

- Structure : Silicon Monolithic Integrated Circuit
- Product name : Multifunction 3 Outputs Video Drivers
- Type : **BH7612FV**
- Features : BH7612FV is the 7dB 75Ω driver with LPF·BPF,Y/C MIX.  
Standby function is built in, and it is suitable for the low consumption design.

○Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply Voltage	Vcc	7.0	V
Power dissipation	Pd	450 *	mW
Operating temperature	Topr	-30~+85	°C
Storage temperature	Tstg	-55~+125	°C

\* Deratings is done at 4.5mW/°C above Ta=25°C.  
(When mounted on a 70mm×70mm×1.6t Glass epoxy board)

○Operating Range (Ta=25°C)

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	Vcc	4.5	5.0	5.5	V

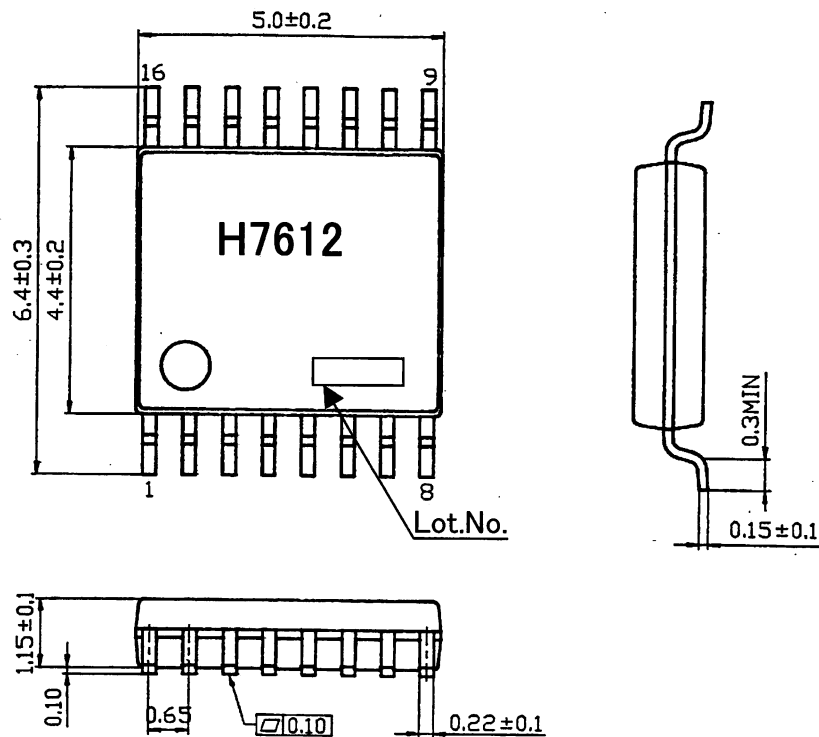
\* This product is not designed for protection against radioactive rays.

