Structure : Silicon Monolithic Integrated Circuit

Product name : Video driver with LPF for mobile applications

Model: **BH7616HFV**

Outer dimensions : Fig1 HVSOF6 （ Plastic mold ）

Function :

- Output impedance becomes High at the time of standby. (1.5Megohm min)
- Built in 6dB AMP
- Built in LPF(8order) for Video input (f=4.5MHz)
- Sync Tip clamp circuit
- HVSOF6 small package
- Built in standby function
- STBY terminal＝ Low : ACTIVE
  High: STANDBY

■ Absolute maximum rating（Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply voltage	Vcc	7	V
Power Dissipation	Pd	*410	mW
Operating temperature range	Topr	-40 ～ +85	℃
Storage temperature range	Tstg	-55～+125	℃

∗ For operation above 25□ free-air temperature , power dissipation is decreasing 4.1mW/□ in case mounting the ROHM standard grass-epoxy application board (70×70×1.6mm)

■ Operating voltage range

Parameter	Symbol	Min.	Std.	Max.	Unit
Operating voltage range	Vcc	2.6	3.0	5.5	V

□ This product is not designed to protect itself against radioactive rays.

■Electrical characteristics (Ta=25℃, VCC=3V unless otherwise specified)

Parameter		Symbol	Specifications			Unit	Testing condition
			Min.	Std.	Max.		
Circuit current	ACTIVE	I_{CC1}	—	7	11	mA	No Signal
	STANBY	I_{CC2}	—	0. 0	2	μA	Standby mode
Standby SW input current Voltage	High Level	$I_{th}H$	—	—	60	μA	6pin=3.0V
	Low Level	$I_{th}L$	—	—	4	μA	6pin=0.2V
Standby SW Change Voltage	High Level	V_{thH}	1.2	—	V_{cc}	V	Standby OFF
	Low Level	V_{thL}	0	—	0.45	V	Standby ON
Voltage gain		GV	+5.5	+6.0	+6.5	dB	Vin=100KHz, 1.0Vpp
Maximum output level		Vomv	2.2	2.6	—	Vpp	f=10KHz、THD=1%
Frequency characteristics	1	G_{f1}	-1.0	0.1	0.5	dB	f=4.5MHz/100KHz
	2	G_{f2}	-7.0	-4.0	0.3	dB	f=8.2MHz/100KHz
	3	G_{f3}	—	-45.0	—	dB	f=19MHz/100KHz
Y signal output S／N		SN_Y	—	-67.0	—	dB	Band 100KHz～6MHz Terminal impedance 75Ω 100% White video signal
C signal output S／N	AM	SN_{CA}	—	-77.0	—	dB	Band 100Hz～500KHz Terminal impedance 75Ω 100% chroma video signal
	PM	SN_{CP}	—	-65.0	—	dB	
Different Gain		D_G	—	0.7	3.0	%	Vin= 1.0Vp-p Standard stair step signal
Different Phase		D_P	—	0.7	3.0	deg	
Non-signal output terminal voltage		V_{out}	—	0.2	0.4	V	
Standby mode output terminal impedance		Z_{out}	1.5	—	—	MΩ	Supply Vout = 3V

■Control Terminal

PARAMETER	STATUS	NOTE
STANDBY（6PIN）	OPEN	STANDBY
	H	STANDBY
	L	ACTIVE

■Physical dimensions

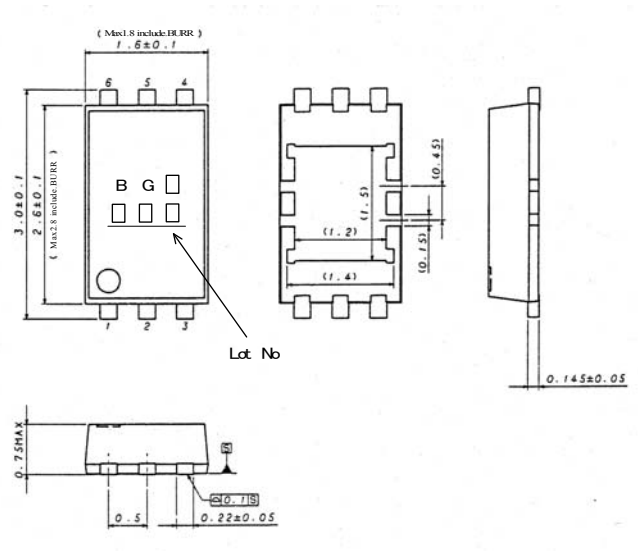


Fig1 HVSOF6 （ Plastic mold ）

■Application circuit example 1 (When output terminal is used sharing with input terminal)

