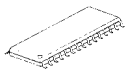
6CH VIDEO AMPLIFIER WITH SD/ HD LPF

■ GENERAL DESCRIPTION

The NJM2564 is a dual supply voltage 6ch Video amplifier.
The NJM2564 is able to DC coupling.
It includes LPF, Y/C MIX circuit and SDC interface. LPF for the component signal can select SD/HD.
The NJM2564 is suitable for BD Player, set top box and the high quality AV systems with the SD/HD output.

■ PACKAGE OUTLINE

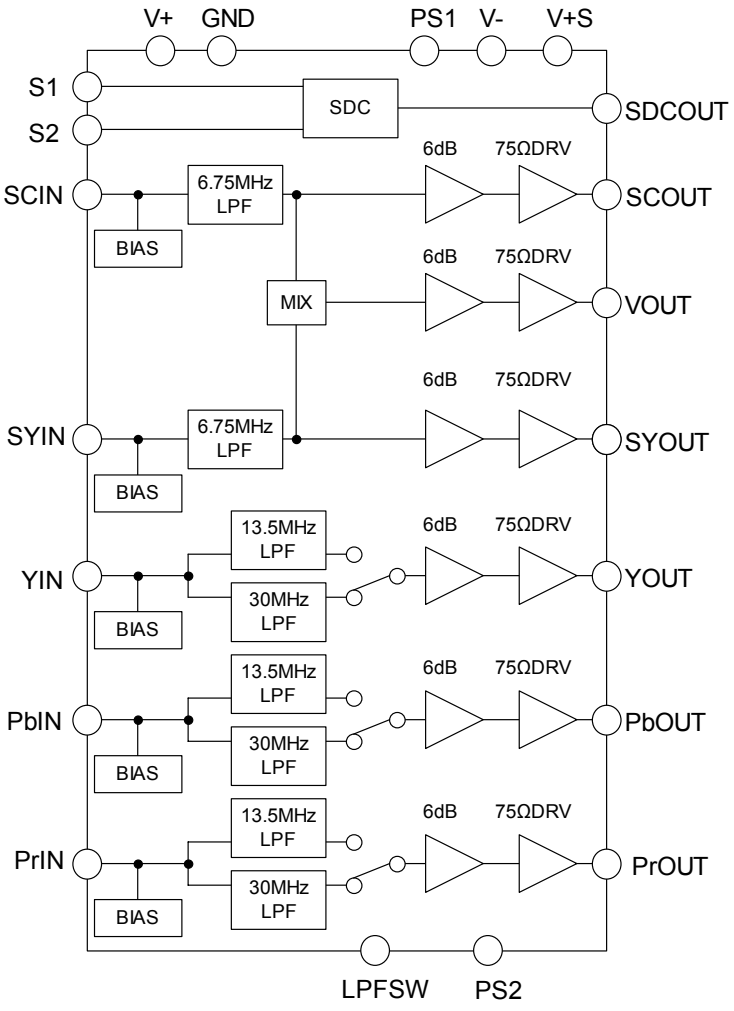


NJM2564V

■ FEATURES

- Operating Voltage +2.8 to +3.5V, +4.5 to +5.5V, -5.5 to -2.8V
- 6dB amplifier
- Internal 75Ω Driver Circuit (2-system drive)
- Internal LPF V, SY, SC 6.75MHz
  Y, Pb, Pr 13.5MHz (Progressive)
  30MHz (HD)
- Y/C MIX Circuit
- SDC Interface (S1/ S2)
- Power Save Circuit
- Bipolar Technology
- Package Outline SSOP32

■ BLOCK DIAGRAM



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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage 1	V+1-4	+4.0	V
Supply Voltage 1	V-1-4	-6.0	V
Supply Voltage 2	V+S	6.0	V
Power Dissipation	P_D	*1785	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-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)

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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage1	Vopr1	V+1 to 4	+2.8	+3.0	+3.5	V
Operating Voltage2	Vopr2	V-1 to 4	-5.5	-5.0	-2.8	V
Operating Voltage3	Vopr3	V+S	+4.5	+5.0	+5.5	V

