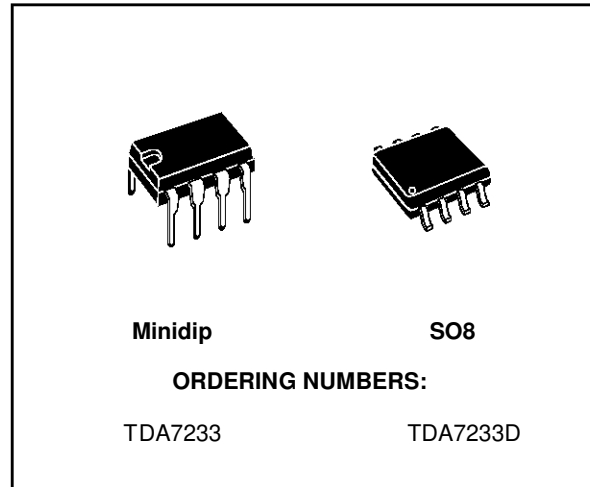


1W AUDIO AMPLIFIER WITH MUTE

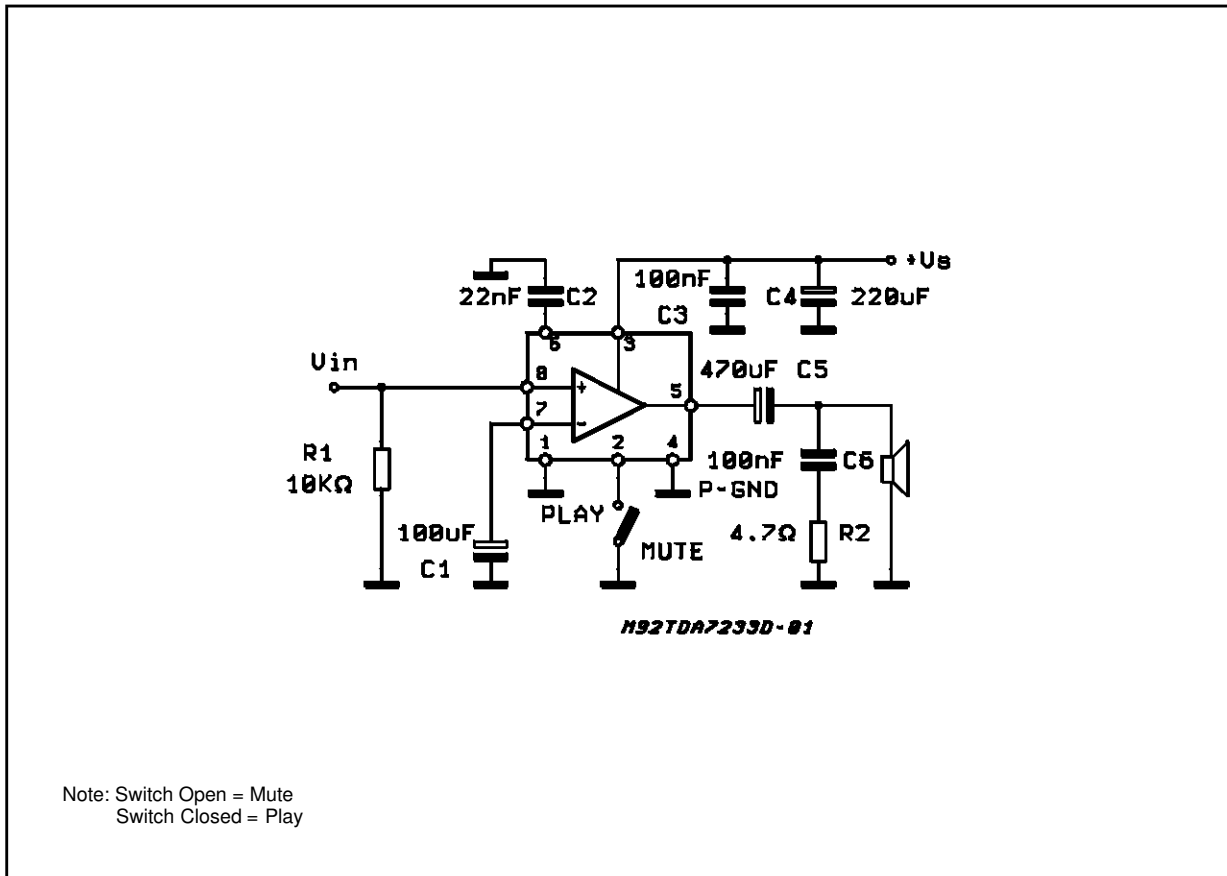
- OPERATING VOLTAGE 1.8 TO 15V
- EXTERNAL MUTE OR POWER DOWN FUNCTION
- IMPROVED SUPPLY VOLTAGE REJECTION
- LOW QUIESCENT CURRENT
- HIGH POWER CAPABILITY
- LOW CROSSOVER DISTORTION

DESCRIPTION

The TDA7233/D is a monolithic integrated circuit in 8 pin Minidip or SO8 package, intended for use as class AB power amplifier with a wide range of supply voltage from 1.8V to 15V in portable players, cordless telephones and Cellular Radios.



