

2-INPUT SINGLE VIDEO SWITCH

■ GENERAL DESCRIPTION

The **NJM2233B** is 2-input signal video switch selecting one of two video or audio signals. Its operating voltage is 4.75 to 13V and bandwidth is 10MHz. Crosstalk is 70dB (at 4.43MHz). It is applied to both NTSC and PAL VTR.

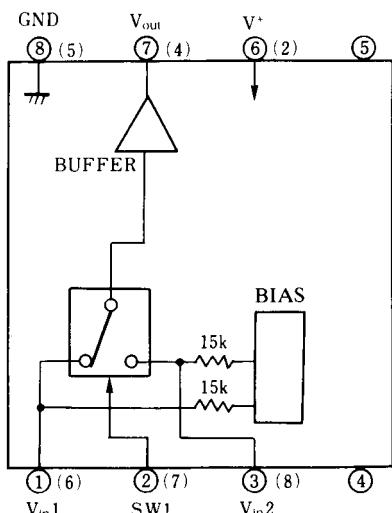
■ FEATURES

- Operating Voltage (+4.75V to +13V)
- 2 Input-1 Output
- Crosstalk 70dB (at 4.43MHz)
- Package Outline DIP8, DMP8, SIP8, SSOP8
- Bipolar Technology

■ APPLICATION

- VCR Video Camera AV-TV Video Disc player Audio

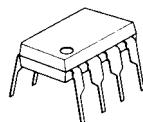
■ BLOCK DIAGRAM



○ : DIP-8, DMP-8 (4, 5Pin NC)

() : SIP-8 (1, 3pin NC)

■ PACKAGE OUTLINE



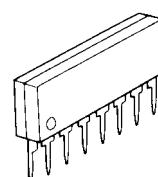
NJM2233BD



NJM2233BM

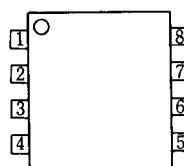


NJM2233BV



NJM2233BL

■ PIN CONFIGURATION



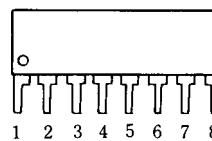
PIN FUNCTION

- 1 . V_{in1}
- 2 . V^+
- 3 . V_{in2}
- 4 . N.C.
- 5 . N.C.
- 6 . V^+
- 7 . V_{out}
- 8 . GND

NJM2233BD

NJM2233BM

NJM2233BV



PIN FUNCTION

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

NJM2233BL

NJM2233B

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	15	V
Power Dissipation	P _D	(DIP8) 500 (DMP8) 300 (SIP8) 800 (SSOP8) 250	mW mW mW mW
Operating Temperature Range	T _{opr}	-20 to +75	°C
Storage Temperature Range	T _{stg}	- 40 to +125	°C

