3-INPUT VIDEO SWITCH

■ GENERAL DESCRIPTION

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

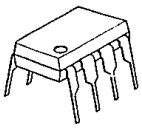
■ FEATURES

- 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

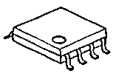
■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player Audio

■ PACKAGE OUTLINE

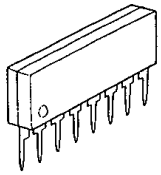


NJM2234D



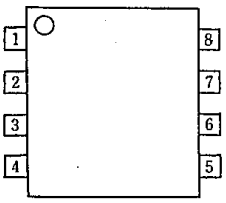
NJM2234M

NJM2234V

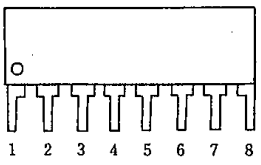


NJM2234L

■ PIN CONFIGURATION



NJM2234D
NJM2234M
NJM2234V

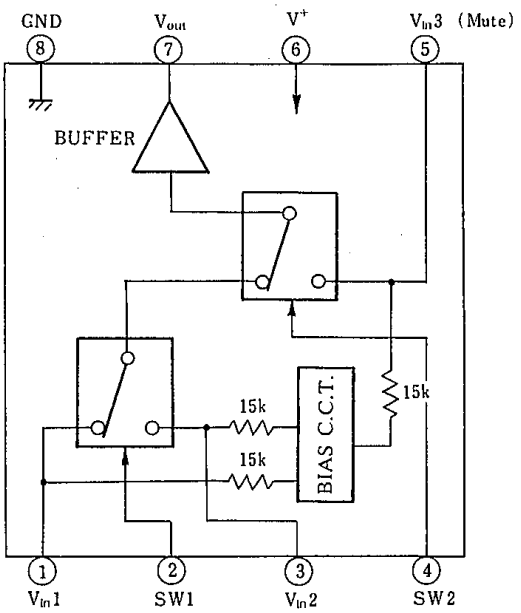


NJM2234L

PIN FUNCTION

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

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

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	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

■ ELECTRICAL CHARACTERISTICS

(V^+=5V, Ta=25℃)

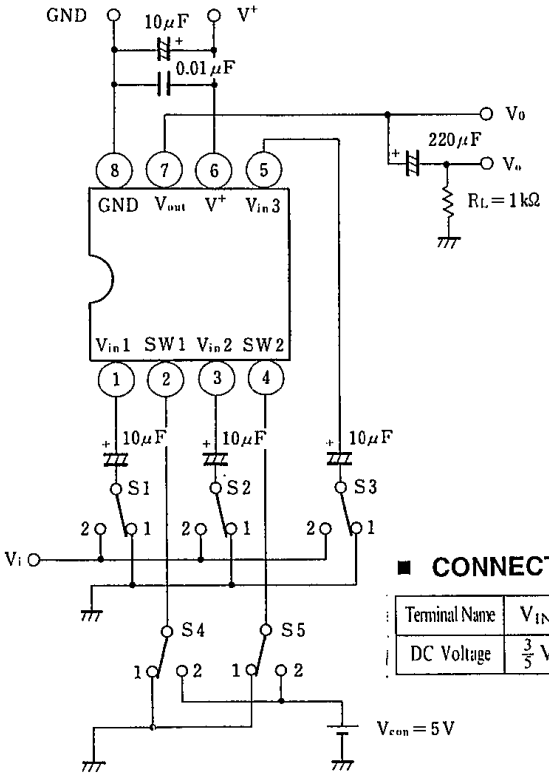
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Recommended Supply Voltage	V^+		4.75	—	13.0	V
Operating Current	I_{CC}	S1=S2=S3=S4=S5=1	—	11.0	14.5	mA
Frequency Characteristics (1)	G_{f1}	Vi=2.5Vpp Vo(20Hz)/Vo(100kHz)	−1.0	—	+1.0	dB
Frequency Characteristics (2)	G_{f2}	Vi=2.0Vpp Vo(10MHz)/Vo(100kHz)	−1.0	—	+1.0	dB
Voltage Gain	G_V	Vi=2.5Vpp, 100kHz Vo/Vi	−0.5	—	+0.5	dB
Total Harmonic Distortion	THD	Vi=2.5Vpp, 1kHz	—	0.03	—	%
Differential Gain	DG	Vi=2Vpp Staircase signal	—	0	—	%
Differential Phase	DP	Vi=2Vpp Staircase signal	—	0	—	deg
Output Offset Voltage	V_{off}	(note 2)	−30	—	+30	mV
Crosstalk (1)	CT1	Vi=2.0Vpp. 4.43MHz, Vo/Vi(note 3)	—	−70	—	dB
Crosstalk (2)	CT2	Vi=2.0Vpp, 4.43MHz, Vo/Vi (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



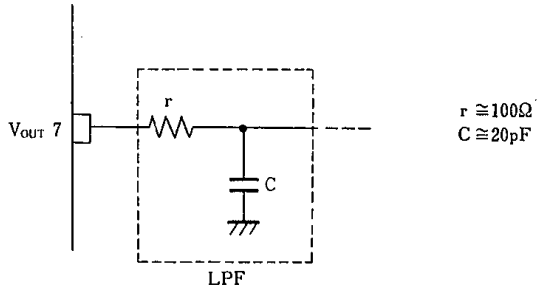
■ CONNECTION DIAGRAM

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

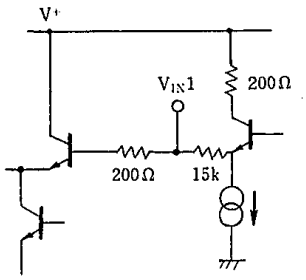
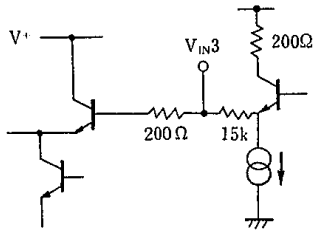
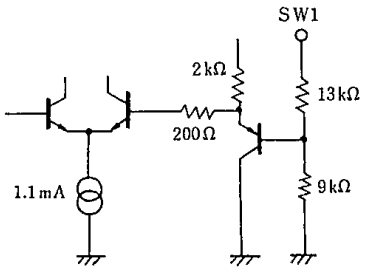
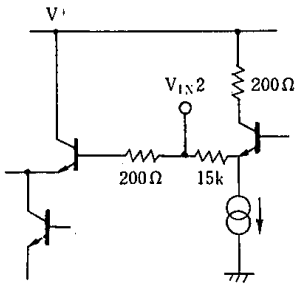
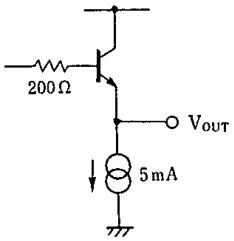
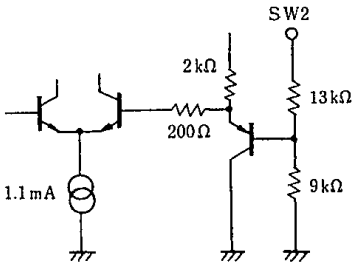
■ APPLICATION

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