

3-INPUT / 2-INPUT VIDEO SWITCH

■ GENERAL DESCRIPTION

The **NJM2508** is video switch for video and audio signal. It contanins 3 input-1 output and 2 input-1 output video switch. One input terminal has clamp function and so is applied to fixed DC level of video signal. Its operating voltage is 4.75 to 13V and bandwidth is 10MHz. Crosstalk is 75dB (at f = 4.43MHz)

■ PACKAGE OUTLINE



NJM2508D

NJM2508M



NJM2508V

■ FEATURES

- Operating Voltage (+4.75V to +13V)
- 3 Input-1 Output and 2 Input-1 Output
- Crosstalk 75dB (at 4.43MHz)
- Wide Frequency Range 10MHz (2V_{P-P} Input)
- Package Outline DIP16, DMP16, SSOP16
- Bipolar Technology

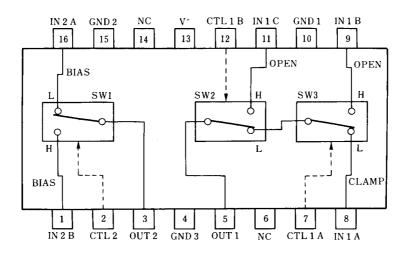
■ RECOMMENDED OPERATING CONDITION

Operating Voltage
V⁺
4.75V to 13.0V

■ APPLICATION

• VCR, Video Camera, AV-TV, Video Disk Player.

■ BLOCK DIAGRAM



NJM2508D NJM2508M NJM2508V

■ ABSOLUTE MAXIMUM RATINGS

 $(T_a = 25^{\circ}C)$

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	14	V
Power Dissipation	P _D	(DIP16) 700 (DMP16) 350 (SSOP16) 300	mW mW mW
Operating Temperature Range	T _{opr}	-40 to +85 °C	
Storage Temperature Range	T _{stg}	-40 to +125 °C	

■ ELECTRICAL CHARACTERISTICS

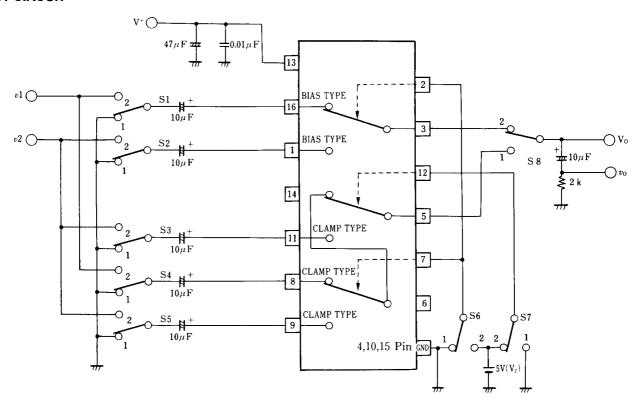
 $(V^+ = 5V, T_a = 25^{\circ}C)$

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current 1	I _{CC1}	V ⁺ = 5V (Note1)	6.6	9.4	12.3	mA
Operating Current 2	I _{CC2}	V ⁺ = 9V (Note1)	8.0	11.5	15.0	mA
Voltage Gain	G _V	$V_{I} = 2V_{P-P}/100 \text{khz}, V_{O}/V_{I}$	-0.6	-0.1	+0.4	dB
Frequency Response	G _f	$V_1 = 2V_{P-P}, V_O (10MHz / 100kHz)$	-1.0	0	+1.0	dB
Differential Gain	DG	V _I = 2V _{P-P} , Staircase Signal	-	0.3	-	%
Differential Phasa	DP	V _I = 2V _{P-P} , Staircase Signal	-	0.3	-	deg
Output offset Voltage	Vos	(Note2)	-10	0	+10	mV
Crosstalk	CT	$V_{I} = 2V_{P-P}, 4.43MHz, V_{O} / V_{I}$	-	-75	-	dB
Switch Change Voltage	V_{CH}	All inside SW : ON	2.5	-	-	V
Switch Change Voltage	V_{CL}	All inside SW : OFF	-	-	1.0	V

(Note1) S1 = S2 = S3 = S4 = S5 = S6 = S7 = 1

(Note2) Output DC Voltage Difference is tested on S6 = $1\rightarrow2$, S1 = S2 = S3 = S4 = S5 = 1, S8 = 2 and S7 = 1

