



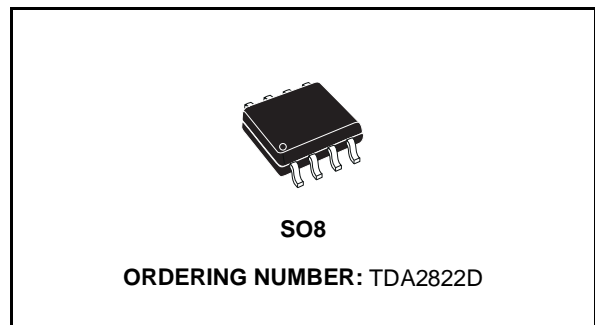
TDA2822D

DUAL LOW-VOLTAGE POWER AMPLIFIER

- SUPPLY VOLTAGE DOWN TO 1.8V
- LOWCROSSOVER DISTORTION
- LOW QUIESCENT CURRENT
- BRIDGE OR STEREO CONFIGURATION

DESCRIPTION

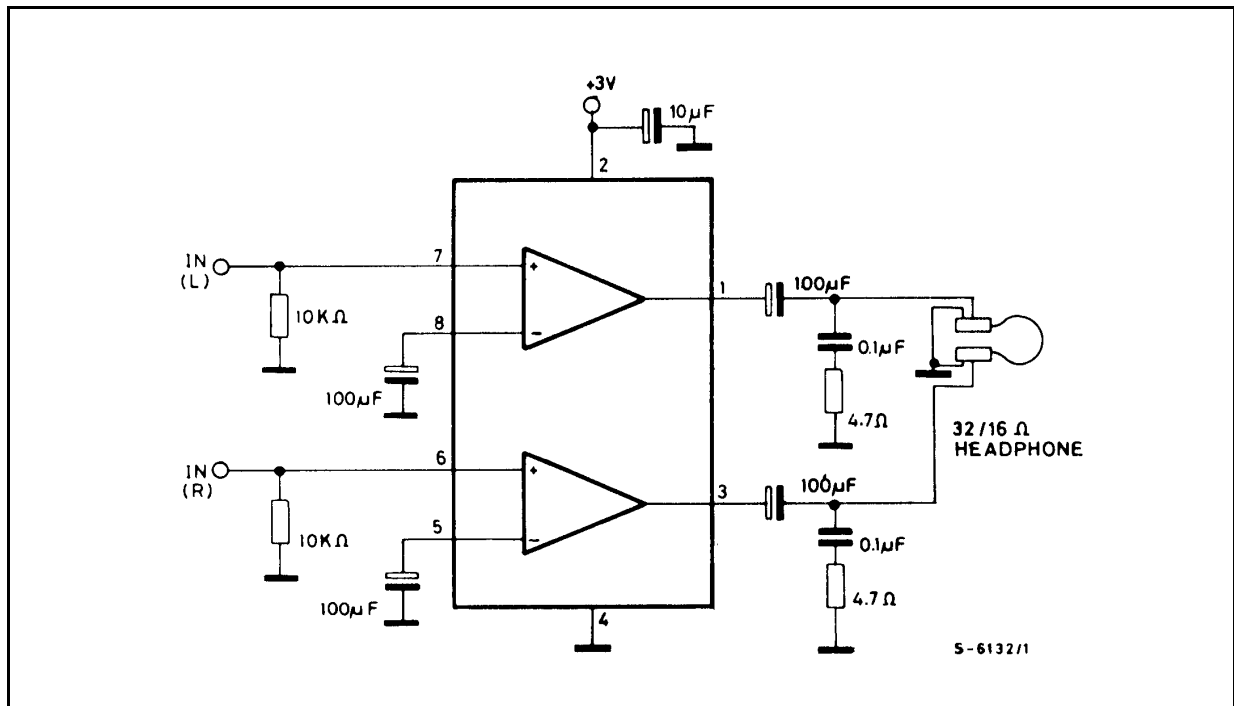
The TDA2822D is a monolithic integrated circuit in 8 lead (SO-8) package. It is intended for use as dual audio power amplifier in portable cassette players, radios and CD players



