

Structure Silicone monolithic integrated circuit

Product name Audio sound processor for TV

Model Type **BD3886FS**

●Features

1. Built-in BBE processor clarifying voice sound
2. I²C BUS control with the control voltage of 3.3V-5.0V
3. Use the Bi-CMOS process

●Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------|--------|-----------------|------|
| Applied Voltage | VCC | 10.0 | V |
| Input Voltage | VIN | VCC+0.3~GND-0.3 | V |
| Power Dissipation | Pd | 1190*1 | mW |
| Operating Temperature | Topr | -40~+85 *2 | °C |
| Storage Temperature | Tastg | -55~+150 | °C |

*1 At Ta=25°C or higher, this value is decreased to 9.5mW/°C.

When Rohm standard board is mounted. Thermal resistance $\theta_{ja} = 105$ (°C/W).

Rohm standard board:

size: 70×70×1.6 (mm³)

material: FR4 glass-epoxy substrate (copper foil area: not more than 3%).

*2 As long as voltage stays within operating voltage range, certain circuit operation is guaranteed in the operating temperature range.

Allowable loss conditions are related to temperature, to which care must be taken.

In addition though the standard value of its electrical characteristics cannot be guaranteed under the conditions other than those specified, original functions are maintained.

●Operating Voltage Range

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|-------------------------|--------|------|------|------|------|
| Power supply voltage *3 | VCC | 7.0 | 9.0 | 9.5 | V |

Basic operation shall be available at Ta=25°C.

*3 As long as temperature components must be set in accordance with the operating voltage and temperature ranges before using this IC.

In addition, though the standard value of its electrical characteristics cannot be guaranteed under the conditions other than those specified, original functions are maintained.



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●Function

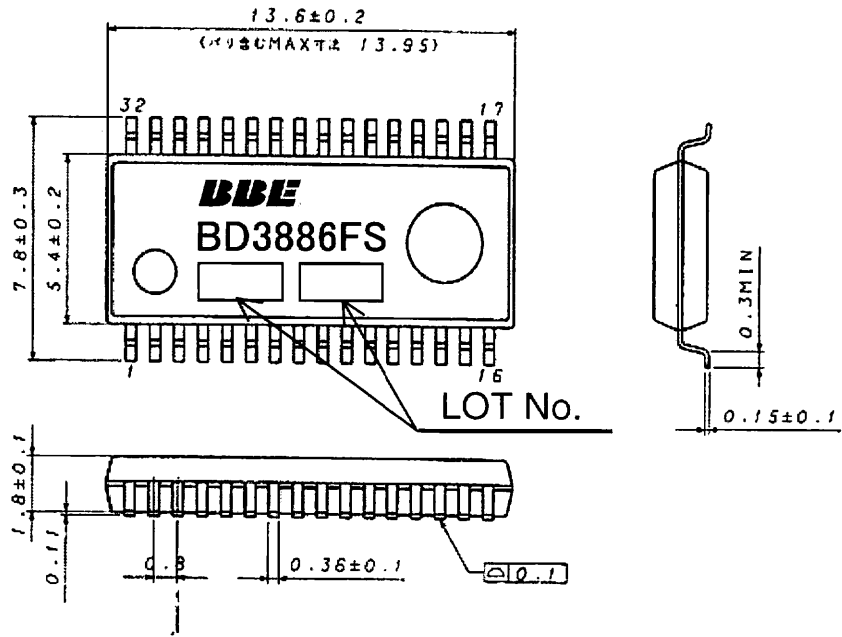
| Function | Specifications |
|--------------|--|
| AGC | 4 step suppression level variable |
| Front volume | 0dB to -87dB (1dB step), -∞dB |
| Surround | Stereo Surround |
| Bass | ±14dB (2dB step) |
| Treble | ±14dB (2dB step) |
| BBE | Process control : 1 ~ 10 dB Contour control : 1 ~ 10 dB |
| Rear volume | 0dB ~ -20dB (2dB step), -25dB, -30dB, -45dB, -60dB, -∞dB (With the independent control) |

●Electrical characteristics

Unless specified: Ta=25°C, VCC=9V, f=1kHz, VIN=1Vrms, Rg=600Ω, RL=10kΩ, Front Volume 0dB, Rear Volume =0dB, Bass=0dB, Treble=0dB, AGC=OFF, SURROUND=OFF;BBE=OFF.

