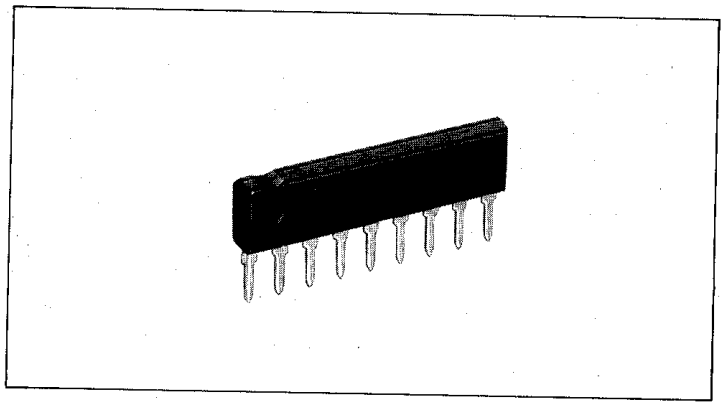
6V/550mW Power Amplifier

# BA546



## Dimensions (mm)

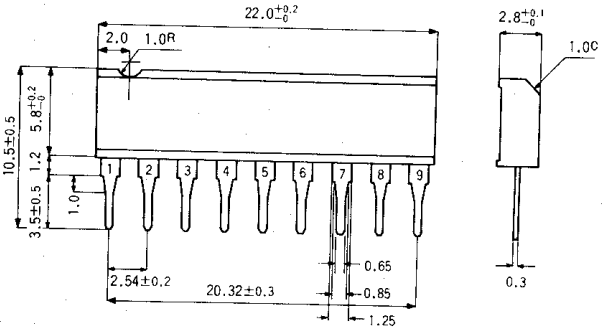



Fig. 1

The BA546 is a monolithic integrated circuit consisting of a power amplifier intended for applications such as portable radios, tape recorders, and intercoms. It operates from a supply voltage of 6V and can deliver the rated output power of 350mW (THD = 10%) to a load of 8Ω. A maximum output power of 550mW is attainable. It is mounted in a compact 9-pin SIP package without a heatsync.

## Features

1. Delivers 350mW (THD = 10%) of output power to a 8Ω load with 6V opration (see Fig. 5).
2. Excellent low-voltage characteristics (starting voltage < 2V) (see Fig. 4)
3. Housed in a compact 9-pin SIP package comparable in size to a preamplifier IC
4. Pin compatible with the ROHM BA526 and BA527, thus enhancing versatility
5. Low current consumption (typically 4.8mA)

## Applications

1. Portable radios
2. Protable tape recorders
3. Intercoms

## Block Diagram

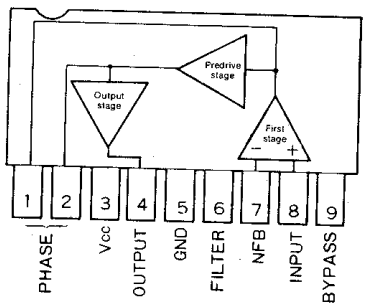



Fig. 2

## Circuit Diagram

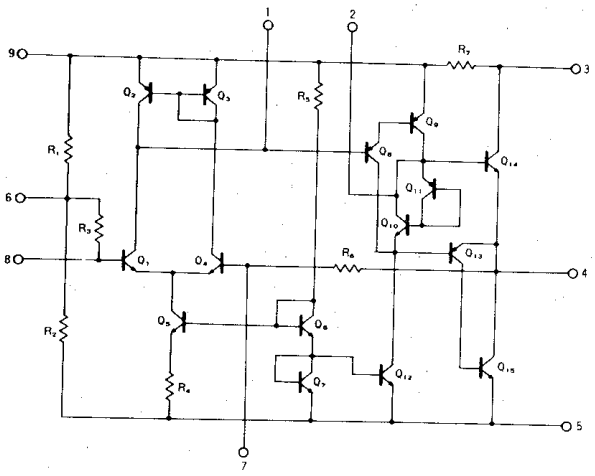


Fig. 3

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

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Supply voltage | $V_{CC}$ | 12 | V |
| Power dissipation | $P_d$ | 500 | mW |
| Operating temperature | $T_{opr}$ | −25~+75 | °C |
| Storage temperature | $T_{stg}$ | −55~+125 | °C |

## Electrical Characteristics ($T_a$ = 25°C, $V_{CC}$ = 6V, $R_L$ = 8Ω, f = 1kHz)

| Parameter | Symbol | Min | Typ | Max | Unit | Conditions | Test circuit |
|---|---|---|---|---|---|---|---|
| Quiescent current | $I_Q$ | — | 4.8 | 7 | mA | $V_{IN}$ = 0V | Fig. 13 |
| Closed-loop voltage gain | $G_{VC}$ | 47 | 50 | 53 | dB | $R_{NF}$ = 68Ω | Fig. 13 |
| Maximum output power | $P_{OM}$ | 420 | 550 | — | mW | $V_{IN}$ = −30dBm | Fig. 13 |
| Rated output power | $P_{OUT}$ | 250 | 350 | — | mW | THD = 10% | Fig. 13 |
| Total harmonic distortion | THD | — | 1.1 | 2.5 | % | $P_O$ = 100mW | Fig. 13 |
| Output noise voltage | $V_{NO}$ | — | 1.0 | 2.5 | mVrms | $R_g$ = 10kΩ | Fig. 13 |
| Input resistance | $R_{IN}$ | — | 25 | — | kΩ | | Fig. 13 |

