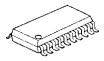
DC-coupling 4-channel Video Driver

with Auto Power Save Function

■ GENERAL DESCRIPTION

The **NJM41042** is a single supply voltage 4ch Video amplifier with SD/ HD LPF. No need output capacitor due to DC-coupling output. **NJM41042** has Auto Power Save function, which detects connecting cable or not. It realizes lower power consumption.

■ PACKAGE OUTLINE



NJM41042VC3

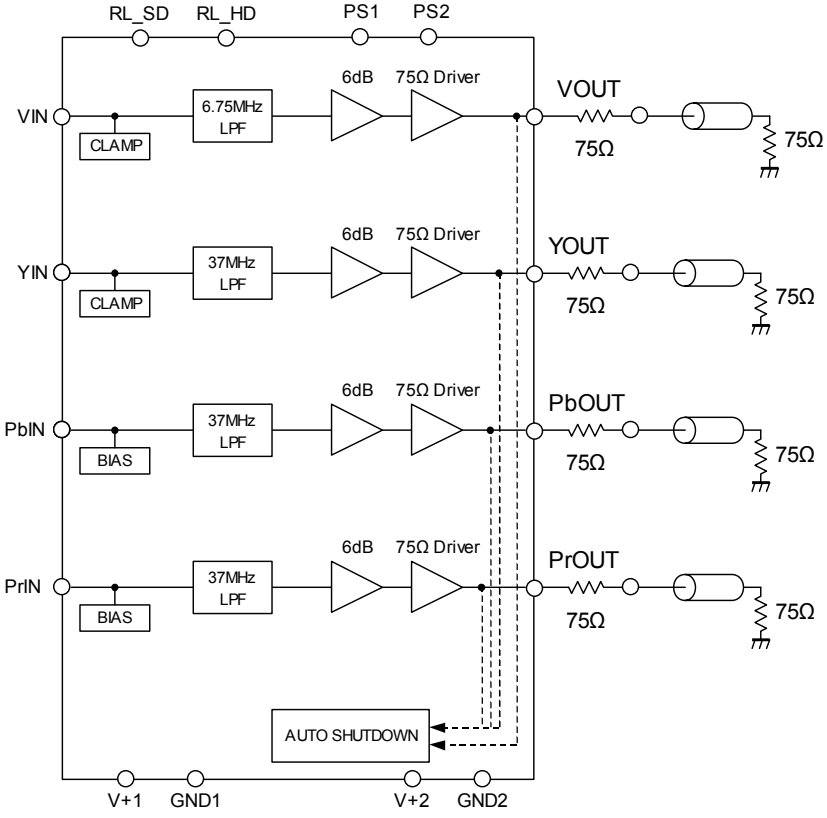
■ APPRICATION

- BD/DVD player
- Home Theater
- Set Top Box
- AV receiver

■ FEATURES

- Operating Voltage 4.5 to 5.5V
- Auto Power Save Function
- Composite/ Component Video Signal Input
- SD/HD LPF 6.75MHz/37MHz
- DC-coupled Output
- AC-coupled Input with Sync-tip Clamp(Vin/Yin), Bias(Pbin/Prin)
- 6dB amplifier
- 75Ω Driver Circuit (Two-line drive)
- Monitoring Function(RL_SD,RL_HD)
- Bipolar Technology
- Package Outline SSOP20-C3

■ BLOCK DIAGRAM



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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	7.0	V
Power Dissipation	P_D	1500 (Note 1)	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +150	°C

(Note 1) At on a board of EIA/JEDEC specification. (114.3 x 76.2 x 1.6mm 4 layers, FR-4)

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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	Vopr		4.5	5.0	5.5	V

■ **ELECTRICAL CHARACTERISTICS** (Ta=25°C, V^+=5V, R_L=150Ω)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I_{CC}	No Signal	-	50	70	mA
Operating Current at Power Save1	Isave1	Power Save Mode(PS1:ON,PS2:ON)	-	0.5	1.1	mA
Operating Current at Power Save2	Isave2	Power Save Mode(PS1:ON,PS2:OFF)	-	45	60	mA
Operating Current at Power Save3	Isave3	Power Save Mode(PS1:OFF,PS2:ON)	-	10	15	mA
Maximum Output Voltage Swing	Vom	Vin=100kHz, Sine Signal, THD=1%	2.4	-	-	Vp-p
Output DC Voltage1	Vo_1	Vout/Yout terminal	0.3	0.5	0.7	V
Output DC Voltage2	Vo_2	Pbout/Prout terminal	1.4	1.7	2.0	V
Voltage Gain	Gv	Vin=1MHz, 1.0Vp-p, Sine Signal	5.5	6.0	6.5	dB
Low Pass Filter Characteristic 1	Gfy6.75M	(Note 1) 6.75MHz/1MHz, 1.0Vp-p, Sine Signal	-1.0	0	1.0	dB
	Gfy108M	(Note 1) 108MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40.0	-24.0	dB
Low Pass Filter Characteristic 2	Gf_{HD}37M	(Note 2) 37MHz/1MHz, 1.0Vp-p, Sine Signal	-	-3.0	-	dB
	Gf_{HD}148M	(Note 2) 148MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40.0	-24.0	dB
Differential Gain	DG	(Note 3) Vin=1.0Vp-p, 10step Video Signal	-	0.5	-	%
Differential Phase	DP	(Note 3) Vin=1.0Vp-p, 10step Video Signal	-	0.5	-	deg
S/N Ratio	SN	(Note 3) Vin=1.0Vp-p, 100% White video signal, RL=75Ω, 100KHz to 6MHz	-	80	-	dB
SW Voltage High Level	VthH		2.2	-	V^+	V
SW Voltage Low Level	VthL		0	-	1.0	V
Switch inflow current High Level	IthH	V=5V	-	-	120	μA
Switch inflow current Low Level	IthL	V=0.3V	-	-	8.0	μA
RL Voltage High Level	VthH	R=10kΩ	0.7* V^+	-	V^+	V
RLSW Voltage Low Level	VthL	R=10kΩ	0	-	0.3* V^+	V

