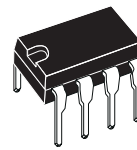




# TDA7231A

## 1.6W AUDIO AMPLIFIER

- OPERATING VOLTAGE 1.8 TO 15 V
- LOW QUIESCENT CURRENT
- HIGH POWER CAPABILITY
- LOW CROSSOVER DISTORTION
- SOFT CLIPPING



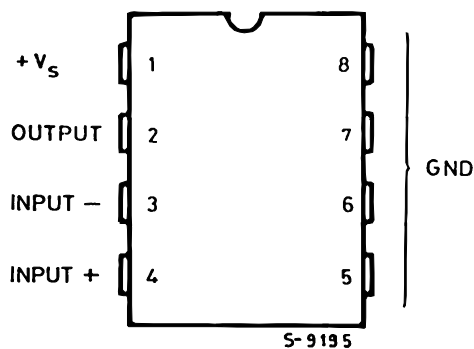
**MINIDIP (4+4)**

**ORDERING NUMBER : TDA7231A**

### DESCRIPTION

The TDA7231A is a monolithic integrated circuit in 4 + 4 lead minidip package. It is intended for use as class AB power amplifier with wide range of supply voltage in portable radios, cassette recorders and players, etc.

### PIN CONNECTION



ABSOLUTE MAXIMUM RATINGS

| Symbol         | Parameter   | Value       | Unit               |
|----------------|---|-------------|--------------------|
| $V_s$          | Supply Voltage  | 16          | V                  |
| $P_{tot}$      | Total Power Dissipation at $T_{amb} = 50\text{ }^{\circ}\text{C}$<br>at $T_{case} = 70\text{ }^{\circ}\text{C}$ | 1.25<br>4   | W<br>W             |
| $I_o$          | Output Peak Current   | 1           | A                  |
| $T_{stg}, T_j$ | Storage and Junction Temperature  | - 40 to 150 | $^{\circ}\text{C}$ |

