



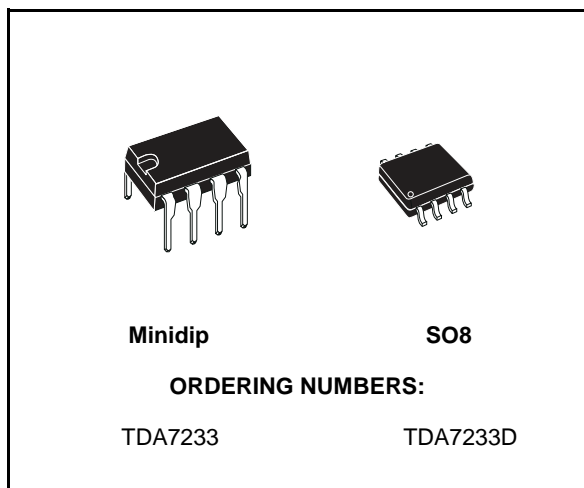
# TDA7233 TDA7233D

## 1W AUDIO AMPLIFIER WITH MUTE

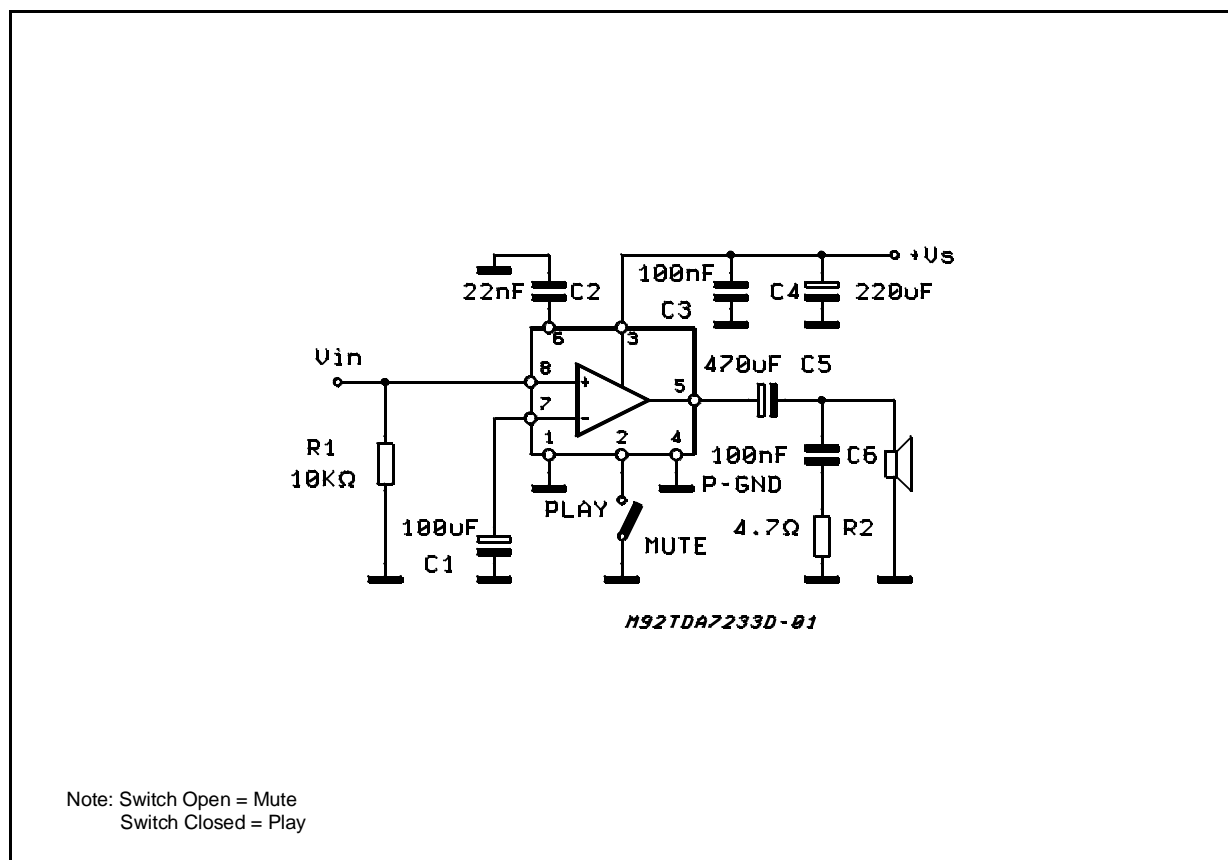
- OPERATING VOLTAGE 1.8 TO 15V
- EXTERNAL MUTE OR POWER DOWN FUNCTION
- IMPROVED SUPPLY VOLTAGE REJECTION
- LOW QUIESCENT CURRENT
- HIGH POWER CAPABILITY
- LOW CROSSOVER DISTORTION

