



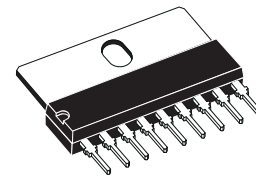
TDA2007A

6 + 6W STEREO AMPLIFIER

- HIGH OUTPUT POWER
- HIGH CURRENT CAPABILITY
- AC SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION

DESCRIPTION

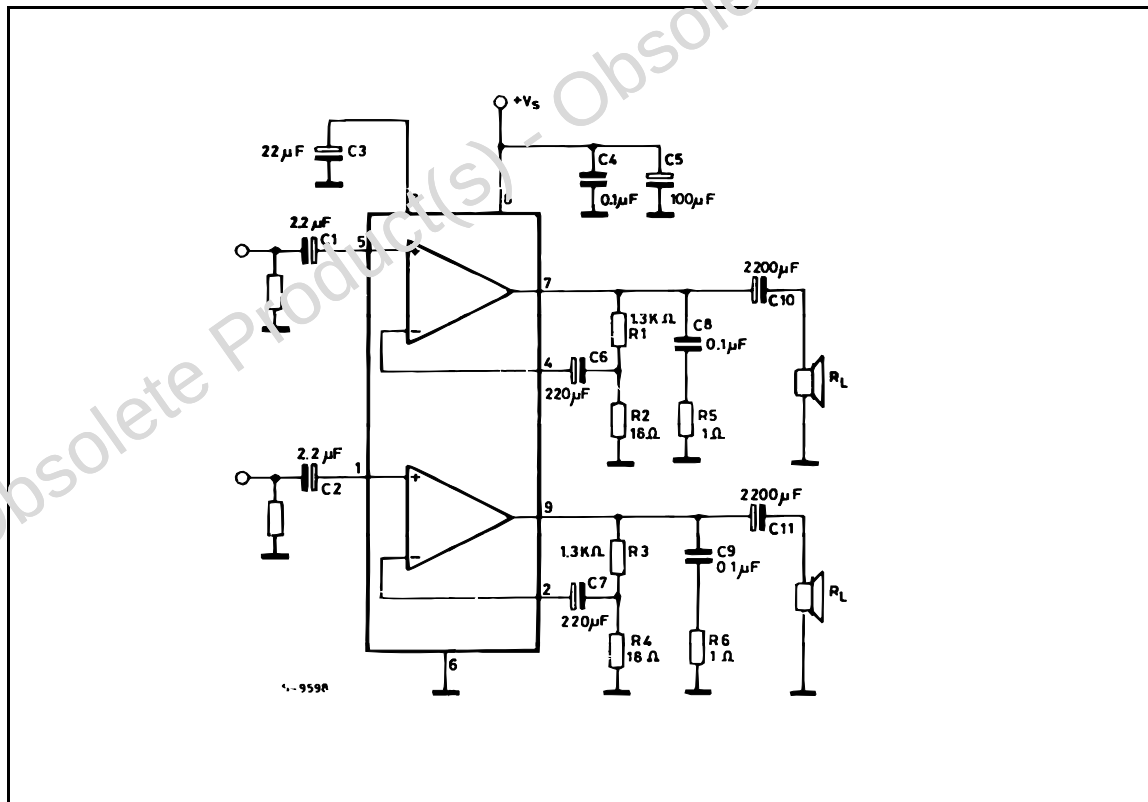
The TDA2007A is a class AB dual Audio power amplifier assembled in single in line 9 pins package, specially designed for stereo application in music centers TV receivers and portable radios.



