TDA7233

1W AUDIO AMPLIFIER WITH MUTE

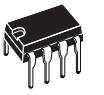
1 FEATURES

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

2 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.

Figure 1. Package



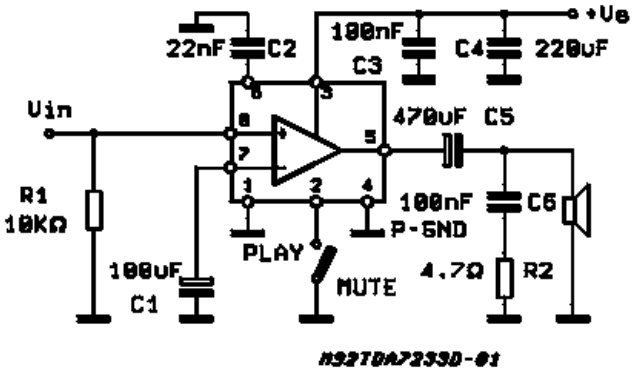
Minidip

SO8

Table 1. Order Codes

Part Number	Package
TDA7233	Minidip
TDA7233D	SO8

Figure 2. Pin Connection

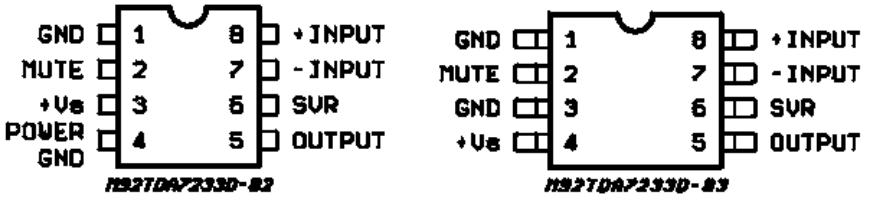


Note: Switch Open = Mute
Switch Closed = Play

Table 2. Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_S	Supply Voltage	16	V
P_{tot}	Total Power Dissipation at T_{amb} = 50 °C	1	W
I_O	Output Peak Current	1	A
T_{stg}, T_j	Storage and Junction Temperature	-40 to 150	°C

Figure 3. PIN CONNECTIONS (top view)



Minidip **SO8**

Table 3. Thermal Data

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

Table 4. Electrical Characteristcs (V_s = 6 V, T_{amb} = 25 °C, unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_S	Supply Voltage		1.8		15	V
V_O	Quiescent Output Voltage	 Vs = 3 V Vs = 9 V		2.7 1.2 4.2		 V
I_d	Quiescent Drain Current	MUTE HIGH		3.6	9	mA
		MUTE LOW		0.4		mA
I_b	Input Bias Current			100		nA
P_O	Output Power	d = 10%; f = 1kHz Vs = 12V; R_L = 8Ω Vs = 9V; R_L = 4Ω Vs = 9V; R_L = 8Ω Vs = 6V; R_L = 8Ω Vs = 6V; R_L = 4Ω Vs = 3V; R_L = 4Ω Vs = 3V; R_L = 8Ω		 1.9 1.6 1 0.4 0.7 110 70		 W W W W W mW mW
d	Distortion	Po = 0.5W; f = 1KHz; R_L = 8Ω Vs = 9V		0.3		%
Gv	Closed Loop Voltage Gain	f = 1KHz;		39		dB
R_{in}	Input Resistance	f = 1KHz;	100			KΩ
e_N	Total Input Noise	Rs = 10KΩ; B = Curve A Rs = 10KΩ; B = 22Hz to 22KHz		2 3		μV μV
SVR	Supply Voltage Rejection	f = 100Hz; R_g = 10KΩ		45		dB
	MUTE Attenuation	Vo = 1V; f = 100Hz to 10KHz;		70		dB
	MUTE Threshold			0.6		V
IM	MUTE Current	Vs = 15V		0.4		mA