■ ELECTRICAL CHARACTERISTICS

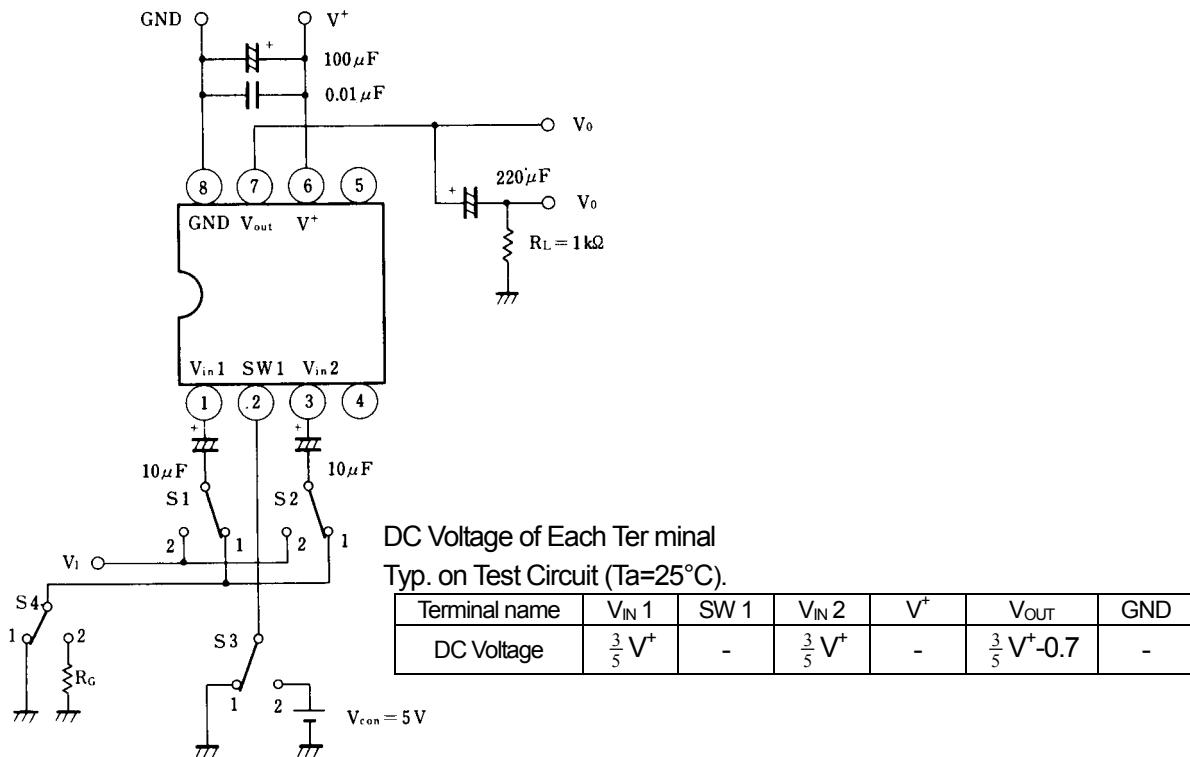
(V⁺=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V ⁺		4.75	-	13.0	V
Operating Current	I _{cc}	S1=S2=S3=1	-	8.5	11.0	mA
Frequency Characteristic (1)	G _{f1}	Vi=2.5Vpp Vo (20Hz)/Vo (100kHz)	-	0	±1.0	dB
Frequency Characteristic (2)	G _{f2}	Vi=2.0Vpp Vo (10MHz)/Vo (100kHz)	-	0	±1.0	dB
Voltage Gain	G _v	Vi=2.5Vpp, 100kHz, Vo/Vi	-0.5	0	-	dB
Total Harmonic Distortion	THD	Vi=2.5Vpp, 1kHz	-	0.01	-	%
Differential Gain	DG	Vi=2Vpp standard staircase signal	-	0	-	%
Differential Phase	DP	Vi=2Vpp standard staircase signal	-	0	-	deg
Output Offset Voltage	V _{off}	S1=S2=1, S3=1→2, Vo voltage change	-	0	±15	mV
Crosstalk	CT	(S1=S3=1, S2=2) and (S1=S3=2, S2=1) Vi=2.0Vpp, 4.43MHz, Vo/Vi	-	-70	-	dB
Switch Change Voltage	V _{ch}	Garanteed voltage of all switch on	2.4	-	-	V
	V _{cl}	Garanteed voltage of all switch off	-	-	0.8	V
Input Impedance	R _i		-	1.5	-	KΩ
Output Impedance	R _o		-	10	-	Ω

