

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



Table 1. Order Codes

Part Number	Package
TDA7233	Minidip
TDA7233D	SO8

Figure 2. Pin Connection

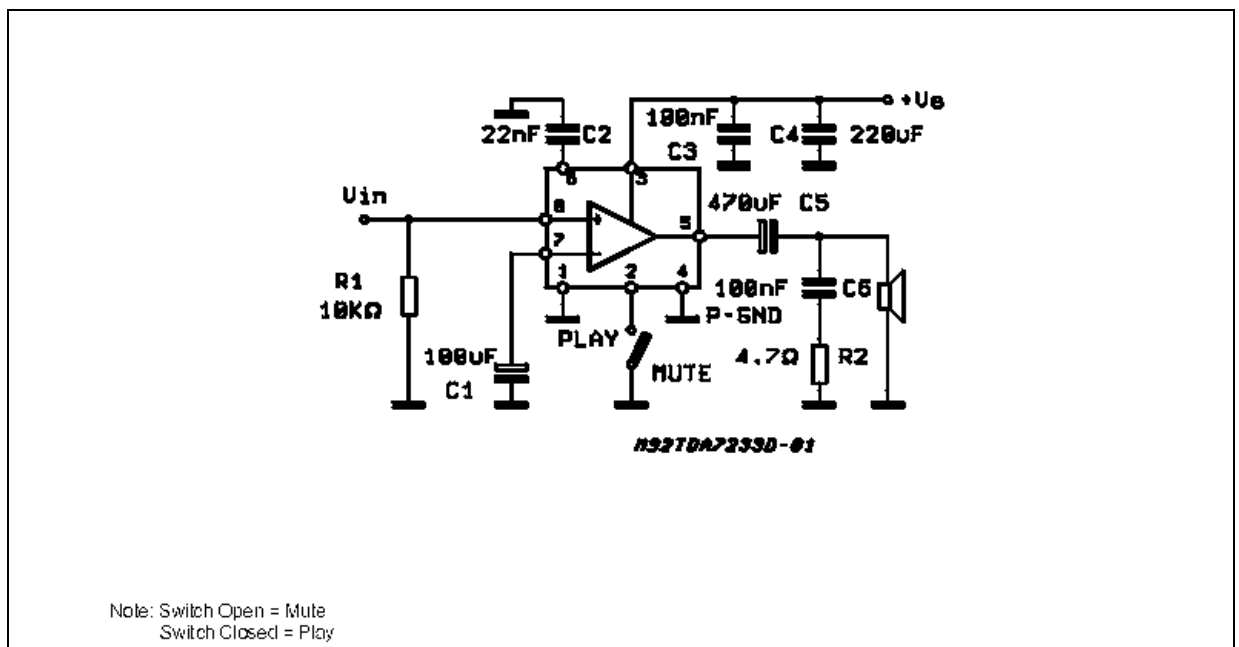


Table 2. Absolute Maximum Ratings

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)

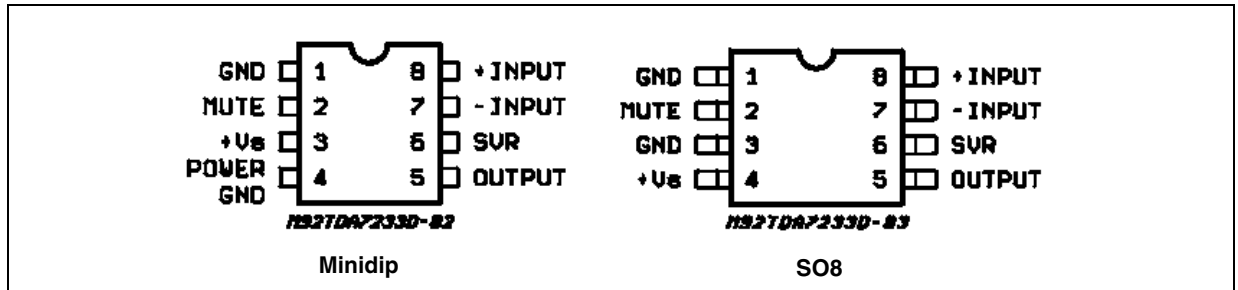


Table 3. Thermal Data

Symbol	Parameter		SO8	Minidip	Unit
R _{th j-amb}	Thermal Resistance Junction-ambient	Max.	200	100	°C/W

