

Stereo microphone amplifier for camcorder

BH7871FV

BH7871FV is a stereo microphone amplifier for camcorder. Matrix circuit to emphasize stereo sound, microphone element power regulator, and filter to eliminate the wind noise all are incorporated in this IC. Low operating voltage of 2.7V and small SSOP-B20 package are other merits of this product.

●Applications

Camcorder

●Features

- 1) Low power consumption
- 2) Low input noise
- 3) Microphone element power regulator and filter circuit for eliminating wind noise are incorporated into a single chip.
- 4) Built in matrix circuit to enhance the stereo sound.

●Absolute maximum ratings

Parameter	Symbol	Limits	Unit
Applied voltage	Vcc Max.	4.0	V
Power dissipation	Pd	640	mW
Operating temperature	Topr	-10 ~ +70	°C
Storage temperature	Tstg	-55 ~ +125	°C

* Derating : -6.4mW / °C for operation above Ta=25°C.

●Recommended operating conditions

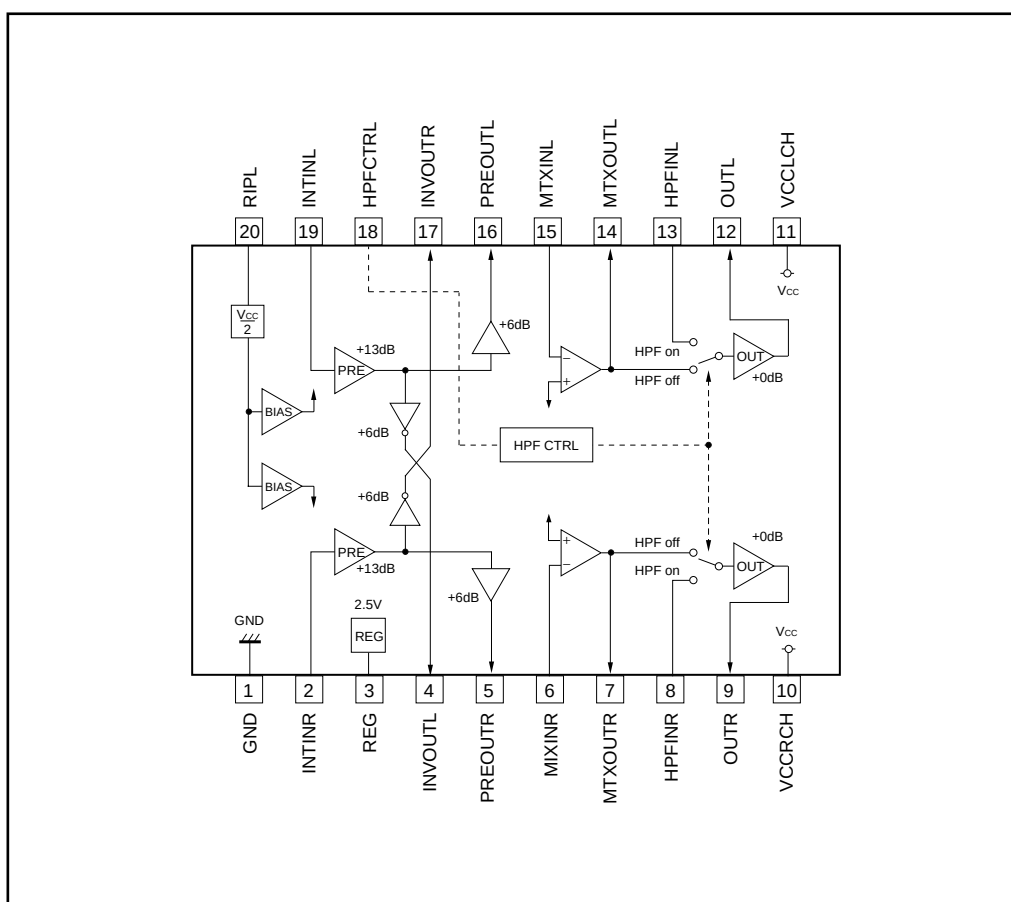
Parameter	Symbol	Limits	Unit
Supply voltage	Vcc	2.7~3.3	V

* Not designed for radiation resistance.

