

## 3-INPUT VIDEO SWITCH

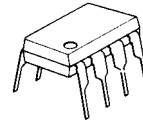
### ■ GENERAL DESCRIPTION

The **NJM2234** is 3-input video switch selecting one of three input video or audio signals. Its operating supply voltage range is 5 to 12V and bandwidth is 10MHz. Crosstalk is 70dB (at 4.43MHz).

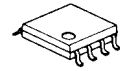
### ■ FEATURES

- Operating Voltage (+4.75V to + 13V)
- 3 Input-1 Output
- Muting Function available
- Wide Operating Supply voltage Range 4.75V to 13V
- Cross-talk 70dB (at 4.43MHz)
- Muting Function available
- Package Outline DIP-8, DMP-8, SIP-8, SSO-8
- Bipolar Technology

### ■ PACKAGE OUTLINE



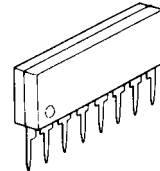
**NJM2234D**



**NJM2234M**



**NJM2234V**

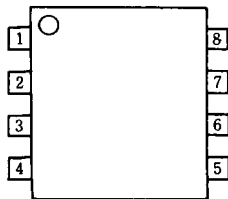


**NJM2234L**

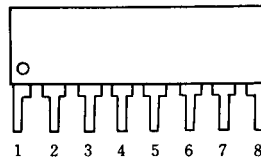
### ■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player Audio

### ■ PIN CONFIGURATION



**NJM2234D**  
**NJM2234M**  
**NJM2234V**

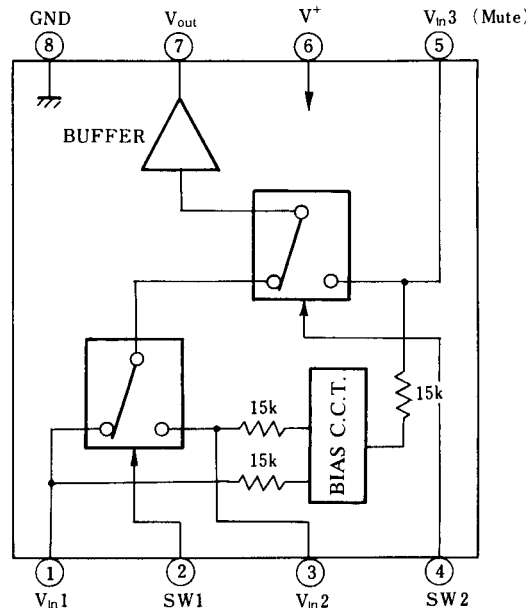


**NJM2234L**

### PIN FUNCTION

1.  $V_{in1}$
2. SW1
3.  $V_{in2}$
4. SW2
5.  $V_{in3}$
6.  $V^+$
7.  $V_{out}$
8. GND

### ■ BLOCK DIAGRAM



# NJM2234

## ■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+$	15	V
Power Dissipation	$P_D$	(DIP8) 500 (DMP8) 300 (SSOP8) 250 (SIP8) 800	mW 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=1	-	11.0	14.5	mA
Frequency Characteristic (1)	$G_{f1}$	$V_i=2.5V_{pp}$ Vo (20Hz)/Vo (100kHz)	-1.0	-	+1.0	dB
Frequency Characteristic (2)	$G_{f2}$	$V_i=2.0V_{pp}$ Vo (10MHz)/Vo (100kHz)	-1.0	-	+1.0	dB
Voltage Gain	$G_V$	$V_i=2.5V_{pp}$ , 100kHz, $V_o/V_i$	-0.5	-	+0.5	dB
Total Harmonic Distortion	THD	$V_i=2.5V_{pp}$ , 1kHz	-	0.03	-	%
Differential Gain	DG	$V_i=2V_{pp}$ Staircase signal	-	0	-	%
Differential Phase	DP	$V_i=2V_{pp}$ Staircase signal	-	0	-	deg
Output Offset Voltage	$V_{off}$	(note 2)	-30	-	+30	mV
Crosstalk (1)	CT1	$V_i=2.0V_{pp}$ , 4.43MHz, $V_o/V_i$ (note 3)	-	-70	-	dB
Crosstalk (2)	CT2	$V_i=2.0V_{pp}$ , 4.43MHz, $V_o/V_i$ (note 4)	-	-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	$R_1$		-	15	-	K $\Omega$
Output Impedance	$R_o$		-	10	-	$\Omega$

(note 1): If it is not shown about switch condition, it is tested on three condition below.

