

3-INPUT 1OUTPUT 3ch VIDEO AMPLIFIER WITH LPF

■ GENERAL DESCRIPTION

NJM2515 is the 3 input 1 output 3ch video amplifier. Internal LPF is progressive correspondence. Also the High Definition (30MHz) is realized by LPF through mode. It is the best for the video system corresponding to a component video signal or a RGB signal.

■ PACKAGE OUTLINE

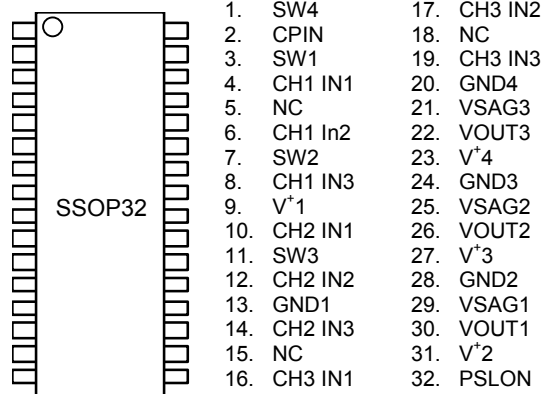


NJM2515V

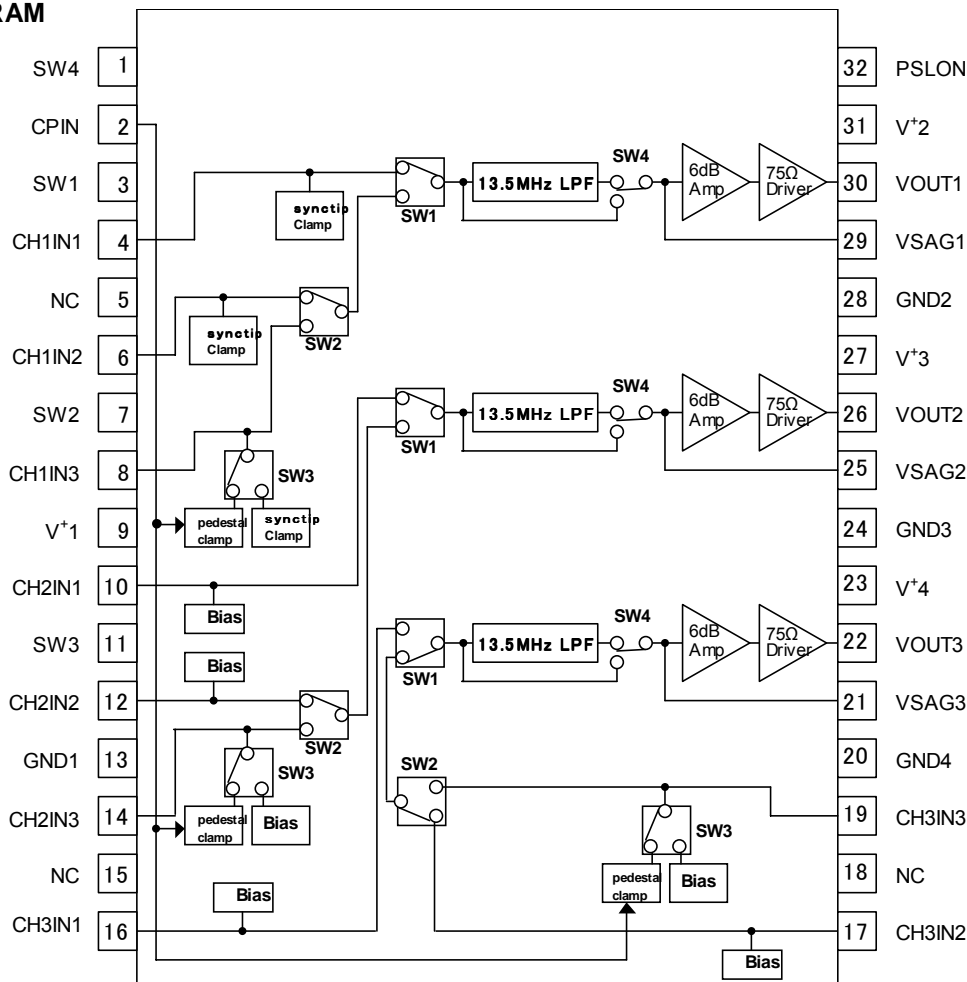
■ FEATURES

- Operating voltage 4.5 to 5.5V
- Internal 3ch 3-input 1-output video switch
- Internal LPF 0dBtyp.at 13.5MHz
- Internal LPF through switch 0dBtyp.at 34MHz
- Internal 6dB amplifier and 75ohm driver
- Internal Power Save circuit
- Bipolar technology
- Package outline SSOP32

