

# AN7163

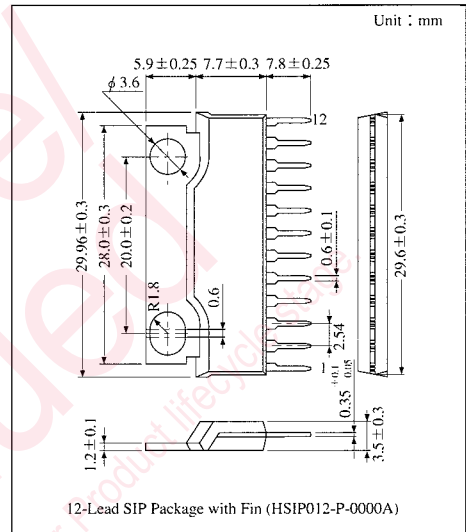
## BTL 18W Audio Power Amplifier Circuit

### Overview

The AN7163 is an integrated circuit designed for power amplifier of 18W (13.2V, 4Ω) output. Small quiescent circuit current, high gain and low noise enable this IC to be used for car stereo and portable stereo set.

### Features

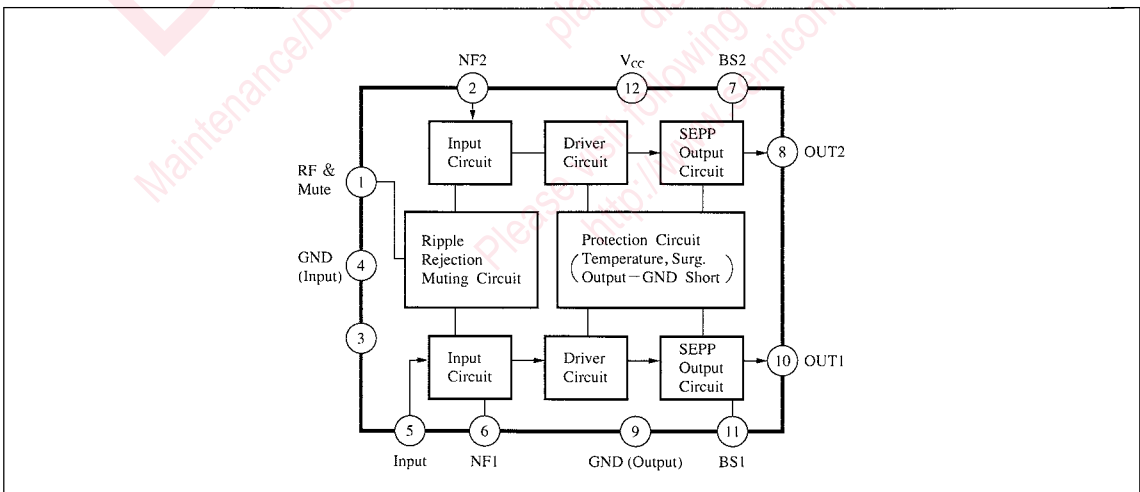
- Low quiescent current
- Low shock noise from power ON/OFF operation
- Built-in audio muting circuit
- Possible audio muting



### Pin Descriptions

| Pin No. | Pin Name       | Pin No. | Pin Name        |
|---------|----------------|---------|-----------------|
| 1       | Ripple Filter  | 7       | Bootstrap Ch.2  |
| 2       | NFB Ch.2       | 8       | Output Ch.2     |
| 3       | Center Control | 9       | GND (Output)    |
| 4       | GND (Input)    | 10      | Output Ch.1     |
| 5       | Input          | 11      | Bootstrap Ch.1  |
| 6       | NFB Ch.1       | 12      | V <sub>CC</sub> |

### Block Diagram



### ■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

| Parameter                                  | Symbol                       | Rating          | Unit             |
|--|------------------------------|-----------------|------------------|
| Supply Voltage <small>Note 1)</small>      | $V_{CC}$                     | 24              | V                |
| Peak Supply Voltage <small>Note 2)</small> | $V_{CC(\text{Surge})}$       | 50              | V                |
| Supply Current                             | $I_{CC}$                     | 4               | A                |
| Power Dissipation                          | $P_D$ <small>Note 3)</small> | 41.7            | W                |
| Operating Ambient Temperature              | $T_{opr}$                    | $-30 \sim +75$  | $^\circ\text{C}$ |
| Storage Temperature                        | $T_{stg}$                    | $-55 \sim +150$ | $^\circ\text{C}$ |