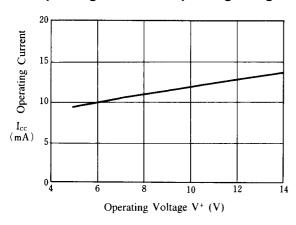
■ TEST CIRCUIT



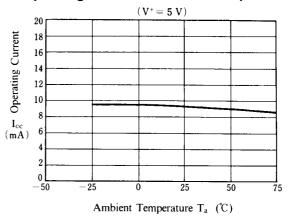
■ PIN FUNCTION

PIN No.	PIN NAME	DC VOLTAGE	INSIDE EQUIVALENT CIRCUIT
16 1	IN 2 A IN 2 B [Input]	2.5V	500 15k 2.5V
8	IN 1A [Input]	1.5V	500 ———————————————————————————————————
9 11	IN 1B IN 1C [Input]		500
7 12 2	CTL 1A CTL 1B CTL 2 [Control]		School Carles State 1 and 1 an
5	OUT1 [Output]	1.8V	
3	OUT2 [Output]	0.8V	OUT
13	V ⁺	5V	
15 4 10	GND 1 GND 2 GND 3		

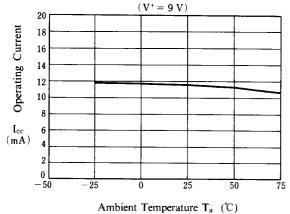
Operating Current vs. Operating Voltage



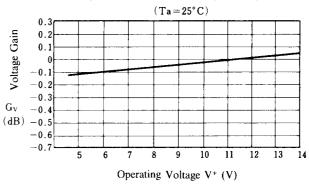
Operating Current vs. Ambient Temperature



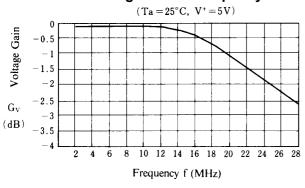
Operating Current vs. Ambient Temperature



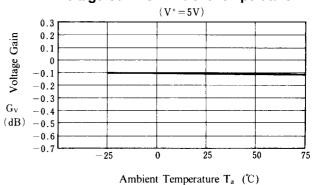
Voltage Gain vs. Operating Voltage

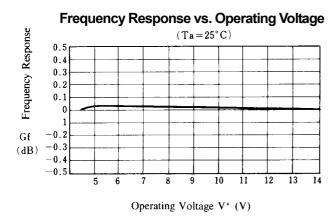


Voltage Gain vs. Frequency



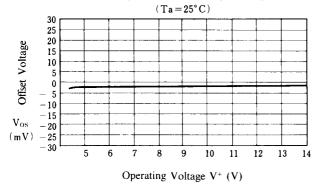
Voltage Gain vs. Ambient Temperature





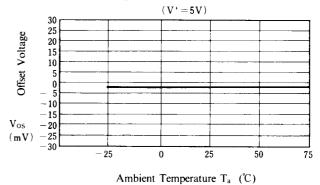
Frequency Response vs. Ambient Temperature Frequency Response $(V^+=5V)$ 0.4 0.3 0.2 0.1 -0.1Gf -0.2(dB) -0.3-0.4-0.5- 25 0 50 75

Offset Voltage vs. Operating Voltage

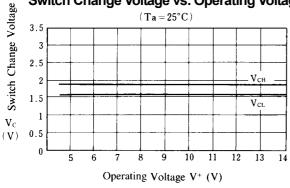


Offset Voltage vs. Ambient Temperature

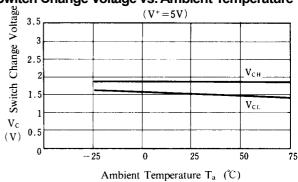
Ambient Temperature T_a (${}^{\circ}C$)



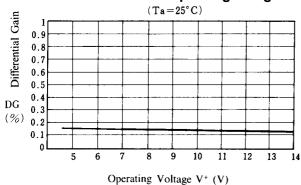
Switch Change Voltage vs. Operating Voltage



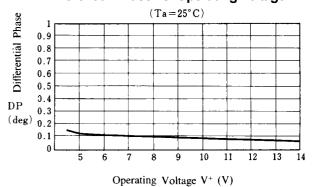
Switch Change Voltage vs. Ambient Temperature



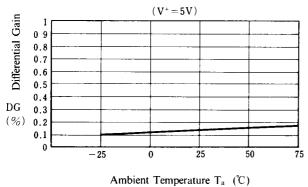
Differential Gain vs. Operating Voltage



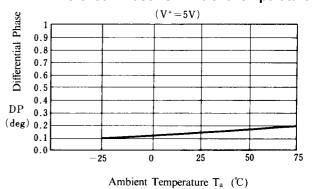
Differential Phase vs. Operating Voltage



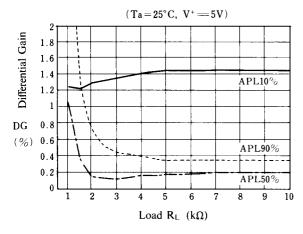
Differential Gain vs. Ambient Temperature



