

AN7523

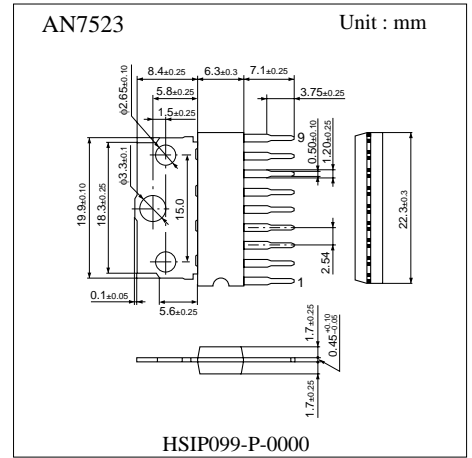
3W BTL Audio Power Amplifier Circuit

■ Features

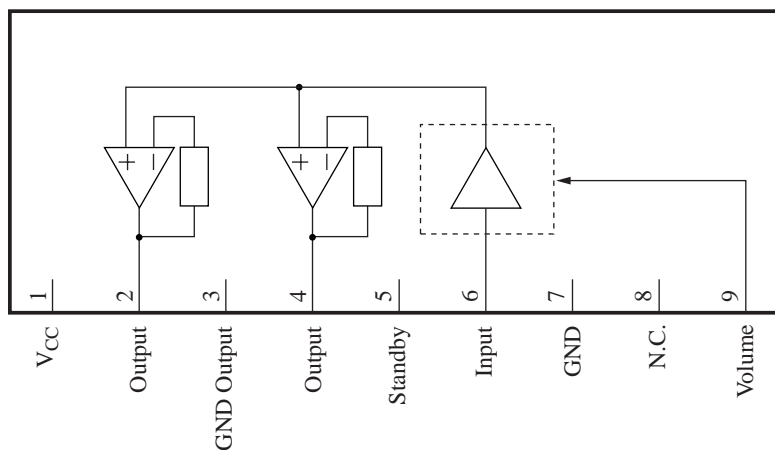
- $V_{CC}=8V, Output=3W(8\Omega)$
- Built-in Standby function.
- Built-in DC volume circuits.

■ Applications

- TVs, Audio equipment



■ Block Diagram



■ Pin Descriptions

| Pin No. | Function |
|---------|---------------|
| 1 | Vcc |
| 2 | ch1 Output(+) |
| 3 | GND(Output1) |
| 4 | ch1 Output(-) |
| 5 | Standby |
| 6 | ch1 Input |
| 7 | GND |
| 8 | N.C |
| 9 | DC volume |

■ Absolute Maximum Ratings

| Parameter | Symbol | Ratio | Unit | Note |
|-------------------------------|------------------|-------------|------|----------------------|
| Storage temperature | T _{stg} | -55 to +150 | °C | 1 |
| Operating ambient temperature | T _{opr} | -25 to +70 | °C | 1 |
| Supply voltage | V _{cc} | 14 | V | 2 |
| Supply current | I _{cc} | 1.0 | A | |
| Power dissipation | PD | 1220 | mW | T _a =70°C |

Note1) T_a=25°C except storage temperature and operating ambient temperature.

Note2) At no-signal.

■ Operating Supply Voltage Range

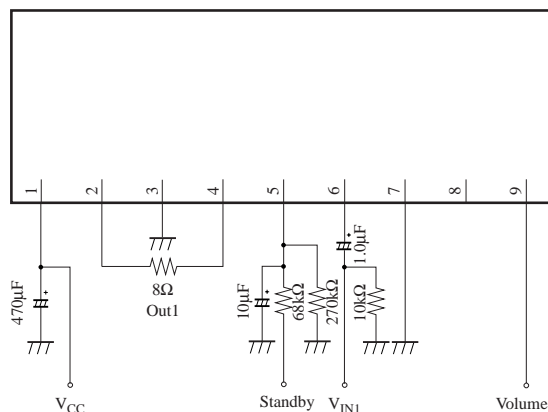
| | | |
|--------------------------------|-----------------|---------------|
| Operating supply voltage range | V _{cc} | 3.5V to 13.5V |
|--------------------------------|-----------------|---------------|

■ Electrical Characteristics ($V_{CC}=5.0V, R_L=8\Omega, \text{freq}=1\text{kHz}, T_a=25^\circ\text{C} \pm 2^\circ\text{C}$)