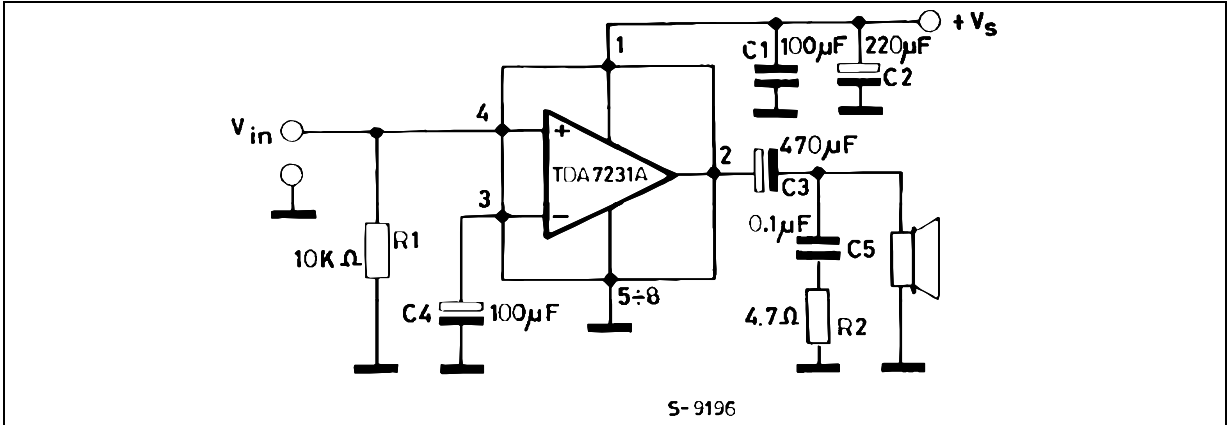
THERMAL DATA

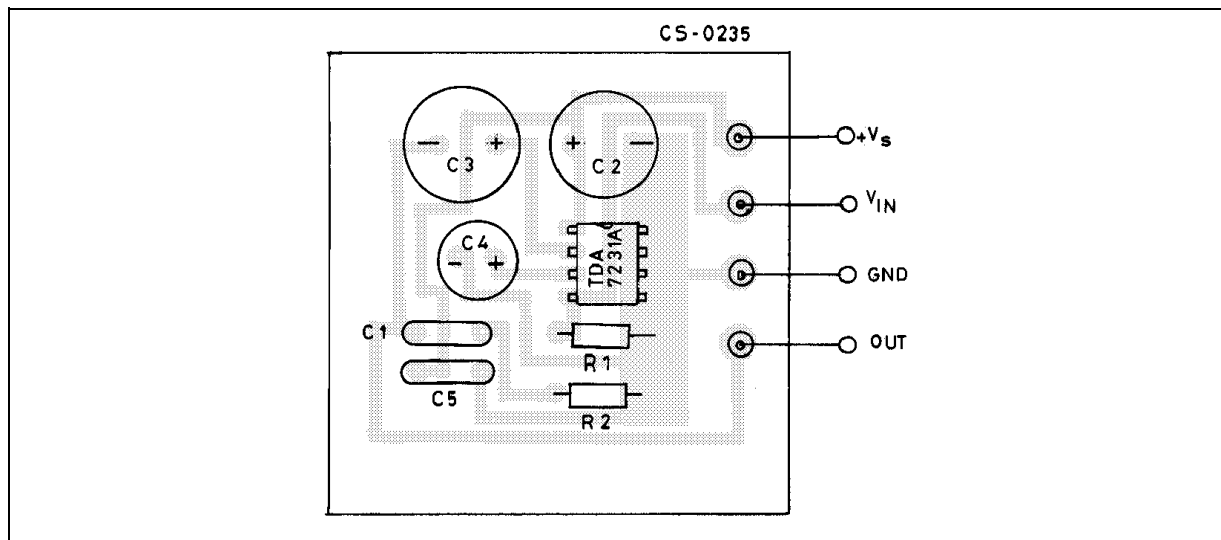
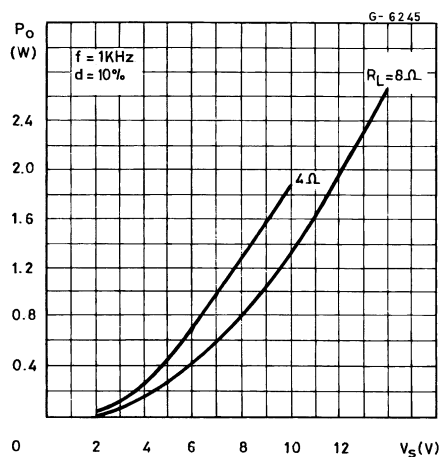
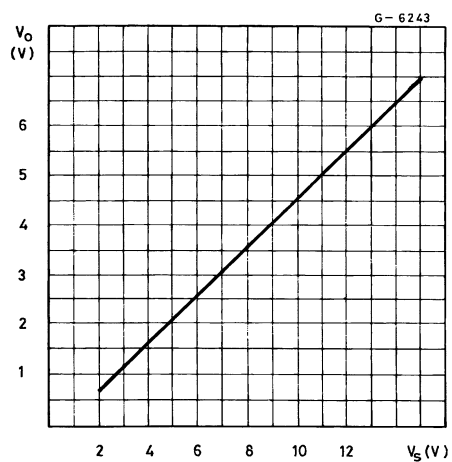
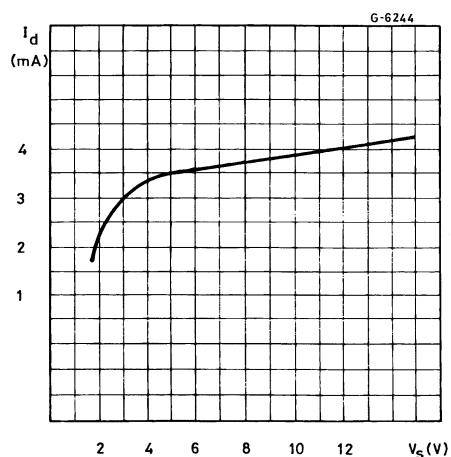
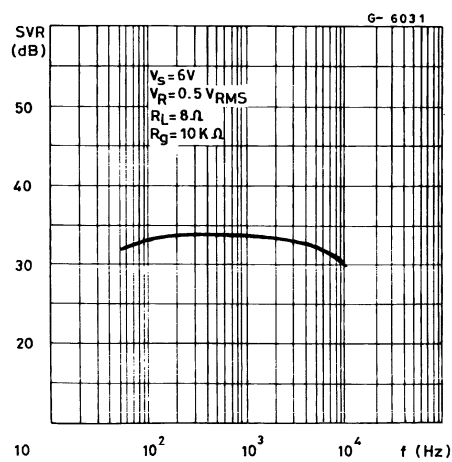
| Symbol           | Parameter                                   | Value | Unit                 |
|------------------|---|-------|----------------------|
| $R_{th\ j-amb}$  | Thermal Resistance Junction-ambient<br>Max. | 80    | $^{\circ}\text{C/W}$ |
| $R_{th\ j-pins}$ | Thermal Resistance Junction-pins<br>Max.    | 15    | $^{\circ}\text{C/W}$ |