■ **ELECTRICAL CHARACTERISTICS**

(Ta=25°C, V^+1toV^+4=+3.0V, V^-1 toV^-4=-5.0V,V+S=5.0V,SYIN,Yin=0.65V,RL=150Ω, The condition of the input signal of SYIN and YIN adjusts the sink chip of the video signal and the bottom level of the sine wave signal to 0.65V.)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current 1	$I_{CC}1$	No Signal V+1 to 4	-	55	80	mA
	Iee1	No Signal V-1 to 4	-95	-70	-	mA
Operating Current 2	Icc2	No Signal V+S	-	0.25	1.0	mA
Operating Current at Power Save	Isave	Power Save Mode	-	0.8	1.2	mA
Maximum Output Voltage Swing	Vom	(Note 1) Vin=100kHz, Sine Signal, THD=1%	2.4	-	-	Vp-p
Voltage Gain1	Gv1	(Note 1) Vin=1MHz, 1.0Vp-p, Sine Signal	5.7	6.2	6.7	dB
Voltage Gain2	Gv2	(Note 2) Vin=3.58MHz, 0.3Vp-p,Sine Signal	5.7	6.2	6.7	dB
Gain Difference Between channel	ΔGvI	(Note 1) Vin=1MHz, 1.0Vp-p,Sine Signal	-0.25	0.0	+0.25	dB
Low Pass Filter Characteristic 1	Gfy6.75M	(Note 3) 6.75MHz/1MHz, 1.0Vp-p, Sine Signal	-1.0	0.0	1.0	dB
	Gfy108M	(Note 3) 108MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40	-22	dB
Low Pass Filter Characteristic 2	Gfc6.75M	(Note 2) 6.75MHz/3.58MHz, 0.3Vp-p, Sine Signal	-1.0	0.0	1.0	dB
	Gfc108M	(Note 2) 108MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40	-24	dB
Low Pass Filter Characteristic 3	Gf_{SD}13.5M	(Note 4) 13.5MHz/1MHz, 1.0Vp-p, Sine Signal	-1.0	0.0	1.0	dB
	Gf_{SD}108M	(Note 4) 108MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40	-24	dB
Low Pass Filter Characteristic 4	Gf_{HD}30M	(Note 4) 30MHz/1MHz, 1.0Vp-p, Sine Signal	-1.0	0.0	1.0	dB
	Gf_{HD}148M	(Note 4) 148MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40	-24	dB

■ ELECTRICAL CHARACTERISTICS

(Ta=25°C, V^+1toV^+4=+3.0V, V^-1 toV^-4=-5.0V,V+S=5.0V,SYIN,Yin=0.65V,RL=150Ω, The condition of the input signal of SYIN and YIN adjusts the sink chip of the video signal and the bottom level of the sine wave signal to 0.65V.)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Differential Gain	DG	(Note 1) Vin=1.0Vp-p, 10step Video Signal	-	0.5	-	%
Differential Phase	DP	(Note 1) Vin=1.0Vp-p, 10step Video Signal	-	0.5	-	deg
S/N Ratio1	SN1	(Note 1) Vin=1.0Vp-p, 100% White video signal, RL=75Ω, 100KHz to 6MHz	-	80	-	dB
S/N Ratio2	SN2	(Note 1) Vin=1.0Vp-p, 100% White video signal, RL=75Ω, 100KHz to 6MHz, Y/C MIX OUT	-	70	-	dB
DC Output Voltage1	Vo1	No Signal, VOUT, SYOUT	-	-0.7	-	V
DC Output Voltage2	Vo2	No Signal, YOUT	-	-0.8	-	V
DC Output Voltage3	Vo3	No Signal, PbOUT, PrOUT	-	0	-	V
SDC Output Voltage Low Level	SDCL	RL=10kΩ+100kΩ	-	0.1	0.5	V
SDC Output Voltage Mid Level	SDCM	RL=10kΩ+100kΩ	1.6	2.1	2.4	V
SDC Output Voltage High Level	SDCH	RL=10kΩ+100kΩ	4.3	4.6	-	V
SW Voltage High Level	VthPH		2.5	-	V^+	V
SW Voltage Low Level	VthPL		0	-	1.0	V
Switch inflow current High Level	I_{SWH}	V=3V	-	-	120	μA
Switch inflow current Low Level	I_{SWL}	V=0.3V	-	-	8	μA