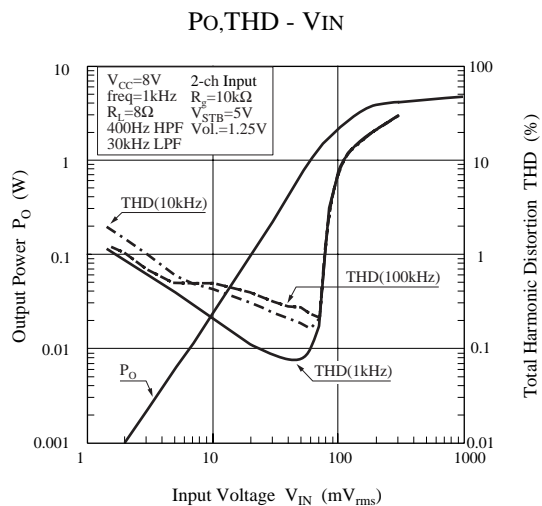
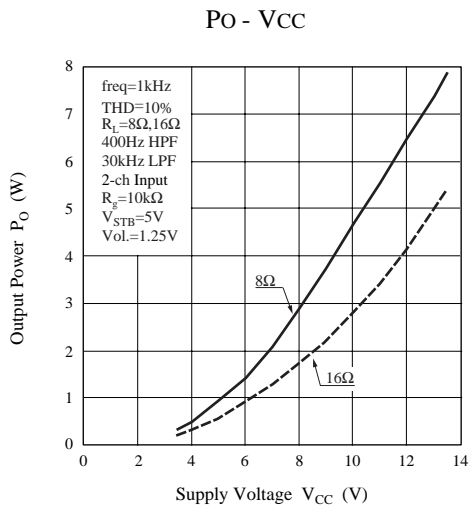
| Parameter | Symbol | Condition | min. | typ. | max. | Unit | Note |
|---------------------------|--------|--|------|------|------|---------------|------|
| Quiescent current | ICQ | $V_{IN}=0\text{mV}, V_{ol}=0\text{V}$ | – | 25 | 60 | mA | |
| Standby current | ISTB | $V_{IN}=0\text{mV}, V_{ol}=0\text{V}$ | – | 1 | 10 | μA | |
| Output noise voltage | VNO | $R_g=10\text{k}\Omega, V_{ol}=0\text{V}$ | – | 0.10 | 0.4 | mVrms | 1 |
| Voltage gain | GV | $P_o=0.25\text{W}, V_{ol}=1.25\text{V}$ | 31 | 33 | 35 | dB | |
| Total harmonic distortion | THD | $P_o=0.25\text{W}, V_{ol}=1.25\text{V}$ | – | 0.10 | 0.5 | % | |
| Maximum power output | PO | $\text{THD}=10\%, V_{ol}=1.25\text{V}$ | 2.4 | 3.0 | – | W | |
| Ripple rejection ratio | RR | $R_g=10\text{k}\Omega, V_{ol}=0\text{V}$ $V_r=0.5\text{Vrms}, f_r=120\text{Hz}$ | 30 | 50 | – | dB | 1 |
| Output offset voltage | Voff | $R_g=10\text{k}\Omega, V_{ol}=0\text{V}$ | -250 | 0 | 250 | mV | |
| Maximum attenuation | Att | $P_o=0.5\text{W}, V_{ol}=0\text{V}$ | 70 | 85 | – | dB | 1 |
| Center voltage gain | GVM | $P_o=0.5\text{W}, V_{ol}=0.6\text{V}$ | 20.5 | 23.5 | 26.5 | dB | |
| Standby terminal current | ISTB | $V_{IN}=0\text{mV}, V_{STB}=3\text{V}$ | – | – | 25 | μA | |
| Volume terminal current | Ivol | $V_{IN}=0\text{mV}, V_{ol}=0\text{V}$ | -12 | – | – | μA | |

Note1) For this measurement, use the filter <Bandwidth: 15Hz to 30kHz(12dB/octave)>

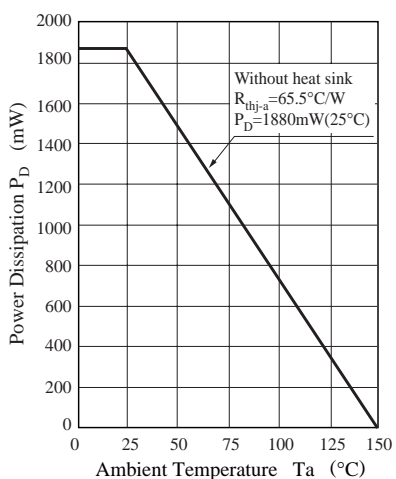
■ Application Circuit



■ Characteristic Curve



■ Package Power Dissipation



■ Printed Board Circuit Layout

