

## LOW VOLTAGE VIDEO AMPLIFIER WITH LPF

### ■GENERAL DESCRIPTION

The **NJM2561A** is a low voltage single video amplifier with low pass filter.

The **NJM2561A** features low power and small package. It is suitable for any video application.

### ■PACKAGE OUTLINE

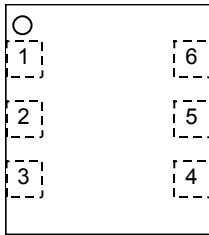


**NJM2561AKG1**

### ■FEATURES

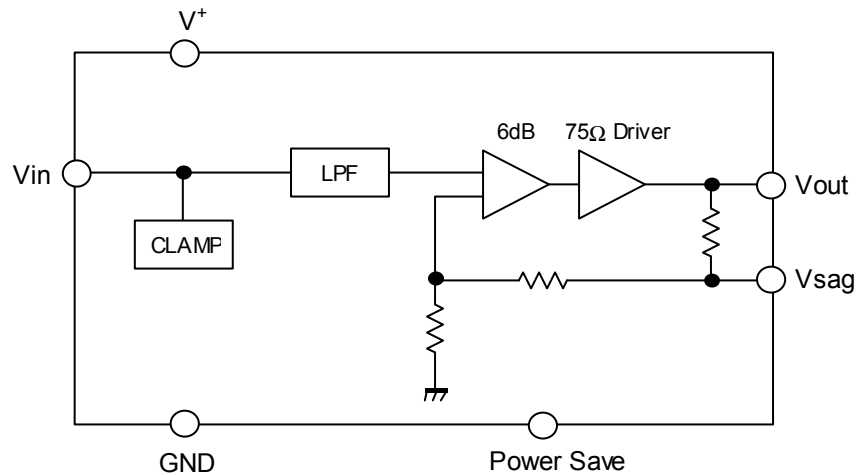
- Operating Voltage           2.6 to 5.5V
- 6<sup>th</sup> Order LPF               -33dB at 19MHz typ.
- 6dB Amplifier
- 75Ω Driver Circuit
- Power Save Circuit
- Bipolar Technology
- Package Outline           ESON6 (1.6 x 1.6 x 0.4 mm )

### ■PIN CONFIGURATION



1. Vsag
2. GND
3. Power Save
4. V+
5. Vout
6. Vin

### ■BLOCK DIAGRAM



## ■ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	7.0	V
Power Dissipation	P <sub>D</sub>	TBD <sup>Note1</sup>	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +125	°C

(Note1) At on a board of EIA/JEDEC specification. (101.5 x 114.5 x 1.6mm 2 layers, FR-4)

## ■ RECOMMENDED OPEARATING CONDITION (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	Vopr		2.6	3.0	5.5	V

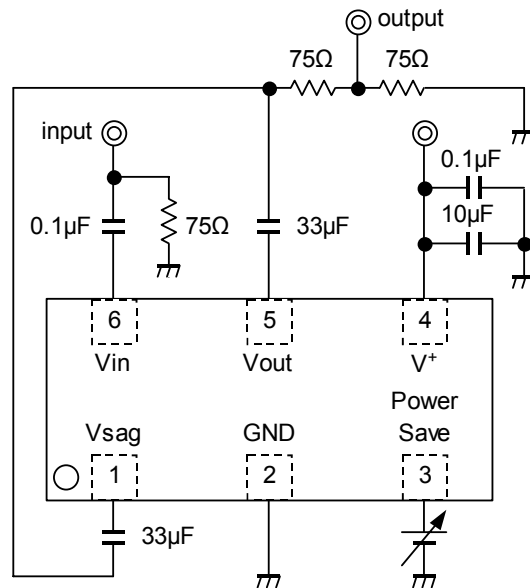
## ■ELECTRICAL CHARACTERISTICS (V<sup>+</sup>=3.0V,R<sub>L</sub>=150Ω,Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I <sub>CC</sub>	No Signal	-	8.0	12.0	mA
Operating Current at Power Save	I <sub>save</sub>	No Signal, Power Save Mode	-	30	50	μA
Maximum Output Voltage Swing	V <sub>om</sub>	f=100kHz, Sine Signal, THD=1%	2.2	2.5	-	Vp-p
Voltage Gain	G <sub>v</sub>	V <sub>in</sub> =100kHz, 1.0Vp-p, Sine Signal	6.1	6.5	6.9	dB
Low Pass Filter Characteristic	G <sub>fy</sub> 4.5M	V <sub>in</sub> =4.5MHz/100kHz, 1.0Vp-p	-0.6	-0.1	0.4	dB
	G <sub>fy</sub> 19M	V <sub>in</sub> =19MHz/100kHz, 1.0Vp-p	-	-33	-23	
Differential Gain	DG	V <sub>in</sub> =1.0Vp-p, 10step Video Signal	-	0.5	-	%
Differential Phase	DP	V <sub>in</sub> =1.0Vp-p, 10step Video Signal	-	0.5	-	deg
S/N Ratio	SN <sub>v</sub>	V <sub>in</sub> =1.0Vp-p, R <sub>L</sub> =75Ω 100% White Video Signal, f= 100kHz to 6MHz	-	65	-	dB
2nd. Distortion	H <sub>v</sub>	V <sub>in</sub> =1.0Vp-p, 3.58MHz, Sine Signal, R <sub>L</sub> =75Ω	-	-50	-	dB
SW Change Voltage High Level	V <sub>thPH</sub>	Active	1.8	-	V <sup>+</sup>	V
SW Change Voltage Low Level	V <sub>thPL</sub>	Non-active	0	-	0.3	

