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## VIDEO SUPER INPOSER WITH Y-C MIXER

### ■ GENERAL DESCRIPTION

The **NJU2509** 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<sub>P-P</sub> Output : 1.0 V<sub>P-P</sub>)
- Package Outline SSOP8
- Bipolar Technology

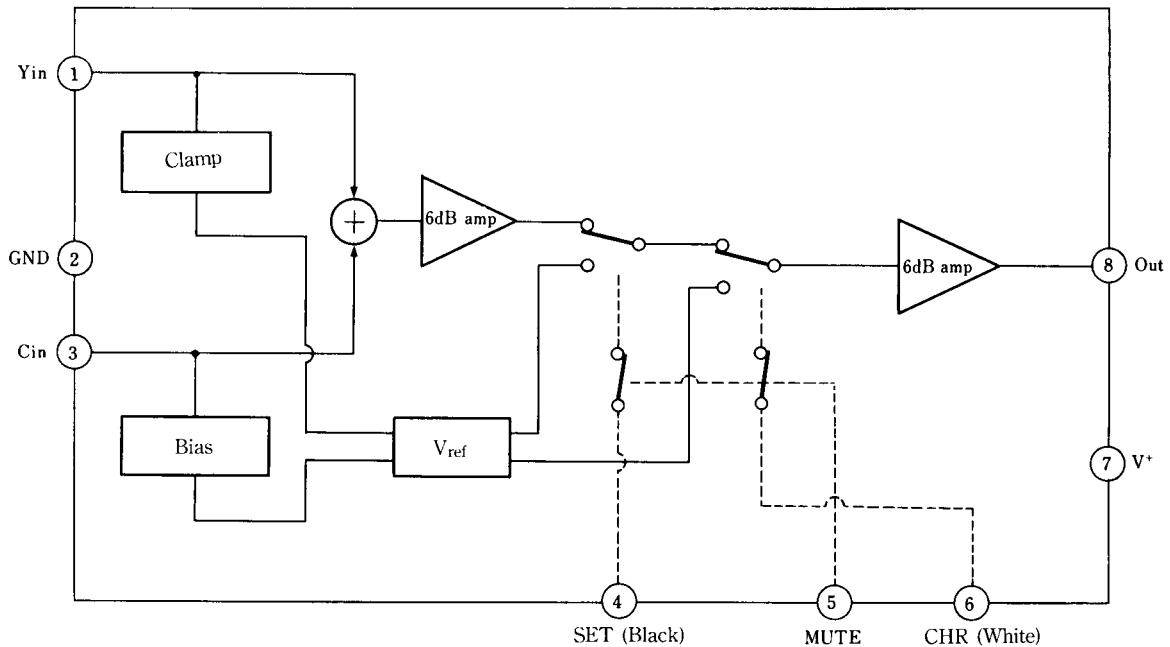
### ■ RECOMMENDED OPERATING CONDITION

- Operating Voltage V<sup>+</sup> 4.5V to 5.1V

### ■ APPLICATION

- Video Camera

### ■ BLOCK DIAGRAM



**NJM2509V**

# NJM2509

## ■ ABSOLUTE MAXIMUM RATINGS

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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+$	7.0	V
Power Dissipation	$P_D$	250	mW
Operating Temperature Range	$T_{opr}$	-20 to +75	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-40 to +125	$^\circ\text{C}$