■ CONTROL SIGNAL – OUTPUT SIGNAL

SW 1	OUTPUT SIGNAL
L	V _{in} 1
H	V _{in} 2

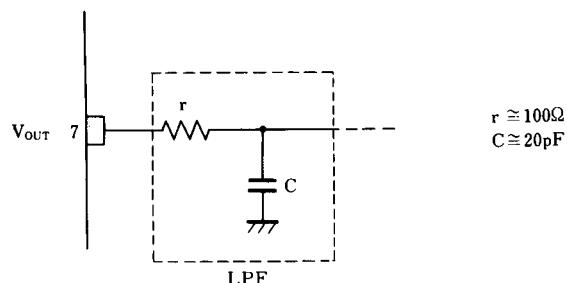
■ TEST CIRCUIT



■ APPLICATION

Oscillation Prevention on light loading conditions

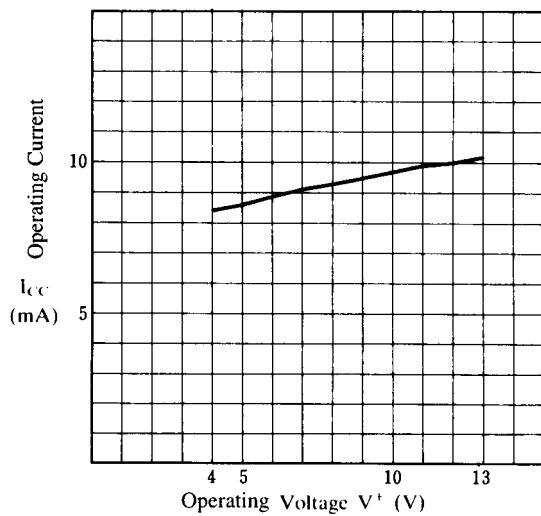
Recommended under circuit



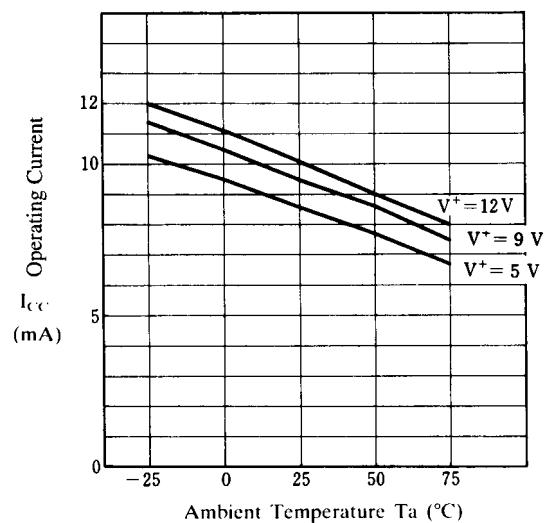
NJM2233B

■ TYPICAL CHARACTERISTICS

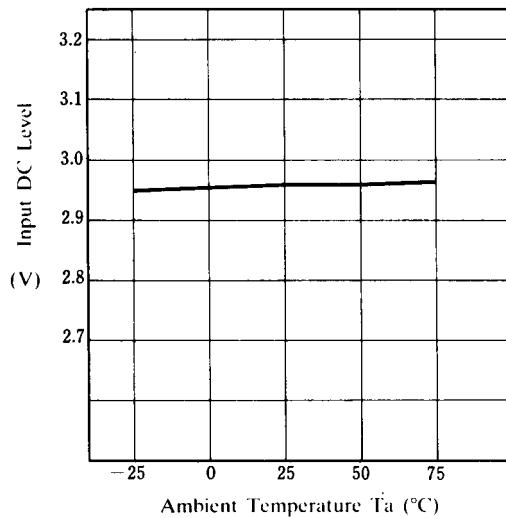
Operating Current (Ta=25°C)



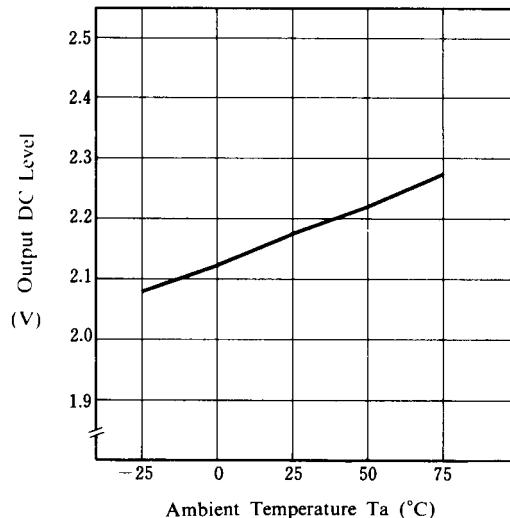
Operating Current (Ta=25°C)



Input DC Level (Ta=25°C, $V^+=5V$)

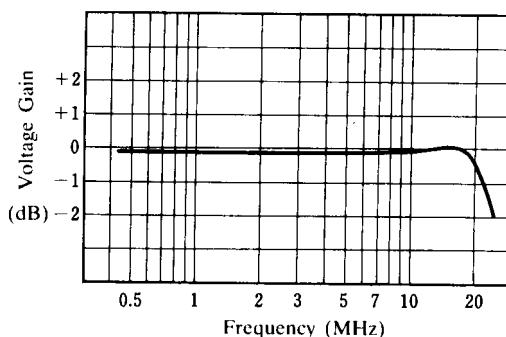


Output DC Level ($V^+=5V$)



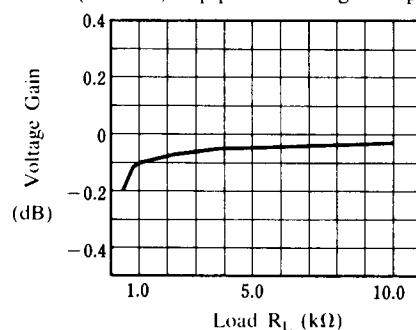
Voltage Gain

($V^+=5V$, 2Vp-p staircase signal input $R_L=1k\Omega$)



Voltage Gain

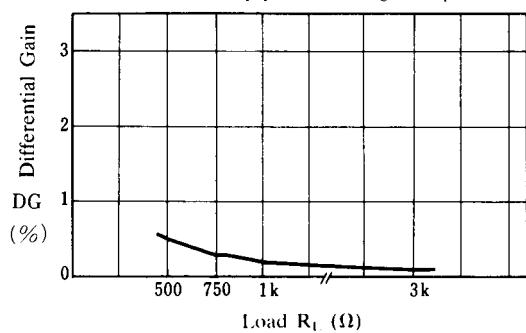
($V^+=5V$, 2Vp-p staircase signal input)



