

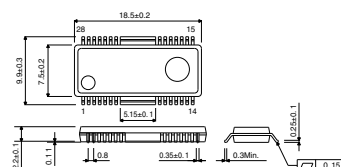
4-channel BTL driver for car CD players

BA5993FP

●Description

The BA5993P incorporates 4-channel drivers that operate the motor and actuator for car CD players. CH1, 2, and CH3, 4 each have power supply independently. The highly efficient drive can be achieved due to the low voltage operation.

●Dimension (Units : mm)



HSOP28

●Features

- 1) Built-in 3.3V regulator
- 2) Built-in standard operational amplifier
- 3) Built-in mute function
3 lines (CH1,2, CH3 and CH4)
- 4) Reference voltage can be changed into external input voltage and internal voltage.
- 5) Built-in thermal shut down circuit

●Applications

Car CD players

●Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|--------|------------|------|
| Power supply voltage | Vcc | 18 | V |
| Power dissipation | Pd | 1700 | mW |
| Operating temperature range | Topr | -35 ~ +85 | °C |
| Storage temperature range | Tstg | -55 ~ +150 | °C |

Derating : 13.6mW/°C for operation above Ta=25°C

●Recommended Operating Conditions (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|----------------------|--------|------|------|------|------|
| Power supply voltage | Vcc | 6 | — | 14 | V |

(When the regulator is not used ; 4.5~14V)

● Electrical characteristics

(Unless otherwise noted; $T_a=25^{\circ}\text{C}$, $V_{cc}=8\text{V}$, $\text{BIAS}=1.65\text{V}$, $R_L=8$)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---------------------------------|------------|------|------|------|------|---|
| Current consumption (No signal) | I_Q | — | 15 | 23 | mA | |
| Output offset voltage | V_{oof} | -50 | 0 | 50 | mV | |
| Maximum output voltage (CH1,2) | V_{OM1} | 5.0 | 5.6 | — | V | |
| Maximum output voltage (CH3,4) | V_{OM2} | 5.7 | 6.3 | — | V | |
| Voltage gain (CH1,2,3) | G_{vc1} | 15.5 | 17.5 | 19.5 | dB | $V_{IN}=\pm 0.5\text{V}$, $\text{BCONT}='H'$ |
| Voltage gain (CH4) | G_{vc4} | 21.5 | 23.5 | 25.5 | dB | $V_{IN}=\pm 0.2\text{V}$, $\text{BCONT}='H'$ |
| | | 15.5 | 17.5 | 19.5 | dB | $V_{IN}=\pm 0.2\text{V}$, $\text{BCONT}='L'$ |
| Regulator output voltage | V_{REG} | 3.0 | 3.3 | 3.6 | V | $I_{REG}=25\text{mA}$ |
| Op-amp. offset voltage | V_{OFOP} | -6 | 0 | 6 | mV | |
| Op-amp. high level voltage | V_{OHOP} | 7.5 | 7.9 | — | V | |
| Op-amp. low level voltage | V_{OLOP} | — | 0.1 | 0.3 | V | |

● Application Circuit

