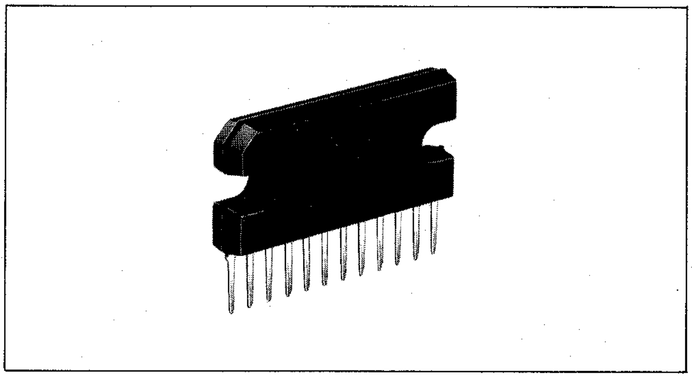
**12V/4.5W Dual Power Amplifier**

# BA536

ROHM



## Dimensions (mm)

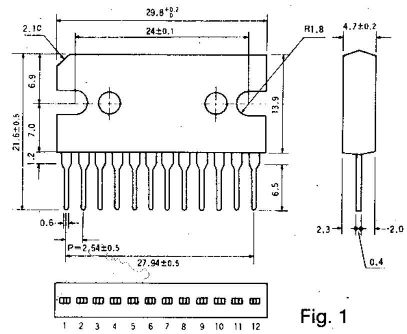


Fig. 1

The BA536 is a monolithic integrated circuit consisting of a dual OTL power amplifier developed for use as a low frequency power amplifier for such equipment as radio cassete tape recorders, home radios and multiplex-audio TV sets.
When operated at l2V, the BA536 delivers a high 4.5W into each of two channels with 4Ω loads. Ripple rejection ratio is designed to be a typically high 55dB. Also, the gain variations between channels are small. This device is recommended for operation with supply voltages in the range 7 ~ 16V.

## Features

1. Two high output power amplifiers in a single package.
   4.5W each channel (12V/4Ω loads)
   5.5W each channel (12V/3Ω loads)
2. Compact 12-pin SIP package
3. Low thermal resistance package (3°C/W) facilitates thermal design.
4. High ripple rejection ratio (typically 55dB)
5. Low distortion ($THD = 1.5\%$, $P_O = 0.5W$)
6. Good voltage gain channel balance
7. Low crosstalk level (typically 57dB)
8. Low pop noise level upon application of power
9. Wide supply voltage range. Starting voltage.5V.
10. Built-in high-frequency compensation capacitor provides enhanced high-frequency stability and reduces the number of externally connected components required.
11. Built-in high-frequency capacitor in the output circuit provides enhanced high-frequency stability.
12. The ripple filter terminal (pin 6) serves as the muting pin as well.
13. BTL connection operation is possible.
14. Symetrical pin arrangement for easy PC board layout

## Applications

1. Stereo radio cassette tape recorders
2. Compact stereo cassette tape recorders
3. Audio-multiplex TVs and multiplex adaptors
4. Home radios

## Block Diagram

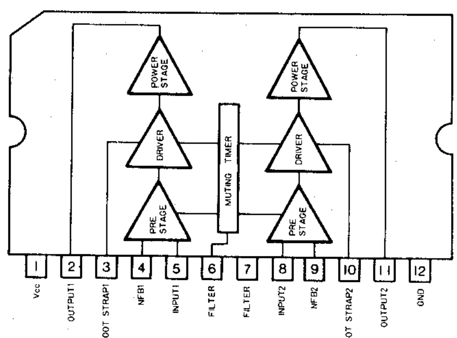



Fig. 2

## Circuit Diagram

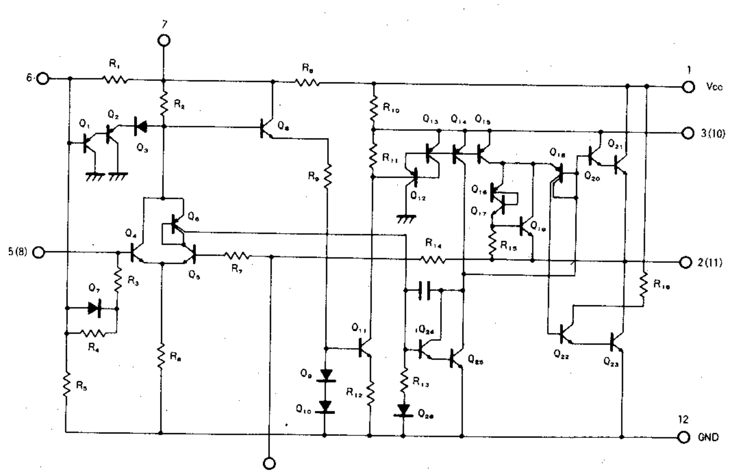



Fig. 3

## Absolute Maximum Ratings ($T_a$ = 25°C)

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Supply voltage | $V_{CC}$ | 18 | V |
| Power dissipation | $P_d$ | 18* | mW |
| Operating temperature | $T_{opr}$ | −20~+75 | °C |
| Storage temperature | $T_{stg}$ | −30~+125 | °C |
| Junction temperature | $T_j$ | 150 | °C |