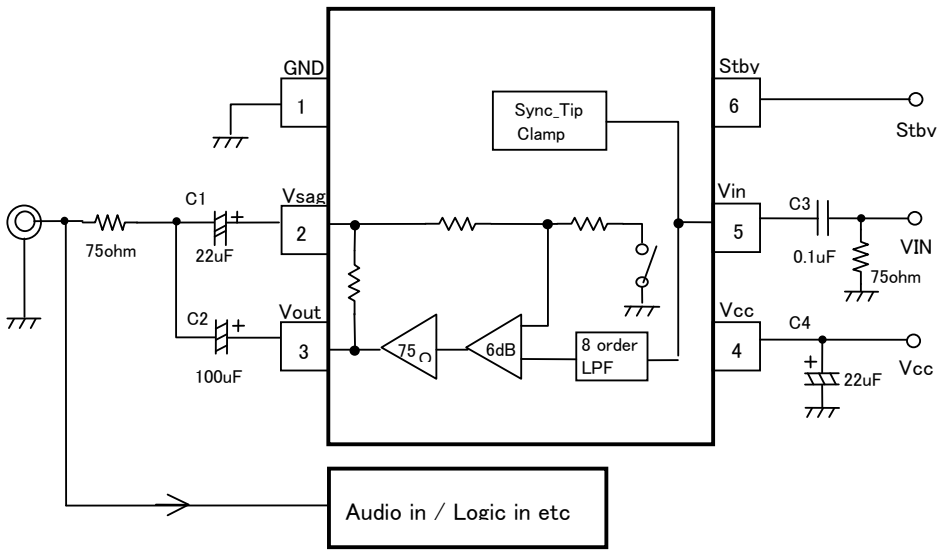
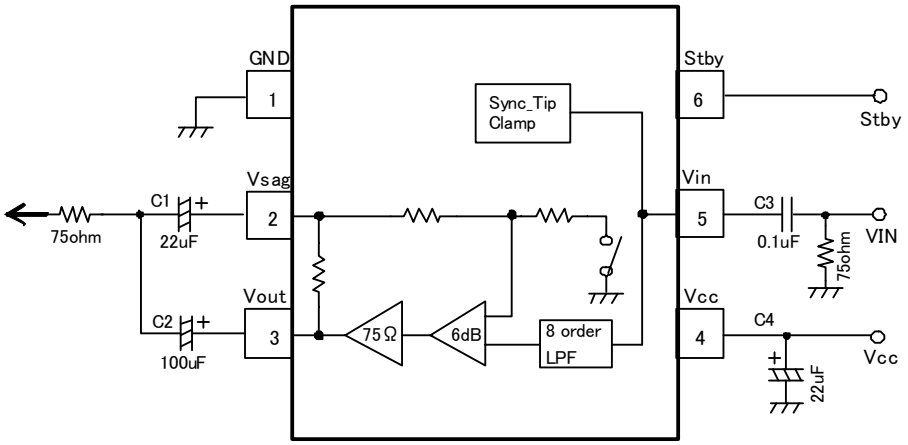


図2-1

Since a video driver output becomes high impedance at the time of standby, even if it shares a video output terminal with an input terminal, operation of an input terminal is not influenced.

■Application circuit example 2 （SAG correction）



V_{sag} Capacitor (C1)	33μF	33μF	33μF
V_{OUT} Capacitor (C2)	68μF	47μF	33μF

図2-2

SAG correction

In order to make the SAG of the video signal as small as possible, we recommend the values of the application circuit diagram for output coupling capacitor capacitance.

