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.

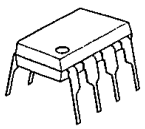
■ FEATURES

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

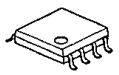
■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player Audio

■ PACKAGE OUTLINE

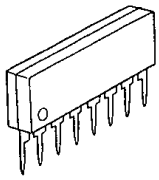


NJM2233BD



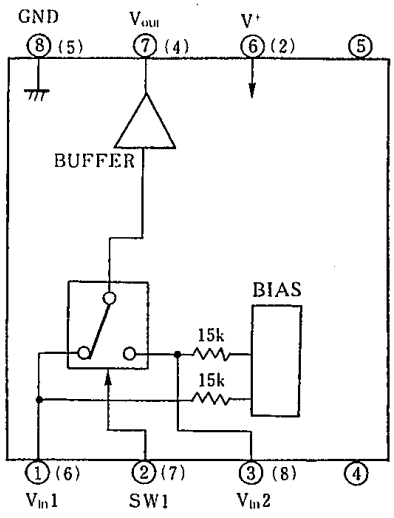
NJM2233BM

NJM2233BV



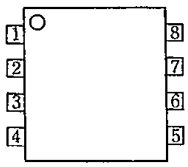
NJM2233BL

■ BLOCK DIAGRAM



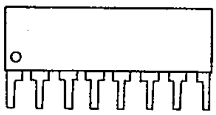
○ DIP−8, DMP−8 (4, 5pin NC)
( ) SIP−8 (1, 3pin NC)

■ PIN CONFIGURATION



NJM2233BD
NJM2233BM
NJM2233BV

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



NJM2233BL

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

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■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	15	V
Power Dissipation	P_D	(DIP8) 500	mW
		(DMP8) 300	mW
		(SIP8) 800	mW
		(SSOP8) 250	mW
Operating Temperature Range	T_{opr}	−20～+75	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

■ ELECTRICAL CHARACTERISTICS

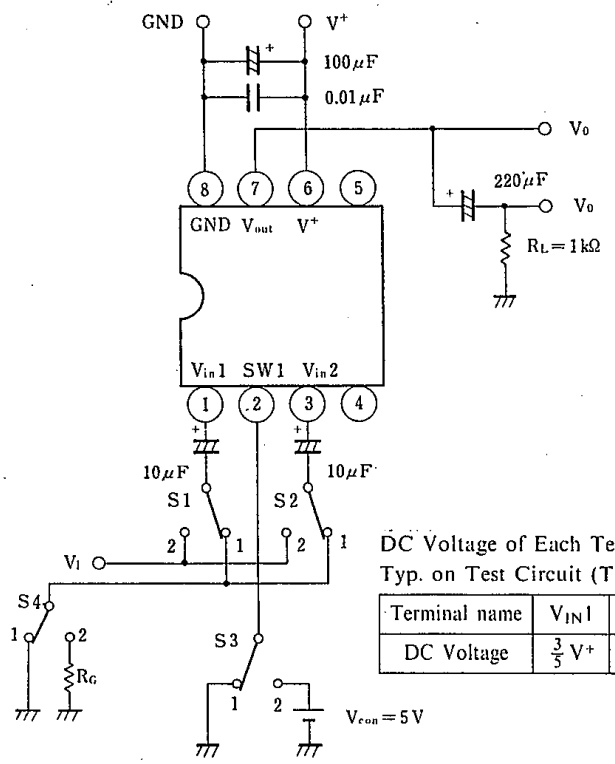
(V^+=5V, Ta=25℃)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
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 V_O(10MHz)/V_O(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		—	15	—	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



DC Voltage of Each Terminal
Typ. on Test Circuit (Ta=25℃).

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

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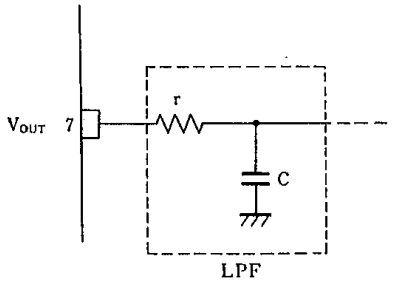
■ APPLICATION

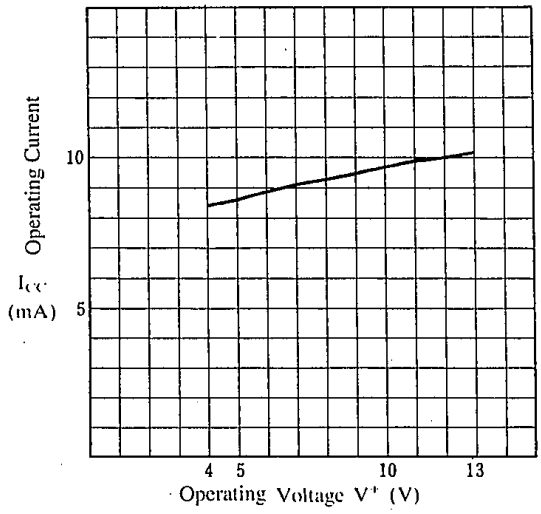
Oscillation Pervention on light loading conditions
Recommended under circuit