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

(note 2): S1=S2=S3=1, Output DC Voltage difference of three mode below.

a) S4=S5=1 b) S4=2, S5=1 c) S4=1 or 2, S5=2

(note 3): S5=1, Tested on all combination of S1 to S4 excepted two below.

a) S1=S2, S4=1 b) S2=S4=2

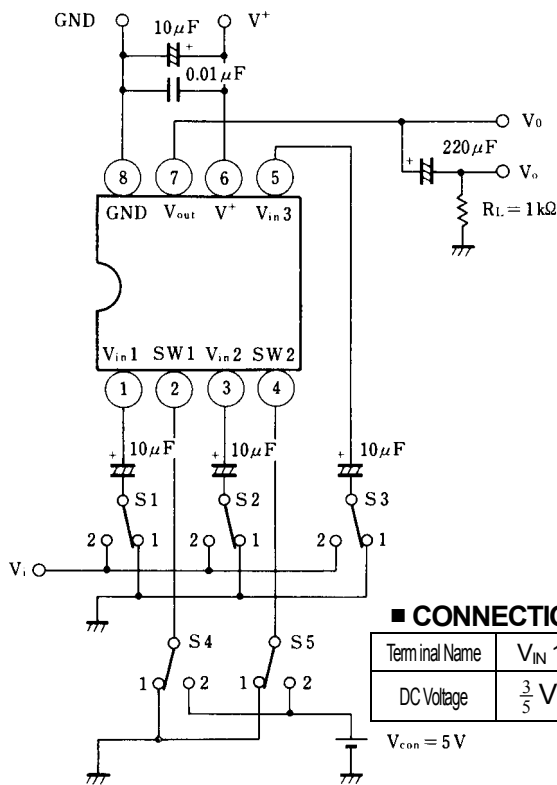
(note 4): Tested on all combination of S1 to S4 excepted one.

a) S5=2, S3=2

## INPUT CONTROL SIGNAL – OUTPUT SIGNAL

SW 1	SW 2	OUTPUT SIGNAL
L	L	$V_{IN1}$
H	L	$V_{IN2}$
L/H	H	$V_{IN3}$

## TEST CIRCUIT



**CONNECTION DIAGRAM**

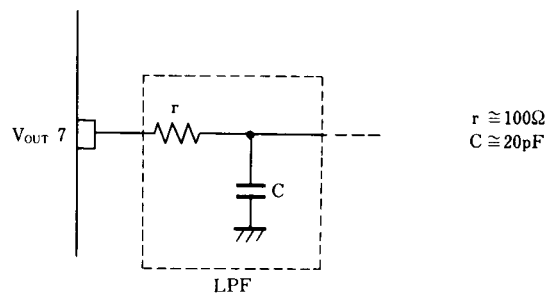
Terminal Name	$V_{IN 1}$	SW 1	$V_{IN 2}$	SW 2	VIN3	$V^+$	$V_{OUT}$	GND
DC Voltage	$\frac{3}{5} V^+$	-	$\frac{3}{5} V^+$	-	$\frac{3}{5} V^+$	-	$\frac{3}{5} V^+ - 0.7$	-

$V_{con} = 5V$

## APPLICATION

Oscillation Prevention on light loading conditions

Recommended under circuit



$r \cong 100\Omega$   
 $C \cong 20pF$

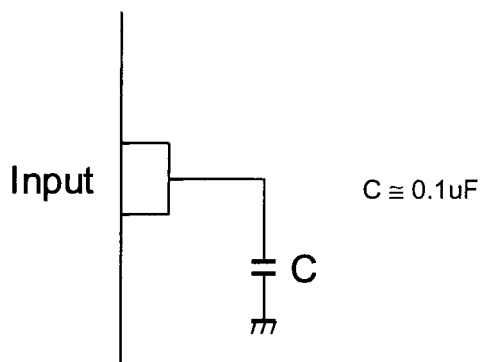
# NJM2234

## ■ EQUIVALENT CIRCUIT

PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT	PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	V <sub>IN1</sub>		5	V <sub>IN3</sub> (Mute)	
2	SW 1		6	V <sup>+</sup>	
3	V <sub>IN2</sub>		7	V <sub>OUT</sub>	
4	SW 2		8	GND	

## ■ APPLICATION

This IC requires 0.1uF capacitor between INPUT and GND for bias type input at mute mode.





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