TEST AND APPLICATION CIRCUIT

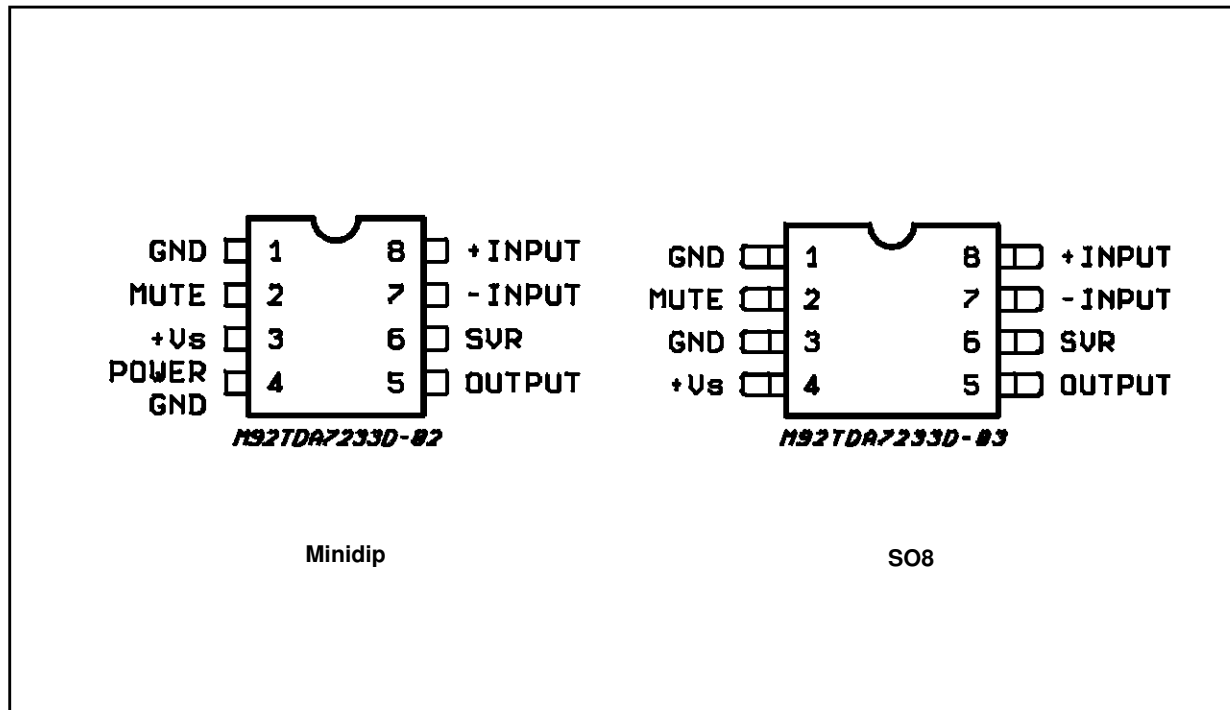


TDA7233 - TDA7233D

ABSOLUTE MAXIMUM RATINGS

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

PIN CONNECTIONS (Top views)



THERMAL DATA

| Symbol | Parameter | | SO8 | Minidip | Unit |
|-----------------|-------------------------------------|------|-----|---------|---------------------------|
| $R_{th\ j-amb}$ | Thermal Resistance Junction-ambient | Max. | 200 | 100 | $^\circ\text{C}/\text{W}$ |

