

## 6CH VIDEO AMPLIFIER FOR DVD

### ■GENERAL DESCRIPTION

The NJM2589 is a single supply voltage 6ch Video Amplifier. It includes 6dB amplifier and 75Ω driver, Low Pass Filter.

The input corresponds to the composite signal, the Y/C signal, and the component signal.

The NJM2589 is suitable for the DVD player and DVD recorder corresponding to the progressive video signal.

### ■PACKAGE OUTLINE

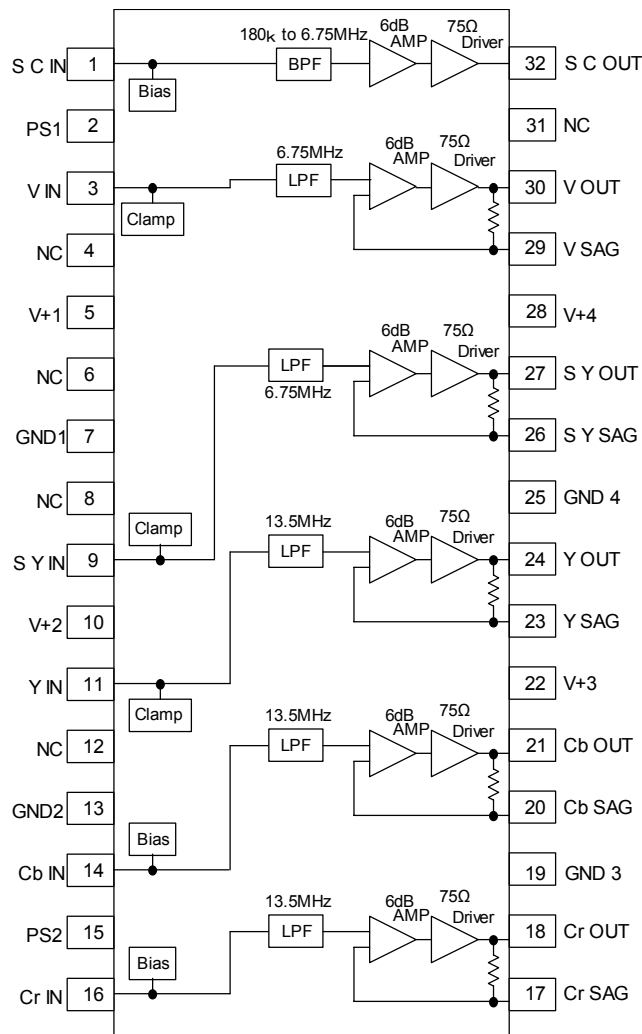


**NJM2589V**

### ■ FEATURES

- Operating Voltage 4.5V to 5.5V
- 6dB amplifier
- Internal LPF
- Internal 75Ω Driver Circuit (2-system drive)
- Power Save Circuit
- Bipolar Technology
- Package Outline SSOP32

### ■BLOCK DIAGRAM



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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	13.0	V
Power Dissipation	P <sub>D</sub>	1100(Note)	mW
Operating Temperature Range	T <sub>opr</sub>	-40 to +85	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +150	°C

(Note) At on a board of EIA/JEDEC specification. (114.3 x 76.2 x 1.6mm Two layers, FR-4)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V <sub>opr</sub>		4.5	5.0	5.5	V

