

- Structure : Silicon Monolithic Integrated Circuit
- Product name : Multifunction 3 Outputs Video Drivers
- Type : **BH7611FV**
- Features : BH7611FV is the 12dB 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.

Application example

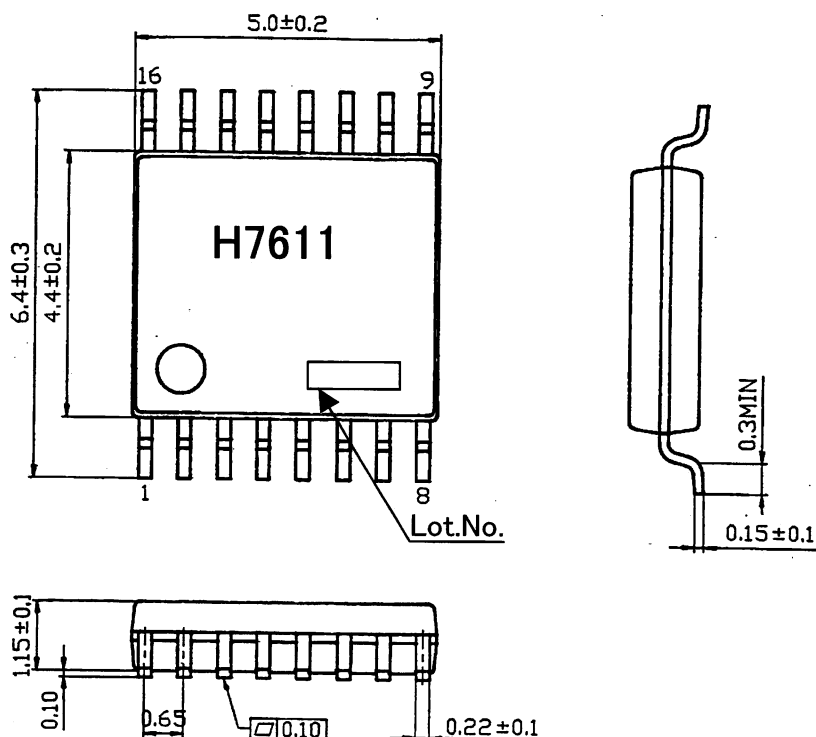
The product described in this specification is designed to be used with ordinary electronic equipment or devices (such as audio-visual equipment, office-automation equipment, communications devices, electrical appliances, and electronic toys). Should you intend to use this product with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
〈Total〉						
Circuit current1	Icc1	-	30	40	mA	No signal
Circuit current2	Icc2	-	0	5	μA	Standby mode
〈Video driver Section〉						
Voltage Gain1 YIN→YOUT	Gv1	11.9	12.4	12.9	dB	VIN=0.5Vpp, f=100kHz
Voltage Gain2 YIN→MIXOUT	Gv2	11.9	12.4	12.9	dB	VIN=0.5Vpp, f=100kHz
Voltage Gain3 CIN→COUT	Gv3	11.9	12.4	12.9	dB	VIN=0.15Vpp, f=4.43MHz
Voltage Gain4 CIN→MIXOUT	Gv4	11.9	12.4	12.9	dB	VIN=0.15Vpp, f=4.43MHz
Difference of voltage gain 1 YOUT→MIXOUT	ΔGv1Y	-	0.0	-	dB	ΔGv1Y=Gv1 - Gv2
Difference of voltage gain 2 COUT→MIXOUT	ΔGv2C	-	0.0	-	dB	ΔGv2C=Gv3 - Gv4
Maximum output level 1 YIN→YOUT	Vom1	2.5	2.6	-	Vpp	f=10kHz, THD=1%, VCC=4.5V
Maximum output level 2 YIN→MIXOUT	Vom2	2.5	2.6	-	Vpp	f=10kHz, THD=1%, VCC=4.5V
Maximum output level 3 CIN→COUT	Vom3	-	2.5	-	Vpp	f=4.43MHz, VCC=4.5V, 2nd Harmonic distortion -35dB
Maximum output level 4 CIN→MIXOUT	Vom4	-	2.5	-	Vpp	f=4.43MHz, VCC=4.5V, 2nd Harmonic distortion -35dB
Freq. characteristics 1-1 YIN→YOUT	Gf11	-3.0	-0.5	2.0	dB	VIN=0.5Vpp, f=6MHz/100kHz
Freq. characteristics 1-2 YIN→MIXOUT	Gf12	-3.0	-0.5	2.0	dB	VIN=0.5Vpp, f=6MHz/100kHz
Freq. characteristics 2-1 YIN→YOUT	Gf21	-	-	-30	dB	VIN =0.5Vpp, f=16MHz/100kHz
Freq. characteristics 2-2 YIN→MIXOUT	Gf22	-	-	-30	dB	VIN =0.5Vpp, f=16MHz/100kHz
Freq. characteristics 3-1 CIN→COUT	Gf31	-0.85	0	0.85	dB	VIN =0.15Vpp, f=3MHz/4.43MHz