■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	10.0	V
Power Dissipation	P _D	1250*	mW
Operating Temperature Range	T _{opr}	-40 to +85	°C
Storage Temperature Range	T _{str}	-40 to +150	°C

*EIA/JEDEC STANDARD Test Board (76.2x114.3x1.6mm,4layers,FR-2)mounting

■ RECOMMENDED OPERATING CONDITION(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V _{opr}		4.5	5.0	5.5	V

■ ELECTRICAL CHARACTERISTICS (V⁺1= V⁺2= V⁺3= V⁺4=5V, RL=150ohm, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	I _{CC}	V ⁺ 1 to V ⁺ 4, No signal	-	27	40	mA
Supply Current with Power Save Mode	I _{save}	V ⁺ 1 to V ⁺ 4, No signal, Power save mode	-	0.6	1.3	mA
Maximum Output Level 1	V _{omy}	V _{in} =100kHz sin-signal, THD=1% Select to sync-chip clamp	2.4	2.5	-	V _{p-p}
Maximum Output Level 2	V _{om PbPr}	V _{in} =100kHz sin-signal, THD=1% Select to bias	2.4	2.5	-	V _{p-p}
Maximum Output Level 3	V _{om RGB}	V _{in} =100kHz sin-signal, THD=1% Select to pedestal clamp	1.8	1.9	-	V _{p-p}
Voltage Gain	G _v	V _{in} =1MHz, 1.0V _{p-p} sin-signal	6.0	6.4	6.8	dB
Voltage Gain Difference between Input Terminal	ΔG _{vI}	V _{in} =1MHz, 1.0V _{p-p} sin-signal, IN1 to IN2 to IN3 for all channel	-0.2	0	0.2	dB
Voltage Gain Difference between Channel	ΔG _{vB}	V _{in} =1MHz, 1.0V _{p-p} sin-signal, CH1 to CH2 to CH3	-0.2	0	0.2	dB
LPF Characteristics 1	G _{f13.5M}	13.5MHz/1MHz, 1.0V _{p-p} sin-signal	-3.0	0	1.0	dB
LPF Characteristics 2	G _{f54M}	54MHz/1MHz, 1.0V _{p-p} sin-signal	-	-40	-	dB
Frequency Characteristics	G _f	V _{in} =34MHz/1MHz, 1.0V _{p-p} sin-signal, select to LPF through mode	-	0	-	dB
Crosstalk between Input Terminal 1	CT-I1	V _{in} =4.43MHz, 1.0V _{p-p} sin-signal, IN1 to IN2 to IN3 for all channel	-	-70	-	dB
Crosstalk between Input Terminal 2	CT-I2	V _{in} =30MHz, 1.0V _{p-p} sin-signal, IN1 to IN2 to IN3 for all channel	-	-50	-	dB
Crosstalk between Channel 1	CT-B1	V _{in} =4.43MHz, 1.0V _{p-p} sin-signal, CH1 to CH2 to CH3	-	-70	-	dB
Crosstalk between Channel 2	CT-B2	V _{in} =30MHz, 1.0V _{p-p} sin-signal, CH1 to CH2 to CH3	-	-50	-	dB
Differential Gain	DG	V _{in} =1.0V _{p-p} , 10step video signal	-	0.5	-	%
Differential Phase	DP	V _{in} =1.0V _{p-p} , 10step video signal	-	0.3	-	deg
S/N Ratio	SN	V _{in} =1.0V _{p-p} , 100% white video signal, 100KHz to 6MHz	-	70	-	dB

■ ELECTRICAL CHARACTERISTICS ($V^+1 = V^+2 = V^+3 = V^+4 = 5V$, $R_L = 150\Omega$, $T_a = 25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Switch High level for power save	VthPH	PS	2.0	-	V ⁺	V
Switch Low level for power save	VthPL	PS	0	-	0.6	V
Switch High level for input signal switch	VthSH	SW1, SW2	2.0	-	V ⁺	V
Switch High level for input signal switch	VthSL	SW1, SW2	0	-	0.6	V
High level for CP IN	Vth CPH		2.0	-	V ⁺	V
Low level for CP IN	Vth CPL		0	-	0.6	V