**■ELECTRICAL CHARACTERISTICS (Ta=25°C, V<sup>+</sup>1 to V<sup>+</sup>4=5V, R<sub>L</sub>=150Ω)**

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current 1	I <sub>cc</sub>	V <sup>+</sup> 1 to V <sup>+</sup> 4, No Signal	-	75.0	90.0	mA
Operating Current at Power Save	I <sub>save</sub>	No Signal, Power Save Mode	-	1.0	3.0	mA
Maximum Output Voltage Swing	V <sub>om</sub>	(SYIN, VIN, YIN, CbIN, CrIN) Vin=1kHz, Sine Signal, THD=1%	2.4	-	-	Vp-p
Voltage Gain1	Gv1	(SYIN, VIN, YIN, CbIN, CrIN) Vin=1MHz, 1.0Vp-p, Sine Signal	6.0	6.4	6.8	dB
Voltage Gain2	Gv2	(SCIN) Vin=3.58MHz, 0.3Vp-p, Sine Signal	6.0	6.4	6.8	dB
Gain Difference Between channel	ΔGv1	(SYIN, VIN, YIN, CbIN, CrIN) Vin=1MHz, 1.0Vp-p, Sine Signal	-0.2	0.0	+0.2	dB
Low Pass Filter Characteristic 1	Gfy6.75M	(SYIN, VIN) 6.75MHz/1MHz, 1.0Vp-p, Sine Signal	-1.0	0.0	1.0	dB
	Gfy27M	(SYIN, VIN) 27MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40.0	-27.0	dB
Low Pass Filter Characteristic 2	Gfc6.75M	(SCIN) 6.75MHz/3.58MHz, 0.3Vp-p, Sine Signal	-1.0	0.0	1.0	dB
	Gfc27M	(SCIN) 27MHz/3.58MHz, 0.3Vp-p, Sine Signal	-	-40.0	-27.0	dB
Low Pass Filter Characteristic 3	Gfp13.5M	(YIN, CbIN, CrIN) 13.5MHz/1MHz, 1.0Vp-p, Sine Signal	-1.0	0.0	1.0	dB
	Gfp54M	(YIN, CbIN, CrIN) 54MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40.0	-24.0	dB
Cross talk	CT	(SYIN, VIN, YIN, CbIN, CrIN) 4.43MHz, 1.0Vp-p, Sine Signal (SCIN) 4.43MHz, 0.3Vp-p, Sine Signal	-	-70	-	dB
Differential Gain	DG	(SYIN, VIN, YIN, CbIN, CrIN) Vin=1.0Vp-p, 10step Video Signal	-	0.7	-	%
Differential Phase	DP	(SYIN, VIN, YIN, CbIN, CrIN) Vin=1.0Vp-p, 10step Video Signal	-	0.3	-	deg
S/N Ratio	SN	(SYIN, VIN, YIN, CbIN, CrIN) Vin=1.0Vp-p, 100% White video signal, RL=75Ω, 100KHz to 6MHz	-	80	-	dB
Power Save SW Change Voltage High Level	V <sub>thPH</sub>	PS1, PS2	2.5	-	V <sup>+</sup>	V
Power Save SW Change Voltage Low Level	V <sub>thPL</sub>	PS1, PS2	0	-	1.0	V

## ■CONTROL TERMINAL

PARAMETER			STATUS	NOTE
P	S	1	H	(SYOUT, VOUT,SCOUT) Power Save: OFF
			L	(SYOUT, VOUT,SCOUT) Power Save: ON
			OPEN	(SYOUT, VOUT,SCOUT) Power Save: ON
P	S	2	H	(YOUT, CbOUT, CrOUT) Power Save: OFF
			L	(YOUT, CbOUT, CrOUT) Power Save: ON
			OPEN	(YOUT, CbOUT, CrOUT) Power Save: ON