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

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Unit |
|----------|--|--|------|--|------|-----------------------------------|
| V_s | Supply Voltage | | 1.8 | | 15 | V |
| V_o | Quiescent Out Voltage | | | 2.7 | | V |
| | | $V_s = 3\text{ V}$ | | 1.2 | | V |
| | | $V_s = 9\text{ V}$ | | 4.2 | | V |
| I_d | Quiescent Drain Current | MUTE HIGH | | 3.6 | 9 | mA |
| | | MUTE LOW | | 0.4 | | |
| I_b | Input Bias Current | | | 100 | | nA |
| P_o | Output Power | $d = 10\%$ $f = 1\text{ KHz}$ $V_s = 12\text{ V}$ $R_L = 8\ \Omega$ $V_s = 9\text{ V}$ $R_L = 4\ \Omega$ $V_s = 9\text{ V}$ $R_L = 8\ \Omega$ $V_s = 6\text{ V}$ $R_L = 8\ \Omega$ $V_s = 6\text{ V}$ $R_L = 4\ \Omega$ $V_s = 3\text{ V}$ $R_L = 4\ \Omega$ $V_s = 3\text{ V}$ $R_L = 8\ \Omega$ | | 1.9 1.6 1 0.4 0.7 110 70 | | W W W W W mW mW |
| d | Distortion | $P_o = 0.5\text{ W}$ $f = 1\text{ kHz}$ $R_L = 8\ \Omega$ $V_s = 9\text{ V}$ | | 0.3 | | % |
| G_v | Closed Loop Voltage Gain | $f = 1\text{ kHz}$ | | 39 | | 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 | | 2 | | μV |
| | | B = 22 Hz to 22 kHz | | 3 | | |
| SVR | Supply Voltage Rejection | $f = 100\text{ Hz}$, $R_g = 10\text{ K}\Omega$ | | 45 | | dB |
| | MUTE Attenuation | $V_o = 1\text{ V}$ $f = 100\text{ Hz}$ to 10 kHz | | 70 | | dB |
| | MUTE Threshold | | | 0.6 | | V |
| I_M | MUTE Current | $V_s = 15\text{ V}$ | | 0.4 | | mA |