## ■CONTROL TERMINAL

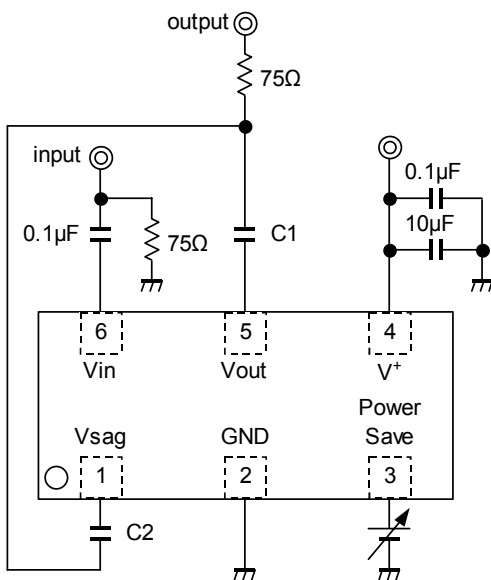
PARAMETER	STATUS	NOTE
Power Save	H	Power Save: OFF(Active)
	L	Power Save: ON (Mute)
	OPEN	Power Save: ON (Mute)

## TEST CIRCUIT

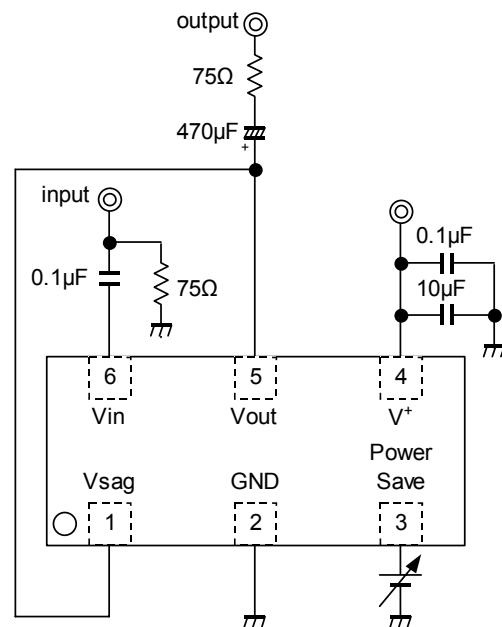


## APPLICATION CIRCUIT

### (1) Standard circuit



### (2) SAG correction unused circuit



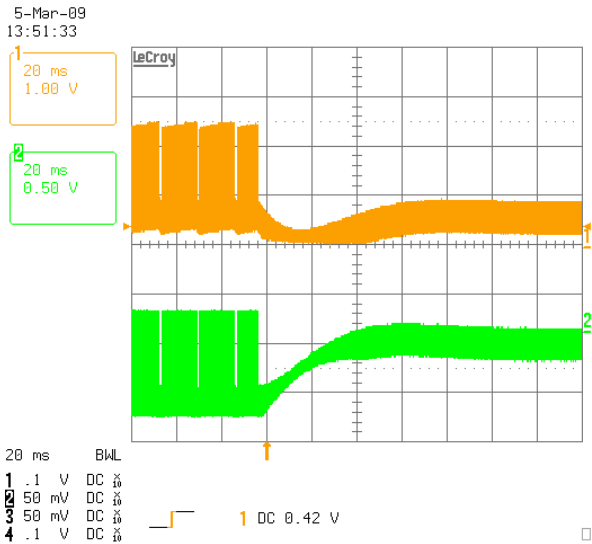
## INSTRUCTIONS AND DIRECTIONS FOR USE

### (1) Standard circuit

The SAG correction circuit reduces output coupling capacitor values. However, this circuit may cause to SAG deterioration, and lose synchronization by luminance fluctuation. Checking the waveform containing a lot of low frequency components like a bounce waveform (Worst condition waveform of SAG). Refer to Figure 1 and Figure 2.