ABSOLUTE MAXIMUM RATINGS

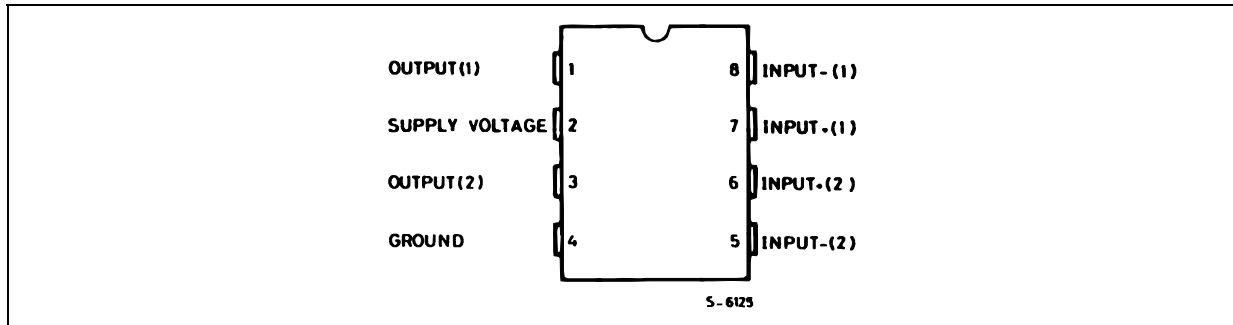
| Symbol | Parameter | Value | Unit |
|----------------|--|------------|------------------|
| V_S | Supply Voltage | 15 | V |
| I_O | Peak Output | 1 | A |
| P_{tot} | Total Power Dissipation $T_{amb} = 50^\circ\text{C}$ | 0.5 | W |
| T_{stg}, T_j | Storage and Junction Temperature | -40 to 150 | $^\circ\text{C}$ |

APPLICATION CIRCUIT



TDA2822D

PIN CONNECTION (Top view)



THERMAL DATA

| Symbol | Description | Value | Unit |
|-----------------|-------------------------------------|-------|----------|
| $R_{th\ j-amb}$ | Thermal Resistance Junction-ambient | Max | 200 °C/W |