* Please make sure that electrostatic destruction can be occurred to use fine process.

Video ICs

●Block diagram



Video ICs

●Pin descriptions

Pin No.	Pin name	Functions	Pin voltage (V)	Pin form
1	GND	GND	GND	–
2	INTINR	Internal mic input	1.5	75k Ω
3	REG	Regulator output	2.5	C
4	INVOUTL	Inverter output	1.5	EF (P-P)
5	PREOUTR	Preamp output	1.5	EF (P-P)
6	MTXINR	Matrix amp input	1.5	B
7	MTXOUTR	Matrix amp output	1.5	EF (P-P)
8	HPFINR	HPF input	1.5	33k
9	OUTR	Signal output	1.5	C (P-P)
10	VCCRCH	VCC RCH	3.0	–
11	VCCLCH	VCC LCH	3.0	–
12	OUTL	Signal output	1.5	C (P-P)
13	HPFINL	HPF input	1.5	33k
14	MTXOUTL	Matrix amp output	1.5	EF (P-P)
15	MTXINL	Matrix amp input	1.5	B
16	PREOUTL	Preamp output	1.5	EF (P-P)
17	INVOUTR	Inverter output	1.5	EF (P-P)
18	HPFCTRL	HPF control input	–	10k Ω
19	INTINL	Internal mic input	1.5	75k
20	RIPL	Ripple filter C terminal for bias	1.5	50k Ω

* I/O circuit EF:emitter follower, P-P:push pull, B:base, and C:collector.

All numerical values are standardized values.

●Electrical characteristics

(Unless specified otherwise Ta=25°C, Vcc=3.0V, 20pin=H or OPEN, Input signal level –38.5dBV,
Observation terminal 9, 12pin)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Consumption current (ST)	I _{ST}	–	2.6	3.9	mA	No input
Consumption current (MONO)	I _{MONO}	–	2.0	3.0	mA	No input
Voltage gain	GV	16.0	19.0	22.0	dB	V _{in} =–38.5dBV, f=1kHz *2
Distortion	THD	–	0.05	0.5	%	V _{in} =–38.5dBV, f=1kHz *2
Maximum output level	V _{OM}	–9.2	–6.2	–	dBV	THD=1%, f=1kHz *2
Output noise voltage	V _{ON}	–	–98	–90	dBV	R _g =1k Ω *1
Inverter OUT L/R gain difference	GV _{INVLR}	–1	0	1	dB	V _{in} =–38.5dBV, f=1kHz (4↔17) *2
Internal mic power supply output voltage	V _{REG}	2.3	2.5	2.75	V	Pin3 output voltage for 30k Ω load.
HPF, CTL holding voltage	V _{THHPFH}	2.2	–	V _{cc}	V	HPF OFF, 18pin DC
	V _{THHPFL}	0	–	0.5	V	HPF ON, 18pin DC

*1 JIS-A filter used.

*2 400 to 30kHz filter used.