Figure 4. Output Power versus Supply Voltage

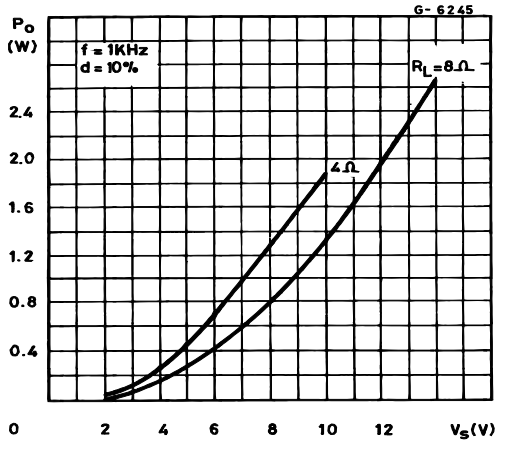


Figure 5. Supply Voltage Rejection versus Frequency

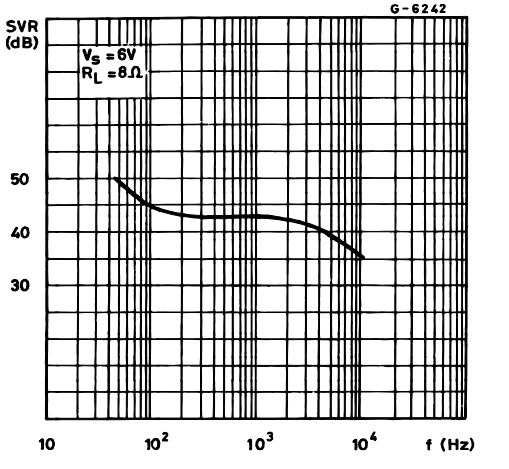


Figure 6. DC Output Voltage versus Supply Voltage

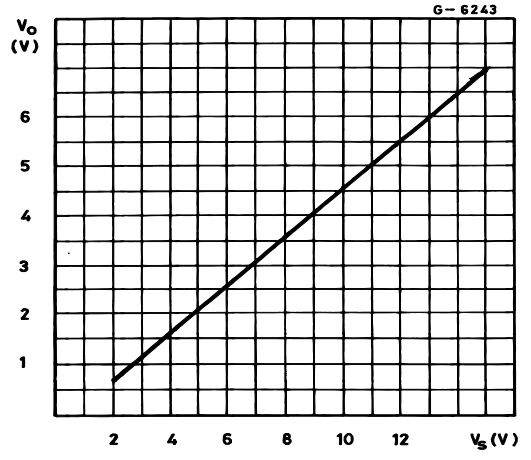


Figure 7. Quiescent Current versus Supply Voltage

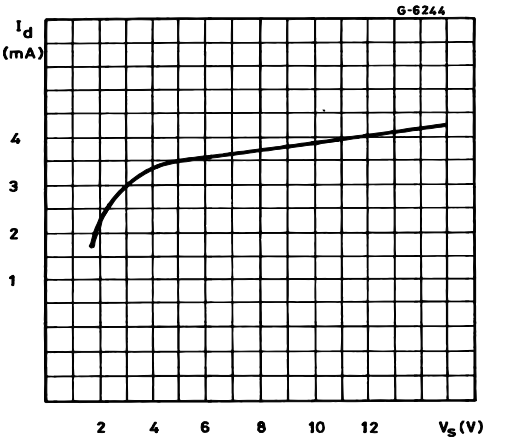
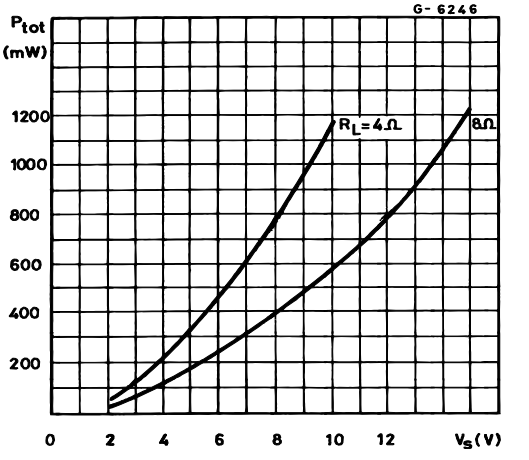


Figure 8. Total Power Dissipated versus Supply Voltage



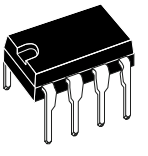
3 PACKAGE MECHANICAL DATA

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: *www.st.com*. ECOPACK® is an ST trademark.