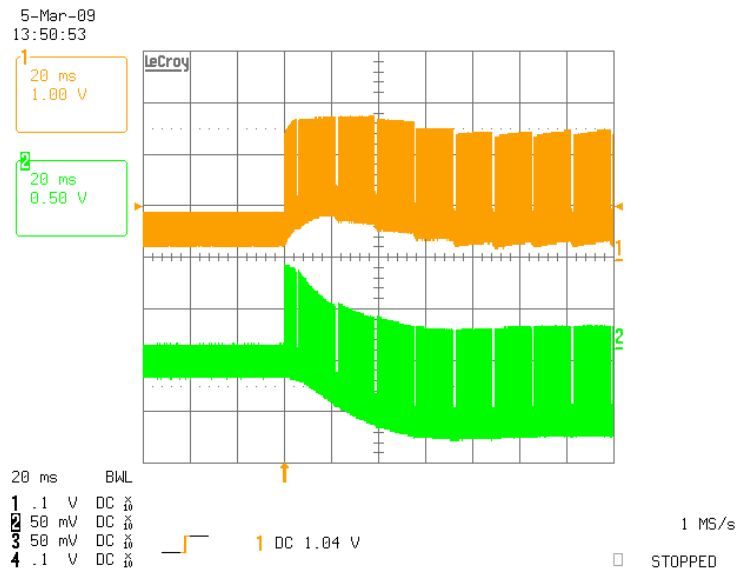
### (2) SAG correction unused circuit

To stabilize the synchronized signal, we recommend this circuit. Connect the coupling capacitor after connecting the Vout pin and Vsag pin. The recommended value is 470μF or more. Refer to Figure 3 and Figure 4.



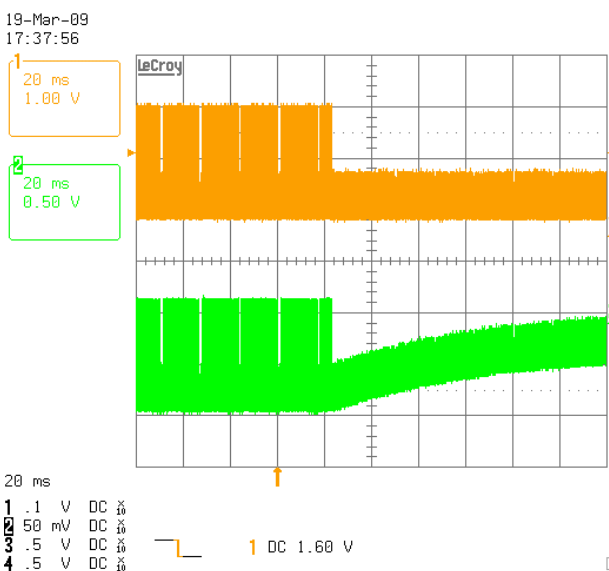
**Figure 1**

C1: 100μF, C2: 22μF  
Input Signal: 1Vp-p, White → Black Waveform  
Orange: Vout Pin Waveform  
Green: waveform after output capacitor



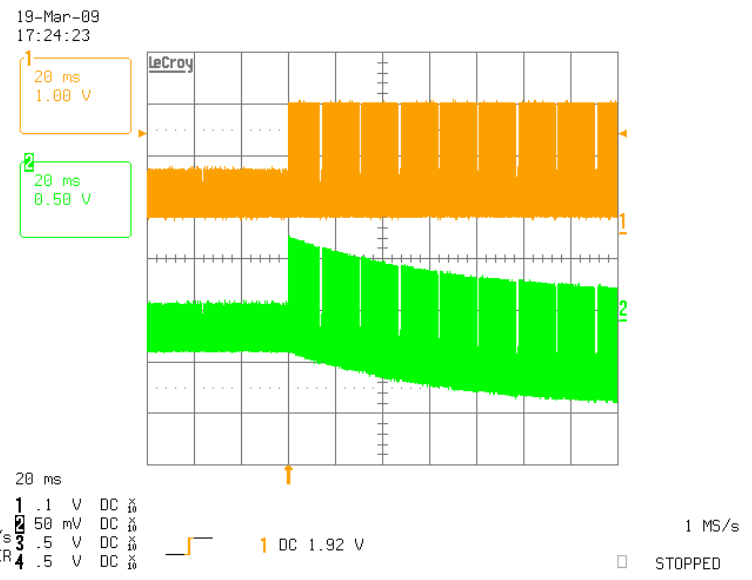
**Figure 2**

C1: 100μF, C2: 22μF  
Input Signal: 1Vp-p, Black → White Waveform  
Orange: Vout Pin Waveform  
Green: waveform after output capacitor



**Figure 3**

Output coupling capacitor: 470μF  
Input Signal: 1Vp-p, White → Black Waveform  
Orange: Vout Pin Waveform  
Green: waveform after output capacitor



**Figure 4**

Output coupling capacitor: 470μF  
Input Signal: 1Vp-p, Black → White Waveform  
Orange: Vout Pin Waveform  
Green: waveform after output capacitor

**[CAUTION]**

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