### 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

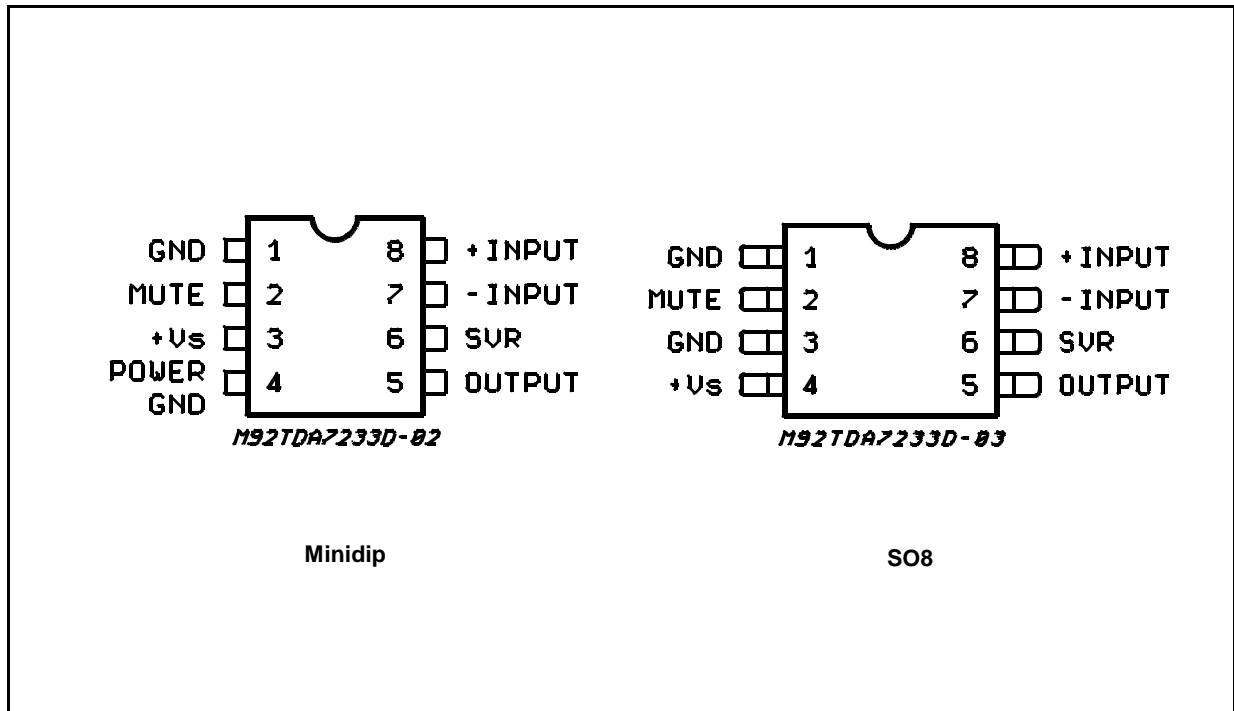


## TDA7233 - TDA7233D

### 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	Max.	SO8	Minidip	Unit
$R_{thj-amb}$	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			$\text{K}\Omega$
$e_N$	Total Input Noise ( $R_s = 10\text{ k}\Omega$ )	B = Curve A		2		$\mu\text{V}$
		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	$V_o = 1\text{ V}$ $f = 100\text{ Hz to } 10\text{ kHz}$		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