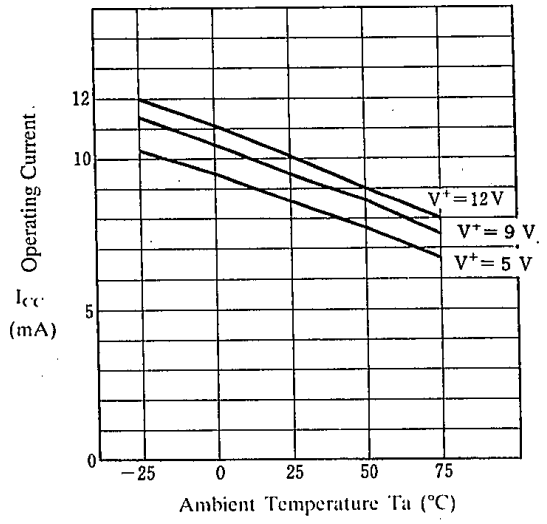
r ≅ 100Ω
C ≅ 20pF

■ TYPICAL CHARACTERISTICS

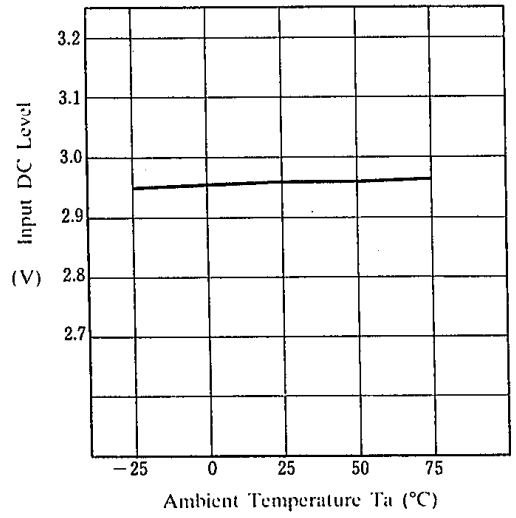
Operating Current (Ta=25°C)



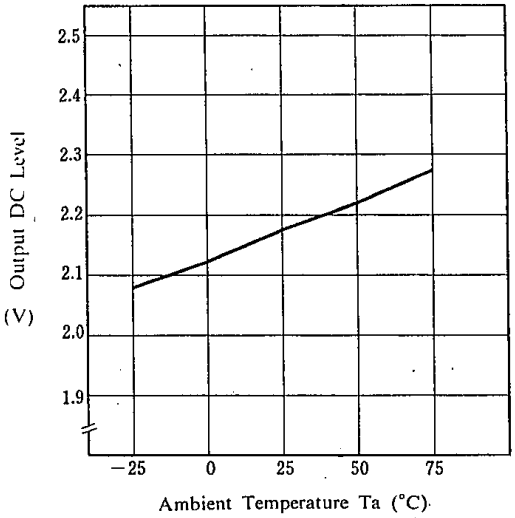
Operating Current (Ta=25°C)



Input DC Level (Ta=25°C, V⁺=5V)

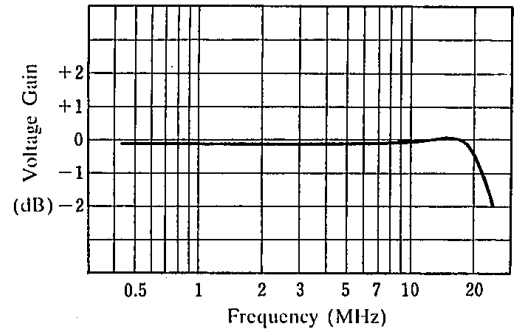


Output DC Level (V⁺=5V)



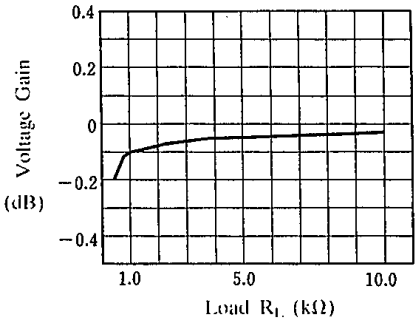
Voltage Gain

(V⁺=5V, 2Vp-p staircase signal input R_L=1kΩ)