If reducing capacitance due to the demands of miniaturization or the like, check the SAG characteristic for an alternating black and white bounce signal *1, H-bar signal *2, or other signal for which a SAG effect readily occurs and use a capacitance that satisfies the demands of the set being used.

As a reference, try the combinations shown below when reducing capacitance. As the capacitance of the VOUT capacitor is made smaller, SAG becomes greater.

*1,*2: TG-7 U705 unit or other

■Application circuit example 3 (Using after removing output coupling capacitor)

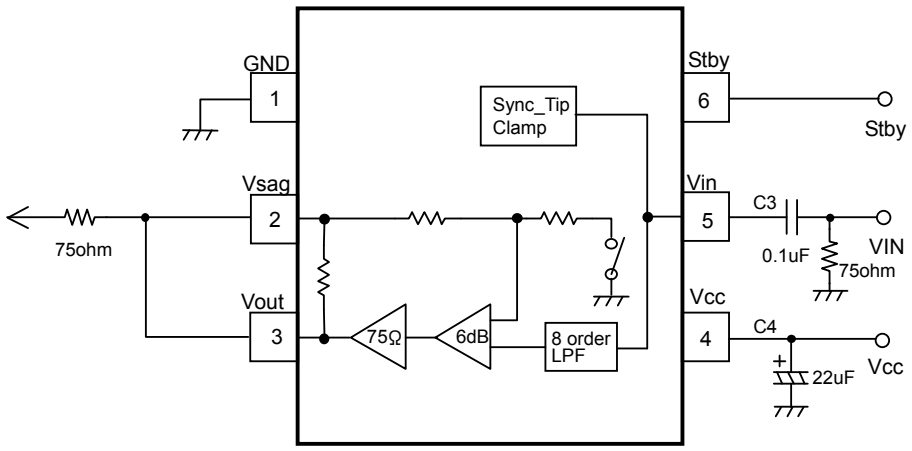


図2-3

By eliminating the output coupling capacitor, not only can you reduce board space and product cost, but improvement of the SAG characteristic also can be realized due to the fact that the low-band frequency characteristic is improved.
However, since direct current will flow in a set connected on the opposite side due to eliminating the output coupling capacitor, pay close attention to the specifications of what is connected in conjunction with using it.
Moreover, characteristics such as circuit current, differential gain, and differential phase differ as shown below.

Parameter	With Output Coupling Capacitor	Without Output Coupling Capacitor
Circuit Current (If no signal)	7.1 mA	7.8 mA
Circuit Current (If color bar signal output)	8.3 mA	14.3 mA
Differential Gain (DG)	0.7%	1.0%
Differential Phase (DP)	0.7°	0.3°

The values shown above are reference values. They are not guaranteed values

■Caution of use

1) Absolute maximum ratings
If applied voltage, operating temperature range, or other absolute maximum ratings are exceeded, the LSI may be damaged. Do not apply voltages or temperatures that exceed the absolute maximum ratings. If you think of a case in which absolute maximum ratings are exceeded, enforce fuses or other physical safety measures and investigate how not to apply the conditions under which absolute maximum ratings are exceeded to the LSI.

2) GND potential
Make the GND pin voltage such that it is the lowest voltage even when operating below it. Actually confirm that the voltage of each pin does not become a lower voltage than the GND pin, including transient phenomena.

3) Shorts between pins and mis-installation
When mounting the LSI on a board, pay adequate attention to orientation and placement discrepancies of the LSI. If it is mis-installed and the power is turned on, the LSI may be damaged. It also may be damaged if it is shorted by a foreign substance coming between pins of the LSI or between a pin and a power supply or a pin and a GND.

4) Operation in strong magnetic fields
Adequately evaluate use in a strong magnetic field, since there is a possibility of malfunction.

5) Input terminating resistance
Since it will become easy to come to the synch-tip part of a video output signal out of ripple if terminus impedance of an input terminal (5PIN) is made high, please use it less than 1.5kohm after sufficient evaluation also including the temperature characteristic.

6) Bypass capacitor
To minimize the risk of high-frequency oscillation, the power supply's bypass capacitor should be placed as close as possible to the Vcc pin.

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