Freq. characteristics 3-2 CIN→MIXOUT	Gf32	-0.85	0	0.85	dB	VIN =0.15Vpp, f=3MHz/4.43MHz
Freq. characteristics 4-1 CIN→COUT	Gf41	-0.85	0	0.85	dB	VIN =0.15Vpp, f=5MHz/4.43MHz
Freq. characteristics 4-2 CIN→MIXOUT	Gf42	-0.85	0	0.85	dB	VIN =0.15Vpp, f=5MHz/4.43MHz
Freq. characteristics 5-1 CIN→COUT	Gf51	-	-	-30	dB	VIN =0.15Vpp, f=16MHz/4.43MHz
Freq. characteristics 5-2 CIN→MIXOUT	Gf52	-	-	-30	dB	VIN =0.15Vpp, f=16MHz/4.43MHz
Freq. characteristics 6-1 CIN→COUT	Gf61	-	-	-10	dB	VIN =0.15Vpp, f=1MHz/4.43MHz
Freq. characteristics 6-2 CIN→MIXOUT	Gf62	-	-	-10	dB	VIN =0.15Vpp, f=1MHz/4.43MHz
Freq. characteristics 7-1 YIN→YOUT	Gf71	-	-1	-	dB	VIN =0.5Vpp, f=4MHz/100kHz, TRAP ON
Freq. characteristics 7-2 YIN→MIXOUT	Gf72	-	-1	-	dB	VIN =0.5Vpp, f=4MHz/100kHz, TRAP ON
Freq. characteristics 8-1 YIN→YOUT	Gf81	-	-40	-	dB	VIN =0.5Vpp, f=10MHz/100kHz, TRAP ON
Freq. characteristics 8-2 YIN→MIXOUT	Gf82	-	-40	-	dB	VIN =0.5Vpp, f=10MHz/100kHz, TRAP ON
Freq. characteristics 9-1 CIN→COUT	Gf91	-	-40	-	dB	VIN =0.15Vpp, f=10MHz/4.43MHz, TRAP ON
Freq. characteristics 9-2 CIN→MIXOUT	Gf92	-	-40	-	dB	VIN =0.15Vpp, f=10MHz/4.43MHz, TRAP ON
Group delay characteristics1 YIN→YOUT	Gd1	-	120	-	nS	VIN=0.5Vpp, f=1MHz
Group delay characteristics2 YIN→MIXOUT	Gd2	-	120	-	nS	VIN=0.5Vpp, f=1MHz
Group delay characteristics3 CIN→COUT	Gd3	-	190	-	nS	VIN=0.15Vpp, f=4.43MHz
Group delay characteristics4 CIN→MIXOUT	Gd4	-	190	-	nS	VIN=0.15Vpp, f=4.43MHz
S/N 1-1 YIN→YOUT	Sn11	-	+60	-	dB	50% white video signal 100kHz~6MHz band
S/N 1-2 YIN→MIXOUT	Sn12	-	+60	-	dB	50% white video signal 100kHz~6MHz band
S/N 2-1 (AM) CIN→COUT	Sn21	-	+60	-	dB	Standard signal for 100% chroma S/N measurement 100Hz~500kHz band
S/N 2-2 (AM) CIN→MIXOUT	Sn22	-	+60	-	dB	Standard signal for 100% chroma S/N measurement 100Hz~500kHz band
S/N 3-1 (PM) CIN→COUT	Sn31	-	+60	-	dB	Standard signal for 100% chroma S/N measurement 100Hz~500kHz band
S/N 3-2 (PM) CIN→MIXOUT	Sn32	-	+60	-	dB	Standard signal for 100% chroma S/N measurement 100Hz~500kHz band