Figure 1: Output Power vs. Supply Voltage

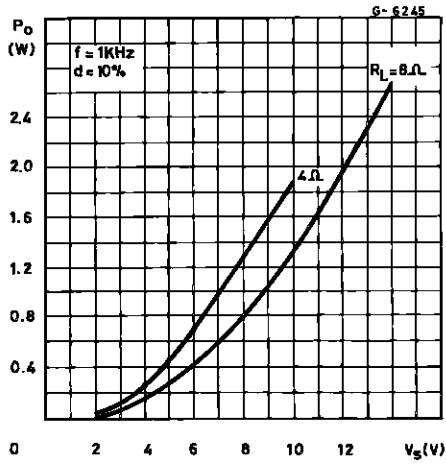


Figure 3: DC Output Voltage vs. Supply Voltage

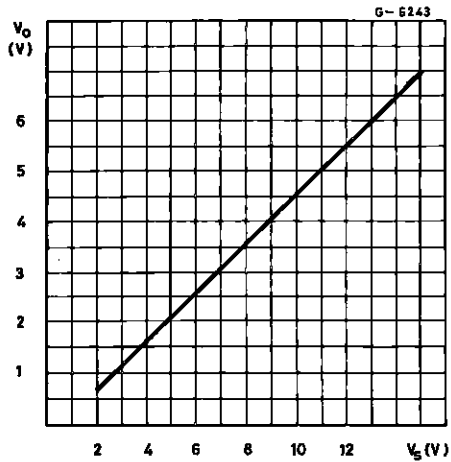


Figure 5: Total Dissipated Power vs. Supply Voltage

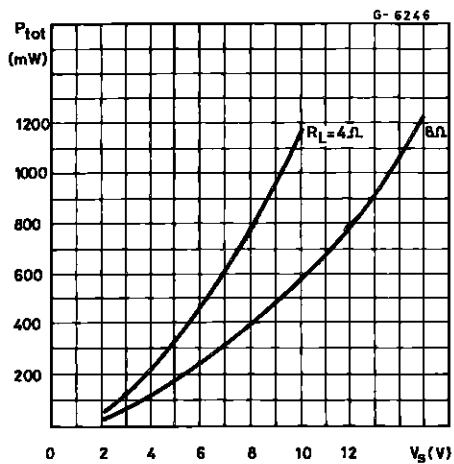


Figure 2: Supply Voltage Rejection vs. Frequency

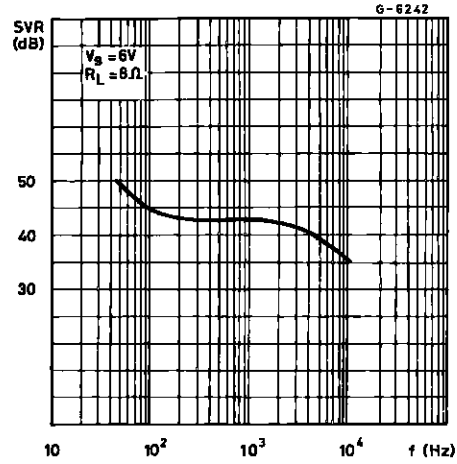
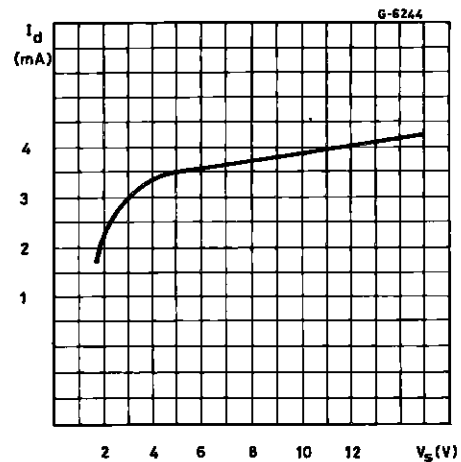
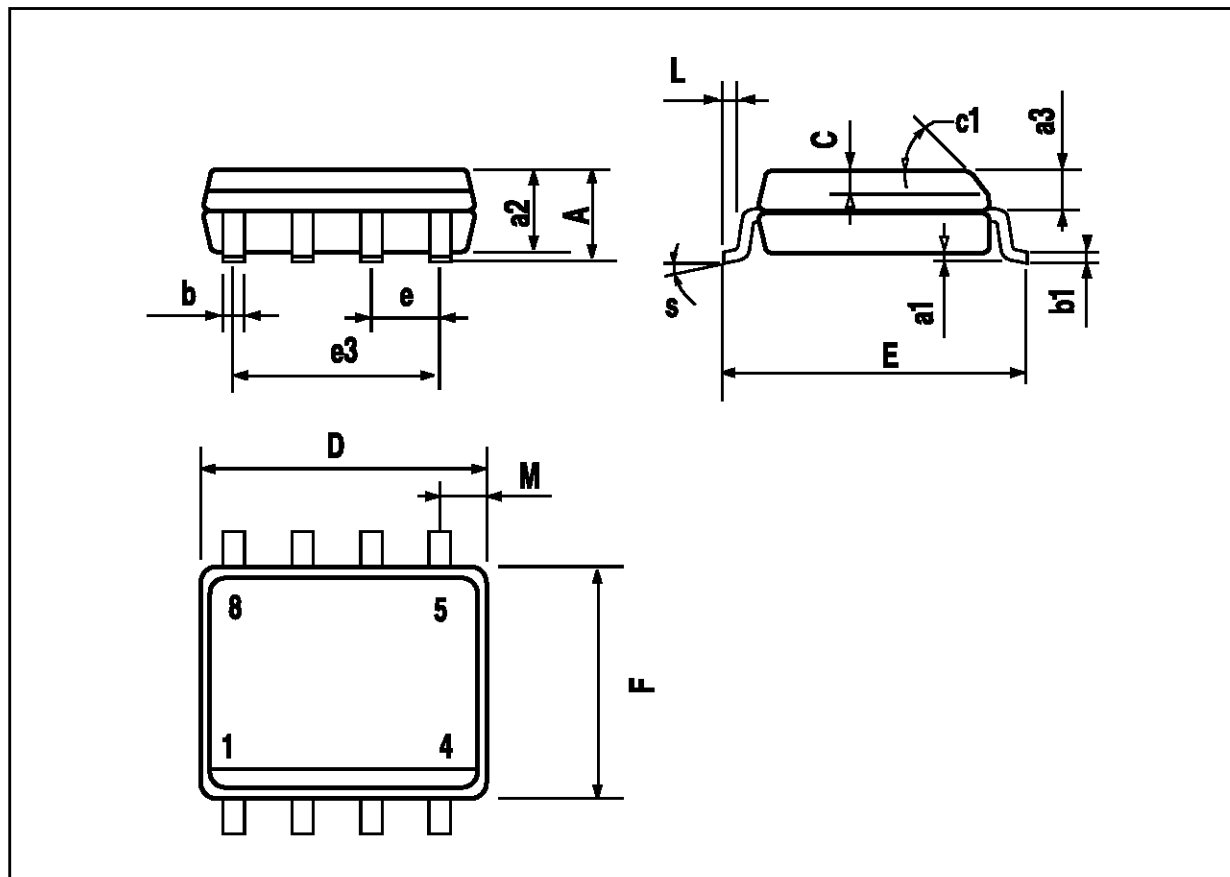