Figure 1: Stereo Application and Test Circuit

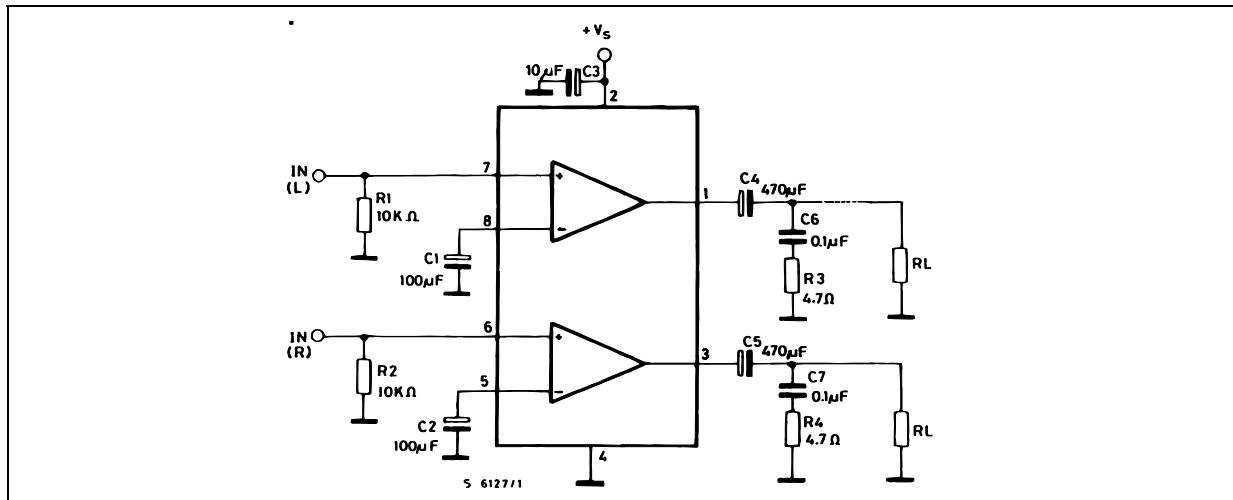
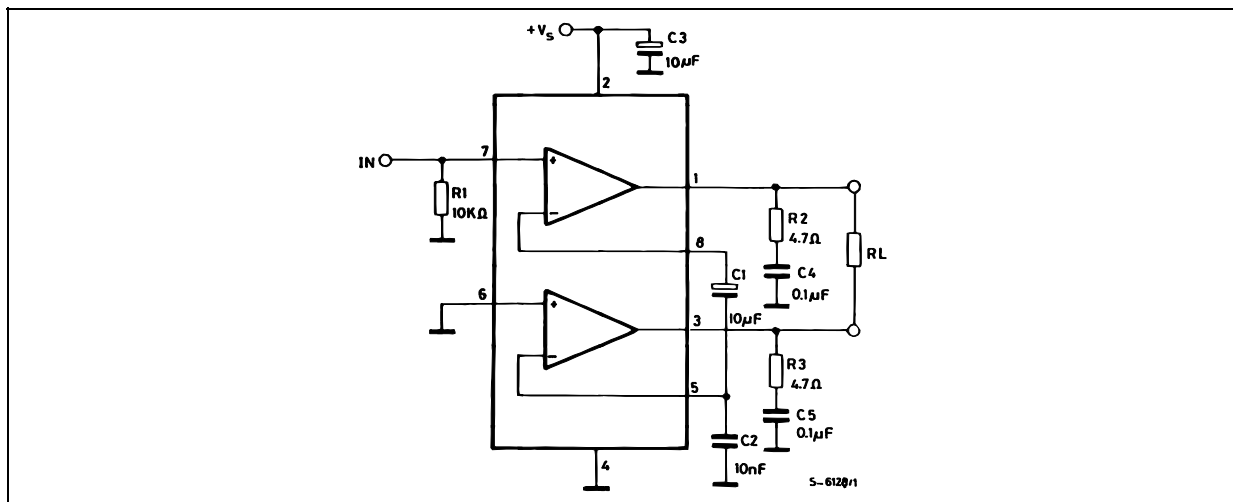


Figure 2: Bridge Application and Test Circuit



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

STEREO (Test circuit of fig. 1).

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Unit |
|--------------|--|--|------|-----------------------------|---------|------------|
| V_S | Supply Voltage | | 1.8 | | 15 | V |
| I_d | Total Quiescent Drain Current | | | | 15 | mA |
| V_O | Quiescent Output Voltage | | | 2.7 | | V |
| | | $V_S = 3V$ | | 1.2 | | V |
| I_b | Input Bias Current | | | 100 | | nA |
| P_O | Output Power (each channel) ($f = 1KHz$, $d = 10\%$) | $R_L = 32\Omega$ $V_S = 9V$ $V_S = 6V$ $V_S = 4.5V$ $V_S = 3V$ $V_S = 2V$ | | 300 120 60 20 5 | | mW |
| | | $R_L = 16\Omega$ $V_S = 6V$ | 170 | 220 | | mW |
| | | $R_L = 8\Omega$ $V_S = 6V$ | 300 | 380 | | mW |
| | | $R_L = 4\Omega$ $V_S = 4.5V$ $V_S = 3V$ | | 320 110 | | mW mW |
| d | Distortion | $R_L = 32\Omega$ $P_O = 40mW$ | | 0.2 | | % |
| | | $R_L = 16\Omega$ $P_O = 75mW$ | | 0.2 | | % |
| | | $R_L = 8\Omega$ $P_O = 150mW$ | | 0.2 | | % |
| G_V | Closed Loop Voltage Gain | $f = 1KHz$ | 36 | 39 | 41 | dB |
| ΔG_V | Channel Balance | | | | ± 1 | dB |
| R_i | Input Resistance | $f = 1KHz$ | 100 | | | K Ω |
| e_N | Total Input Noise | $R_s = 10k\Omega$ $B = \text{Curve A}$ | | 2 | | μV |
| | | $R_s = 10k\Omega$ $B = 22Hz \text{ to } 22KHz$ | | 2.5 | | μV |
| SVR | Supply Voltage Rejection | $f = 100Hz$ $C1 = C2 = 100\mu F$ | 24 | 30 | | dB |
| C_s | Channel Separation | $f = 1KHz$ | | 50 | | dB |

