LPF-self-contained 75Ω driver

BD7600FV

BD7600FV is an IC developed for digital still camera. 75Ω driver consists of 9dB amplifier with LPF.
Input is sink chip clamp input. 8dB amplifier is incorporated as a video signal amplifier.

●Application

Digital still camera

●Features

1) 75Ω driver with 9dB amplifier
2) With built-in LPF (Tertiary LPF, fc=7.7MHz)
3) With built-in 8dB video-signal amplification circuit
4) Built-in standby function
5) Small package (SSOP-B8)

●Absolute maximum rating (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	8	V
Allowable loss	Pd	350*	mW
Operating temperature range	Topr	–30 to +85	°C
Storage temprerature range	Tstg	–55 to +125	°C

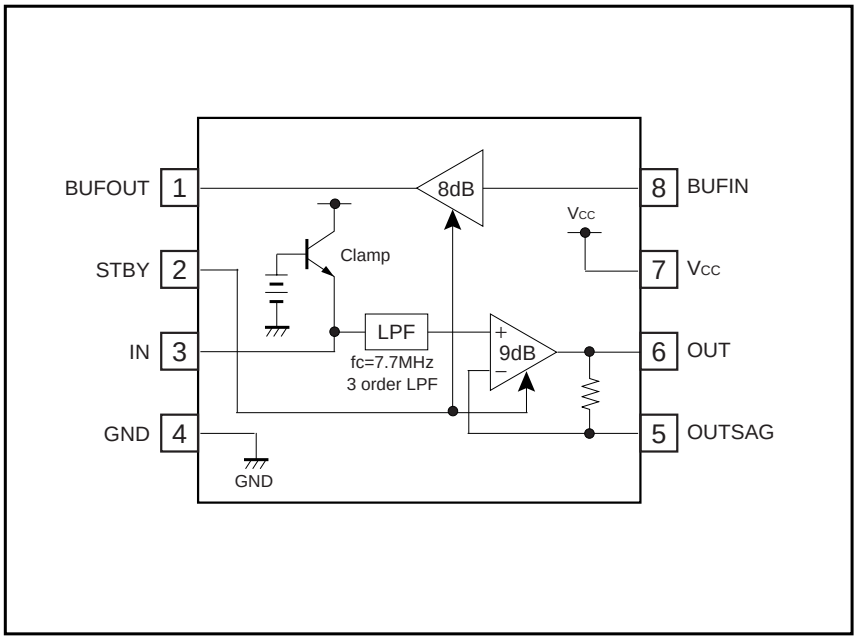
*Reduce 3mW per 1°C increment when Ta exceeds 25°C.

●Recommended working voltage range (Ta=25°C)

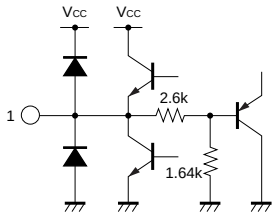
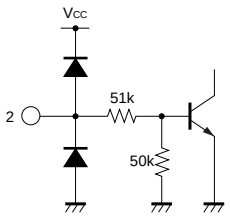
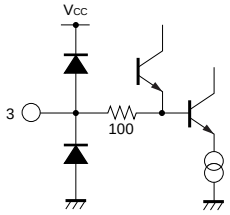
Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage range	V_{CC}	4.5	5.0	5.5	V

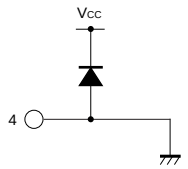
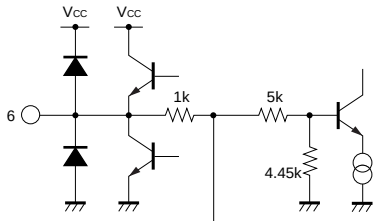
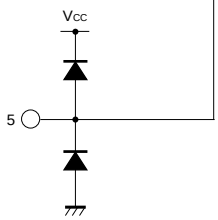
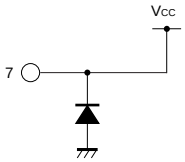
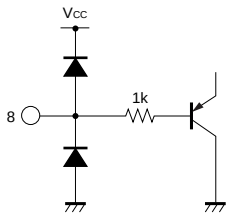
*It is not of radiation-resistant design.

●**Block diagram**



●**Terminal explanation and input / output equivalent circuit diagram**

Pin No.	Pin name	Terminal voltage	Equivalent circuit diagram	Function
1	BUFOUT	–		Signal output terminal
2	STBY	–		Standby control terminal When this terminal is set to "L", standby state will appear.
3	IN	1.50V		Signal input terminal It provides sinktip clamp input. Use an input coupling capacitor of 0.1μF to 0.47μF.

Pin No.	Pin name	Terminal voltage	Equivalent circuit diagram	Function
4	GND	–		Grounding terminal
5	OUTSAG	0.80V		Terminal for sag compensation terminal Insert a capacitor between pins 5 and 6 to increase low-range gain.
6	OUT	0.65V		Signal output terminal
7	Vcc	5.00V		Power-supply terminal
8	BUFIN	–		Signal input terminal D-range of the input terminal is approx. 1.0 volt. Because no bias DC voltage is applied to this terminal, a suitable bias DC voltage meeting the input signal should be applied externally.