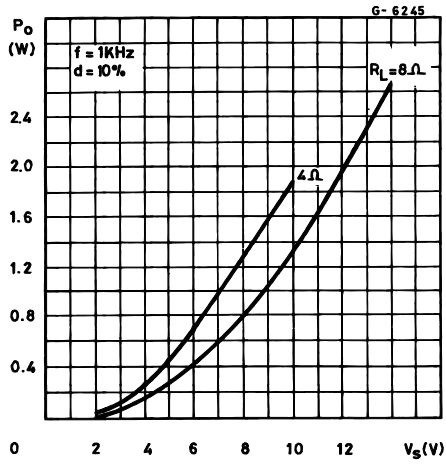


Figure 3: DC Output Voltage vs. Supply Voltage

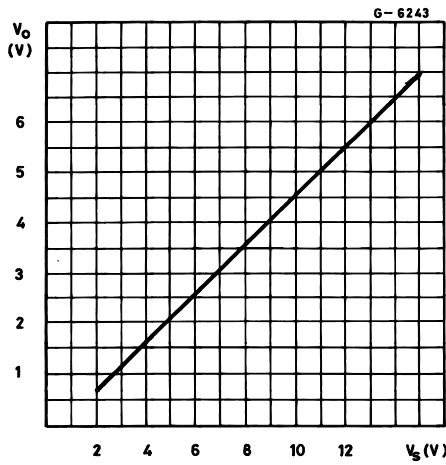


Figure 5: Total Dissipated Power vs. Supply Voltage

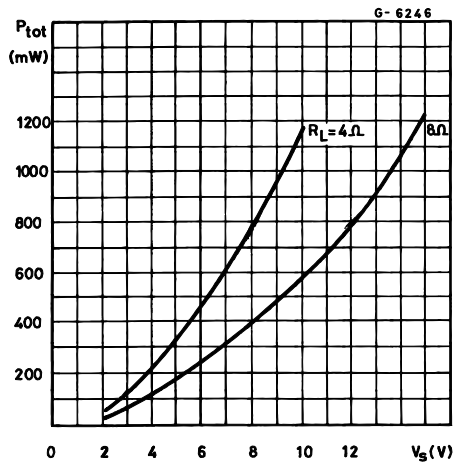


Figure 2: Supply Voltage Rejection vs. Frequency

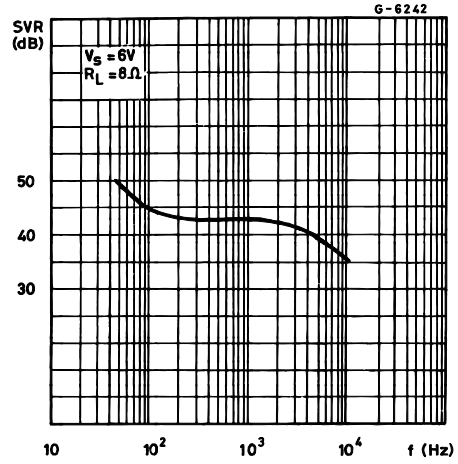
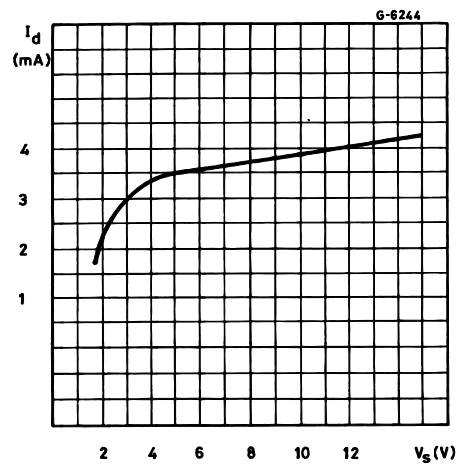
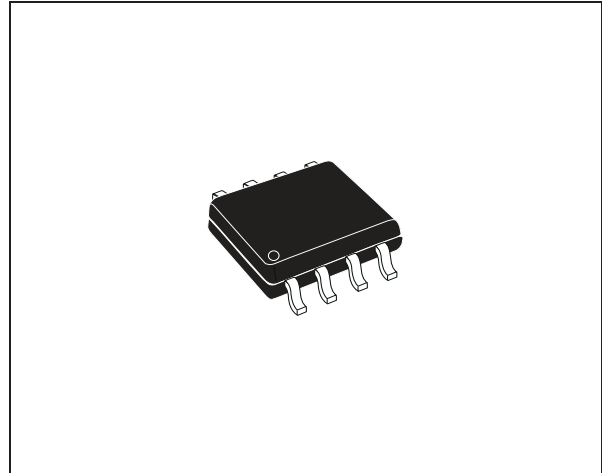