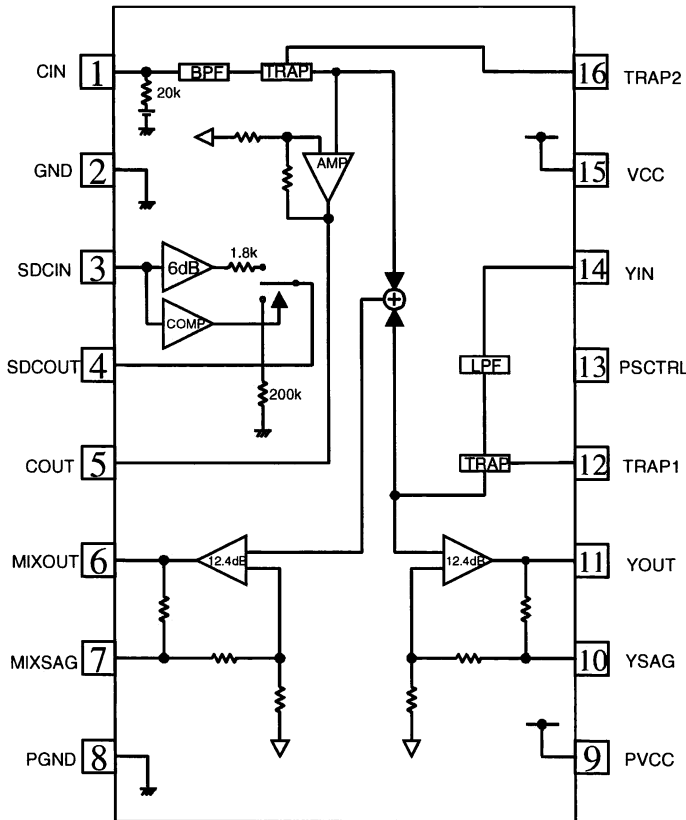
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Differential Gain1 YIN→YOUT	D _{G1}	-	0.5	-	%	V _{IN} =0.5V _{pp} , Standard staircase signal
Differential Gain 2 YIN→MIXOUT	D _{G2}	-	0.5	-	%	V _{IN} =0.5V _{pp} , Standard staircase signal
Differential Phase1 YIN→YOUT	D _{P1}	-	0.5	-	deg	V _{IN} =0.5V _{pp} , Standard staircase signal
Differential Phase2 YIN→MIXOUT	D _{P2}	-	0.5	-	deg	V _{IN} =0.5V _{pp} , Standard staircase signal
Crosstalk1 YIN→COUT	C _{T1}	-	-55	-	dB	V _{IN} =0.5V _{pp} , f=4.43MHz
Crosstalk1 CIN→YOUT	C _{T2}	-	-55	-	dB	V _{IN} =0.15V _{pp} , f=4.43MHz
Secondary distortion1 YIN→YOUT	H _{Y1}	-	-50	-	dB	V _{IN} =0.5V _{pp} , f=1MHz
Secondary distortion2 YIN→MIXOUT	H _{Y2}	-	-50	-	dB	V _{IN} =0.5V _{pp} , f=1MHz
Secondary distortion3 CIN→COUT	H _{c3}	-	-50	-	dB	V _{IN} =0.15V _{pp} , f=4.43MHz
Secondary distortion4 CIN→MIXOUT	H _{c4}	-	-50	-	dB	V _{IN} =0.15V _{pp} , f=4.43MHz
<<SDC>>						
Output voltage1	V _{OS1}	0	-	0.5	V	INPUT=0V~1V, R _L =8.2kΩ, 100kΩ, V _{CC} =4.5V
Output voltage 2	V _{OS2}	3.6	4.0	4.4	V	INPUT=2.5V~V _{CC} , R _L =8.2kΩ, 100kΩ, V _{CC} =4.5V
Output impedance1	Z _{S1}	140	200	260	kΩ	INPUT=0V~1V, R _L =8.2kΩ
Output impedance2	Z _{S2}	7.5	10	12.5	kΩ	INPUT=2.5V~V _{CC} , R _L =8.2kΩ
<<PCTRL>>						
CTL switching voltage H	V _{THH}	2.0	-	V _{CC} +0.2	V	OPERATING MODE
CTL switching voltage L	V _{THL}	-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	TRAP1
13	PSCTRL
14	YIN
15	VCC
16	TRAP2

○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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