

## VIDEO SUPER INPOSER WITH Y-C MIXER

## ■ GENERAL DESCRIPTION

The NJM2509 is video super imposer, including Y/C mix circuit.

Y-signal input terminal have sink-chip clamp function and it is applied to fixed DC level of video signal.

Impose voltage is fixed internally to white level and black level, and includes 6dB amplifier.

## ■ PACKAGE OUTLINE



NJM2509V

## ■ FEATURES

- Internal Y/C Mix Circuit
- Internal Clamp Circuit (Y Signal), Bias Circuit (C Signal)
- Impose voltage fixed internally to white level and black level.
- Internal 6dB AMP. (Input:  $0.5V_{PP}$ , Output:  $1.0V_{PP}$ )
- Package Outline SSOP8
- Bipolar Technology

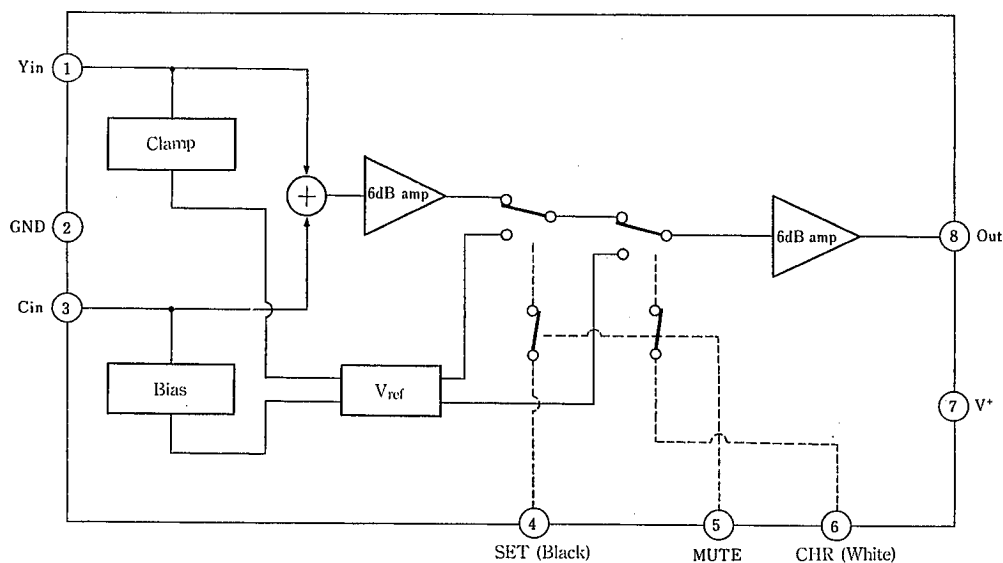
## ■ RECOMMENDED OPERATING CONDITION

- Operating Voltage  $V^+$  4.5~5.1V

## ■ APPLICATION

- Video Camera

## ■ BLOCK DIAGRAM



NJM2509V

## ■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

| PARAMETER                   | SYMBOL           | RATINGS  | UNIT |
|-----------------------------|------------------|----------|------|
| Supply Voltage              | V <sup>+</sup>   | 7.0      | V    |
| Power Dissipation           | P <sub>D</sub>   | 250      | mW   |
| Operating Temperature Range | T <sub>opr</sub> | -20~+75  | °C   |
| Storage Temperature Range   | T <sub>stg</sub> | -40~+125 | °C   |

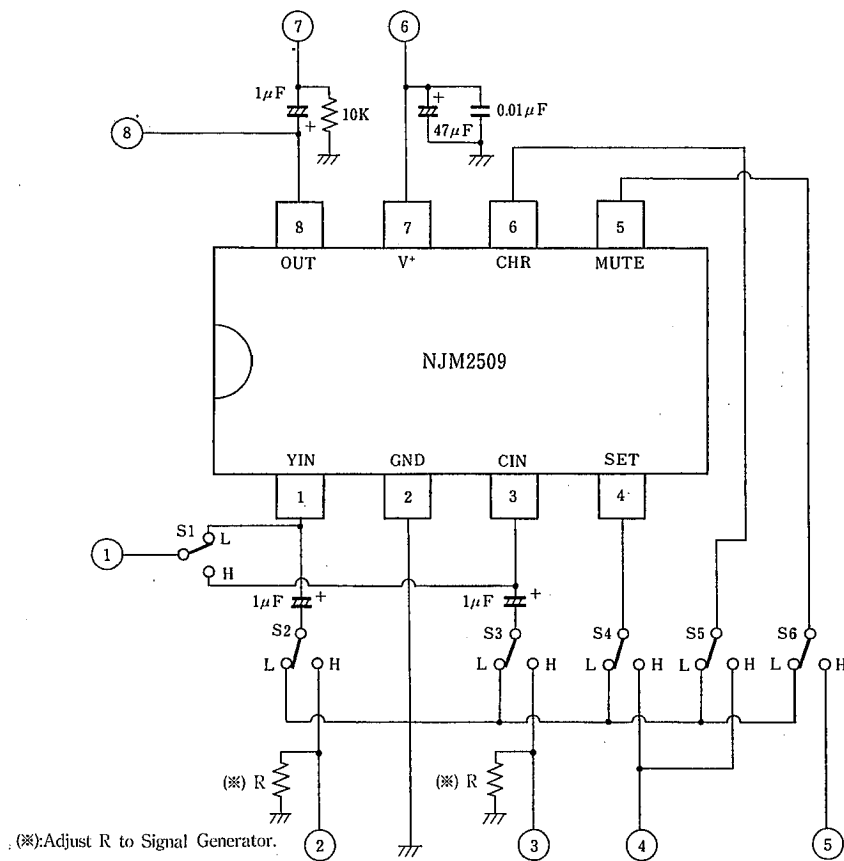
## ■ ELECTRICAL CHARACTERISTICS

(V<sup>+</sup>=4.8V, Ta=25°C, R<sub>L</sub>=10kΩ)