SIP9

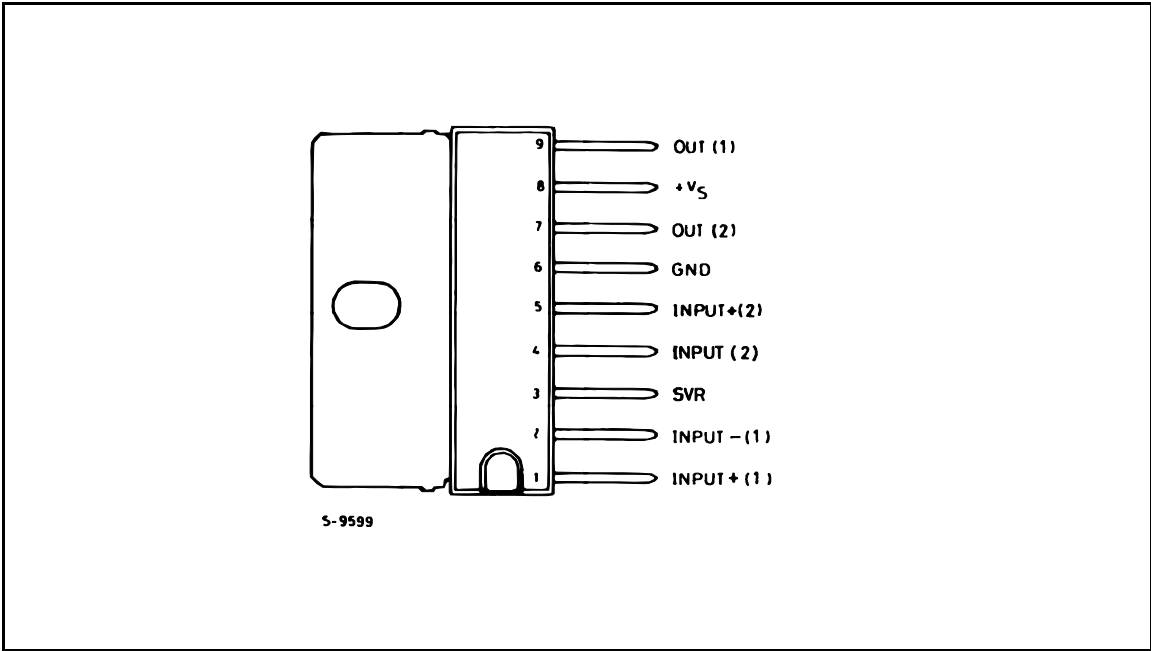
ORDERING NUMBER : TDA2007A

STEREO TEST CIRCUIT

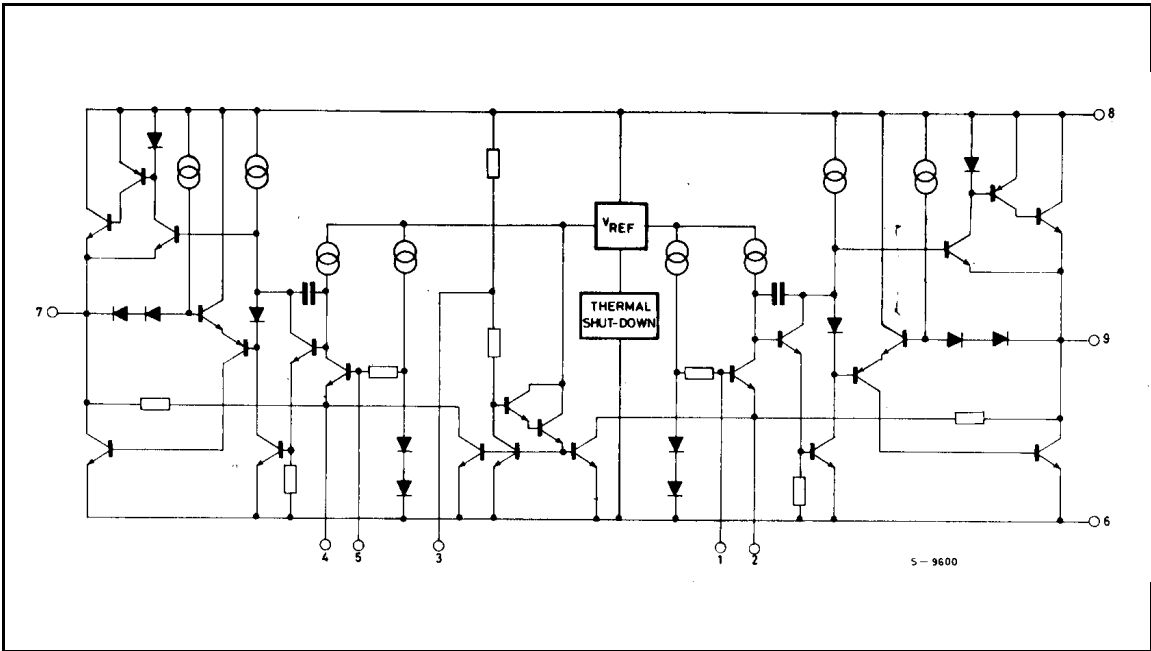


TDA2007A

PIN CONNECTION (top view)



SCHEMATIC DIAGRAM



THERMAL DATA

Symbol	Parameter		Value	Unit
R _{th j-case}	Thermal Resistance Junction-case	Max.	8	°C/W
R _{th j-amb}	Thermal Resistance Junction-ambient	Max.	70	°C/W