●**Electrical characteristics** (Ta=25°C, V_{CC}=5V unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
<Circuit current>						
Circuit current1	$I_{CC}1$	6.5	11.0	15.5	mA	No-signal / I_{CC}
Circuit current2	$I_{CC}2$	–	0	5	μA	Standby / I_{CC}
<75Ω driver unit>						
Maximum output level	Vom1	2.6	3.0	–	V_{P-P}	f=1kHz, THD=1% / Vo2a
Voltage gain	G_V1	2.2	3.0	3.8	dB	f=1MHz, 1.0V_{P-P}/Vo2b
Frequency characteristics1	Gf11	–2.3	–0.8	0.3	dB	f=5MHz / 1MHz, 1.0V_{P-P} / Vo2b
Frequency characteristics2	Gf12	–11.3	–6.6	–2.8	dB	f=10MHz / 1MHz, 1.0V_{P-P} / Vo2b
<8dB AMP unit>						
Maximum output level	Vom2	3.2	3.6	–	V_{P-P}	f=1kHz, THD=1%, Vbias=0.9V / Vo1
Voltage gain	G_V2	7.3	8.0	8.7	dB	f=1MHz, 0.28V_{P-P}, Vbias=0.9V / Vo1
Frequency characteristics	Gf2	–1.0	0.0	1.0	dB	f=7MHz, 0.28V_{P-P}, Vbias=0.9V / Vo1
<Standby function>						
STBY select level "H"	Vthh	2.2	–	V_{CC}	V	
STBY select level "L"	Vthl	0	–	0.7	V	

●**Design guarantee items** (Ta=25°C, V_{CC}=5V unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
<75Ω driver unit>						
Differential gain	DG1	–	1.0	2.0	%	Vo2b=1.0V_{P-P}, Standard staircase signal
Differential phase	DP1	–	0.5	2.0	deg	Vo2b=1.0V_{P-P}, Standard staircase signal
<8dB AMP unit>						
Differential gain	DG2	–	1.0	2.0	%	Vo1=1.0V_{P-P}, Standard staircase signal
Differential phase	DP2	–	0.5	2.0	deg	Vo1=1.0V_{P-P}, Standard staircase signal

●**Standby switch mode setting table**

H	NORMAL
L	STAND-BY

●Example of application circuit

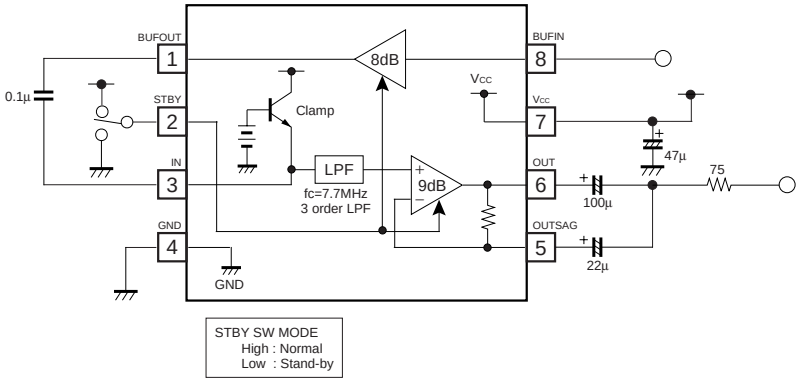


Fig.2

●Electrical characteristic curves

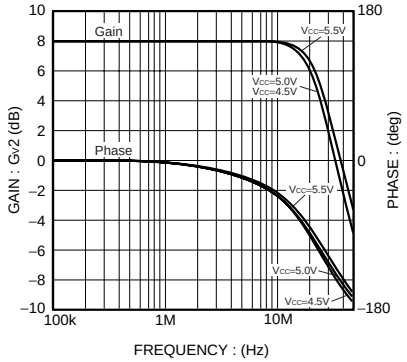


Fig.3 8dB AMP unit frequency characteristics

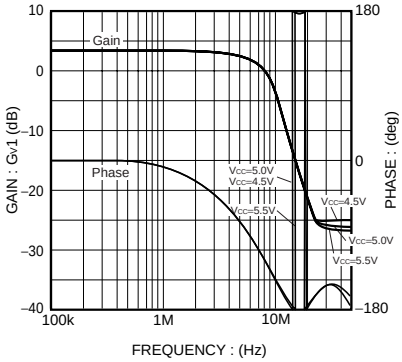
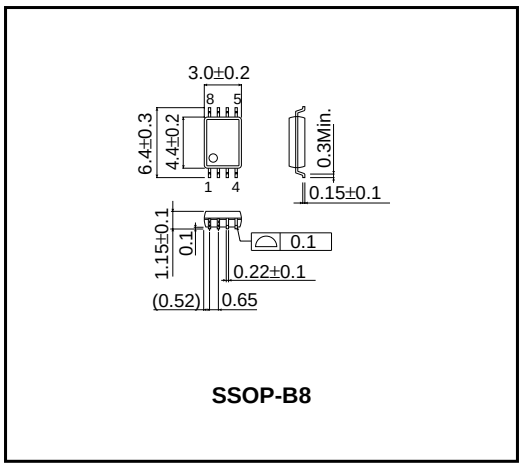


Fig.4 75Ω driver unit frequency characteristics

●External dimensions (Unit : mm)



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