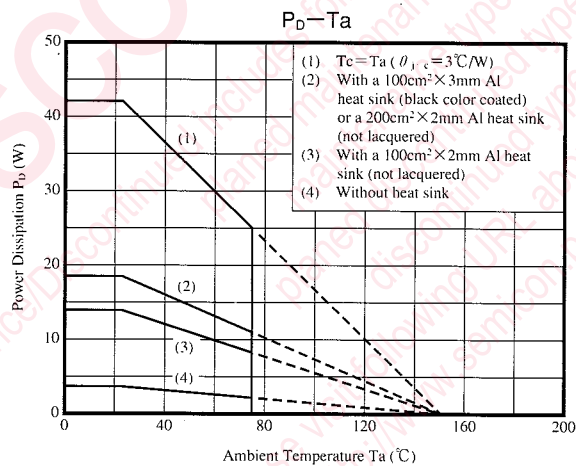
Note 1) Non-signal

Note 2) Time=0.2s

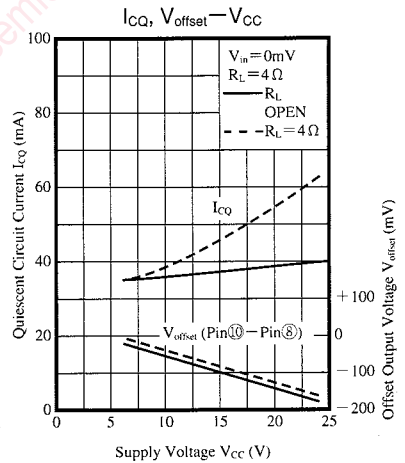
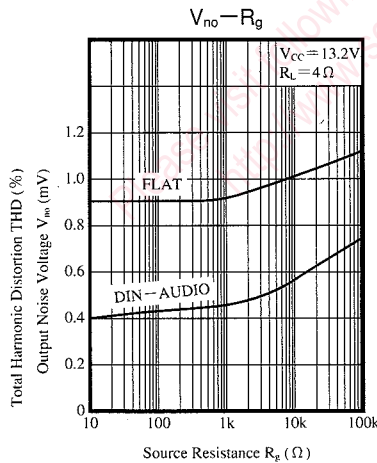
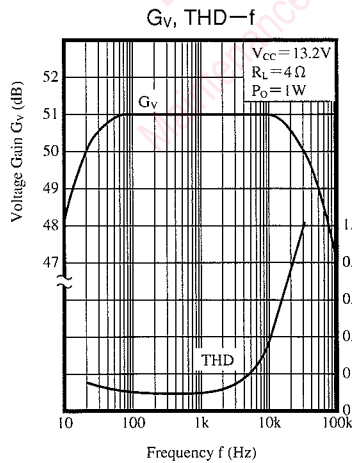
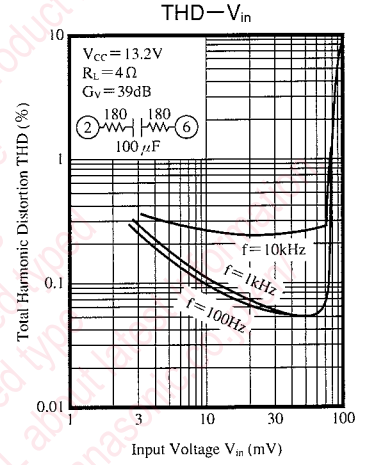
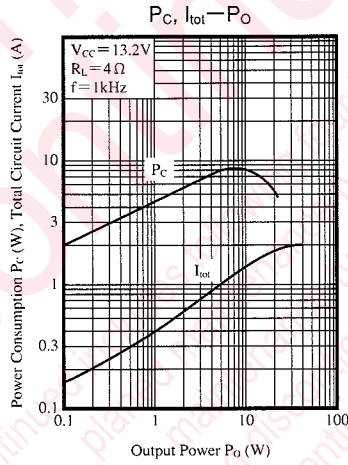
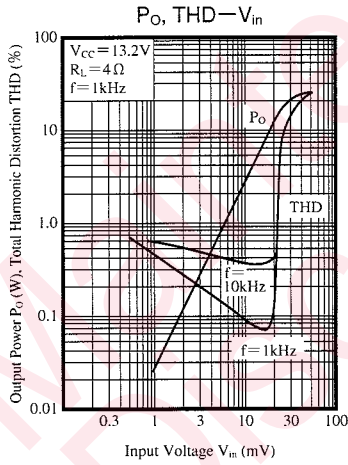
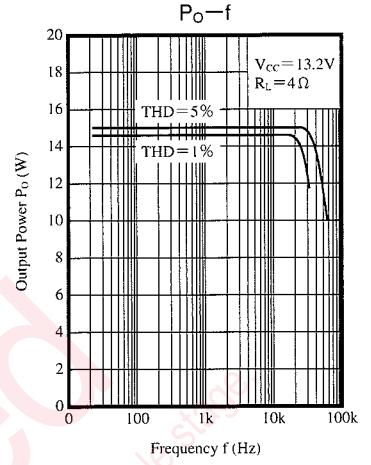
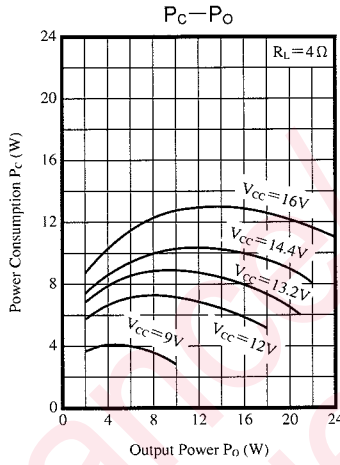
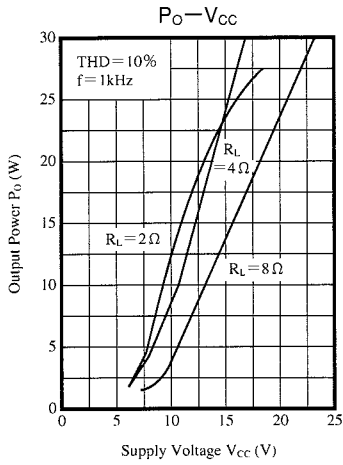
Note 3)  $R_{\theta j-c}=3^\circ\text{C/W}$ 