○Electrical characteristics(Unless otherwise noted, Ta=25°C, Vcc=5.0V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
〈Total〉						
Circuit current1	I <sub>CC1</sub>	-	30	40	mA	No signal
Circuit current2	I <sub>CC2</sub>	-	0	5	μA	Standby mode
〈Video driver Section〉						
Voltage Gain1 YIN→YOUT	G <sub>V1</sub>	6.5	7.0	7.5	dB	V <sub>IN</sub> =0.9V <sub>pp</sub> , f=100kHz
Voltage Gain2 YIN→MIXOUT	G <sub>V2</sub>	6.5	7.0	7.5	dB	V <sub>IN</sub> =0.9V <sub>pp</sub> , f=100kHz
Voltage Gain3 CIN→COUT	G <sub>V3</sub>	6.5	7.0	7.5	dB	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=4.43MHz
Voltage Gain4 CIN→MIXOUT	G <sub>V4</sub>	6.5	7.0	7.5	dB	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=4.43MHz
Difference of voltage gain 1 YOUT→MIXOUT	ΔG <sub>V1Y</sub>	-	0.0	-	dB	ΔG <sub>V1Y</sub> =G <sub>V1</sub> - G <sub>V2</sub>
Difference of voltage gain 2 COUT→MIXOUT	ΔG <sub>V2C</sub>	-	0.0	-	dB	ΔG <sub>V2C</sub> =G <sub>V3</sub> - G <sub>V4</sub>
Maximum output level 1 YIN→YOUT	V <sub>OM1</sub>	2.5	2.6	-	V <sub>pp</sub>	f=10kHz, THD=1%, VCC=4.5V
Maximum output level 2 YIN→MIXOUT	V <sub>OM2</sub>	2.5	2.6	-	V <sub>pp</sub>	f=10kHz, THD=1%, VCC=4.5V
Maximum output level 3 CIN→COUT	V <sub>OM3</sub>	-	2.5	-	V <sub>pp</sub>	f=4.43MHz, VCC=4.5V, 2nd Harmonic distortion -35dB
Maximum output level 4 CIN→MIXOUT	V <sub>OM4</sub>	-	2.5	-	V <sub>pp</sub>	f=4.43MHz, VCC=4.5V, 2nd Harmonic distortion -35dB
Freq. characteristics 1-1 YIN→YOUT	G <sub>F11</sub>	-3.0	-0.5	2.0	dB	V <sub>IN</sub> =0.9V <sub>pp</sub> , f=7MHz/100kHz
Freq. characteristics 1-2 YIN→MIXOUT	G <sub>F12</sub>	-3.0	-0.5	2.0	dB	V <sub>IN</sub> =0.9V <sub>pp</sub> , f=7MHz/100kHz
Freq. characteristics 2-1 YIN→YOUT	G <sub>F21</sub>	-	-	-30	dB	V <sub>IN</sub> =0.9V <sub>pp</sub> , f=20MHz/100kHz
Freq. characteristics 2-2 YIN→MIXOUT	G <sub>F22</sub>	-	-	-30	dB	V <sub>IN</sub> =0.9V <sub>pp</sub> , f=20MHz/100kHz
Freq. characteristics 3-1 CIN→COUT	G <sub>F31</sub>	-0.85	0	0.85	dB	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=3MHz/4.43MHz
Freq. characteristics 3-2 CIN→MIXOUT	G <sub>F32</sub>	-0.85	0	0.85	dB	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=3MHz/4.43MHz
Freq. characteristics 4-1 CIN→COUT	G <sub>F41</sub>	-0.85	0	0.85	dB	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=5MHz/4.43MHz
Freq. characteristics 4-2 CIN→MIXOUT	G <sub>F42</sub>	-0.85	0	0.85	dB	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=5MHz/4.43MHz
Freq. characteristics 5-1 CIN→COUT	G <sub>F51</sub>	-	-	-30	dB	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=20MHz/4.43MHz
Freq. characteristics 5-2 CIN→MIXOUT	G <sub>F52</sub>	-	-	-30	dB	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=20MHz/4.43MHz
Freq. characteristics 6-1 CIN→COUT	G <sub>F61</sub>	-	-	-10	dB	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=500kHz/4.43MHz
Freq. characteristics 6-2 CIN→MIXOUT	G <sub>F62</sub>	-	-	-10	dB	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=500kHz/4.43MHz
Group delay characteristics1 YIN→YOUT	G <sub>D1</sub>	-	80	-	nS	V <sub>IN</sub> =0.9V <sub>pp</sub> , f=1MHz
Group delay characteristics2 YIN→MIXOUT	G <sub>D2</sub>	-	80	-	nS	V <sub>IN</sub> =0.9V <sub>pp</sub> , f=1MHz
Group delay characteristics3 CIN→COUT	G <sub>D3</sub>	-	110	-	nS	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=4.43MHz
Group delay characteristics4 CIN→MIXOUT	G <sub>D4</sub>	-	110	-	nS	V <sub>IN</sub> =0.27V <sub>pp</sub> , f=4.43MHz
S/N 1-1 YIN→YOUT	S <sub>N11</sub>	-	+60	-	dB	50% white video signal 100kHz~6MHz band
S/N 1-2 YIN→MIXOUT	S <sub>N12</sub>	-	+60	-	dB	50% white video signal 100kHz~6MHz band
S/N 2-1 (AM) CIN→COUT	S <sub>N21</sub>	-	+60	-	dB	Standard signal for 100% chroma S/N measurement 100Hz~500kHz band
S/N 2-2 (AM) CIN→MIXOUT	S <sub>N22</sub>	-	+60	-	dB	Standard signal for 100% chroma S/N measurement 100Hz~500kHz band
S/N 3-1 (PM) CIN→COUT	S <sub>N31</sub>	-	+60	-	dB	Standard signal for 100% chroma S/N measurement 100Hz~500kHz band