■ CONTROL SIGNAL

TERMINAL	CONTROL	NOTE
PS	H	Power save: OFF (Operation)
	L	Power save: ON (Mute)
	OPEN	Power save: ON (Mute)

TERMINAL	CONTROL		NOTE
SW 1, SW2	SW1	SW2	
	L, OPEN	X	IN1 (X=don't care)
	H	L, OPEN	IN2
	H	H	IN3

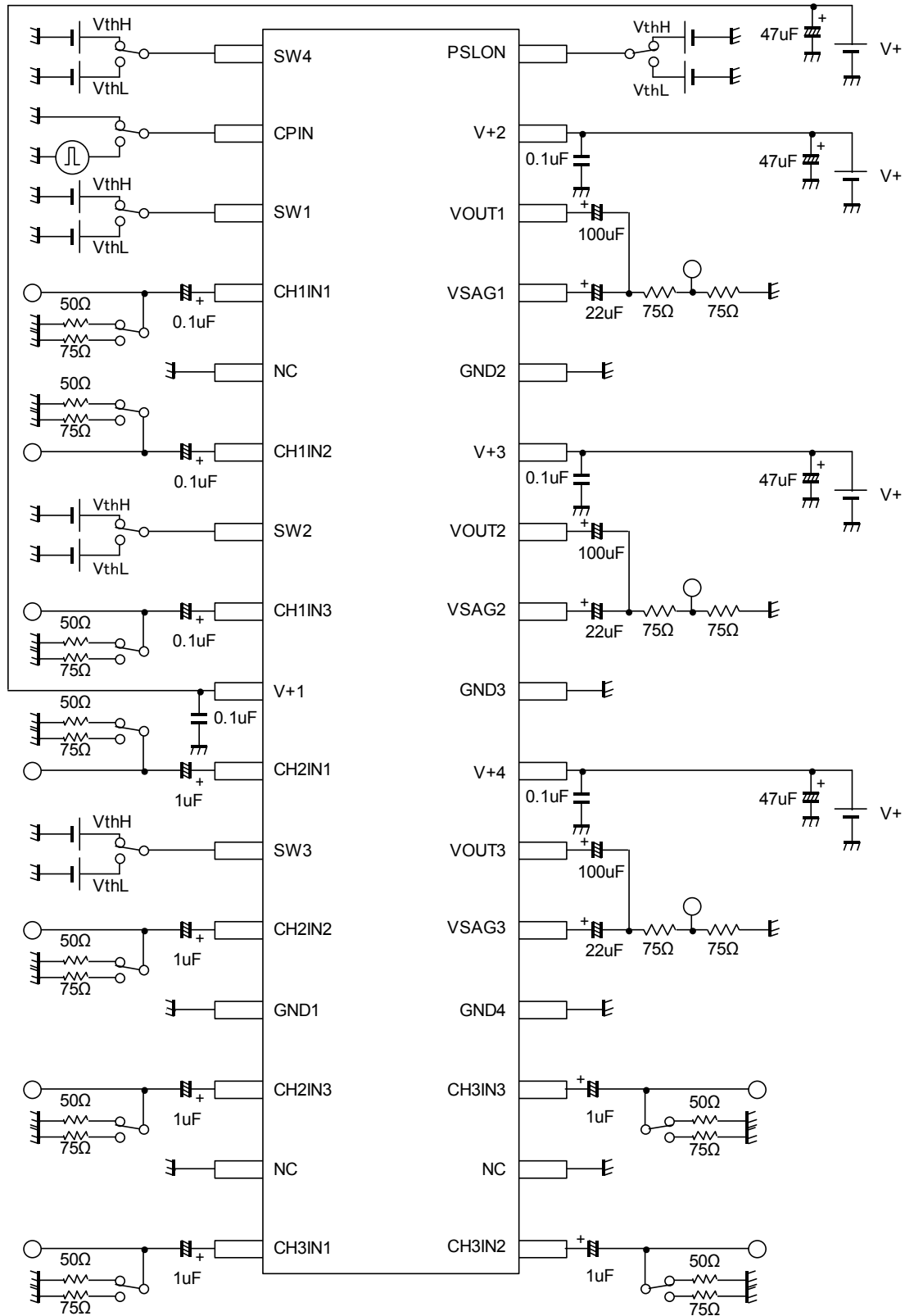
TERMINAL	CONTROL	NOTE
SW 3	H	Y, Pb, Pr (CH1IN3: Sync Tip Clamp CH2IN3/CH3IN3: Bias)
	L	RGB (CH1IN3/CH2IN3/CH3IN3: Pedestal Clamp)
	OPEN	RGB (CH1IN3/CH2IN3/CH3IN3: Pedestal Clamp)