Note 1 (SYIN, VIN, YIN, PbIN, PrIN) Input
Note 2 (SCIN) Input
Note 3 (SYIN, VIN) Input
Note 4 (YIN, PbIN, PrIN) Input

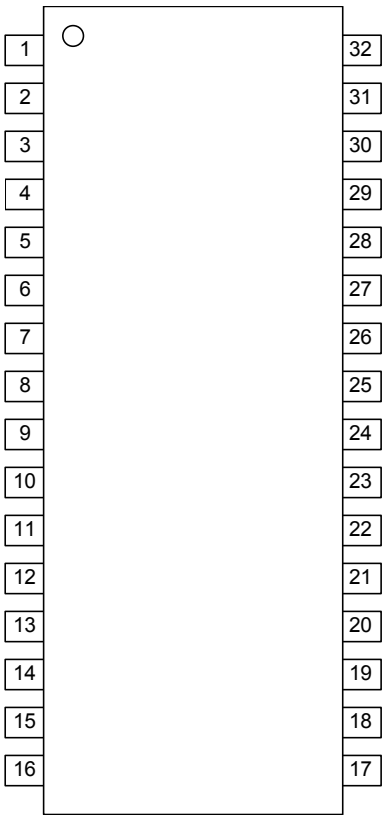
■ **CONTROL TERMINAL**

PARAMETER	STATUS	NOTE
PS1 (Power Save1)	H	(SYOUT, VOUT, SCOUT) Power Save: OFF
	L	(SYOUT, VOUT, SCOUT) Power Save: ON
	OPEN	(SYOUT, VOUT, SCOUT) Power Save: ON
PS2 (Power Save2)	H	(YOUT, PbOUT, PrOUT) Power Save: OFF
	L	(YOUT, PbOUT, PrOUT) Power Save: ON
	OPEN	(YOUT, PbOUT, PrOUT) Power Save: ON
LPF SW (LPF)	H	37MHz LPF
	L	13.5MHz LPF
	OPEN	13.5MHz LPF

■ **SDC OUT**

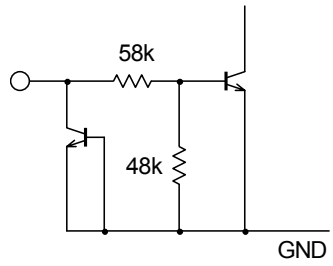
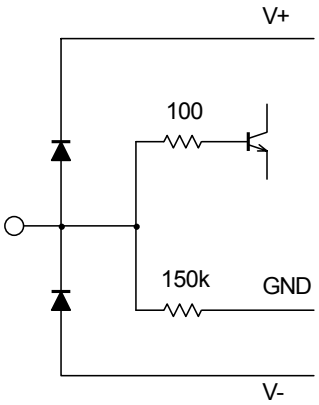
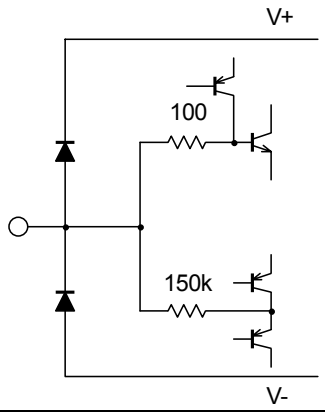
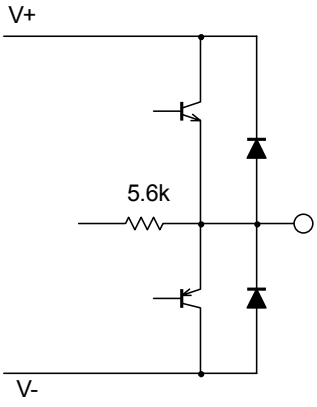
S1	S2	SDC OUT	
L (OPEN)	L (OPEN)	0V	4:3 Normal
L (OPEN)	H	2.1V	4:3 Letter box
H	H	2.1V	4:3 Letter box
H	L (OPEN)	4.6V	16:9 Squeeze