Figure 4: Quiescent Current vs. Supply Voltage



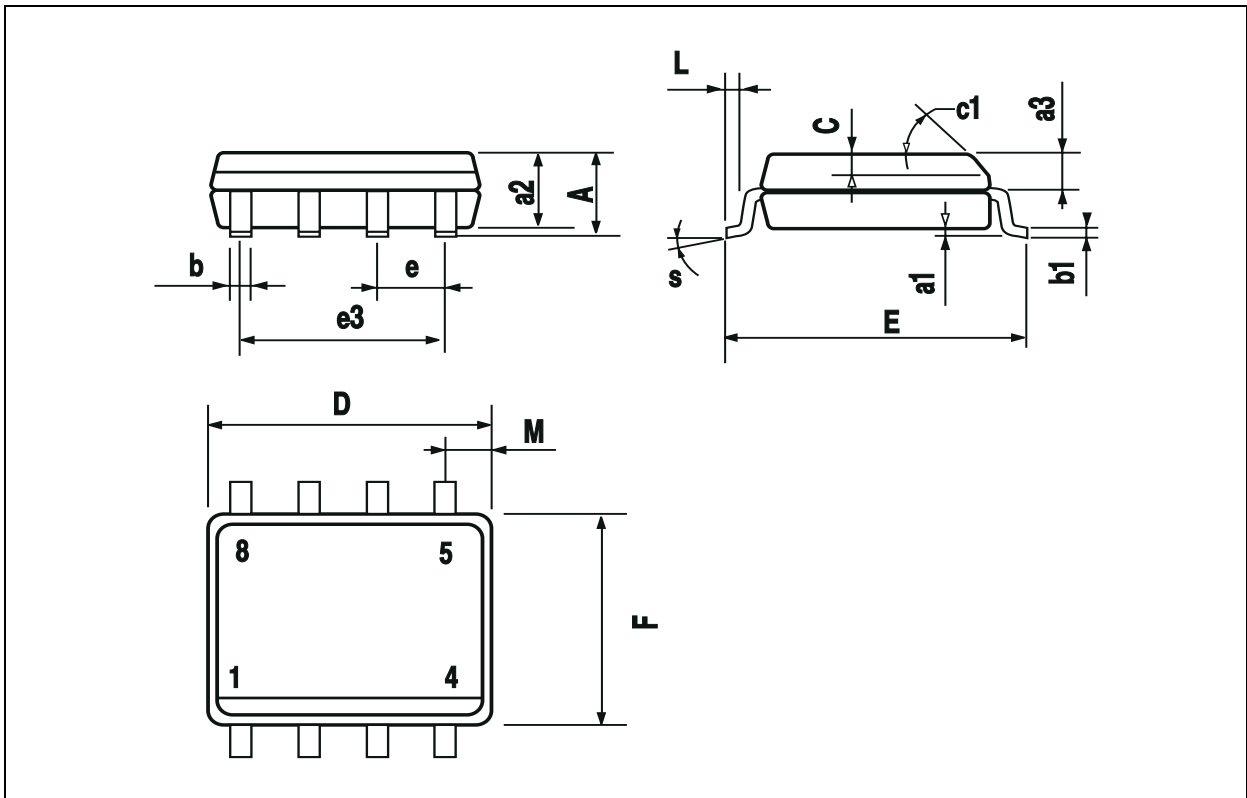
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
a3	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.020
c1	45° (typ.)					
D (1)	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
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**

