

75Ω Driver with Filer and Y/C MIX

■ GENERAL DESCRIPTION

NJM2570 is a video amplifier included LPF in Y and C system. Adjustable LPF characteristic with external resistor and output with 75ohm driver optimize the TV monitor system.

Also, it can discriminated the aspect ratio of TV by internal DC interface for S terminal.

NJM2570 includes power save circuit to suitable for portable video application.

■ PACKAGE OUTLINE

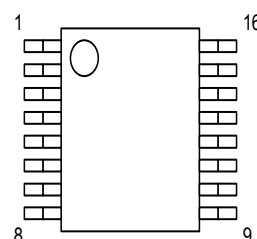


NJM2570V

■ FEATURES

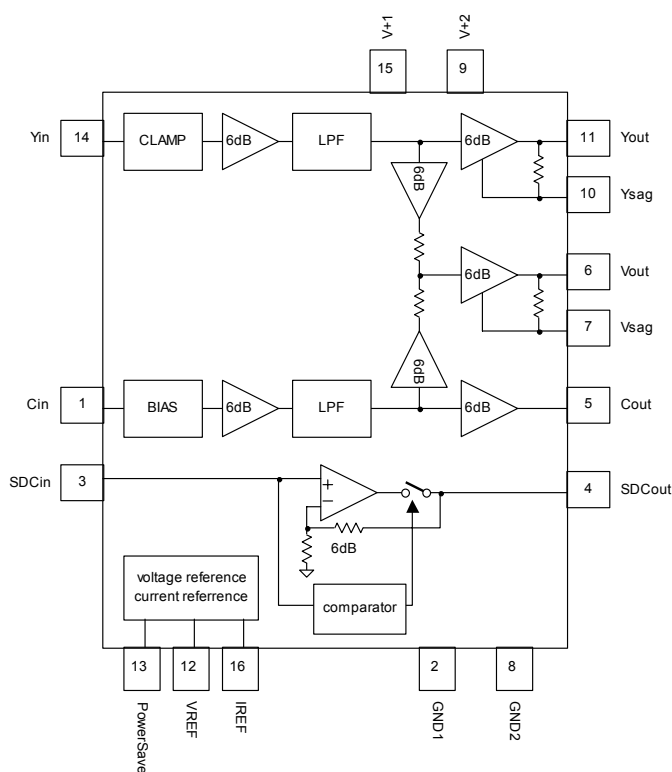
- Operating Voltage 4.5 to 5.5V
- Input Y and C 0.5Vpp
- Internal LPF
 - 0dBtyp. at 4MHz (at IREF=33kΩ)
 - 35dBtyp. at 10MHz (at IREF=33kΩ)
 - 0dBtyp. at 6MHz (at IREF=22kΩ)
 - 40dBtyp. at 16MHz (at IREF=22kΩ)
- Internal DC Interface for aspect ratio discrimination
- Bipolar technology
- Package Outline SSOP16

■ PIN CONFIGURATION



1. Cin
2. GND
3. SDCin
4. SDCout
5. Cout
6. Vout
7. Vsag
8. GND2
9. V+2
10. Ysag
11. Yout
12. VREF
13. POWERSAVE
14. Yin
15. V+1
16. IREF

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	7.0	V
Power Dissipation	P _D	300	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +125	°C

■ RECOMMENDED OPEARATING CONDITION(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	MIN.	TYP.	MAX.	UNIT
Operating Voltage 1	Vopr1	V ⁺ 1	4.5	5.0	5.5	V
Operating Voltage 2	Vopr2	V ⁺ 2	4.5	5.0	5.5	V