Voltage Gain

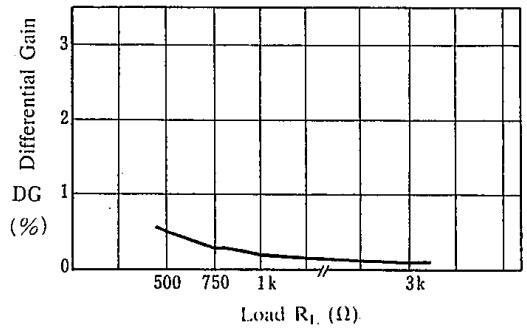
(V⁺=5V, 2Vp-p staircase signal input)



■ TYPICAL CHARACTERISTICS

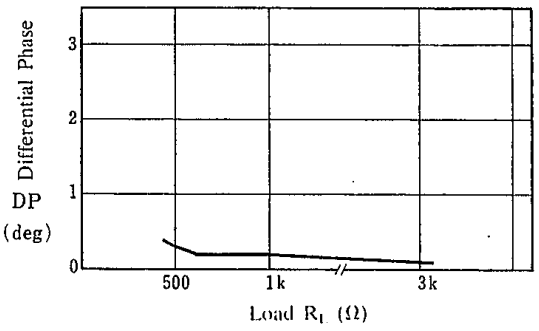
Differential Gain

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



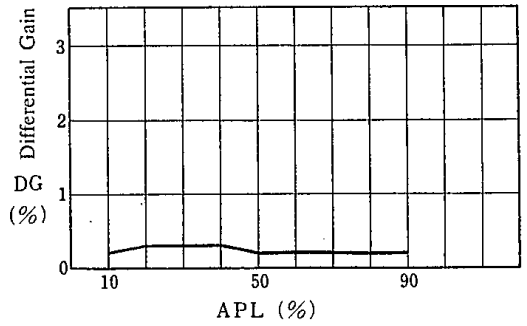
Differential Gain

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



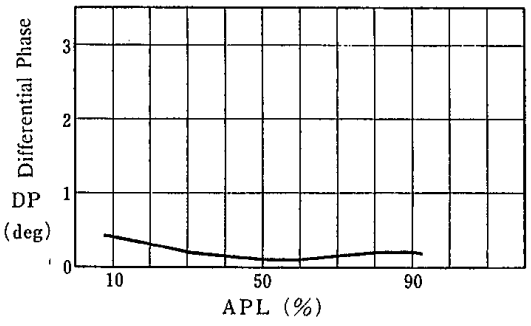
Differential Gain

(V^+=5V, 2Vp-p staircase signal input R_L=1kΩ)



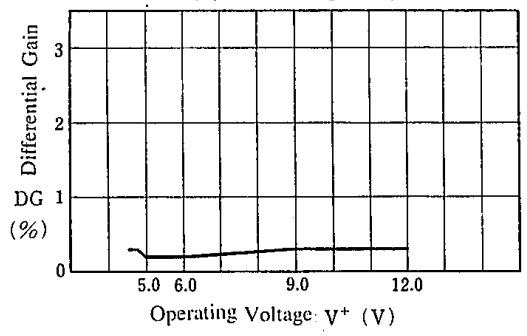
Differential Phase

(V^+=5V, 2Vp-p staircase signal input R_L=1kΩ)



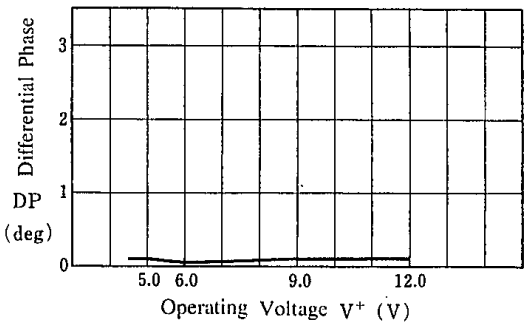
Differential Phase

(V^+=5V, 2Vp-p staircase signal input R_L=1kΩ)



Differential Phase

(V^+=5V, 2Vp-p staircase signal input R_L=1kΩ)



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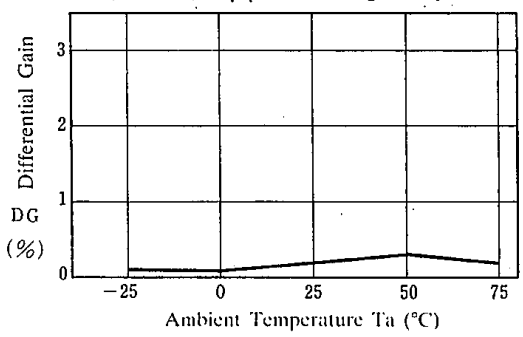
■ TYPICAL CHARACTERISTICS