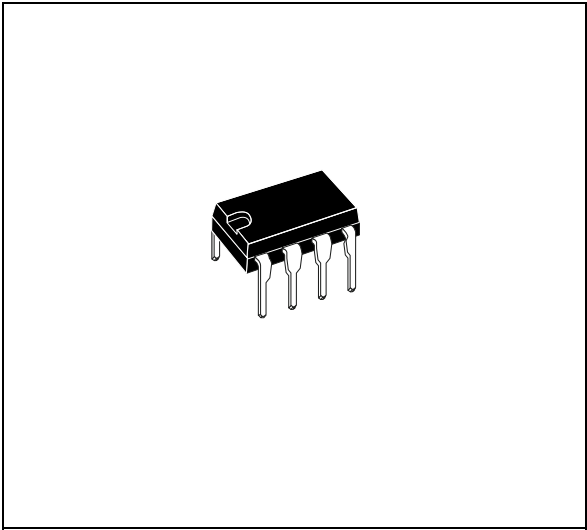
(1) D and F do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.15mm (.006inch).



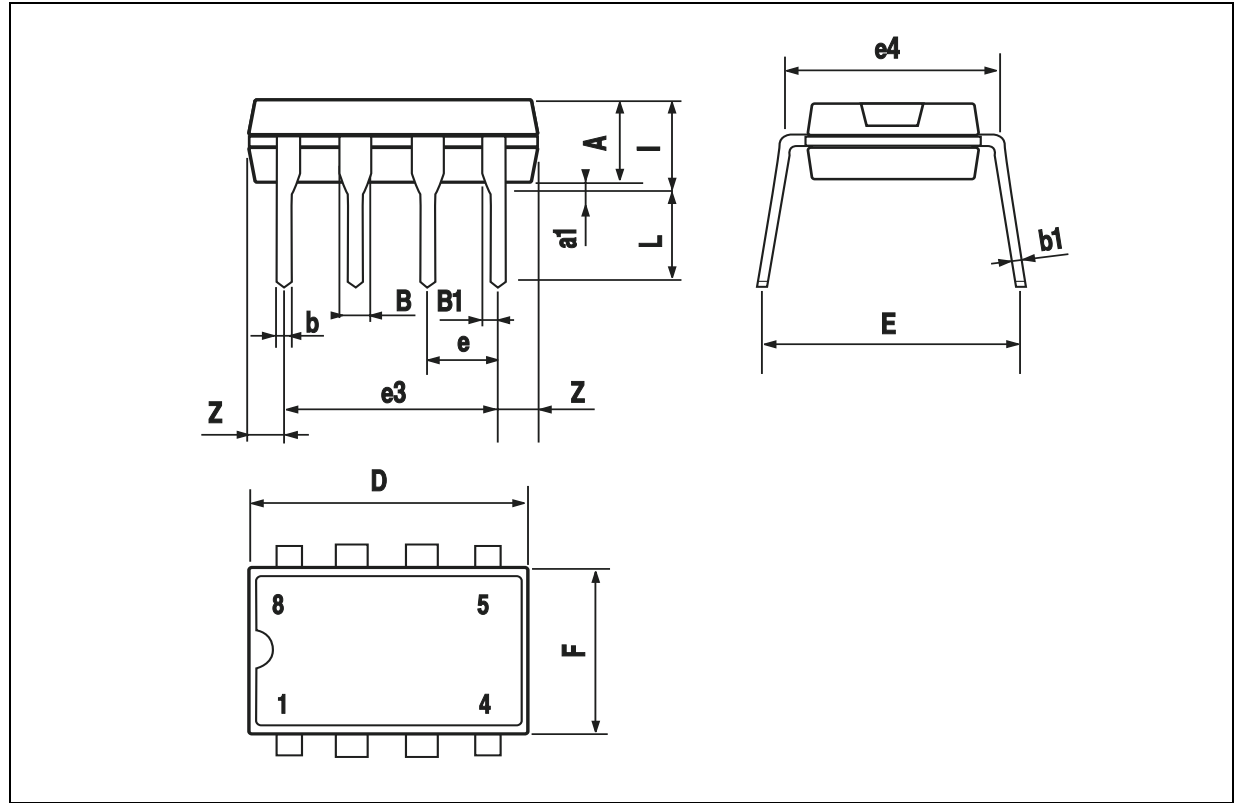
# TDA7233 - TDA7233D

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



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)