■ ELECTRICAL CHARACTERISTICS(V⁺1=V⁺2=5.0V,R_L=150Ω,Ta=25°C, IREF=22kΩ at non-designation)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Circuit 1	I _{CC} 1	V ⁺ 1=5.0V, No signal	-	10	18	mA
Operating Circuit 2	I _{CC} 2	V ⁺ 2=5.0V, No signal	-	15	25	mA
Operating Circuit 1 at Power Save	I _{save} 1	V ⁺ 1=5.0V, Power Save Mode	-	50	120	μA
Operating Circuit 2 at Power Save	I _{save} 2	V ⁺ 2=5.0V, Power Save Mode	-	0	120	μA
Voltage Gain 1(Y Signal)	G _{vy}	Yin=100kHz,0.5Vpp Input Sign signal	12.0	12.4	12.9	dB
Voltage Gain 1(C Signal)	G _{vc}	Cin=4.43MHz,0.15Vpp Input Sign signal	12.0	12.4	12.9	dB
Voltage Gain 1(V Signal)	G _{vv}	Yin=100kHz,0.5Vpp Input Sign signal	12.0	12.4	12.9	dB
Frequency Characteristics (Y Signal)	G _{fy} 1-1	Yin=4MHz/100kHz, 0.5Vpp, Input Sine signal IREF=33kΩ	-3.0	0	1.0	dB
	G _{fy} 1-2	Yin=10MHz/100kHz, 0.5Vpp, Input Sign signal IREF=33kΩ	-	-35	-30	
	G _{fy} 2-1	Yin=6MHz/100kHz, 0.5Vpp, Input Sine signal IREF=22kΩ	-3.0	0	2.0	
	G _{fy} 2-2	Yin=16MHz/100kHz, 0.5Vpp Input Sine signal, IREF=22kΩ	-	-40	-30	
Frequency Characteristics (C Signal)	G _{fc} 1-1	Cin=4.43MHz-500kHz, 0.15Vpp Input Sine signal, IREF=33kΩ	-1.0	1.0	3.0	dB
	G _{fc} 1-2	Cin=4.43MHz+500kHz, 0.15Vpp Input Sine signal, IREF=33kΩ	-5.0	-2.0	1.0	
	G _{fc} 2-1	Cin=4.43MHz-500kHz, 0.15Vpp Input Sine signal, IREF=22kΩ	-1.0	0	1.0	
	G _{fc} 2-2	Cin=4.43MHz+500kHz, 0.15Vpp Input Sine signal, IREF=22kΩ	-1.0	0	1.0	
Maximum Output Voltage Swing 1(Y Signal)	Voym	V ⁺ 1=V ⁺ 2=4.5V,Yin=100kHz, Sine Signal, THD=1%, R _L =75Ω	1.2	1.5	-	Vp-p
Maximum Output Voltage Swing 1(C Signal)	Vocm	V ⁺ 1=V ⁺ 2=4.5V,Cin=4.43MHz, Sine Signal, THD=1%, R _L =75Ω	1.05	1.85	-	Vp-p
Maximum Output Voltage Swing 1(V Signal)	Vovm	V ⁺ 1=V ⁺ 2=4.5V,Yin=100kHz, Sine Signal, THD=1%, R _L =75Ω	1.2	1.4	-	Vp-p
SW Change Voltage High Level for Power Save	VcH	Active	1.8	-	V ⁺	V
SW Change Voltage High Level for Power Save	VcL	Non-active	0	-	0.3	