| Parameter | Symbol | Limits | | | Unit | Conditions |
|---------------------------|--------|--------|-------|------|-------|--|
| | | Min. | Typ. | Max. | | |
| Current upon no signal | IQ | — | 8 | 20 | mA | Vin=0Vrms |
| Maximum input voltage | VIM1 | 2.6 | 2.8 | — | Vrms | Front Volume = -6dB THD(Vout)=1% BPF=400-30KHz |
| Maximum output voltage | VOM1 | 2.2 | 2.5 | — | Vrms | THD=1% BPF=400-30KHz |
| Voltage gain | GV1 | -2 | 0 | 2 | dB | $G_V=20\log(V_{out}/V_{in})$ |
| Channel balance | CB | -1.5 | 0 | 1.5 | dB | CB = GV1-GV2 |
| Total harmonic distortion | THD1 | — | 0.008 | 0.1 | % | Vout=500mVrms BPF=400-30KHz |
| Output noise voltage | VNO1 | — | 6 | 18 | μVrms | BPF = IHF-A, Rg=0Ω |
| Residual noise voltage | VMNO1 | — | 1.5 | 10 | μVrms | Front Volume = -87dB Rear Volume = -∞dB BPF = IHF-A, Rg=0Ω |
| Cross talk 1ch→2ch | CT12 | 70 | 80 | — | dB | CT = 20log(Vin/Vout) BPF = IHF-A |

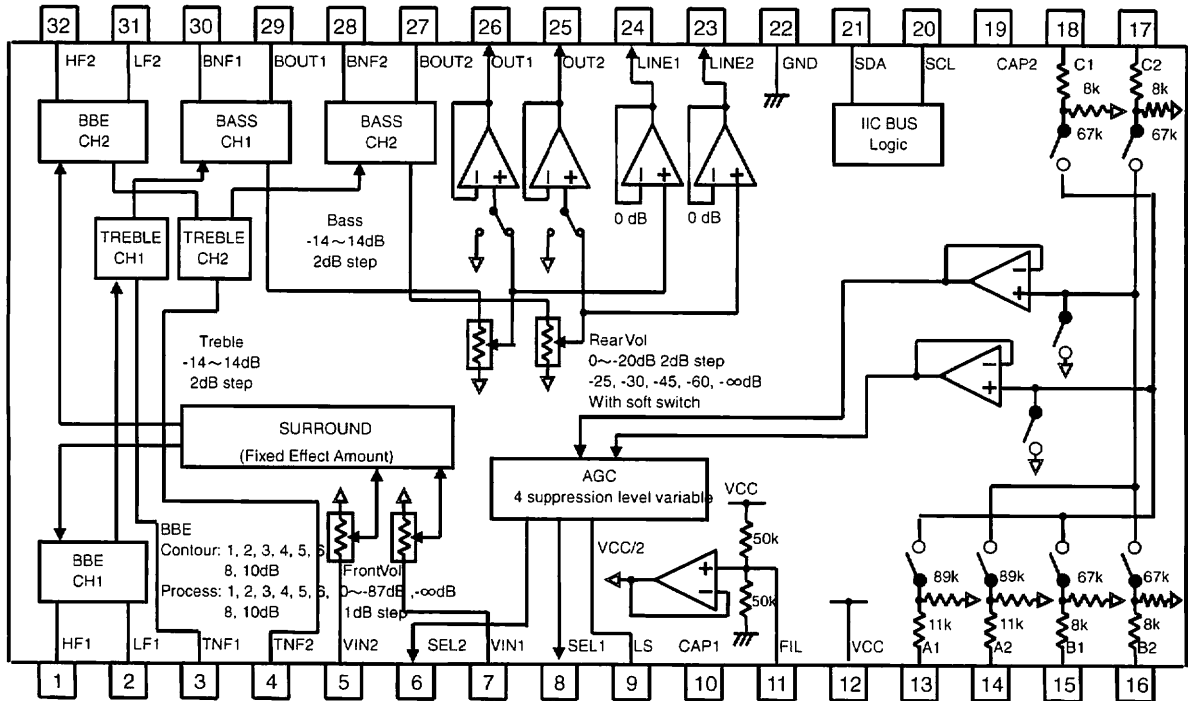
●Dimensional outline drawing



(UNIT : mm)

SSOP-A32 (Unit : mm)

●Block diagram



●Cautions on use

- (1) Numbers and data in entries are representative design values and are not guaranteed values of the items.
- (2) Although we are confident in recommending the sample application circuits, carefully check their characteristics further when using them. When modifying externally attached component constants before use, determine them so that they have sufficient margins by taking into account variations in externally attached components and the Rohm LSI, not only for static characteristics but also including transient characteristics.
- (3) 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.
- (4) 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.
- (5) Thermal design
Perform thermal design in which there are adequate margins by taking into account the allowable power dissipation in actual states of use.
- (6) Shorts between pins and misinstallation
When mounting the LSI on a board, pay adequate attention to orientation and placement discrepancies of the LSI. If it is misinstalled 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.
- (7) Operation in strong magnetic fields
Adequately evaluate use in a strong magnetic field, since there is a possibility of malfunction.

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