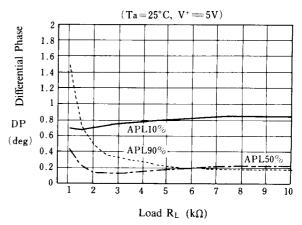
Differential Phase vs. Ambient Temperature



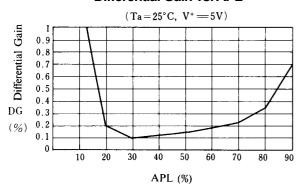
Differential Gain vs. Load



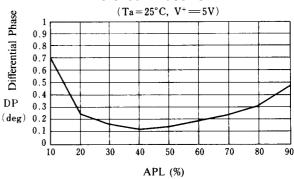
Differential Phase vs. Load



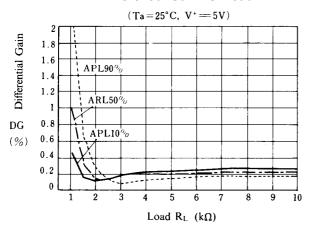
Differential Gain vs. APL



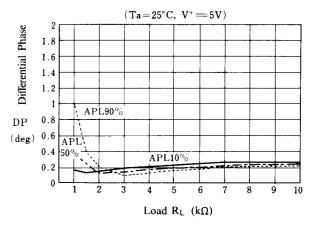
Differential Phase vs. APL



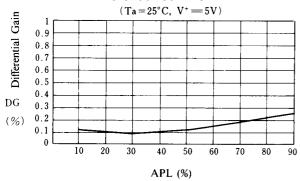
Differential Gain vs. Load



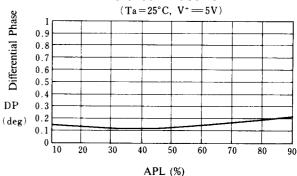
Differential Phase vs. Load



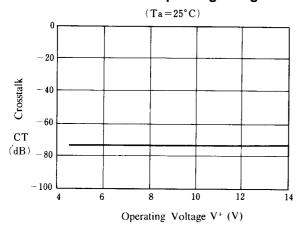
Differential Gain vs. APL



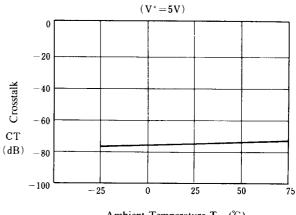
Differential Phase vs. APL



Crosstalk vs. Operating Voltage

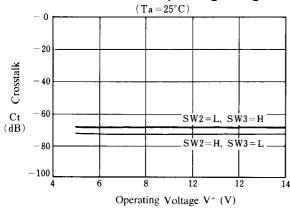


Crosstalk vs. Temperature

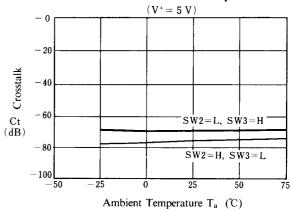


Ambient Temperature T_a ($^{\circ}$ C)

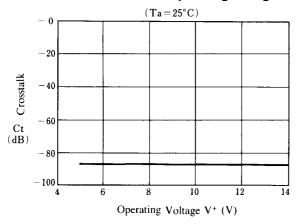
Crosstalk vs. Operating Voltage



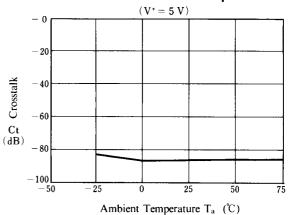
Crosstalk vs. Ambient Temperature

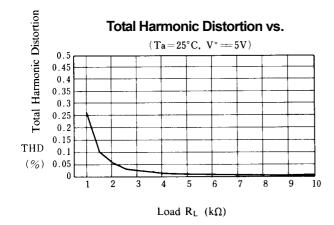


Crosstalk vs. Operating Voltage



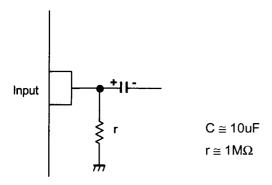
Crosstalk vs. Ambient Temperature



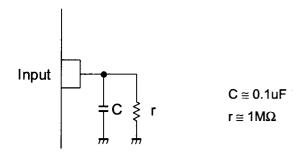


■ APPLICATION

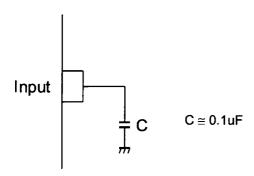
This IC requires $1M\Omega$ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



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



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



[CAUTION]

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