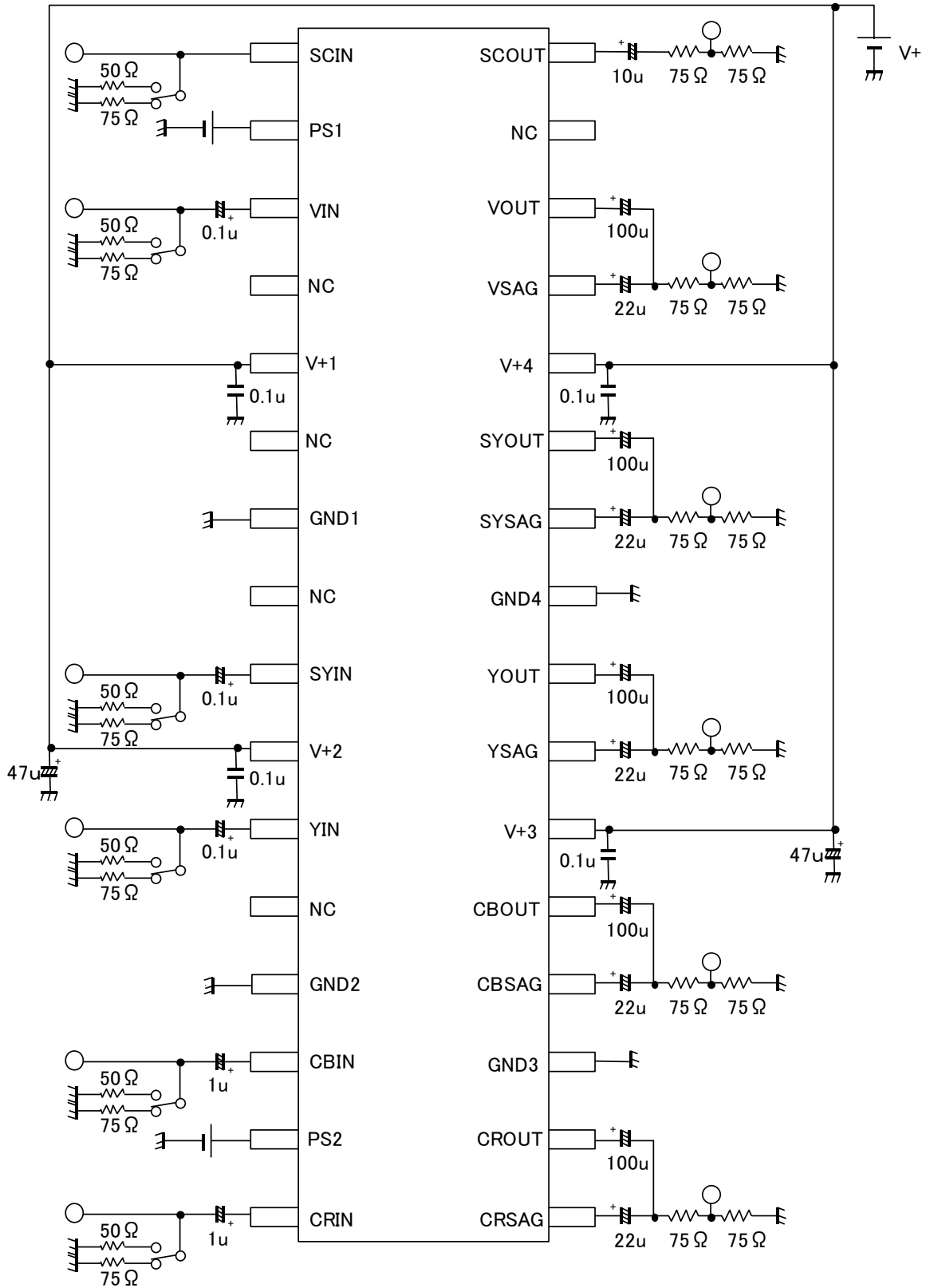
## ■ TERMINAL DESCRIPTION

No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
1	SCIN	Chroma signal input		0V
3 9 11	VIN SYIN YIN	Composite video signal input Y signal input Component signal(Y) input		1.65V
14 16	CbIN CrIN	Component signal(Cb) input Component signal(Cr) input		2.5V
32	SCOUT	Chroma signal output		2.5V

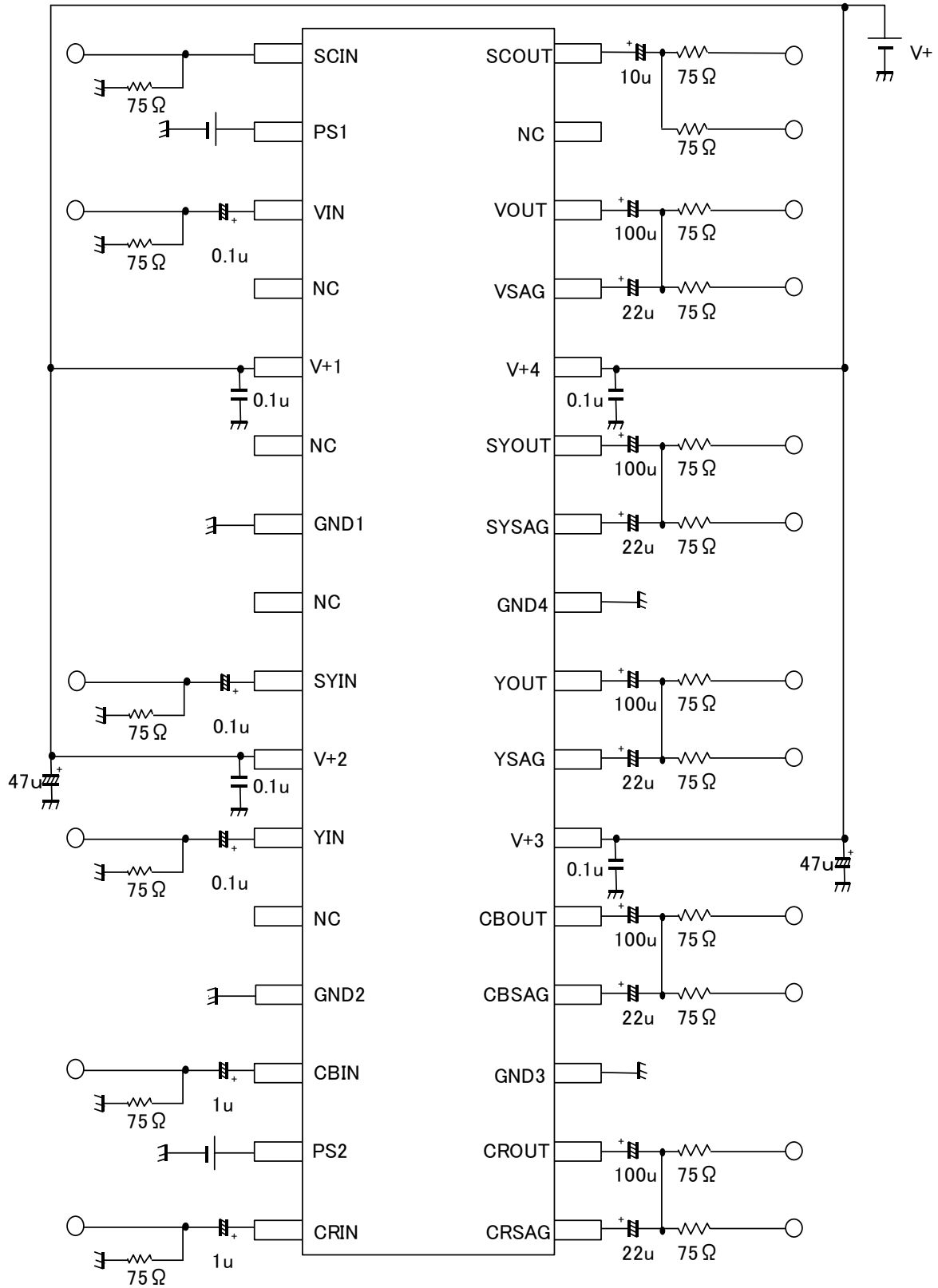
No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
18 21	CrOUT CbOUT	Component signal(Cr) output Component signal(Cb) output		2.5V
24 27 30	YOUT SYOUT VOUT	Component signal(Y) output Y signal output Composite video signal input		1.3V
17 20	CrSAG CbSAG	Sag compensation Sag compensation		2.5V