Figure 4: Quiescent Current vs. Supply Voltage



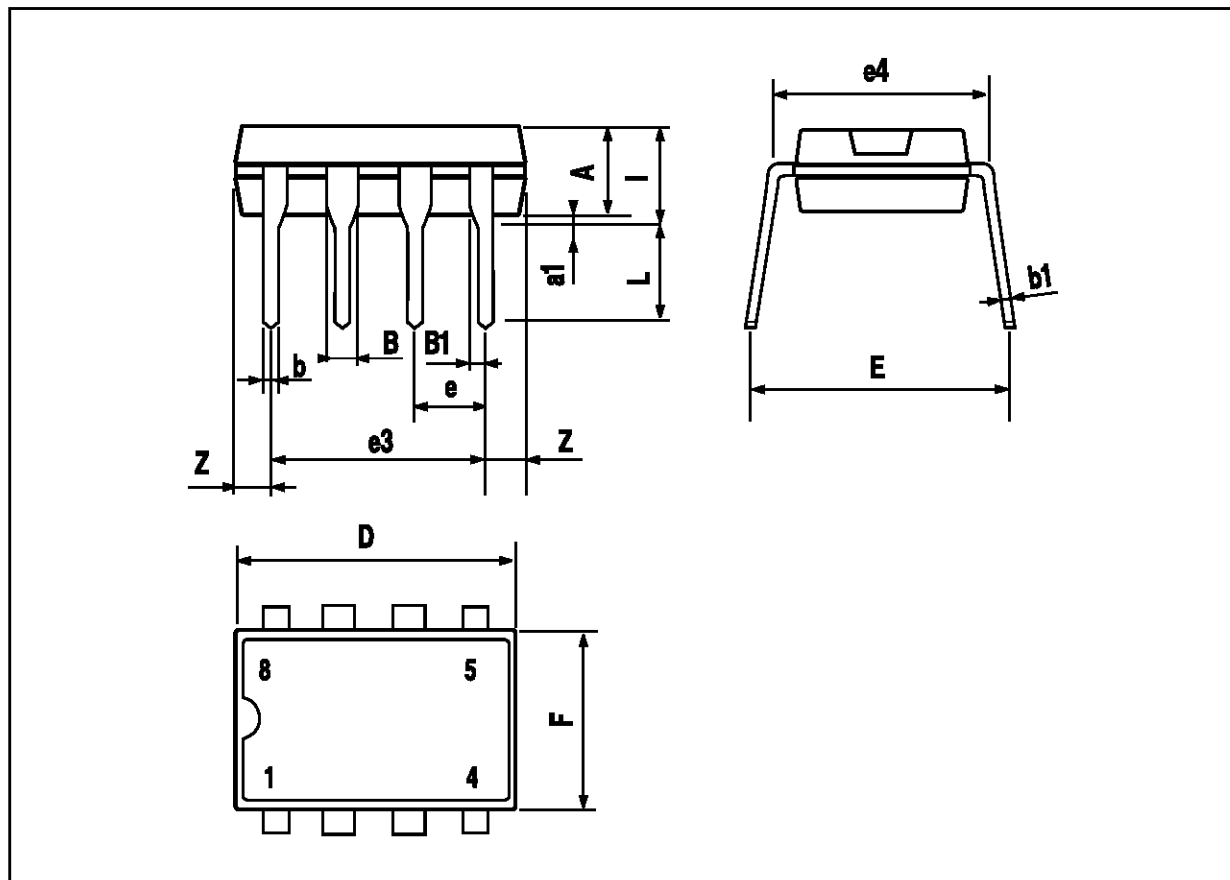
SO8 PACKAGE MECHANICAL DATA

| 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 | 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 | 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.) | | | | | |



MINIDIP PACKAGE MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|-------|------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | | 3.32 | | | 0.131 | |
| a1 | 0.51 | | | 0.020 | | |
| B | 1.15 | | 1.65 | 0.045 | | 0.065 |
| b | 0.356 | | 0.55 | 0.014 | | 0.022 |
| b1 | 0.204 | | 0.304 | 0.008 | | 0.012 |
| D | | | 10.92 | | | 0.430 |
| E | 7.95 | | 9.75 | 0.313 | | 0.384 |
| e | | 2.54 | | | 0.100 | |
| e3 | | 7.62 | | | 0.300 | |
| e4 | | 7.62 | | | 0.300 | |
| F | | | 6.6 | | | 0.260 |
| I | | | 5.08 | | | 0.200 |
| L | 3.18 | | 3.81 | 0.125 | | 0.150 |
| Z | | | 1.52 | | | 0.060 |



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