ELECTRICAL CHARACTERISTICS ( $V_s = 6\text{ V}$ ,  $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

| Symbol   | Parameter                | Test Conditions  | Min. | Typ.                                  | Max. | Unit                           |
|----------|--------------------------|--|------|---------------------------------------|------|--------------------------------|
| $V_s$    | Supply Voltage           |  | 1.8  |                                       | 15   | V                              |
| $V_o$    | Quiescent Out Voltage    | $V_s = 6\text{ V}$<br>$V_s = 3\text{ V}$   |      | 2.7<br>1.2                            |      | V<br>V                         |
| $I_d$    | Quiescent Drain Current  |  |      | 3.6                                   | 9    | mA                             |
| $I_b$    | Input Bias Current       |  |      | 100                                   |      | nA                             |
| $P_o$    | Output Power             | $d = 10\%$ $f = 1\text{ kHz}$<br>$V_s = 12\text{ V}$ $R_L = 8\Omega$<br>$V_s = 9\text{ V}$ $R_L = 4\Omega$<br>$V_s = 6\text{ V}$ $R_L = 8\Omega$<br>$V_s = 6\text{ V}$ $R_L = 4\Omega$<br>$V_s = 3\text{ V}$ $R_L = 4\Omega$<br>$V_s = 3\text{ V}$ $R_L = 8\Omega$ |      | 1.8<br>1.6<br>0.4<br>0.7<br>110<br>70 |      | W<br>W<br>W<br>W<br>mW<br>mW   |
| $d$      | Distortion               | $P_o = 0.2\text{ W}$<br>$f = 1\text{ kHz}$<br>$R_L = 8\Omega$  |      | 0.3                                   |      | %                              |
| $G_v$    | Closed Loop Voltage Gain |  |      | 38                                    |      | dB                             |
| $R_{in}$ | Input Resistance         | $f = 1\text{ kHz}$   | 100  |                                       |      | k $\Omega$                     |
| $e_N$    | Total Input Noise        | $R_s = 10\text{ k}\Omega$ B = Curve A<br>B = 22Hz to 22kHz   |      | 2<br>3                                |      | $\mu\text{V}$<br>$\mu\text{V}$ |