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	Supply Voltage	28	V
I_O	Output Peak Current (repetitive $f \geq 20\text{Hz}$)	3	A
I_O	Output Peak Current (non repetitive $t = 100\mu\text{s}$)	3.5	A
P_{tot}	Power Dissipation at $T_{\text{case}} = 70^\circ\text{C}$	10	W
T_{stg}, T_j	Storage and Junction Temperature	-40 to 150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (refer to the stereo application circuit, $T_{\text{amb}} = 25^\circ\text{C}$, $V_S = 18\text{V}$, $G_V = 36\text{dB}$, unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_S	Supply Voltage		8		26	V
V_O	Quiescent Output Voltage			8.5		V
I_d	Total Quiescent Drain Current			50	90	mA
P_O	Output Power (each channel)	$f = 100\text{Hz}$ to 6KHz $d = 0.5\%$ $V_S = 18\text{V}$ $R_L = 4\Omega$ $V_S = 22\text{V}$ $R_L = 8\Omega$	5.5 5.5	6 6		W W
d	Distortion (each channel)	$f = 1\text{KHz}$, $V_S = 18\text{V}$, $R_L = 4\Omega$ $P_O = 100\text{mW}$ to 3W $f = 1\text{KHz}$, $V_S = 22\text{V}$, $R_L = 8\Omega$ $P_O = 100\text{mW}$ to 3W		0.1 0.05		% %
CT	Cross Talk ($^{\circ\circ}$)	$R_L = \infty$, $R_g = 10\text{K}\Omega$ $f = 1\text{KHz}$ $f = 10\text{KHz}$	50 40	60 50		dB dB
V_i	Input Saturation Voltage (rms)		300			mV
R_i	Input Resistance	$f = 1\text{KHz}$	70	200		$\text{K}\Omega$
f_L	Low Frequency Roll Off (-3dB)	$R_L = 4\Omega$, $C_{10} = C_{11} = 2200\mu\text{F}$		40		Hz
f_H	Low Frequency Roll Off (-3dB)			80		KHz
G_V	Voltage Gain (closed loop)	$f = 1\text{KHz}$	35.5	36	36.5	dB
ΔG_V	Closed Loop Gain Matching			0.5		dB
e_N	Total Input Noise Voltage	$R_g = 10\text{k}\Omega$ ($^{\circ}$) $R_g = 10\text{k}\Omega$ ($^{\circ\circ}$)		1.5 2.5		μV μV
SVR	Supply Voltage Rejection (each channel)	$R_g = 10\text{K}\Omega$ $f_{\text{ripple}} = 100\text{Hz}$, $V_{\text{ripple}} = 0.5\text{V}$		55		dB
T_j	Thermal Shut-down Junction Temperature			145		$^\circ\text{C}$

($^{\circ}$) Curve A. ($^{\circ\circ}$) 22Hz to 22KHz.

TDA2007A

Figure 1 : Stereo Test Circuit ($G_v = 36 \text{ dB}$).