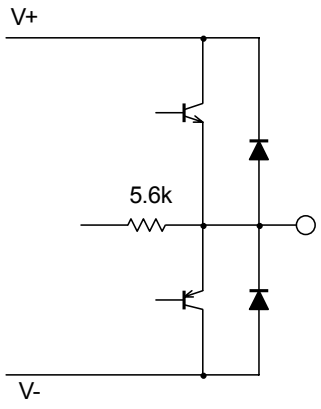
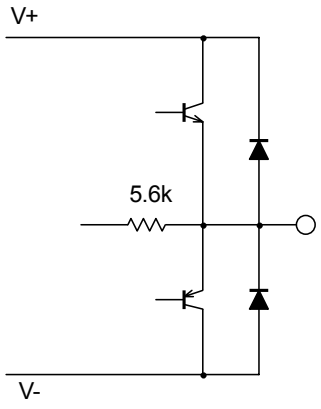
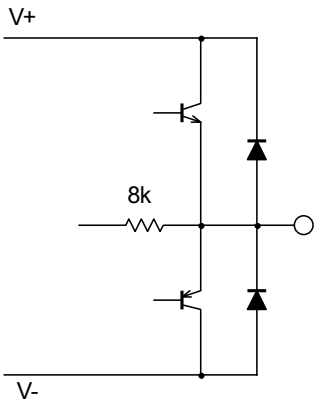
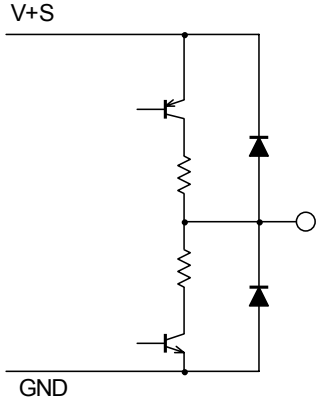
■ **PIN FUNCTION**



