

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).

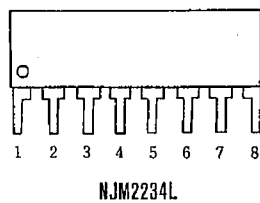
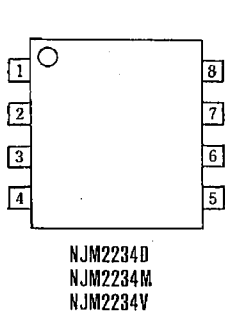
FEATURES

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

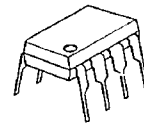
APPLICATION

- VCR Video Camera AV-TV Video Disc Player Audio

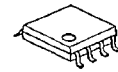
PIN CONFIGURATION



PACKAGE OUTLINE



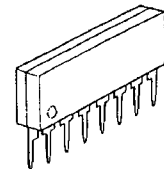
NJM2234D



NJM2234M



NJM2234V

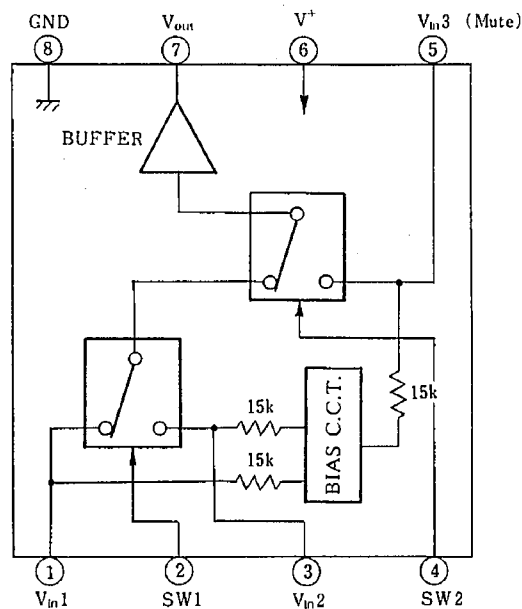


NJM2234L

PIN FUNCTION

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

BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°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~+75	°C
Storage Temperature Range	T _{stg}	-40~+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 Characteristics (1)	G _{f1}	V _i =2.5V _{pp} V _o (20Hz)/V _o (100kHz)	-1.0	—	+1.0	dB
Frequency Characteristics (2)	G _{f2}	V _i =2.0V _{pp} V _o (10MHz)/V _o (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 _I		—	15	—	kΩ
Output Impedance	R _O		—	10	—	Ω

(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~S4 excepted two below.

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

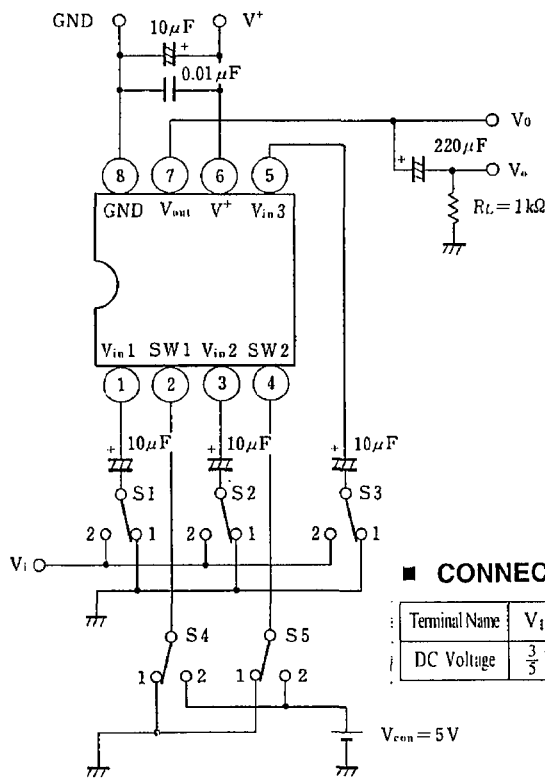
(note 4): Tested on all combination of S1~S4 excepted one.

a) S5=2, S3=2

■ INPUT CONTROL SIGNAL - OUTPUT SIGNAL

SW 1	SW 2	OUTPUT SIGNAL
L	L	V _{IN 1}
H	L	V _{IN 2}
L/H	H	V _{IN 3}

■ TEST CIRCUIT

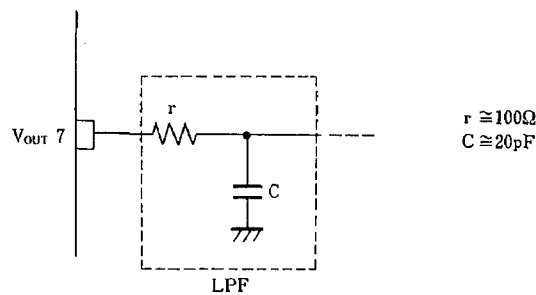


■ CONNECTION DIAGRAM

Terminal Name	V _{IN 1}	SW1	V _{IN 2}	SW2	V _{IN 3}	V ⁺	V _{OUT}	GND
DC Voltage	$\frac{3}{5} V^+$	—	$\frac{3}{5} V^+$	—	$\frac{3}{5} V^+$	—	$\frac{3}{5} V^+ - 0.7$	—

■ APPLICATION

Oscillation Prevention on light loading conditions
Recommended under circuit

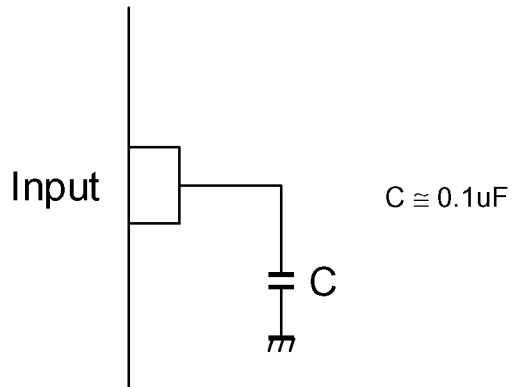


■ EQUIVALENT CIRCUIT

PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT	PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	V _{IN 1}		5	V _{IN 3} (Mute)	
2	SW 1		6	V+	
3	V _{IN 2}		7	V _{OUT}	
4	SW 2		8	GND	

■APPLICATION

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



[CAUTION]

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