BRIDGE (Test circuit of fig.2)

| | | | | | | |
|----------|---|--|-----------|-------------------------------|----------|------------|
| V_S | Supply Voltage | | 1.8 | | 15 | V |
| I_d | Total Quiescent Drain Current | $R_L = \infty$ | | | 15 | mA |
| V_{os} | Output Offset Voltage (between the outputs) | $R_L = 8\Omega$ | | | ± 80 | mV |
| I_b | Input Bias Current | | | 100 | | nA |
| P_O | Output Power ($f = 1KHz$, $d = 10\%$) | $R_L = 32\Omega$ $V_S = 9V$ $V_S = 6V$ $V_S = 4.5V$ $V_S = 3V$ $V_S = 2V$ | 320 50 | 1000 400 200 65 8 | | mW |
| | | $R_L = 16\Omega$ $V_S = 6V$ $V_S = 3V$ | | 800 120 | | mW mW |
| | | $R_L = 8\Omega$ $V_S = 4.5V$ $V_S = 3V$ | | 700 220 | | mW mW |
| | | $R_L = 4\Omega$ $V_S = 3V$ $V_S = 2V$ | | 350 80 | | mW mW |
| d | Distortion | $R_L = 8\Omega$ $P_O = 0.5W$ $f = 1KHz$ | | 0.2 | | % |
| G_V | Closed Loop Voltage Gain | $f = 1KHz$ | | 39 | | dB |
| R_i | Input Resistance | $f = 1KHz$ | 100 | | | K Ω |
| e_N | Total Input Noise | $R_s = 10k\Omega$ $B = \text{Curve A}$ | | 2.5 | | μV |
| | | $R_s = 10k\Omega$ $B = 22Hz \text{ to } 22KHz$ | | 3 | | μV |
| SVR | Supply Voltage Rejection | $f = 100Hz$ | | 40 | | dB |
| B | Power Bandwidth (-3dB) | $R_L = 8\Omega$ $P_O = 1W$ | | 120 | | KHz |

Figure 3: Supply Voltage Rejection vs. Frequency

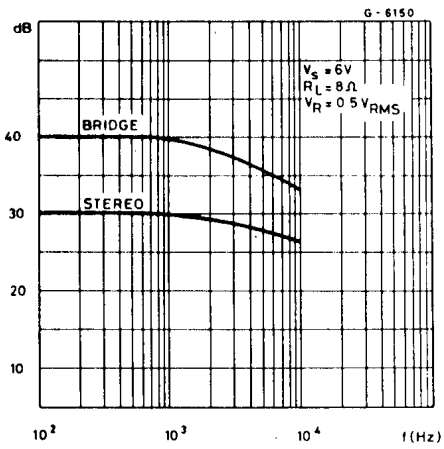


Figure 4: Output Power vs. Supply Voltage (THD = 10%, f = 1KHz Stereo)