■ TYPICAL CHARACTERISTICS

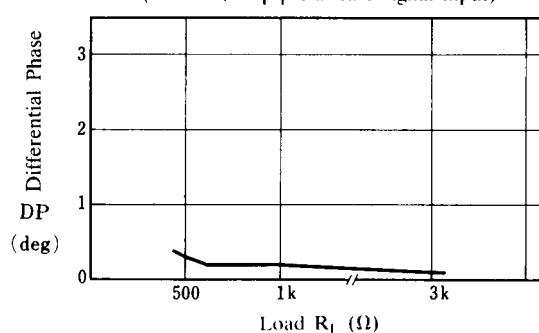
Differential Gain

($V^+ = 5V$, 2Vp-p staircase signal input)



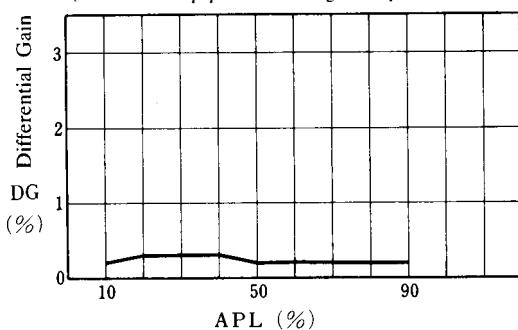
Differential Gain

($V^+ = 5V$, 2Vp-p staircase signal input)



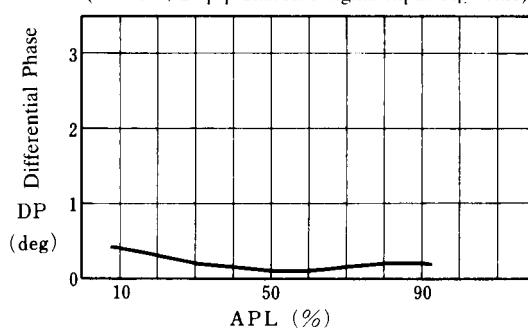
Differential Gain

($V^+ = 5V$, 2Vp-p staircase signal input $R_L = 1k\Omega$)



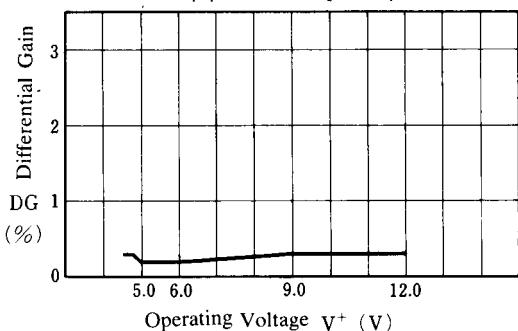
Differential Phase

($V^+ = 5V$, 2Vp-p staircase signal input $R_L = 1k\Omega$)



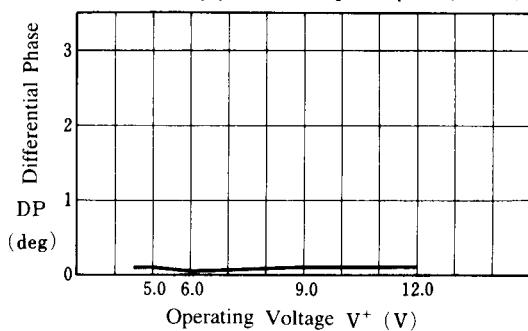
Differential Gain

($V^+ = 5V$, 2Vp-p staircase signal input $R_L = 1k\Omega$)



Differential Phase

($V^+ = 5V$, 2Vp-p staircase signal input $R_L = 1k\Omega$)

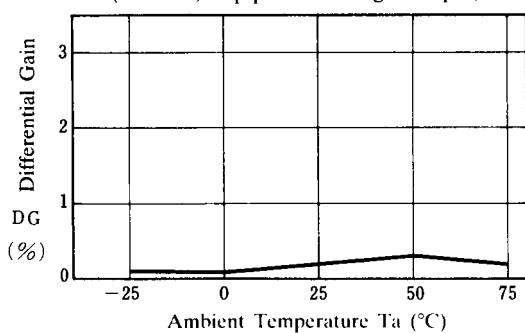


NJM2233B

■ TYPICAL CHARACTERISTICS

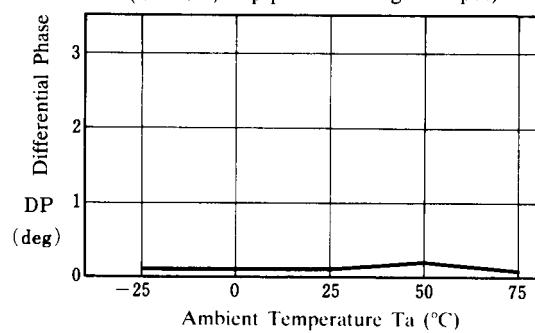
Differential Gain

($V^+ = 5V$, 2Vp-p staircase signal input)



