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New Japan Radio Co.,Ltd.

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3-INPUT VIDEO SWITCH

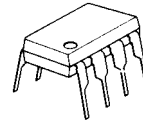
■ GENERAL DESCRIPTION

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).

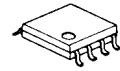
■ FEATURES

- 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



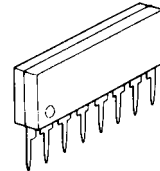
NJM2234D



NJM2234M



NJM2234V

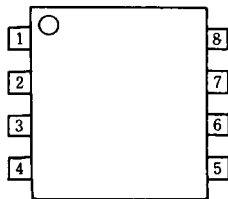


NJM2234L

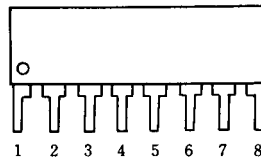
■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player Audio

■ PIN CONFIGURATION



NJM2234D
NJM2234M
NJM2234V

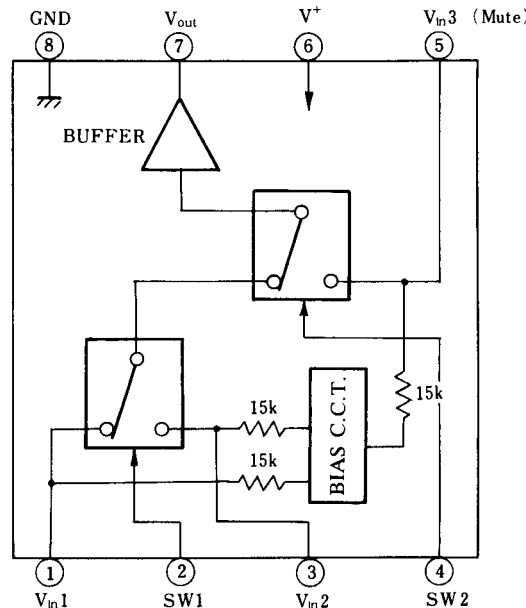


NJM2234L

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 =2.5Vpp V _o (20Hz)/V _o (100kHz)	-1.0	-	+1.0	dB
Frequency Characteristic (2)	G _{f2}	V _i =2.0Vpp V _o (10MHz)/V _o (100kHz)	-1.0	-	+1.0	dB
Voltage Gain	G _V	V _i =2.5Vpp, 100kHz, V _o /V _i	-0.5	-	+0.5	dB
Total Harmonic Distortion	THD	V _i =2.5Vpp, 1kHz	-	0.03	-	%
Differential Gain	DG	V _i =2Vpp Staircase signal	-	0	-	%
Differential Phase	DP	V _i =2Vpp Staircase signal	-	0	-	deg
Output Offset Voltage	V _{off}	(note 2)	-30	-	+30	mV
Crosstalk (1)	CT1	V _i =2.0Vpp, 4.43MHz, V _o /V _i (note 3)	-	-70	-	dB
Crosstalk (2)	CT2	V _i =2.0Vpp, 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	-	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 to S4 excepted two below.

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

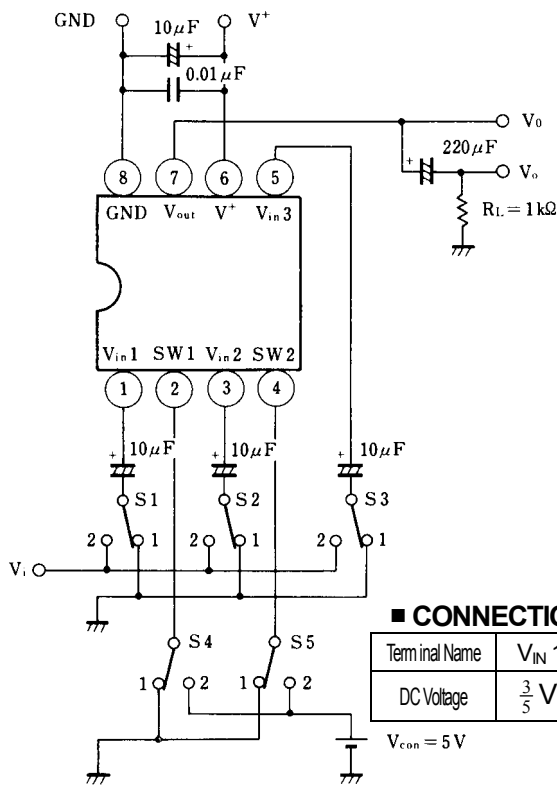
(note 4): Tested on all combination of S1 to S4 excepted one.

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

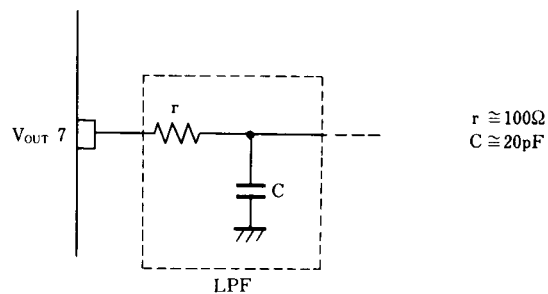
Terminal Name	V_{IN1}	SW 1	V_{IN2}	SW 2	VIN3	V^+	V_{OUT}	GND
DC Voltage	$\frac{3}{5}V^+$	-	$\frac{3}{5}V^+$	-	$\frac{3}{5}V^+$	-	$\frac{3}{5}V^+ - 0.7$	-

$V_{con} = 5V$

■ APPLICATION

Oscillation Prevention on light loading conditions

Recommended under circuit



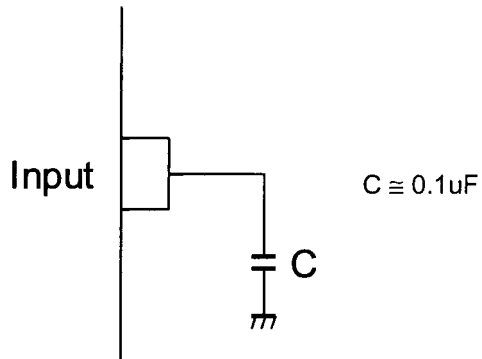
NJM2234

■ EQUIVALENT CIRCUIT

PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT	PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	V _{IN1}		5	V _{IN3} (Mute)	
2	SW 1		6	V ⁺	
3	V _{IN2}		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.



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