Table 4. Electrical Characteristics (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	V _S = 3 V V _S = 9 V		2.7 1.2 4.2		V
I _d	Quiescent Drain Current	MUTE HIGH MUTE LOW		3.6 0.4	9	mA
I _b	Input Bias Current			100		nA
P _O	Output Power	d = 10%; f = 1kHz V _S = 12V; R _L = 8Ω V _S = 9V; R _L = 4Ω V _S = 9V; R _L = 8Ω V _S = 6V; R _L = 8Ω V _S = 6V; R _L = 4Ω V _S = 3V; R _L = 4Ω V _S = 3V; R _L = 8Ω		1.9 1.6 1 0.4 0.7 110 70		W W W W W mW mW
d	Distortion	P _O = 0.5W; f = 1KHz; R _L = 8Ω V _S = 9V		0.3		%
G _v	Closed Loop Voltage Gain	f = 1KHz;		39		dB
R _{in}	Input Resistance	f = 1KHz;	100			KΩ
e _N	Total Input Noise	R _S = 10KΩ; B = Curve A R _S = 10KΩ; B = 22Hz to 22KHz		2 3		μV μV
SVR	Supply Voltage Rejection	f = 100Hz; R _G = 10KΩ		45		dB
	MUTE Attenuation	V _O = 1V; f = 100Hz to 10KHz;		70		dB
	MUTE Threshold			0.6		V
I _M	MUTE Current	V _S = 15V		0.4		mA