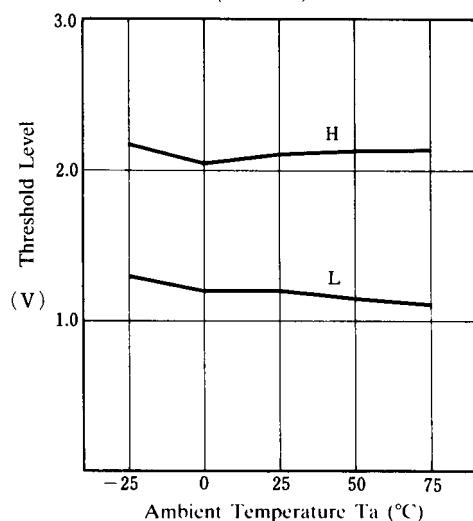
Differential Phase

($V^+ = 5V$, 2Vp-p staircase signal input)



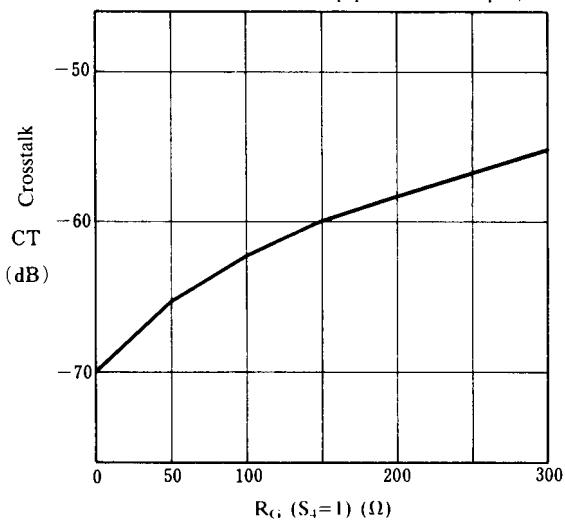
Differential Level

($V^+ = 5V$)



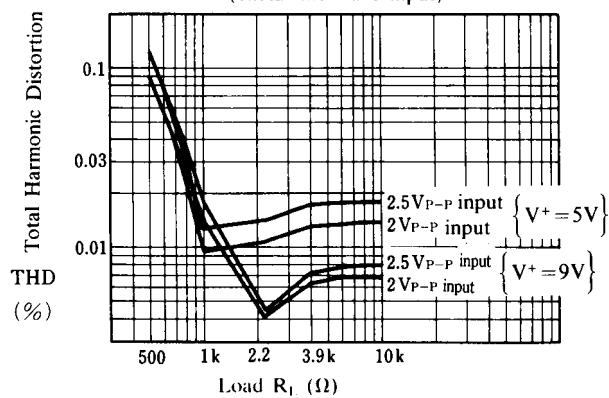
Crosstalk vs. R_G

($V^+ = 5V$, 4.43MHz, 2Vp-p sine wave input)



Total Harmonic Distortion

(1kHz sine wave input)



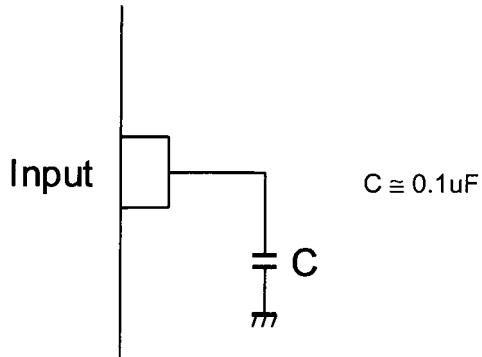
■ EQUIVALENT CIRCUIT

PIN NO.	SYMBOL	INSIDE EQUIVALENT CIRCUIT	PIN NO.	SYMBOL	INSIDE EQUIVALENT CIRCUIT
1	V _{IN1}		5	NC	_____
2	SW 1		6	V ⁺	_____
3	V _{IN2}		7	V _{OUT}	
4	NC	_____	8	GND	_____

NJM2233B

■ APPLICATION

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



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