No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
23 26 29	YSAG SYSAG VSAG	Sag compensation Sag compensation Sag compensation		1.35V
15 2	PS2 PS1	Power save (Y,Cb,Cr) Power save (V,SY,SC)		0V

TEST CIRCUIT



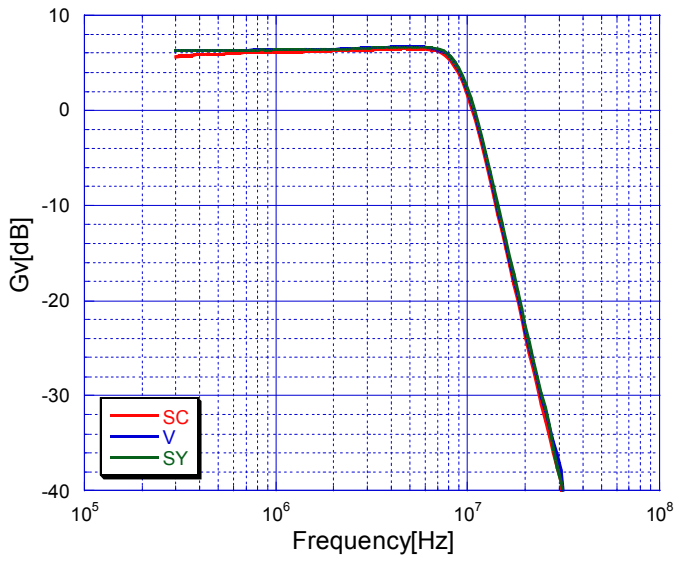
APPLICATION CIRCUIT



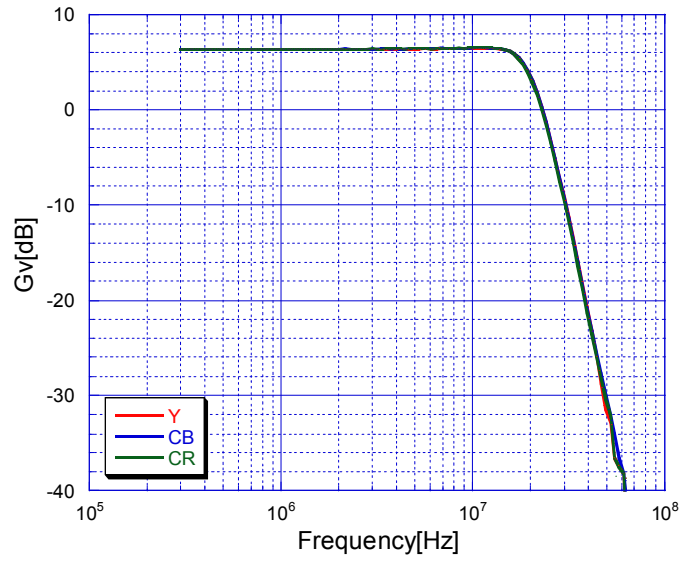


## TYPICAL CHARACTERISTICS

Voltage Gain vs. Frequency (SC,V,CY)



Voltage Gain vs. Frequency (Y,Cb,Cr)



**[CAUTION]**

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