(Note 1) V Input, (Note 2) Y,Pb,Pr Input, (Note 3) V,Y Input

■ CONTROL TERMINAL

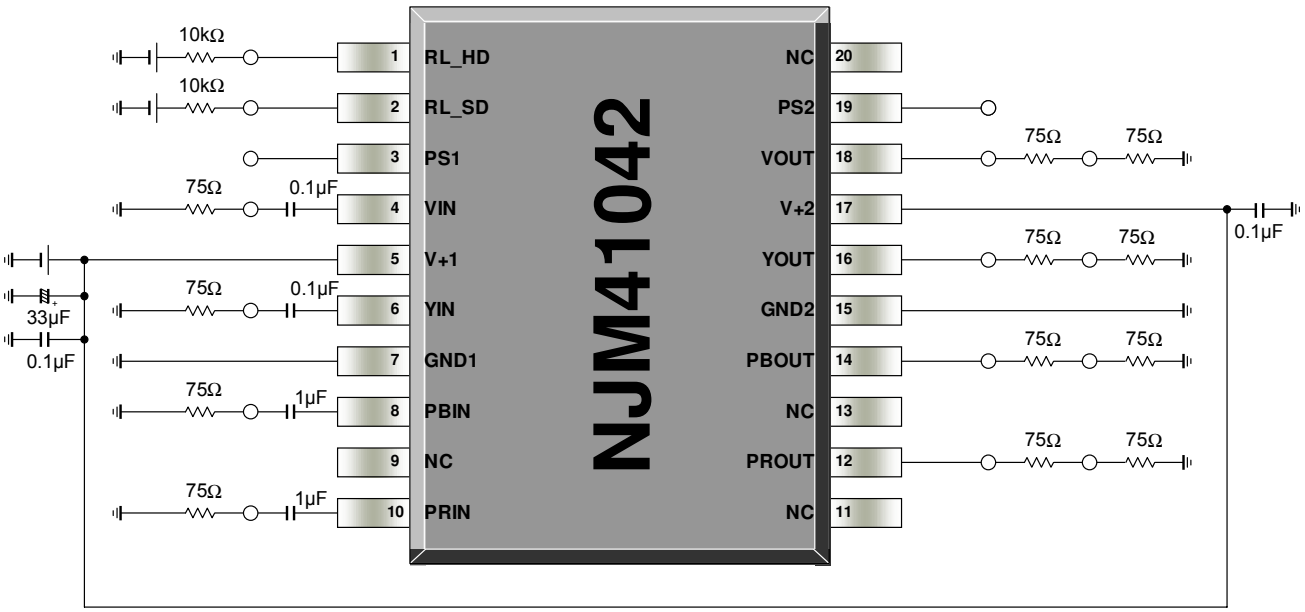
PARAMETER	STATUS	NOTE
PS1(Power Save1)	H	Vout Power Save: OFF (Active)
	L	Vout Power Save: ON (Mute)
	OPEN	Vout Power Save ON(Mute)
PS2(Power Save2)	H	Y,Pb,Pr out Power Save: OFF (Active)
	L	Y,Pb,Pr out Power Save: ON (Mute)
	OPEN	Y,Pb,Pr out Power Save ON(Mute)

■ MONITOR TERMINAL

PARAMETER	STATUS	NOTE
RL_SD	H	Vout No Connection
	L	Vout Connected
RL_HD	H	Y,Pb,Pr out No Connection
	L	Y,Pb,Pr out Connected

NJM41042 has the load detecting function.
Terminal (SD,HD) with which the cable is connected operates.
It auto shutdown mode when there is no load (open mode).
SD and HD operate independently.
The monitor terminal judges whether the video amplifier operates.
It can be judged whether the cable is connected by feed back this terminal information to the μcon.

■ TEST CIRCUIT



Note)We recommend the DC termination of 75Ω.
When the AC termination, there is a possibility that the signal is not correctly output.

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