Figure 4. Output Power versus Supply Voltage

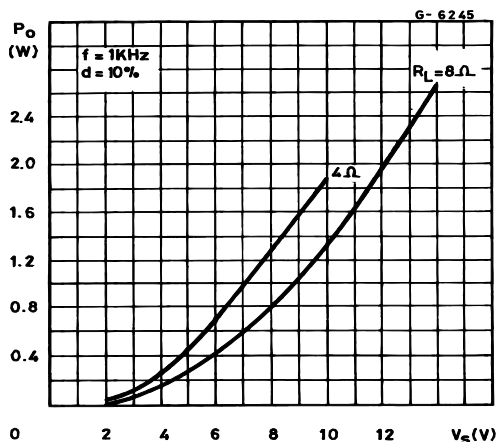


Figure 7. Quiescent Current versus Supply Voltage

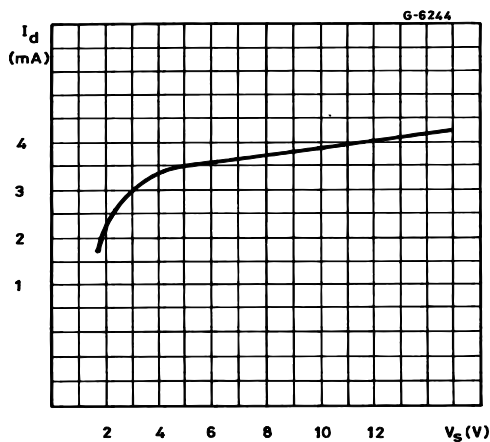


Figure 5. Supply Voltage Rejection versus Frequency

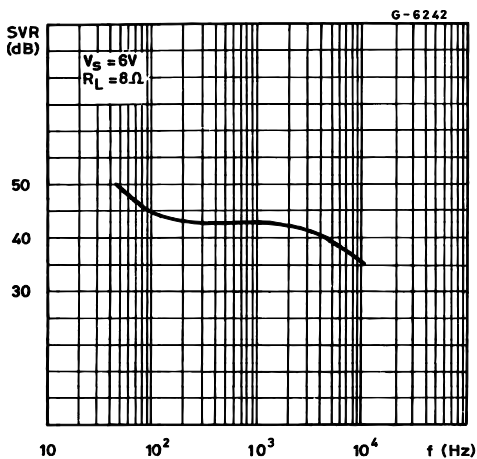


Figure 8. Total Power Dissipated versus Supply Voltage

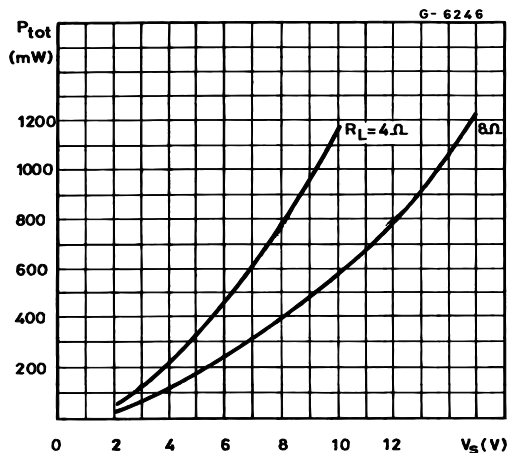
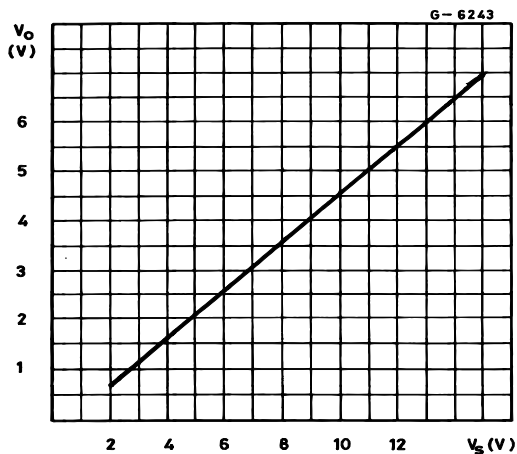


Figure 6. DC Output Voltage versus Supply Voltage



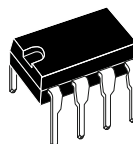
3 PACKAGE MECHANICAL DATA

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

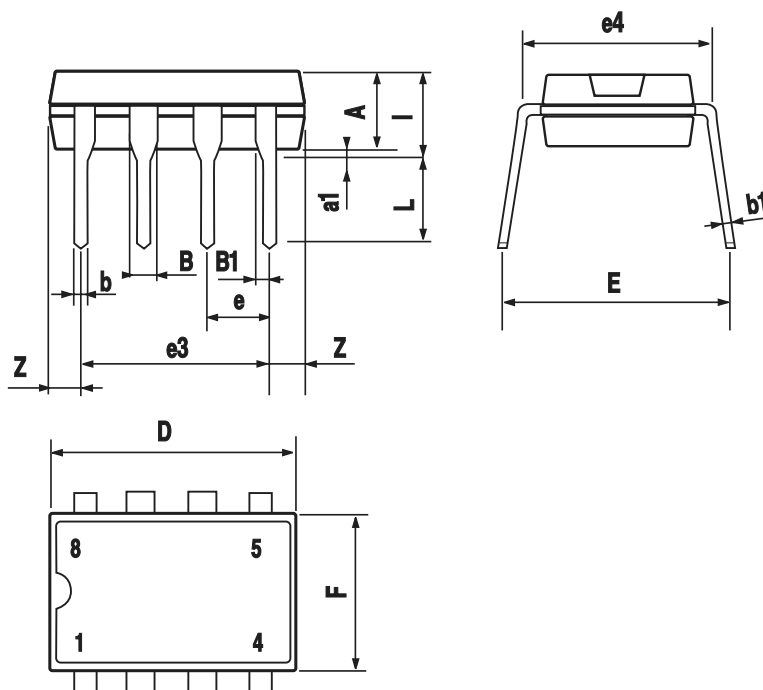
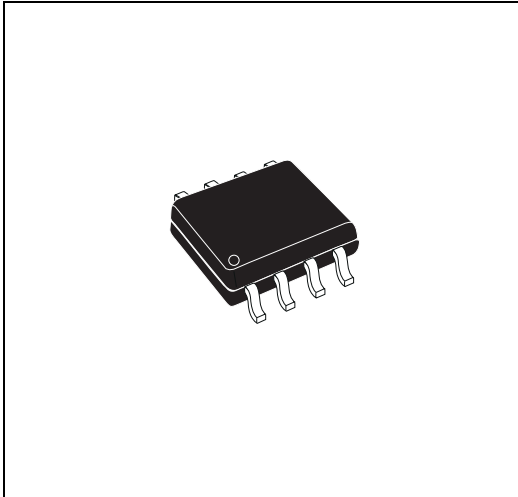


