

3-INPUT VIDEO SWITCH

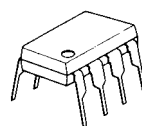
■ GENERAL DESCRIPTION

The **NJM2235** is 3-input video switch for video signal. It has clamp function and so is applied to fixed DC level of video signal. Its operating supply voltage range is 5 to 12V and bandwidth is 10MHz. Crosstalk is 70 dB (at 4.43MHz).

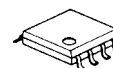
■ FEATURES

- Operating Voltage (+4.75V to +13V)
- 3 Input-1 Output
- Internal Clamp Function
- Wide Operating Supply voltage Range 4.75V to 13V
- Crosstalk 70dB (at 4.43MHz)
- Wide Frequency Range 10MHz
- Muting Function available
- Package Outline DIP-8, DMP-8, SIP-8, SSOP8
- Bipolar Technology

■ PACKAGE OUTLINE



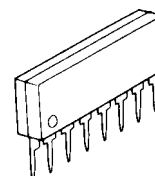
NJM2235D



NJM2235M



NJM2235V

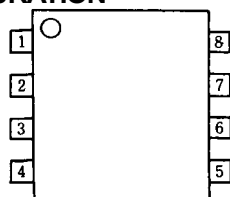


NJM2235L

■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player

■ PIN CONFIGURATION



NJM2235D
NJM2235M
NJM2235V

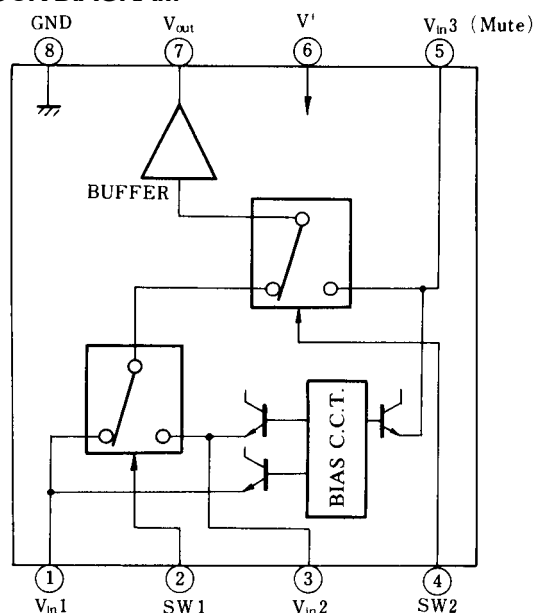


NJM2235L

PIN FUNCTION

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

■ BLOCK DIAGRAM



■ INPUT CONTROL SIGNAL – OUTPUT SIGNAL

SW 1	SW 2	OUTPUT SIGNAL
L	L	V_{in1}
H	L	V_{in2}
L/H	H	V_{in3}

■ 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	-	10.5	14.0	mA
Frequency Characteristics	G_{fz}	$V_i=2.0V_{pp}$ V_o (10Hz)/ 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
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
Input Clamp Voltage	V_{IC}	(note 5)	-	2.0	-	V
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
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) S1=S2=1, S3=S5=2, 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 except two below.

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

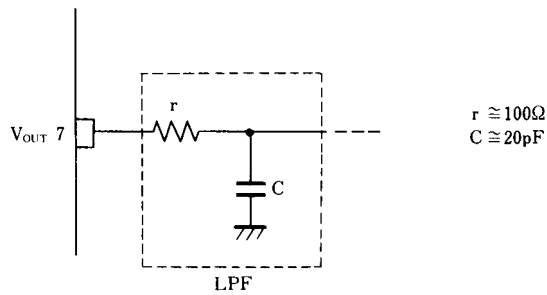
(note 4): Tested on all combination of S1 to S4 except one.