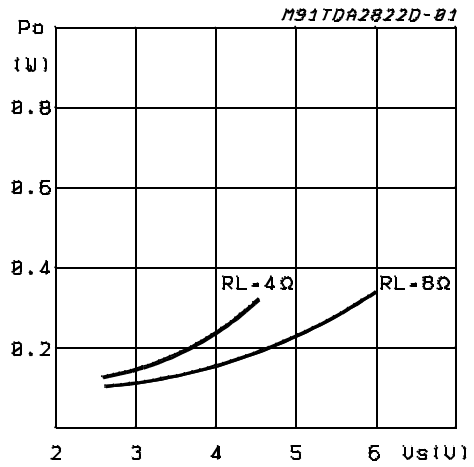


Figure 5: Total Power Dissipation vs. Output Power (Bridge)

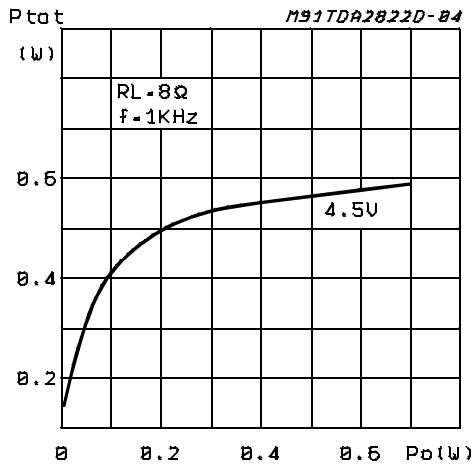
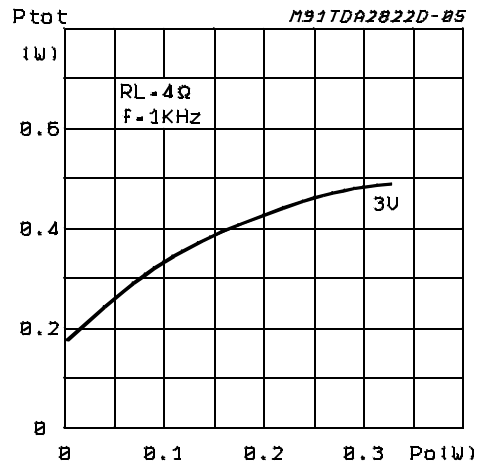
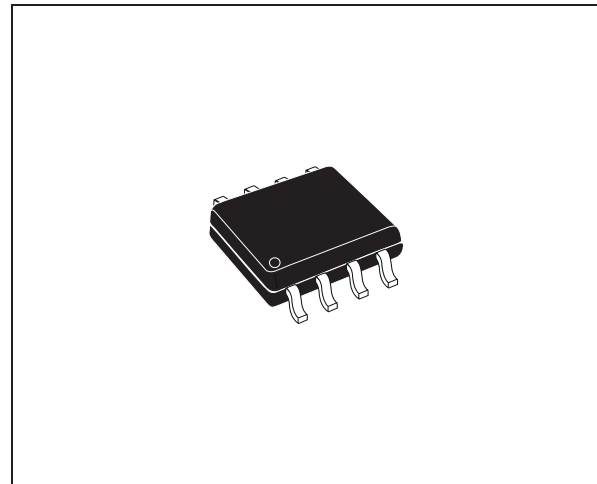


Figure 6: Total Power Dissipation vs. Output Power (Bridge)