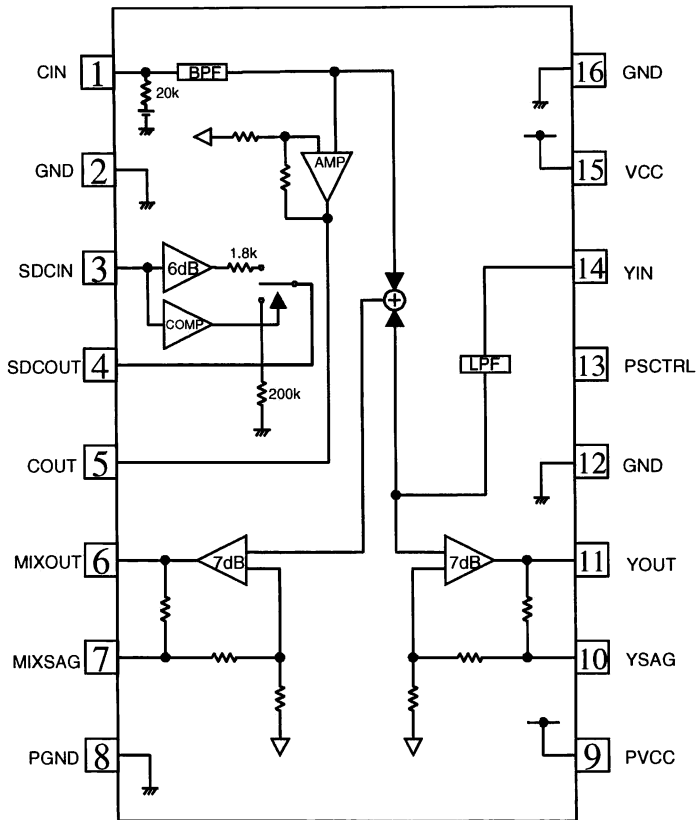
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Differential Gain1 YIN→YOUT	D <sub>G1</sub>	-	0.5	-	%	V <sub>IN</sub> =0.9Vpp, Standard staircase signal
Differential Gain 2 YIN→MIXOUT	D <sub>G2</sub>	-	0.5	-	%	V <sub>IN</sub> =0.9Vpp, Standard staircase signal
Differential Phase1 YIN→YOUT	D <sub>P1</sub>	-	0.5	-	deg	V <sub>IN</sub> =0.9Vpp, Standard staircase signal
Differential Phase2 YIN→MIXOUT	D <sub>P2</sub>	-	0.5	-	deg	V <sub>IN</sub> =0.9Vpp, Standard staircase signal
Crosstalk1 YIN→COUT	C <sub>T1</sub>	-	-55	-	dB	V <sub>IN</sub> =0.9Vpp, f=4.43MHz
Crosstalk1 CIN→YOUT	C <sub>T2</sub>	-	-55	-	dB	V <sub>IN</sub> =0.27Vpp, f=4.43MHz
Secondary distortion1 YIN→YOUT	H <sub>Y1</sub>	-	-50	-	dB	V <sub>IN</sub> =0.9Vpp, f=1MHz
Secondary distortion2 YIN→MIXOUT	H <sub>Y2</sub>	-	-50	-	dB	V <sub>IN</sub> =0.9Vpp, f=1MHz
Secondary distortion3 CIN→COUT	H <sub>C3</sub>	-	-50	-	dB	V <sub>IN</sub> =0.27Vpp, f=4.43MHz
Secondary distortion4 CIN→MIXOUT	H <sub>C4</sub>	-	-50	-	dB	V <sub>IN</sub> =0.27Vpp, f=4.43MHz
<b>&lt;&lt;SDC&gt;&gt;</b>						
Output voltage1	V <sub>OS1</sub>	0	-	0.5	V	INPUT=0V~1V, RL=8.2kΩ, 100kΩ, VCC=4.5V
Output voltage 2	V <sub>OS2</sub>	3.6	4.0	4.4	V	INPUT=2.5V~VCC, RL=8.2kΩ, 100kΩ, VCC=4.5V
Output impedance1	Z <sub>S1</sub>	140	200	260	kΩ	INPUT=0V~1V, RL=8.2kΩ
Output impedance2	Z <sub>S2</sub>	7.5	10	12.5	kΩ	INPUT=2.5V~VCC, RL=8.2kΩ
<b>&lt;&lt;PSCTRL&gt;&gt;</b>						
CTL switching voltage H	V <sub>THH</sub>	2.0	-	V <sub>CC</sub> +0.2	V	OPERATING MODE
CTL switching voltage L	V <sub>THL</sub>	-0.2	-	0.5	V	STANDBY MODE

○Outer dimensions



SSOP-B16 (Unit: mm)

○Block diagram



○Pin number and pin name

Pin No.	Pin name
1	CIN
2	GND
3	SDCIN
4	SDCOUT
5	COUT
6	MIXOUT
7	MIXSAG
8	PGND
9	PVCC
10	YSAG
11	YOUT
12	GND
13	PSCTRL
14	YIN
15	VCC
16	GND

○Cautions on 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) Thermal design

Perform thermal design in which there are adequate margins by taking into account the allowable power dissipation in actual states of use.

4) Shorts between pins and miss-installation

When mounting the LSI on a board, pay adequate attention to orientation and placement discrepancies of the LSI. If it is miss-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.

5) Operation in strong magnetic fields

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

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