Figure 10. SO8 Mechanical Data & Package Dimensions

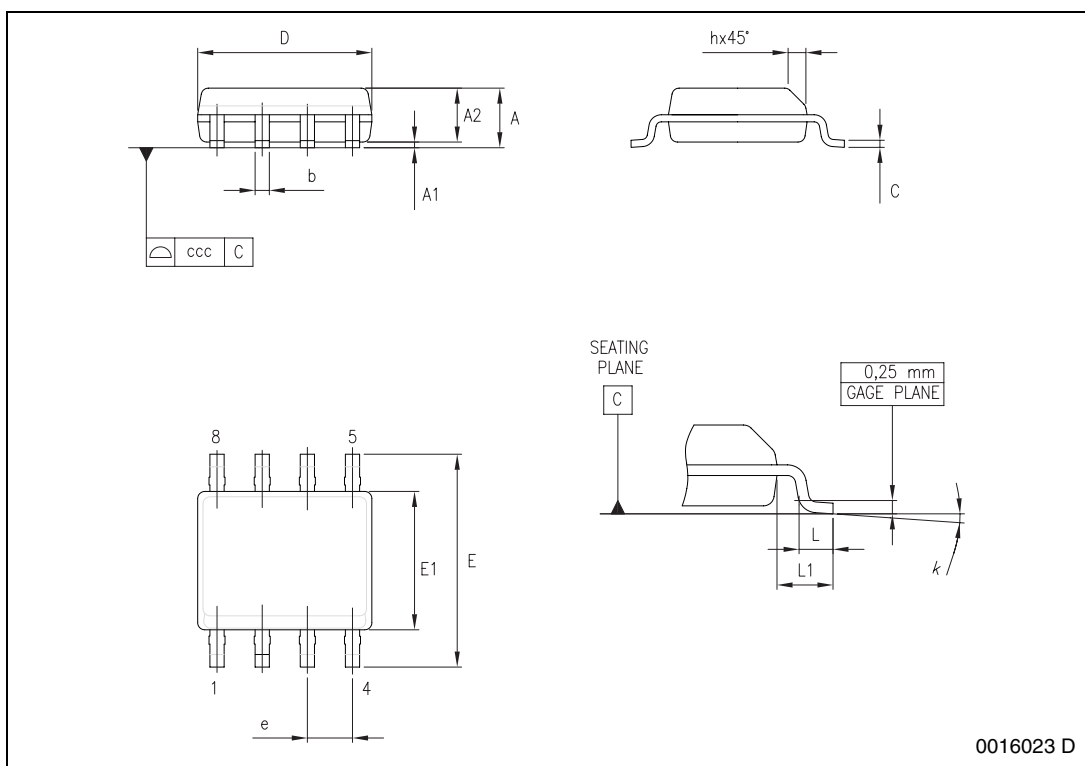
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.750			0.0689
A1	0.100		0.250	0.0039		0.0098
A2	1.250			0.0492		
b	0.280		0.480	0.0110		0.0189
c	0.170		0.230	0.0067		0.0091
D (1)	4.800	4.900	5.000	0.1890	0.1929	0.1969
E	5.800	6.000	6.200	0.2283	0.2362	0.2441
E1(2)	3.800	3.900	4.000	0.1496	0.1535	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, protrusions 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



0016023 D

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

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2010 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 - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com