Video ICs

●Measuring circuit

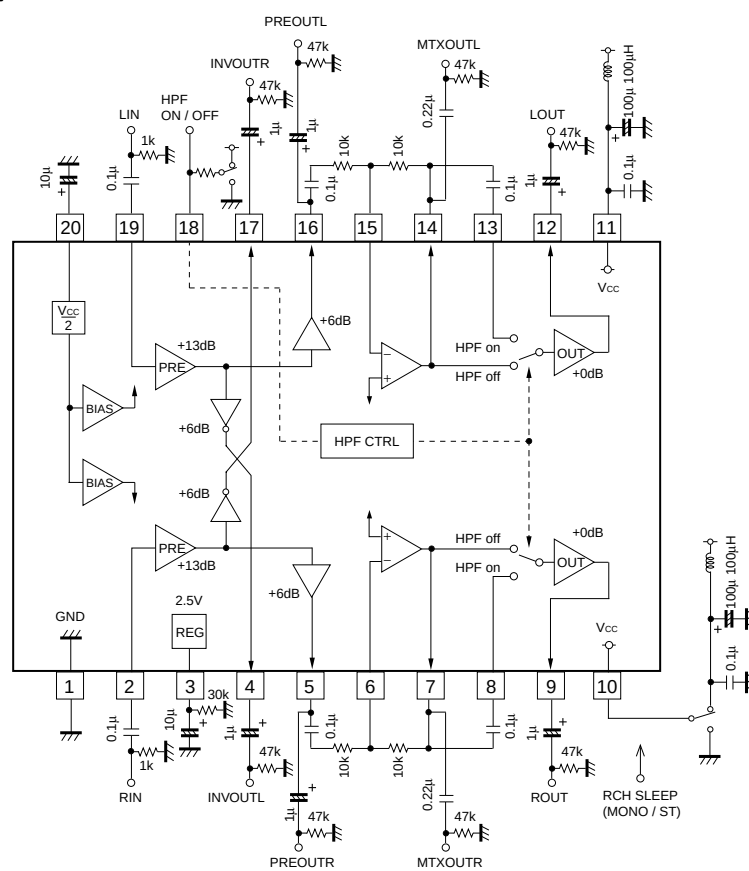


Fig.1

Video ICs

●Application example

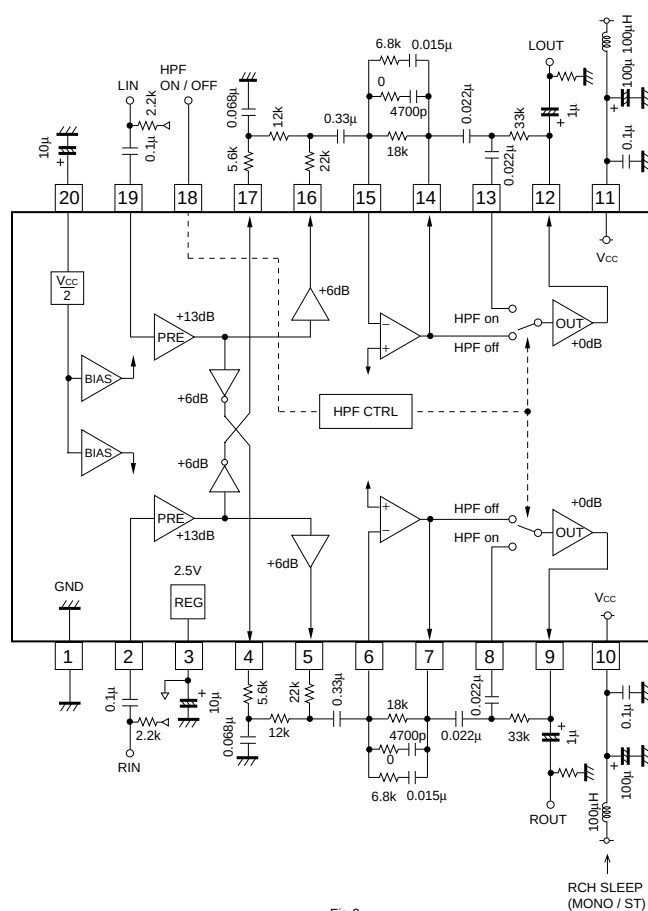


Fig.2

●Operating notes

- (1) Output pin load resistance must be used in 10kΩ or more.
- (2) Each common impedance of two power lines from pin10 and pin11 make as small as possible.
- (3) In ST mode, supply voltage of pin10, and pin11 must be the same power supply.
In different voltage, decline of output voltage and abnormal operation can be occurred.
- (4) In MONO mode, connect pin10 with GND.
Abnormal operation can be occurred if the pin10 is not be connected with GND.

●External dimensions

