

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_{P-P} Output : 1.0 V_{P-P})
- Package Outline SSOP8
- Bipolar Technology

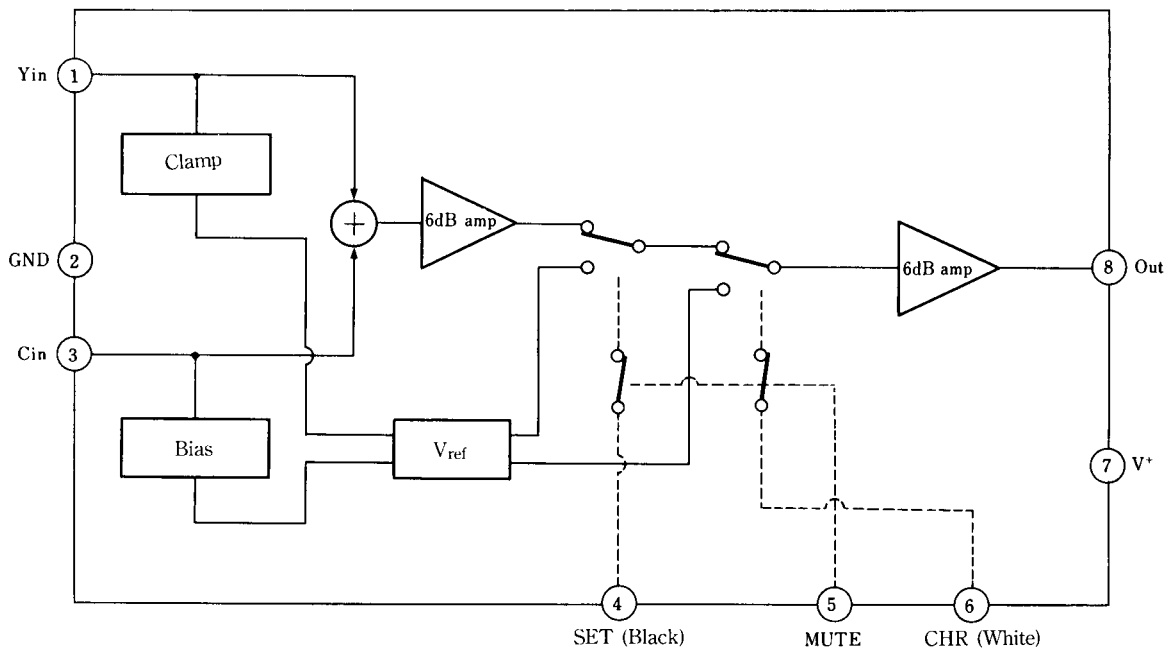
■ RECOMMENDED OPERATING CONDITION

- Operating Voltage V⁺ 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	$^\circ\text{C}$

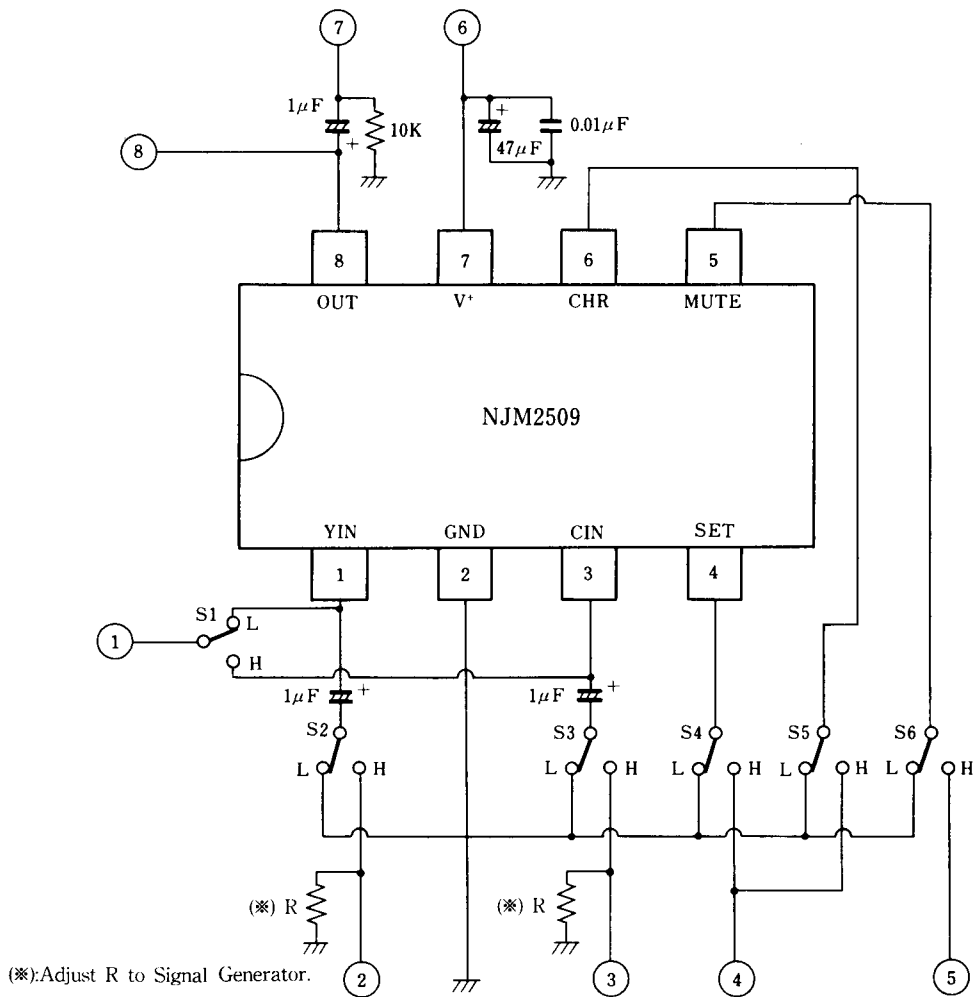
■ ELECTRICAL CHARACTERISTICS

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

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 _{P-P} Sine Wave	6.0	6.3	6.8	dB
Frequency Characteristic	G_f	0.5V _{P-P} 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 Ω
Differential Gain	DG	0.5V _{P-P} , 10STEP Stair wave	-	-	3.0	deg
Differential Phasa	DP	0.5V _{P-P} , 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_{P-P} Sine wave, V_{out} / V_{in}

■ TEST CIRCUIT



NJM2509

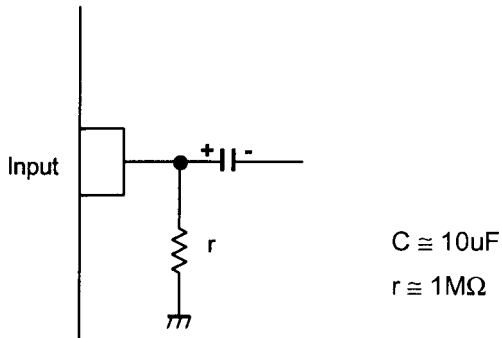
■ TERMINAL EXPLANATION

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

PIN No.	UNIT	FUNCTION	EQUIVALENT CIRCUIT	PIN No.	UNIT	FUNCTION	EQUIVALENT CIRCUIT
1	YIN	Input 2.5V clamp 0.5V _{PP} 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 _{PP} C-signal		7	V ⁺	Supply voltage	
4	SET	Character signal Input Pin H Black level i L Composit o signal		8	OUT	Output-1 V _{PP} 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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