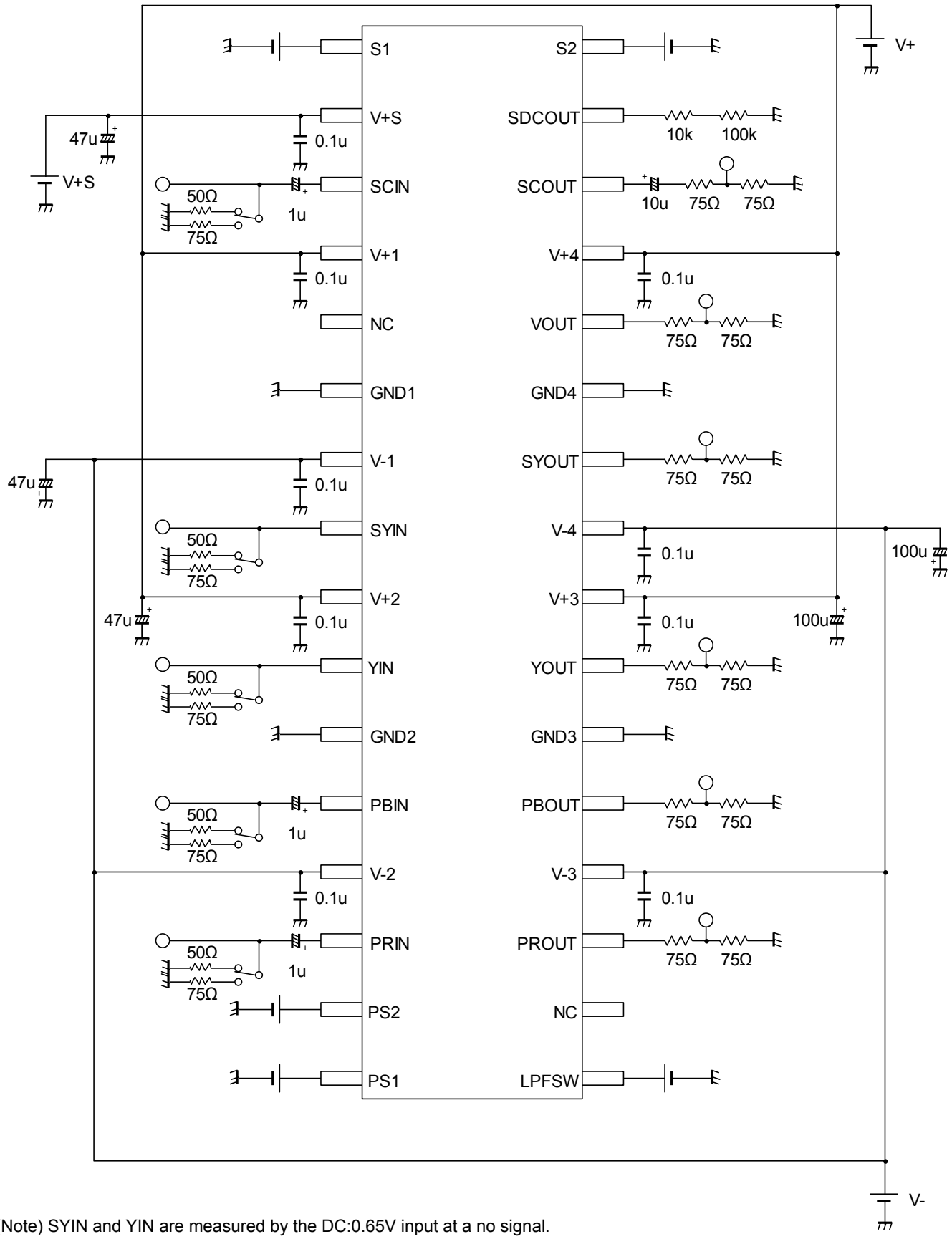
1. S1	17. LPFSW
2. V+S	18. NC
3. SCIN	19. PROUT
4. V+1	20. V-3
5. NC	21. PBOUT
6. GND1	22. GND3
7. V-1	23. YOUT
8. SYIN	24. V+3
9. V+2	25. V-4
10. YIN	26. SYOUT
11. GND2	27. GND4
12. PBIN	28. VOUT
13. V-2	29. V+4
14. PRIN	30. SCOUT
15. PS2	31. SDCOUT
16. PS1	32. S2

■ **TERMINAL DISCRIPTION**

Pin No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	TERMINAL DC VOLTAGE
1 15 16 17 32	S1 PS2 PS1 LPFSW S2	S-Video DC Control Power save for Y, Pb, Pr Power save for SY, V, SC, SDC LPF Control for Y, Pb, Pr S-Video DC Control		-
3 12 14	SCIN PBIN PRIN	C input for Separate terminal PB input PR input		0V
8 10	SYIN YIN	Y input for Separate terminal Y input for Component terminal (Note) Input the signal by the sync tip 0.65V.		0.7V
19 21 30	PROUT PBOUT SCOUT	PR Output PB Output C out for Separate terminal		0V

Pin No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	TERMINAL DC VOLTAGE
23	YOUT	Y output for Component terminal		-0.8V
26	SYOUT	Y output for Separate terminal		-0.7V
28	VOUT	V output		-0.7V
32	SDCOUT	SDC output		-

■ **TEST CIRCUIT**



(Note) SYIN and YIN are measured by the DC:0.65V input at a no signal.
When the signal is input, SYIN and YIN are measured by clamping the sync tip 0.65V.

[CAUTION]
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