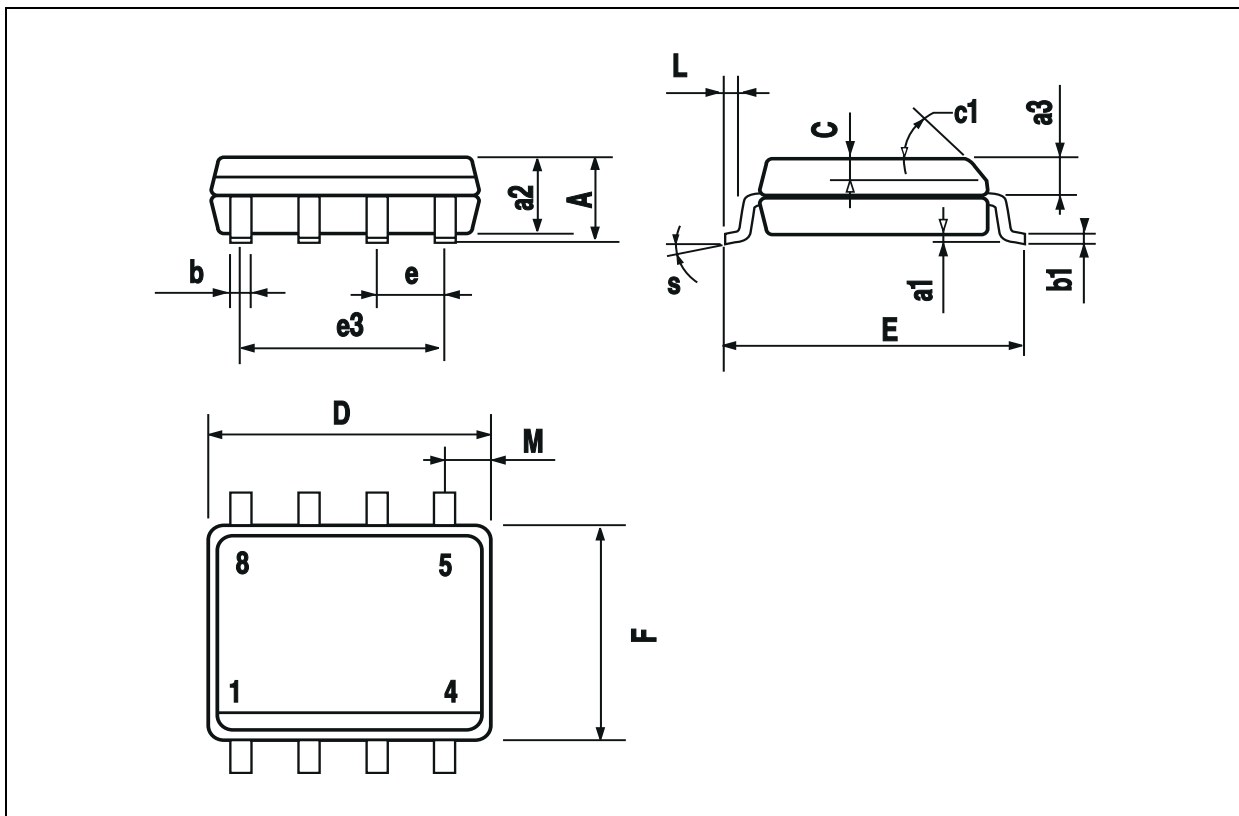
| DIM. | mm | | | inch | | |
|-------|------------|------|------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | | | 1.75 | | | 0.069 |
| a1 | 0.1 | | 0.25 | 0.004 | | 0.010 |
| a2 | | | 1.65 | | | 0.065 |
| a3 | 0.65 | | 0.85 | 0.026 | | 0.033 |
| b | 0.35 | | 0.48 | 0.014 | | 0.019 |
| b1 | 0.19 | | 0.25 | 0.007 | | 0.010 |
| C | 0.25 | | 0.5 | 0.010 | | 0.020 |
| c1 | 45° (typ.) | | | | | |
| D (1) | 4.8 | | 5.0 | 0.189 | | 0.197 |
| E | 5.8 | | 6.2 | 0.228 | | 0.244 |
| e | | 1.27 | | | 0.050 | |
| e3 | | 3.81 | | | 0.150 | |
| F (1) | 3.8 | | 4.0 | 0.15 | | 0.157 |
| L | 0.4 | | 1.27 | 0.016 | | 0.050 |
| M | | | 0.6 | | | 0.024 |
| S | 8° (max.) | | | | | |

OUTLINE AND MECHANICAL DATA



SO8

(1) D and F do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.15mm (.006inch).



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