Figure 9. Minidip Mechanical Data & Package Dimensions

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

OUTLINE AND MECHANICAL DATA



Minidip

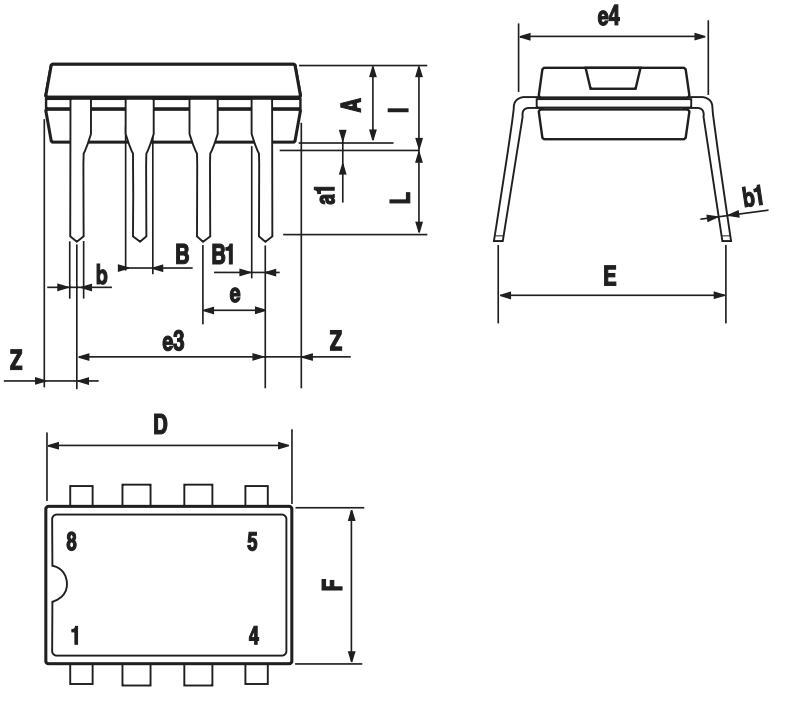
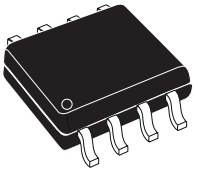


Figure 10. SO8 Mechanical Data & Package Dimensions

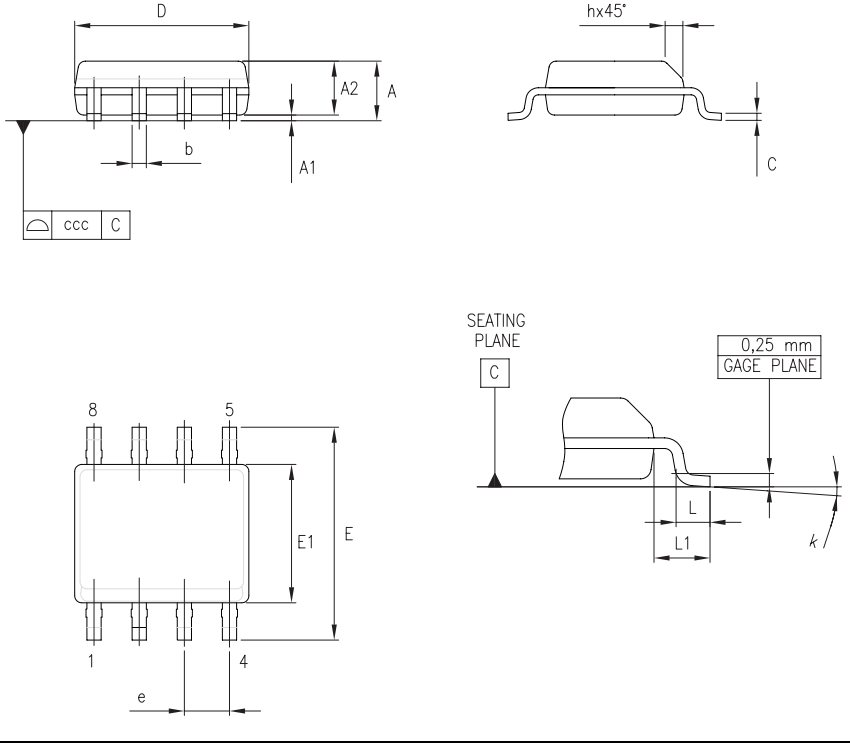
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.750			0.0689
A1	0.100		0.250	0.0039		0.0098
A2	1.250			0.0492		
b	0.280		0.480	0.0110		0.0189
c	0.170		0.230	0.0067		0.0091
D (1)	4.800	4.900	5.000	0.1890	0.1929	0.1969
E	5.800	6.000	6.200	0.2283	0.2362	0.2441
E1(2)	3.800	3.900	4.000	0.1496	0.1535	0.1575
e		1.270			0.0500	
h	0.250		0.500	0.0098		0.0197
L	0.400		1.270	0.0157		0.0500
L1		1.040			0.0409	
k	0°		8°	0°		8°
ccc			0.100			0.0039

Notes: 1. Dimensions D does not include mold flash, protrusions or gate burrs.
Mold flash, potrusions or gate burrs shall not exceed 0.15mm in total (both side).
2. Dimension “E1” does not include interlead flash or protrusions. Interlead flash or protrusions shall not exceed 0.25mm per side.

OUTLINE AND MECHANICAL DATA



SO-8



4 REVISION HISTORY

Table 5. Revision History

Date	Revision	Description of Changes
September 2003	3	No recorded changes
03-May-2010	4	Updated title and added environmental compliance statement for package

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