| PARAMETER                | SYMBOL               | TEST CONDITION                                                          | MIN. | TYP. | MAX. | UNIT |
|--------------------------|----------------------|-------------------------------------------------------------------------|------|------|------|------|
| Operating Current        | I <sub>cc</sub>      |                                                                         | 5.3  | 7.0  | 8.7  | mA   |
| Clamp Voltage            | V <sub>cnp</sub>     |                                                                         | 2.4  | 2.5  | 2.6  | V    |
| Bias Voltage             | V <sub>bias</sub>    |                                                                         | 2.4  | 2.5  | 2.6  | V    |
| Voltage Gain             | G <sub>v</sub>       | V <sub>out</sub> /V <sub>in</sub> 100kHz, 0.5V <sub>P-P</sub> Sine Wave | 6.0  | 6.3  | 6.8  | dB   |
| Frequency Characteristic | G <sub>f</sub>       | 0.5V <sub>P-P</sub> Sine Wave $v_0$ (10MHz)/ $v_0$ (100kHz)             | -0.7 | -0.2 | +0.3 | dB   |
| Background Voltage       | V <sub>set</sub>     | From Pedestal Level                                                     | 5.0  | 15.0 | 20.0 | IRE  |
| CHR. VOLTAGE             | V <sub>chr</sub>     | From Pedestal Level                                                     | 65.0 | 75.0 | 85.0 | IRE  |
| Input Resistance         | R <sub>in</sub>      | Input Cin                                                               | —    | 30   | —    | kΩ   |
| Differential Gain        | DG                   | 0.5V <sub>P-P</sub> , 10 STEP Stair wave                                | —    | —    | 3.0  | deg  |
| Differential Phase       | DP                   | 0.5V <sub>P-P</sub> , 10 STEP Stair wave                                | —    | —    | 3.0  | %    |
| BACKGROUND               | V <sub>ch</sub>      | BACKGROUND SW:ON                                                        | 2.4  | —    | —    | V    |
| Switch Change Voltage    | V <sub>cl</sub>      | BACKGROUND SW:OFF                                                       | —    | —    | 0.8  | V    |
| CHR MUTE                 | V <sub>ch</sub> MUTE | CHRMUTE SW:ON                                                           | 2.4  | —    | —    | V    |
| Switch Change Voltage    | V <sub>d</sub> MUTE  | CHRMUTE SW:OFF                                                          | —    | —    | 0.8  | V    |
| Crosstalk 1              | CT1                  | C <sub>in</sub> →BACKGROUND VOLTAGE (※1)                                | —    | -50  | —    | dB   |
| Crosstalk 2              | CT2                  | C <sub>in</sub> →CHR VOLTAGE (※2)                                       | —    | -50  | —    | dB   |
| Crosstalk 3              | CT3                  | Y <sub>in</sub> →BACKGROUND VOLTAGE (※1)                                | —    | -50  | —    | dB   |
| Crosstalk 4              | CT4                  | Y <sub>in</sub> →CHR VOLTAGE (※2)                                       | —    | -50  | —    | dB   |

※1. Crosstalk:4.43MHz, 0.5V<sub>PP</sub> Sine wave, V<sub>out</sub>/V<sub>in</sub>

## ■ TEST CIRCUIT



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## ■ TERMINAL EXPLANATION

( $V^+=4.8V$ ,  $T_a=25^\circ C$ )

| PIN NO. | UNIT | FUNCTION                                                                      | EQUIVALENT CIRCUIT | PIN NO. | UNIT | FUNCTION                                                                                             | EQUIVALENT CIRCUIT |
|---------|------|-------------------------------------------------------------------------------|--------------------|---------|------|------------------------------------------------------------------------------------------------------|--------------------|
| 1       | YIN  | Input: 2.5V clamp<br>0.5Vpp Y-signal<br>or<br>Compositio signal               |                    | 5       | MUTE | Character signal<br>ON/OFF Switch<br><br>Hi   Character<br>signal OFF<br>Lo   Character<br>Signal ON |                    |
| 2       | GND  | GROUND                                                                        |                    | 6       | CHR  | Character signal<br>Input pin<br><br>Hi   White level<br>Lo   Composit<br>signal                     |                    |
| 3       | CIN  | Input: 2.5V Bias,<br>0.5Vpp C-signal                                          |                    | 7       | V+   | Supply Voltage                                                                                       |                    |
| 4       | SET  | Character signal<br>Input Pin<br><br>Hi   Black level<br>Lo   Composit signal |                    | 8       | OUT  | Output: 1Vpp<br>Composit signal,<br>Impose Voltage                                                   |                    |

## MEMO

**[CAUTION]**

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