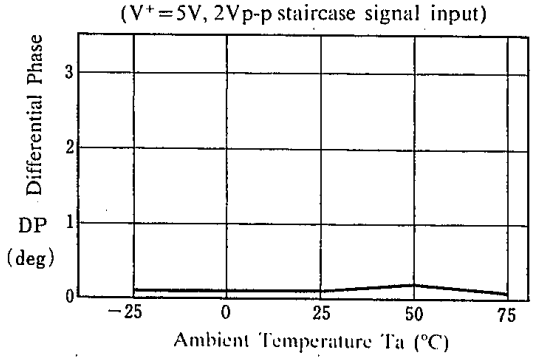
Differential Gain

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



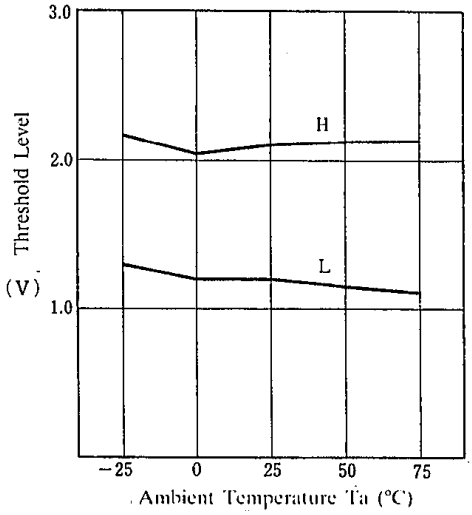
Differential Phase

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



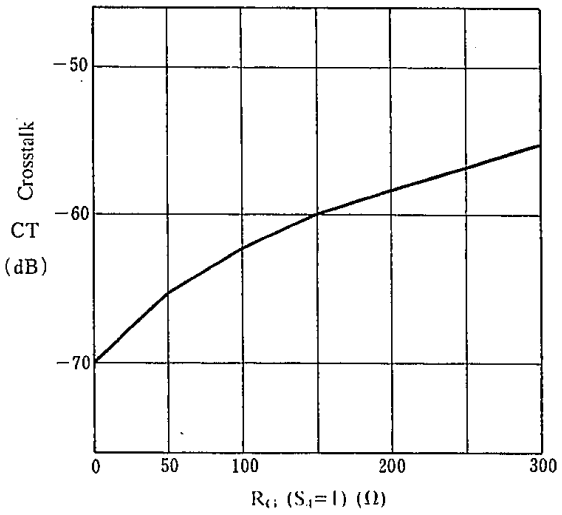
Differential Level

(V^+=5V)



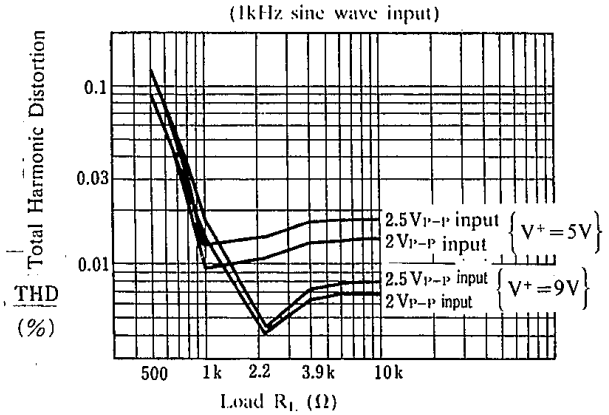
Crosstalk vs. R_G

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

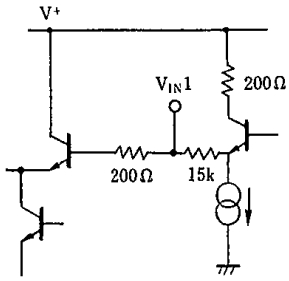
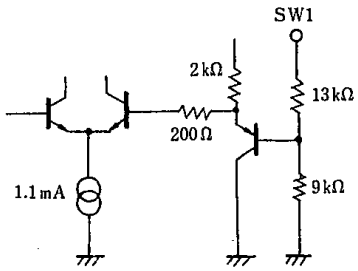
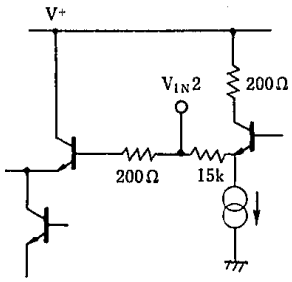
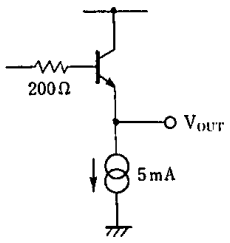


Total Harmonic Distortion

(1kHz sine wave input)



■ EQUIVALENT CIRCUIT

PIN NO.	SYMBOL	INSIDE EQUIVALENT CIRCUIT	PIN NO.	SYMBOL	INSIDE EQUIVALENT CIRCUIT
1	$V_{IN}1$		5	NC	———
2	SW 1		6	V+	———
3	$V_{IN}2$		7	V_{OUT}	
4	NC	———	8	GND	———

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■APPLICATION

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