## Electrical Characteristic Curves

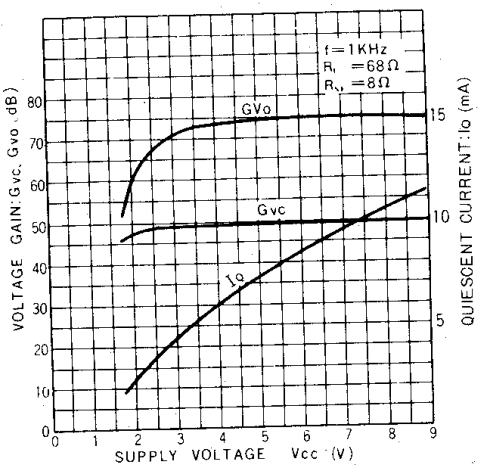



Fig. 4 Voltage gain and quiescent current vs. supply voltage

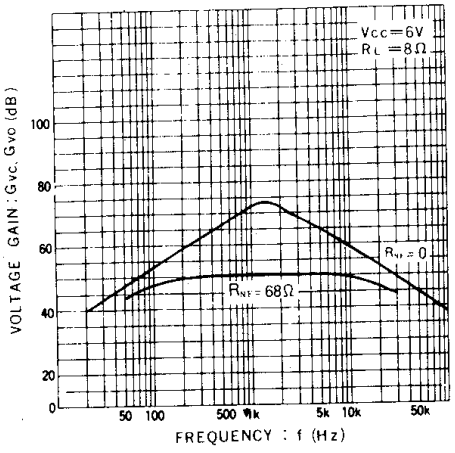



Fig. 5 Output power and total harmonic distortion vs. supply voltage

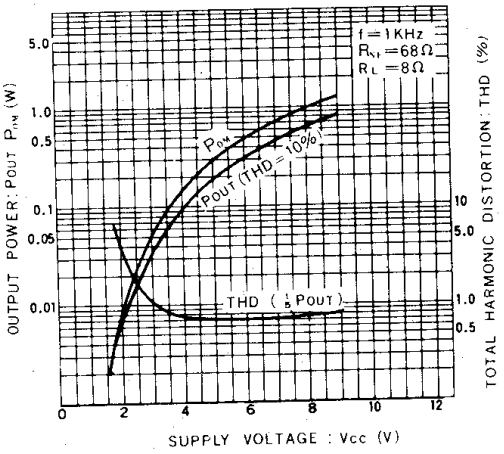



Fig. 6 Voltage gain vs. frequency

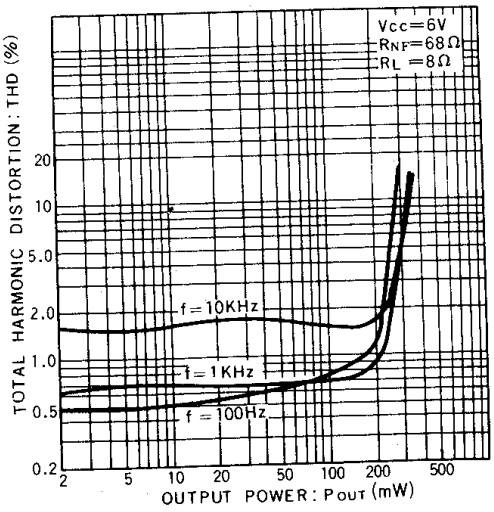



Fig. 7 Total harmonic distortion vs. output power

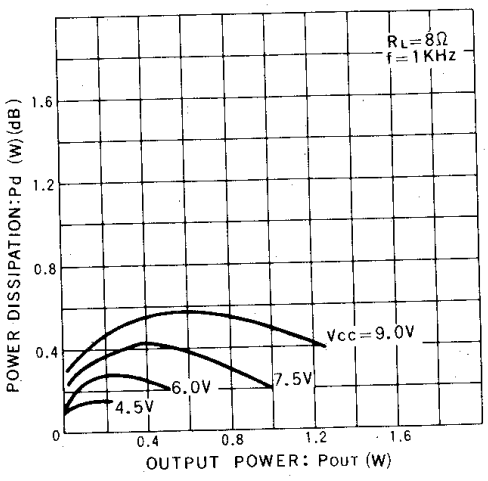



Fig. 8 Power dissipation vs. output power

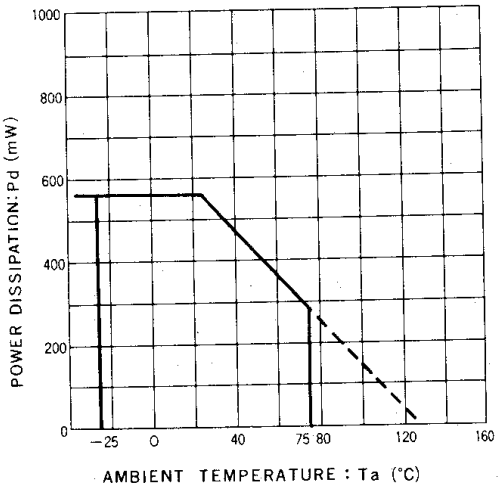



Fig. 9 Thermal derating curve (PC board mounting)