Audio sound processor IC
BD3867AS

● Description

The BD3867AS is an audio sound processor IC for TVs that can reduce step-noise by adopting a volume and tone circuit with VCA system. An AGC circuit and matrix surround circuit are also incorporated. This IC can process all audio sound control in TV.

● Features

1) Volume and tone can be controlled directly from a micro-computer due to the adoption of I^{2}C-BUS.
2) Low distortion volume and low noise VCA can reduce step-noise.
3) By use of an AGC circuit there is better blending of volume differences between input sources and an improvement in the audible S/N ratio.
4) Matrix surround circuit with phase shift technology.
5) Good channel balance at any volume attenuation.
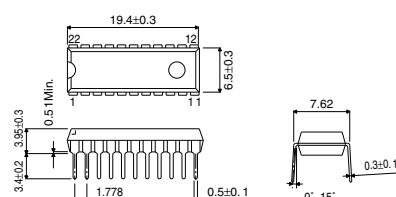6) Maximum volume attenuation value: -110dB (Typ.)

● Applications

 TV appliances such as DVD, PC, HDTV, Karaoke, digital broadcasting, and CATV

● Dimension (Units : mm)

SDIP22

● Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Limits	Unit
Applied voltage	Vcc	10.0	V
Power dissipation	Pd	1000 *	mW
Operating temperature range	Topr	−40 ~ +85	˚C
Storage temperature range	Tstg	−55 ~ +125	˚C

*Derating : 10mW/˚C for operation above Ta=25˚C

●Recommended Operating Conditions(Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V_{CC}	7.0	—	9.5	V

●Electrical characteristics

(Unless otherwise noted,Ta=25°C, Vcc=9V, f=1kHz, V_{IN}=1Vrms, Rg=0Ω, R_L=10kΩ, Volume 0dB, Bass 0db, Treble 0dB, Mute OFF, AGC OFF, Surround OFF, Loop OFF, Effect 0step)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Quiescent current	IQ	—	24	34	mA	V_{IN}=0Vrms
Voltage gain	Gv	−1.5	0	1.5	dB	
Channel balance	CB	−1.5	0	1.5	dB	
Total harmonic distortion	THD	—	0.01	0.1	%	V_{OUT}=1Vrms, BPF=400~30kHz
Output noise voltage	V_{NO}	—	100	200	μVrms	Volume 0dB, BPF=Din Audio
Residual output noise voltage	V_{MNO}	—	3	10	μVrms	Volume−∞dB, BPF=Din Audio
Cross talk	CT	65	75	—	dB	BPF=Din Audio
Maximum output voltage	V_{OM}	2.1	2.5	—	Vrms	THD=1%
Maximum attenuation	ATT_{MAX}	—	−110	−80	dB	Volume−∞dB, BPF=Din Audio
Bass boost cut gain	V_B	±11	±14	±17	dB	f=100Hz
Treble boost cut gain	V_T					f=10kHz
AGC I/O level	V_{AGC1}	0.7	1	1.4	mVrms	AGC ON, V_{IN}=1mVrms
	V_{AGC2}	50	80	110	mVrms	AGC ON, V_{IN}=50mVrms
	V_{AGC3}	90	130	170	mVrms	AGC ON, V_{IN}=110mVrms
	V_{AGC4}	160	210	260	mVrms	AGC ON, V_{IN}=1Vrms
Surround gain	V_{SMAX}	7	9.5	12	dB	Surround ON, Effect 15 step
Surround gain	V_{SMIN}	0	2.5	5	dB	Surround ON, Effect 0 step
Mute attenuatio	ATT_{MU}	—	−110	−80	dB	Mute ON, BPF=Din Audio

●Application circuit