### ■ Electrical Characteristics ( $V_{CC}=13.2\text{V}$ , $R_L=4\Omega$ , $f=1\text{kHz}$ , $T_a=25^\circ\text{C}$ )

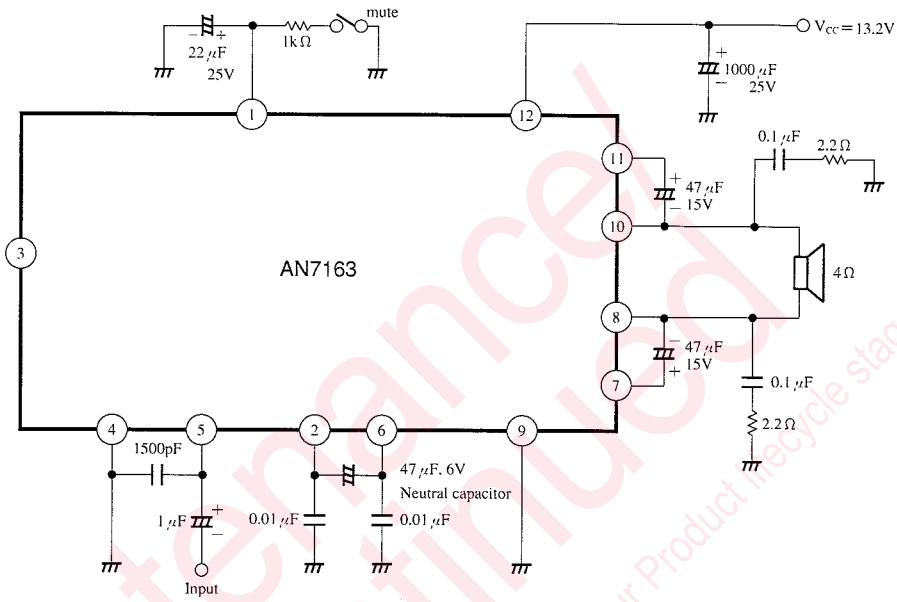
| Parameter                 | Symbol       | Condition   | min. | typ. | max. | Unit |
|---------------------------|--------------|---|------|------|------|------|
| Quiescent Circuit Current | $I_{CQ}$     | $V_{in}=0\text{mV}$   | —    | 40   | 80   | mA   |
| Output Noise Voltage      | $V_{no}$     | $R_g=10\text{k}\Omega$ , $V_{in}=0\text{mV}$ ,<br>$f=15\text{Hz} \sim 30\text{kHz}$ , 12dB/oct. | —    | 0.7  | 1.2  | mV   |
| Output Offset Voltage     | $V_{offset}$ | $V_{in}=0\text{mV}$   | -200 | 0    | +200 | mV   |
| Voltage Gain              | $G_V$        | $V_{in}=5\text{mV}$   | 49   | 51   | 53   | dB   |
| Total Harmonic Distortion | THD          | $V_{in}=5\text{mV}$   | —    | 0.15 | 0.5  | %    |
| Maximum Output Power      | $P_O$        | THD=10%   | 15   | 17   | —    | W    |
| Ripple Rejection Ratio    | RR           | $V_{in}=0\text{mV}$ , $R_g=0\Omega$ ,<br>Ripple=300mV, 120Hz                                    | 35   | 45   | —    | dB   |



|         |
|---------|
| ICs for |
| Audio   |
| Common  |
| Use     |



■ Application Circuit



Maintenance/Discontinued

includes following four Product lifecycle stage.

planned maintenance type

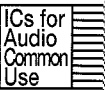
maintenance type

planned discontinued type

discontinued type

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