sub>IN</sub> 2
L/H	Н	V <sub>IN</sub> 3

# **NJM2249**

# **■ ABSOLUTE MAXIMUM RATINGS**

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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	15	V
Power Dissipation	$P_D$	(DIP8) 500	mW
		(DMP8) 300	mW
		(SSOP8) 250	mW
		(SIP8) 800	mW
Operating Temperature Range	T <sub>opr</sub>	-20 to +75	°C
Storage Temperature Range	T <sub>stg</sub>	-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 <sup>+</sup>		4.75	-	13.0	V
Operating Current	Icc	S1 = S2 = S3 = S4 = S5 = 1	-	10.5	13.0	mA
Voltage Gain	G <sub>V</sub>	$V_1 = 2.5V_{P-P}$ , 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 <sub>1</sub> = 2V <sub>P-P</sub> , 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.

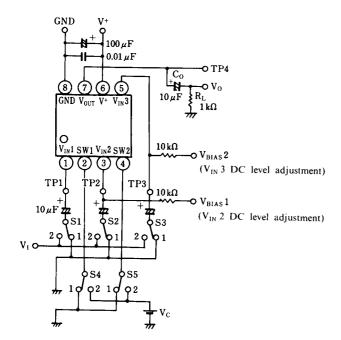
a) S1 = 2, S2 = S3 = S4 = S5 = 1 b) S1 = 1, S2 = 2, S3 = 1, S4 = 2, S5 = 1 c) S1 = S2 = 1, S3 = 2, S4 = 1 or 2, S5 = 2

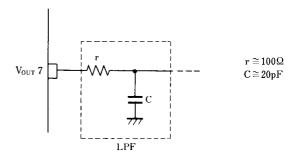
(Note 4):  $V_{IN}1$  clamp voltage is about 2 / 5 of supply voltage (about 2.0V if  $V^+ = 5V$ ).

# **■ TEST CIRCUIT**

# ■ SPECIAL CARES TO BE TAKEN WHEN APPLICATION

Oscillation Prevention on light loading conditions Recommended under circuit.



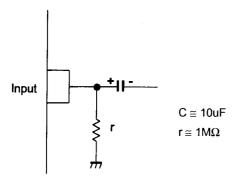


# **■ TERMINAL FUNCTION**

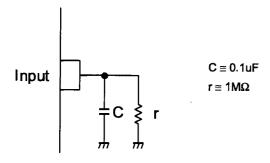
PIN NO.	PIN SYMBOL	EQUIVALENT CIRCUIT	PIN NO.	PIN SYMBOL	EQUIVALENT CIRCUIT
1	V <sub>IN</sub> 1	V <sub>1N</sub> 1 ≥ 200 Ω	5	V <sub>IN</sub> 3	V+ V <sub>IN</sub> 3 200Ω
2	SW1	2kΩ 3 13kΩ 13kΩ 13kΩ 9kΩ	6	V <sup>+</sup>	
3	V <sub>IN</sub> 2	V <sup>+</sup> V <sub>IN</sub> 2 O	7	Vouт	200Ω V <sub>OUT</sub> 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]
The specifications on this databook are only given for information , without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.