a) S5=2, S3=2

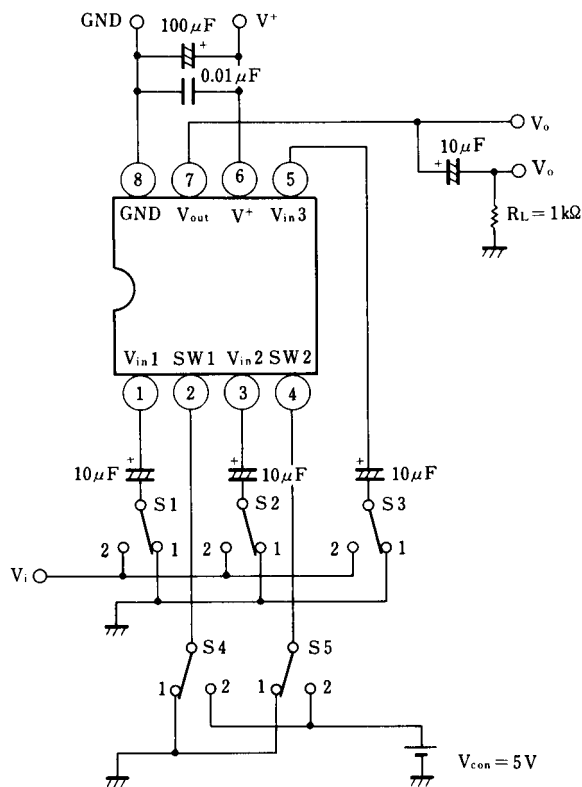
(note 5): Input clamp voltage is about 2/5 of supply voltage.

■ APPLICATION

Oscillation Prevention on light loading conditions
Recommended under circuit



■ TEST CIRCUIT



DC Voltage Each Terminal
Typ. on Test Circuit $T_a=25^{\circ}\text{C}$

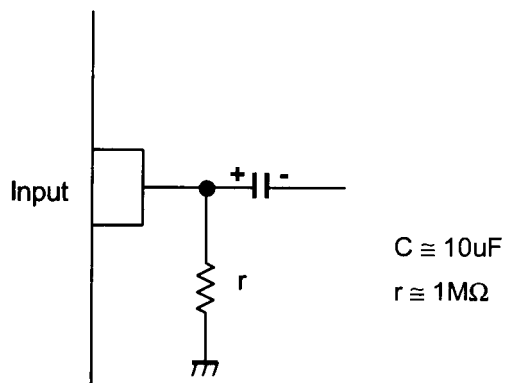
Terminal Name	$V_{IN\ 1}$	SW 1	$V_{IN\ 2}$	SW 2	V_{IN3}	V^+	V_{OUT}	GND
DC Voltage	$\frac{2}{5} V^+$	-	$\frac{2}{5} V^+$	-	$\frac{2}{5} V^+$	-	$\frac{2}{5} V^+ - 0.7$	-

■ EQUIVALENT CIRCUIT

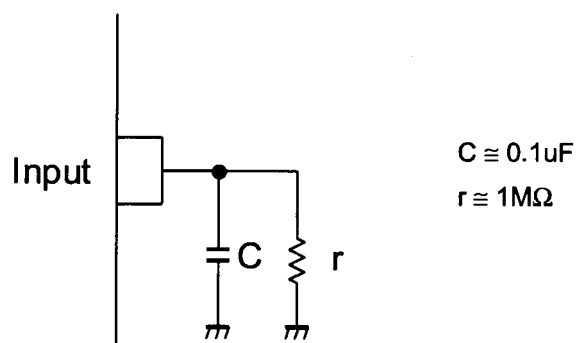
PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT	PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	V _{IN1}		5	V _{IN3} (Mute)	
2	SW 1		6	V ⁺	
3	V _{IN2}		7	V _{OUT}	
4	SW 2		8	GND	

■ APPLICATION

This IC requires $1\text{M}\Omega$ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



This IC requires $0.1\mu\text{F}$ capacitor between INPUT and GND, $1\text{M}\Omega$ resistance between INPUT and GND for clamp type input at mute mode.



[CAUTION]

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