

Stereo zoom microphone amplifier

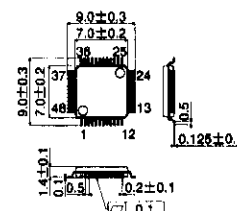
BH7870AKV

●Description

The BH7870AKV is a zoom microphone amplifier for camcorders. Electronic volume circuit, microphone element power regulator, filter for eliminating wind noise, and external microphone input are included.

These features above are needed to achieve the voice zooming which is followed by the screen image zooming control signal. In addition, this IC can be operated by low voltage (Min.2.7V). Small package VQFP48PIN can be used.

●Dimension (Units : mm)



VQFP48C

●Features

- 1) Low power consumption
- 2) Low input conversion noise
- 3) Electronic volume circuit, microphone element power regulator, and filter circuit for eliminating wind noise are integrated into one single chip.
- 4) Electronic volume circuit in zoom operating can set an easy external operating position.
- 5) Built-in matrix circuit to emphasize the stereo sounds
- 6) Built-in input terminals for external microphone, external microphone automatic switchig circuit and external microphone monaural decision circuit

●Applications

Camcorder

●Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V _{CC}	4.0	V
Power dissipation	P _d	400 *	mW
Operating temperature range	T _{opr}	-10 ~ +70	°C
Storage temperature range	T _{stg}	-55 ~ +125	°C

*Derating : 4.0mW/°C for operation above Ta=25°C.

●Recommended Operating Conditions (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V _{CC}	2.7	3.0	3.3	V

●Electrical characteristics

(Unless otherwise noted; Ta=25°C, Vcc=3.0V, 15PIN=H or OPEN, 19PIN=0.748×2PIN, 20PIN=2.5V)

Input signal level Int=-31.5dBV, Ext=-38.5dBV, Sub=-33.5dBV 1kHz, Observation pin=14, 22PIN

*1 JIS-A filter used *2 400~30kHz filter used)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Current consumption	IqE	—	6.2	8.7	mA	INT/EXT MIC IN, No input
Voltage gain 2	GVIH	20.5	23.5	26.5	dB	INT MIC IN
Distortion rate 1	THDW	—	0.15	0.5	%	INT MIC IN, WIDE, Vin=−38.5dBV, *2
Distortion rate 3	THDZ	—	0.1	0.5	%	INT MIC IN, ZOOM, Vin=−33.5dBV, *2
Maximum output	VOM	0.65	0.9	—	Vrms	EXT MIC IN, THD=1%, *2
Output noise voltage 2 (INT, WIDE)	VONW	—	25	60	μVrms	INT MIC IN, Rg=1kΩ, *1
Output noise voltage 3 (INT, ZOOM)	VONZ	—	20	60	μVrms	INT MIC IN, Rg=1kΩ, *1 20PIN=0V
Output voltage for microphone	VREG	2.3	2.5	2.75	V	2,34PIN output voltage, 30kΩ loaded
Input switching CTL holding voltage	VHSHW	2.0	—	Vcc	V	H level, 4/32PIN DC
	VHSHL	0	—	0.7	V	L level, 4/32PIN DC
HPF, CTL holding voltage	VHHPFH	2.2	—	Vcc	V	HPF OFF, 15PIN DC
	VHHPFL	0	—	0.5	V	HPF ON, 15PIN DC
ZOOM-BALANCE Gain 1 Rch/Lch	—	—	—	—	10→11 OR 26→25PIN, Vin=−20.5dBV	
	GVZ1-1	—	−23	−19	dB	20PIN 0.5V (DC)
	GVZ1-2	−10.5	−7.5	−4.5	dB	20PIN 1.2V (DC)
	GVZ1-3	−3.5	−0.5	2.5	dB	20PIN 2.5V (DC)
ZOOM-BALANCE Position variable Rch/Lch	—	—	—	—	20PIN 1.5V 10→11 OR 26→25PIN, Vin=−20.5dBV	
	GVZ3-1	−3.5	−0.5	2.5	dB	19 PIN 0.65×2PIN (DC)
	GVZ3-2	−7.5	−4.5	−1.5	dB	19 PIN 0.748×2PIN (DC)
	GVZ3-3	—	−16	−12	dB	19 PIN 0.85×2PIN (DC)

●Application circuit