PRELIMINARY

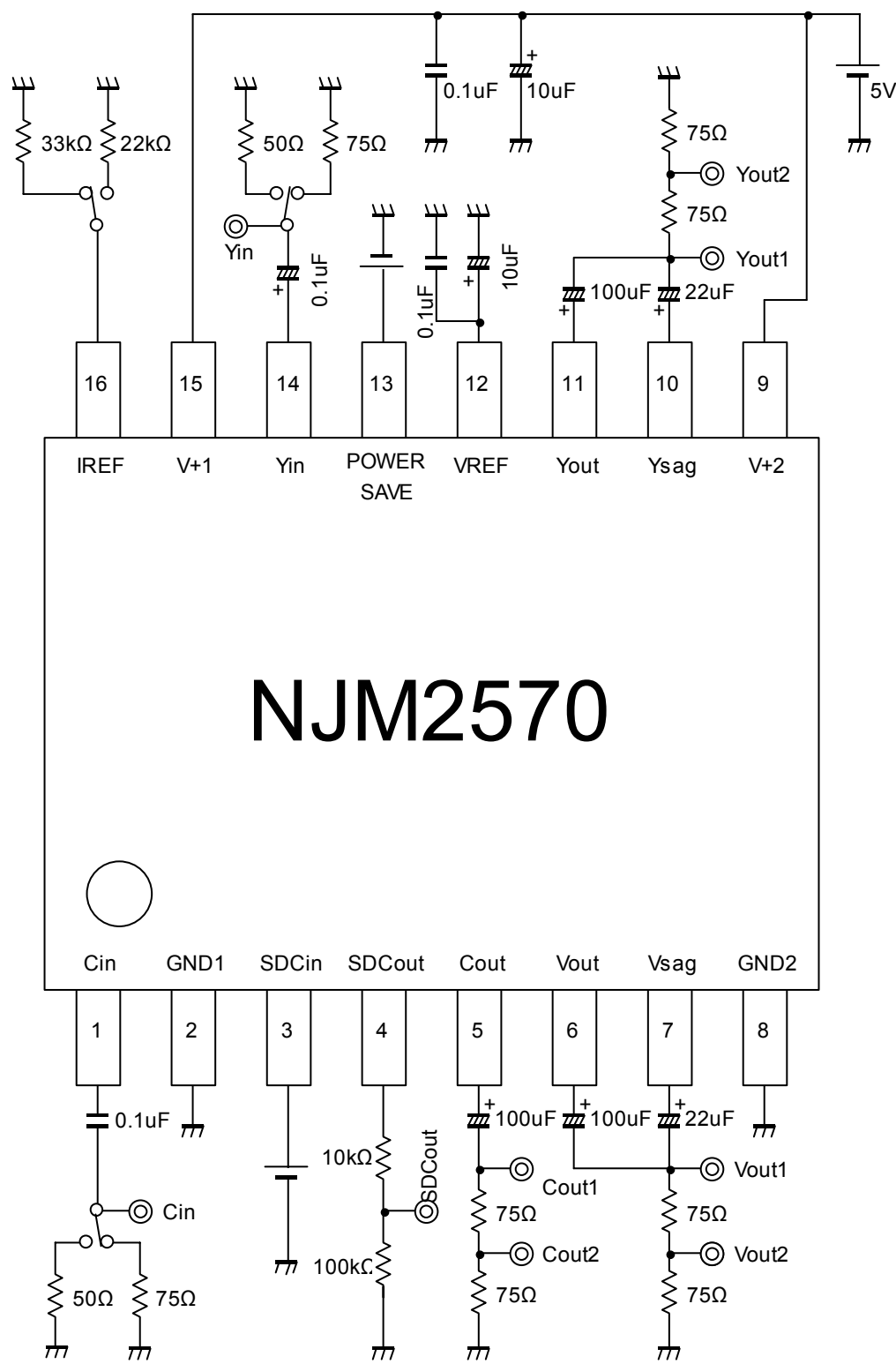
■ ELECTRICAL CHARACTERISTICS ($V^+1=V^+2=5.0V$, $R_L=150\Omega$, $T_a=25^\circ C$, $I_{REF}=22k\Omega$ at non-designation)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Crosstalk 1(Yin to Cout)	CTyc	Yin to Cout= $20\log(Cout/Yout)$ Yin=4.43MHz, 0.5Vpp Sine Signal, Cin=AC GND	-	-50	-40	dB
Crosstalk 2(Cin to Yout)	CTcy	Cin to Yout= $20\log(Yout/Cout)$ Cin=4.43MHz, 0.15Vpp Sine Signal, Yin=AC GND	-	-60	-40	dB
S/N1(Y Signal)	SNy	Yin=50% White Video Signal, $R_L=75\Omega$ at Yout Bandwidth 100kHz to 6MHz	55	60	-	dB
S/N2(C Signal)	SNc	Cin=100% Red Field Video Signal, $R_L=75\Omega$ at Yout Bandwidth 100Hz to 500kHz	55	60	-	dB
S/N3(V Signal)	SNv	Yin=50% White Video Signal, $R_L=75\Omega$ at Yout at Vout Bandwidth 100kHz to 6MHz	53	57	-	dB
2nd. Distortion 1(Y Signal)	Hy	Yin=1MHz, 0.5Vpp, Sine Signal	-	-50	-40	dB
2nd. Distortion 1(C Signal)	Hc	Cin=4.43MHz, 0.15Vpp, Sine Signal	-	-50	-40	dB
2nd. Distortion 1(V Signal)	Hv	Yin=1MHz, 0.5Vpp, Sine Signal	-	-50	-40	dB
SDC Voltage Gain	G_v SDC	SDCin=1.0V, $R_L=100k\Omega$	5.5	6.0	6.5	dB
SDC Maxim Output Voltage	V_{om} SDC	$R_L=100k\Omega$, $V^+1=V^+2=4.5V$	3.6	-	-	V
Threshold Voltage for SDC Output Impedance	V_{thR} SDC	Change Guarantee for SDC High Impedance	-	-	0.3	V
SDC Output Impedance	RSDC	SDCout at High Impedance	165	220	275	$k\Omega$