* Metallic base temperature 75°C

## Electrical Characteristics ($T_a$ = 25°C, $V_{CC}$ = 12V, $R_L$ = 4Ω, $R_{NF}$ = 120Ω)

| Parameter | Symbol | Min | Typ | Max | Unit | Conditions | Test circuit |
|---|---|---|---|---|---|---|---|
| Quiescent current | $I_Q$ | 20 | 40 | 70 | mA | $V_{IN}$ = 0 | Fig. 27 |
| Closed-loop voltage gain | $G_{VC}$ | 42 | 45 | 48 | dB | f = 1kHz, $V_{IN}$ = −45dBm | Fig. 27 |
| Rated output power | $P_{OUT}$ | 3.7 | 4.5 | — | W | f = 1kHz, THD = 10% | Fig. 27 |
| Total harmonic distortion | THD | — | 0.3 | 1.5 | % | f = 1kHz, $P_O$ = 0.5W | Fig. 27 |
| Output noise voltage | $V_{NO}$ | — | 0.7 | 3.5 | mVrms | $R_g$ = 10kΩ | Fig. 27 |
| Input resistance | $R_{IN}$ | — | 100 | — | kΩ | f = 1kHz, $V_{IN}$ = 5mV | Fig. 27 |

## Electrical Characteristic Curves

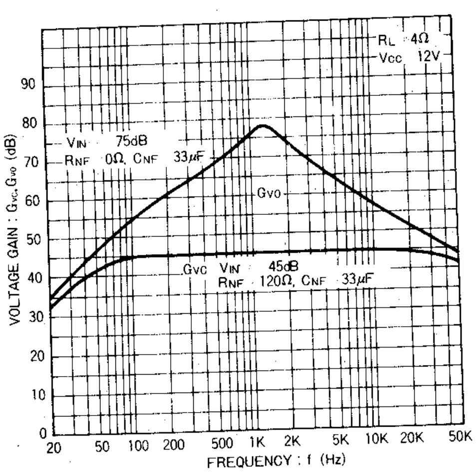



Fig. 4 Voltage gain vs. frequency

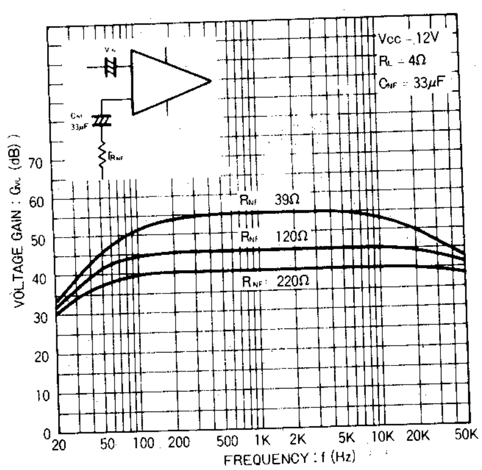



Fig. 5 Voltage gain vs. frequency

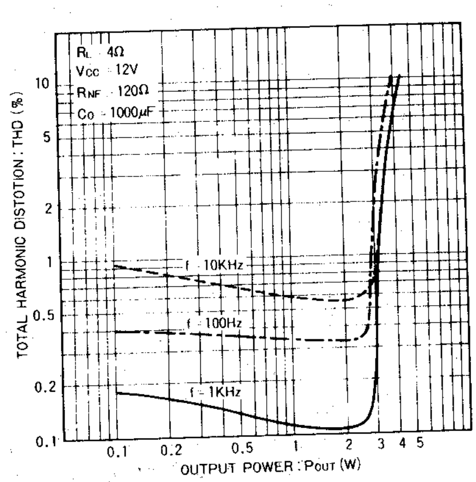



Fig. 6 Total harmonic distortion vs. output power

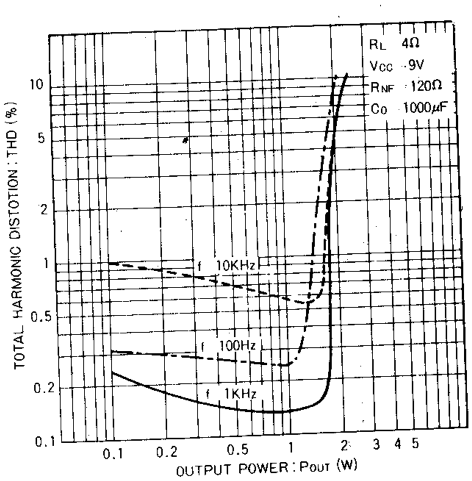



Fig. 7 Total harmonic distortion vs. output power

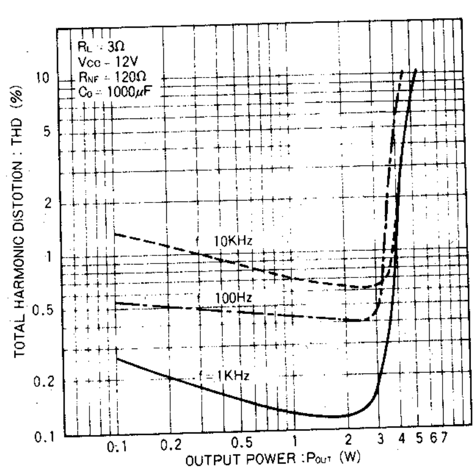



Fig. 8 Total harmonic distortion vs. output power

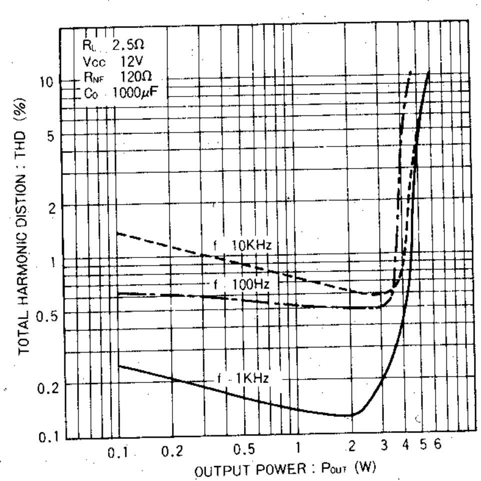



Fig. 9 Total harmonic distortion vs. output power