TERMINAL	CONTROL	NOTE
SW4	H	LPF
	L	Through
	OPEN	Through

NJM2515

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■ TEST CIRCUIT



■ APPLICATION

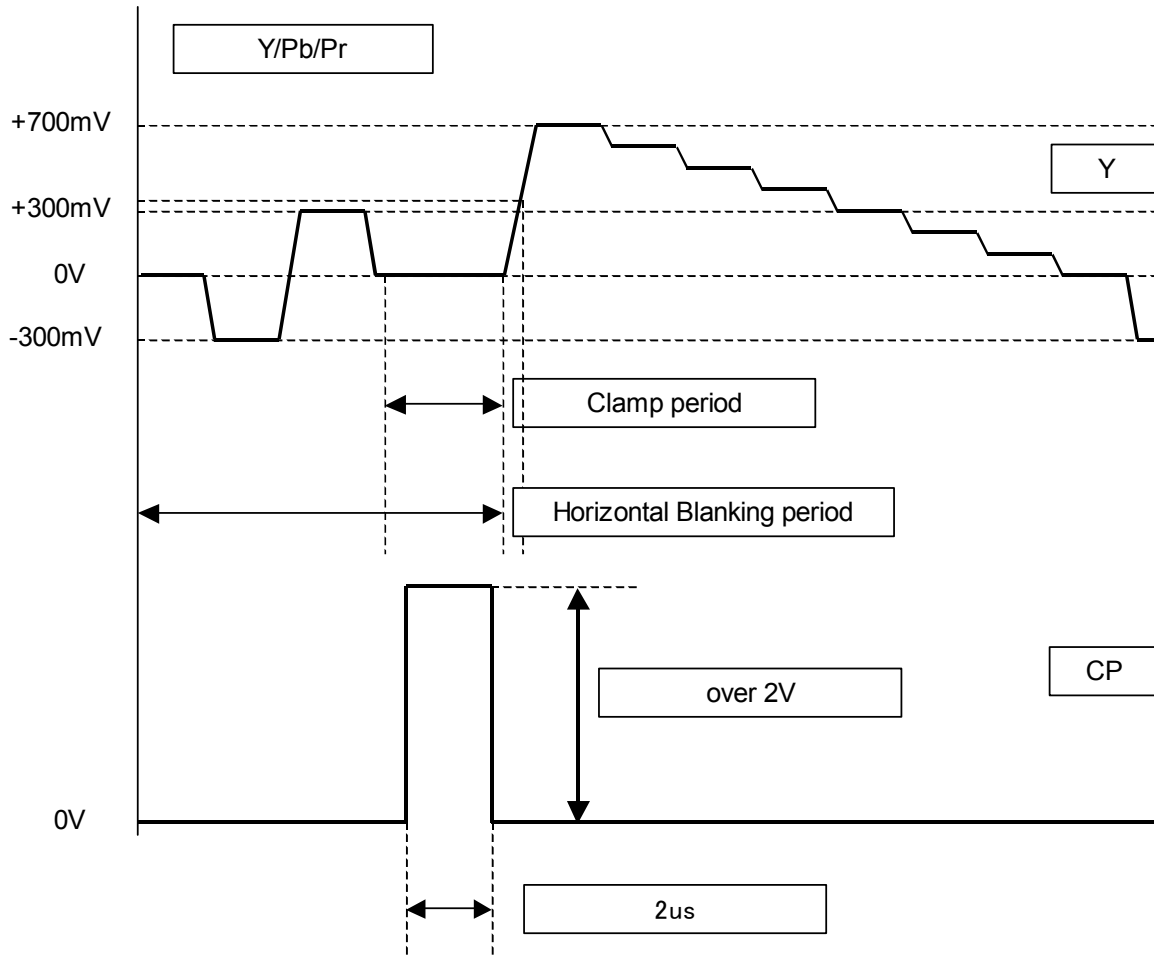
Select of a pedestal-clamp (SW3: L, OPEN) set up a RGB signal input.

Please input a clamp pulse to the timing, which synchronized with the input signal. Please input a clamp pulse in the back porch.

Select of sync- tip-clamp (SW3: H) set up a COMPONENT signal input.

Please do not input a clamp pulse, when a component signal and a clamp pulse are asynchronous.

Refer to the following.



[CAUTION]

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