■ CONTROL TERMINAL

PARAMETER	CONTROL	NOTES
Power Save	H	Power Save: OFF
	L	Power Save: ON
	OPEN	Power Save: ON

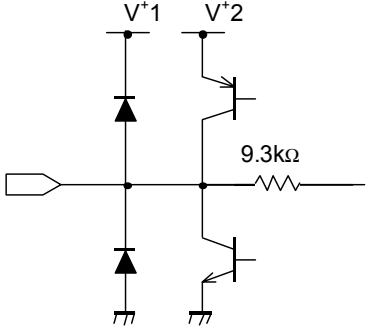
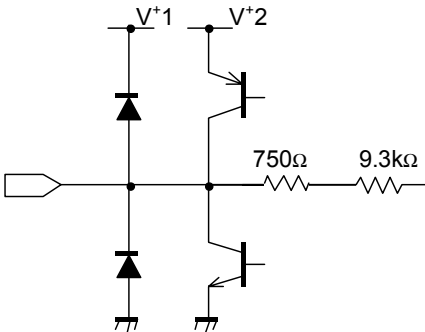
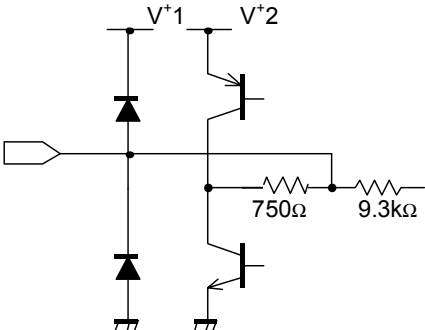
■ TEST CIRCUIT



■ TERMINAL EXPLANATION

PIN No.	SYMBOL	EQUIVALENT CIRCUIT	DC VOLTAGE	NOTE
1	Cin			
2	GND			
3	SDCin			
4	SDCout			

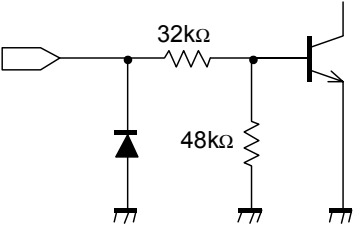
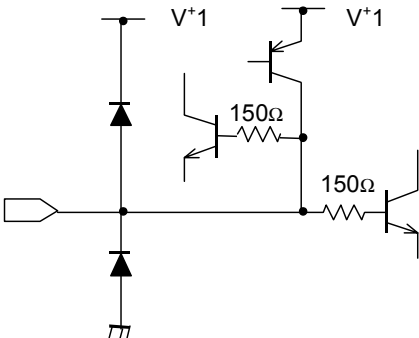
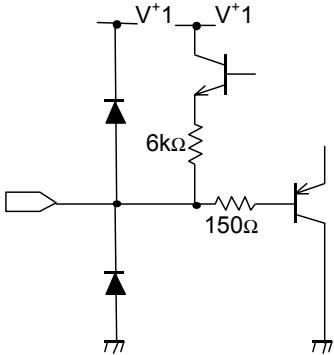
■ TERMINAL EXPLANATION

PIN No.	SYMBOL	EQUIVALENT CIRCUIT	DC VOLTAGE	NOTE
5	Cout			
6	Vout			
7	Vsag			
8	GND2			

■ TERMINAL EXPLANATION

PIN No.	SYMBOL	EQUIVALENT CIRCUIT	DC VOLTAGE	NOTE
9	V ⁺ 2			
10	Ysag			
11	Yout			
12	Vref			

■ TERMINAL EXPLANATION

PIN No.	SYMBOL	EQUIVALENT CIRCUIT	DC VOLTAGE	NOTE
13	Power Save			
14	Yin			
15	V ⁺ 1			
16	Iref			

[CAUTION]
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