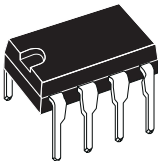
Figure 1 : Test and Application Circuit



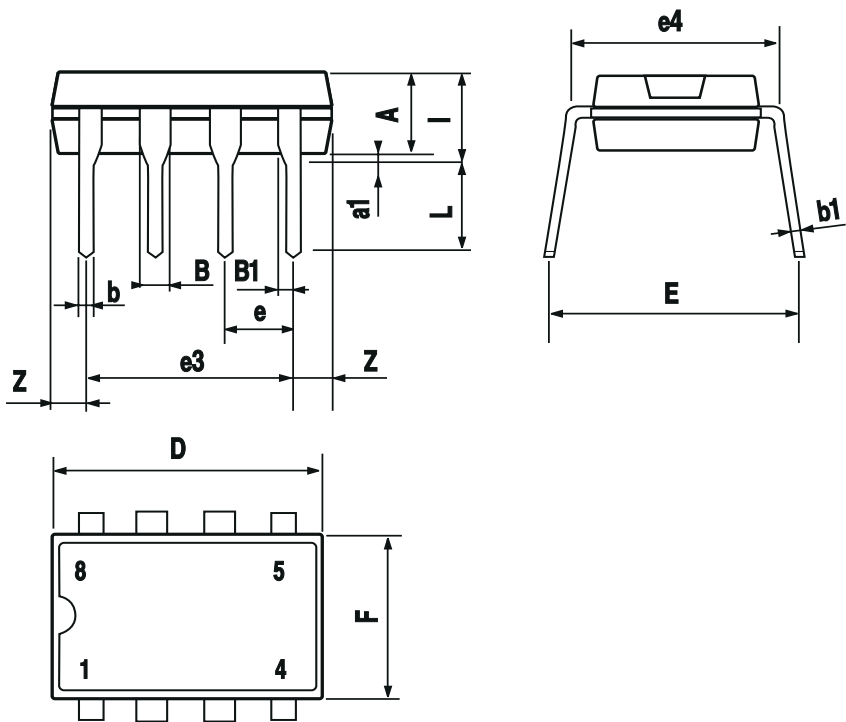
**Figure 2 :** P.C. Board and Components Layout of the figure 1 (1:1 scale)**Figure 3 :** Output Power versus Supply Voltage**Figure 5 :** Quiescent Output Voltage versus Supply Voltage**Figure 4 :** Quiescent Current versus Supply Voltage**Figure 6 :** Supply Voltage Rejection versus Frequency

| DIM. | mm   |      |      | inch  |       |       |
|------|------|------|------|-------|-------|-------|
|      | MIN. | TYP. | MAX. | MIN.  | TYP.  | MAX.  |
| A    |      | 3.3  |      |       | 0.130 |       |
| a1   | 0.7  |      |      | 0.028 |       |       |
| B    | 1.39 |      | 1.65 | 0.055 |       | 0.065 |
| B1   | 0.91 |      | 1.04 | 0.036 |       | 0.041 |
| b    |      | 0.5  |      |       | 0.020 |       |
| b1   | 0.38 |      | 0.5  | 0.015 |       | 0.020 |
| D    |      |      | 9.8  |       |       | 0.386 |
| E    |      | 8.8  |      |       | 0.346 |       |
| e    |      | 2.54 |      |       | 0.100 |       |
| e3   |      | 7.62 |      |       | 0.300 |       |
| e4   |      | 7.62 |      |       | 0.300 |       |
| F    |      |      | 7.1  |       |       | 0.280 |
| I    |      |      | 4.8  |       |       | 0.189 |
| L    |      | 3.3  |      |       | 0.130 |       |
| Z    | 0.44 |      | 1.6  | 0.017 |       | 0.063 |

OUTLINE AND  
MECHANICAL DATA



PowerMinidip



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics. The ST logo is a registered trademark of STMicroelectronics.

All other names are the property of their respective owners

© 2003 STMicroelectronics - All rights reserved

**STMicroelectronics GROUP OF COMPANIES**

Australia – Belgium - Brazil - Canada - China – Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States

**[www.st.com](http://www.st.com)**