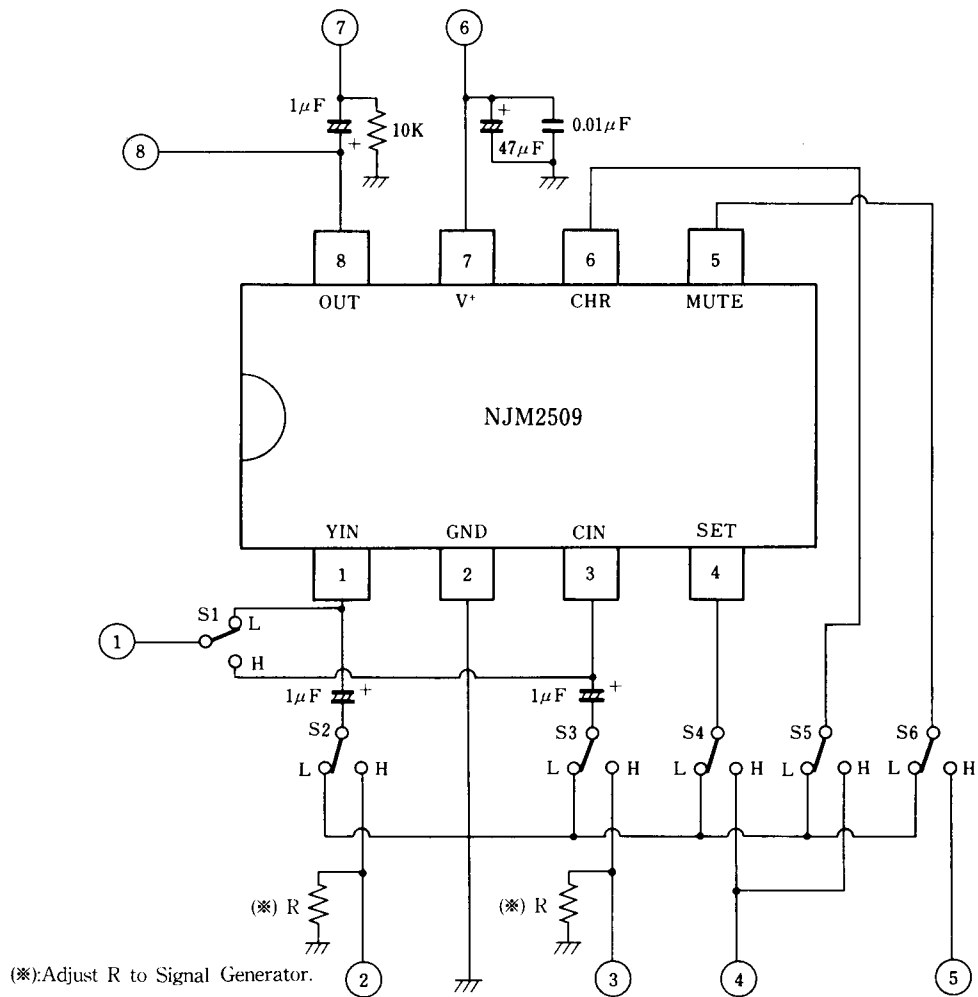
## ■ ELECTRICAL CHARACTERISTICS

( $V^+ = 4.8\text{V}$ ,  $T_a = 25^\circ\text{C}$ ,  $R_L = 10\text{k}\Omega$ )

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	$I_{CC}$		5.3	7.0	8.7	mA
Clamp Voltage	$V_{cmp}$		2.4	2.5	2.6	V
Bias Voltage	$V_{bias}$		2.4	2.5	2.6	V
Voltage Gain	$G_V$	$V_{out} / V_{in}$ 100kHz, 0.5V <sub>P-P</sub> Sine Wave	6.0	6.3	6.8	dB
Frequency Characteristic	$G_f$	0.5V <sub>P-P</sub> Sine Wave $v_o$ (10MHz) / $v_o$ (100kHz)	-0.7	-0.2	+0.3	dB
Background Voltage	$V_{set}$	From Pedestal Level	5.0	15.0	20.0	IRE
CHR, VOLTAGE	$V_{chr}$	From Pedestal Level	65.0	75.0	85.0	IRE
Input Resistance	$R_{in}$	Input $C_{in}$	-	30	-	k $\Omega$
Differential Gain	DG	0.5V <sub>P-P</sub> , 10STEP Stair wave	-	-	3.0	deg
Differential Phasa	DP	0.5V <sub>P-P</sub> , 10STEP Stair wave	-	-	3.0	%
BACKGROUND	$V_{ch}$	BACKGROUND SW : ON	2.4	-	-	V
Switch Change Voltage	$V_d$	BACKGROUND SW : OFF	-	-	0.8	V
CHR MUTE	$V_{chMUTE}$	CHRMUTE SW : ON	2.4	-	-	V
Switch Change Voltage	$V_dMUTE$	CHRMUTE SW : OFF	-	-	0.8	V
Crosstalk 1	CT1	$C_{in} \rightarrow$ BACKGROUND VOLTAGE (*1)	-	-50	-	dB
Crosstalk 2	CT2	$C_{in} \rightarrow$ CHR VOLTAGE (*2)	-	-50	-	dB
Crosstalk 3	CT3	$Y_{in} \rightarrow$ BACKGROUND VOLTAGE (*1)	-	-50	-	dB
Crosstalk 4	CT4	$Y_{in} \rightarrow$ CHR VOLTAGE (*1)	-	-50	-	dB

\*1. Crosstalk : 4.43MHz. 0.5V<sub>P-P</sub> Sine wave,  $V_{out} / V_{in}$

## ■ TEST CIRCUIT



# NJM2509

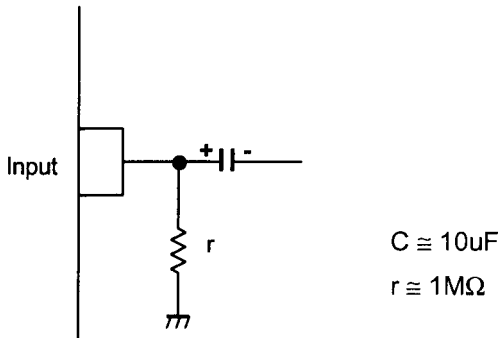
## ■ TERMINAL EXPLANATION

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

PIN No.	UNIT	FUNCTION	EQUIVALENT CIRCUIT	PIN No.	UNIT	FUNCTION	EQUIVALENT CIRCUIT
1	YIN	Input 2.5V clamp 0.5V <sub>PP</sub> Y-signal or Compozitto signal		5	MUTE	Character signal ON/OFF Switch  Hi   Character signal OFF Lo   Character signal ON	
2	GND	GROUND		6	CHR	Character signal Input pin  Hi   White level Lo   Composit signal	
3	CIN	Input 2.5V Bias, 0.5V <sub>PP</sub> C-signal		7	V <sup>+</sup>	Supply voltage	
4	SET	Character signal Input Pin  H   Black level i   L   Composit o   signal		8	OUT	Output-1 V <sub>PP</sub> Composit signal, Impose Voltage	

## ■ 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.



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