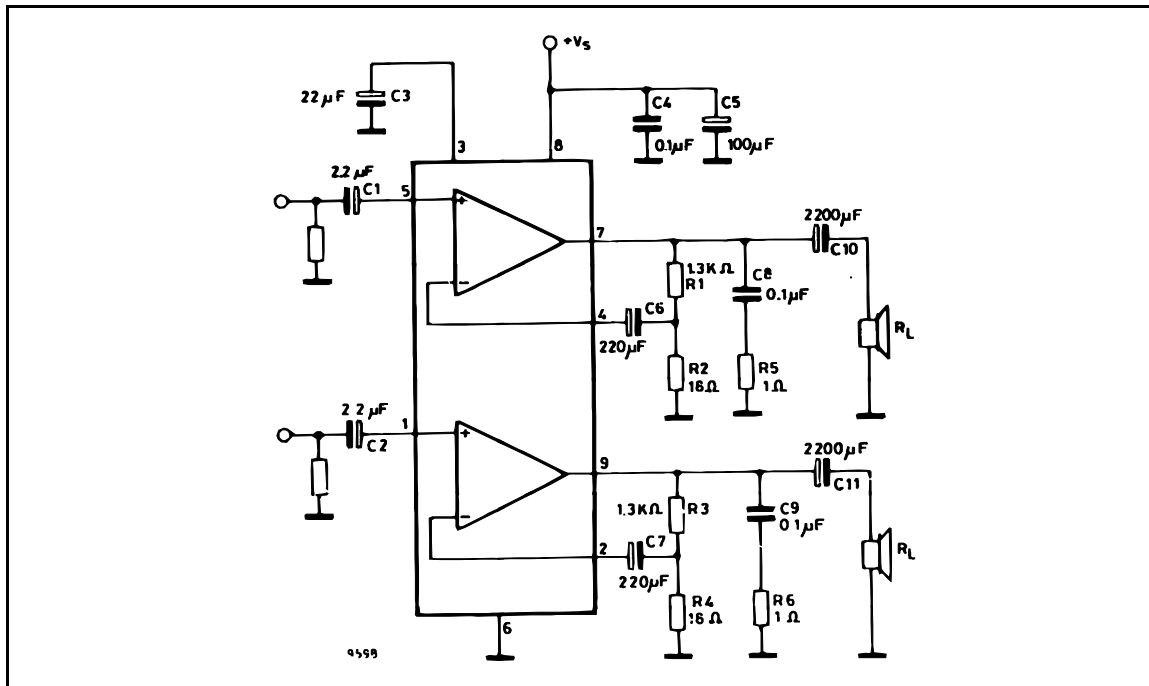
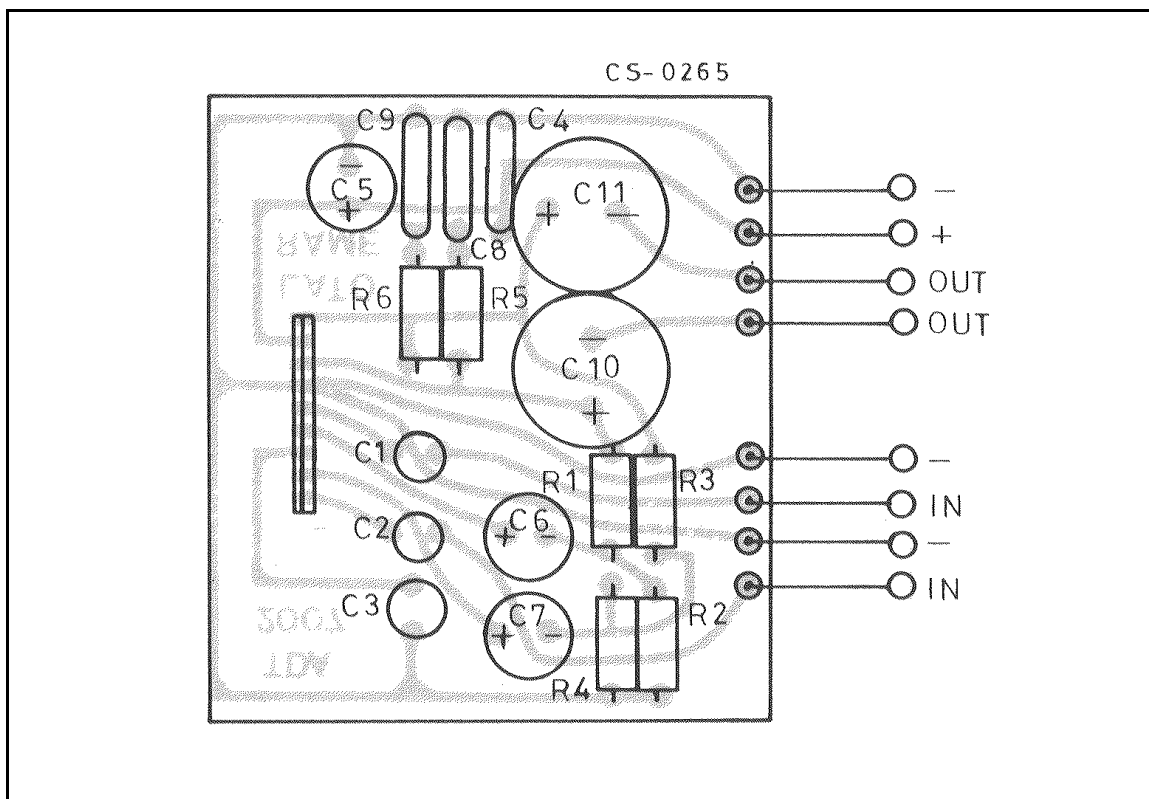


Figure 2 : P.C. Board and Components layout of the Circuit of Fig.1 (1 : 1 scale).



APPLICATION SUGGESTION

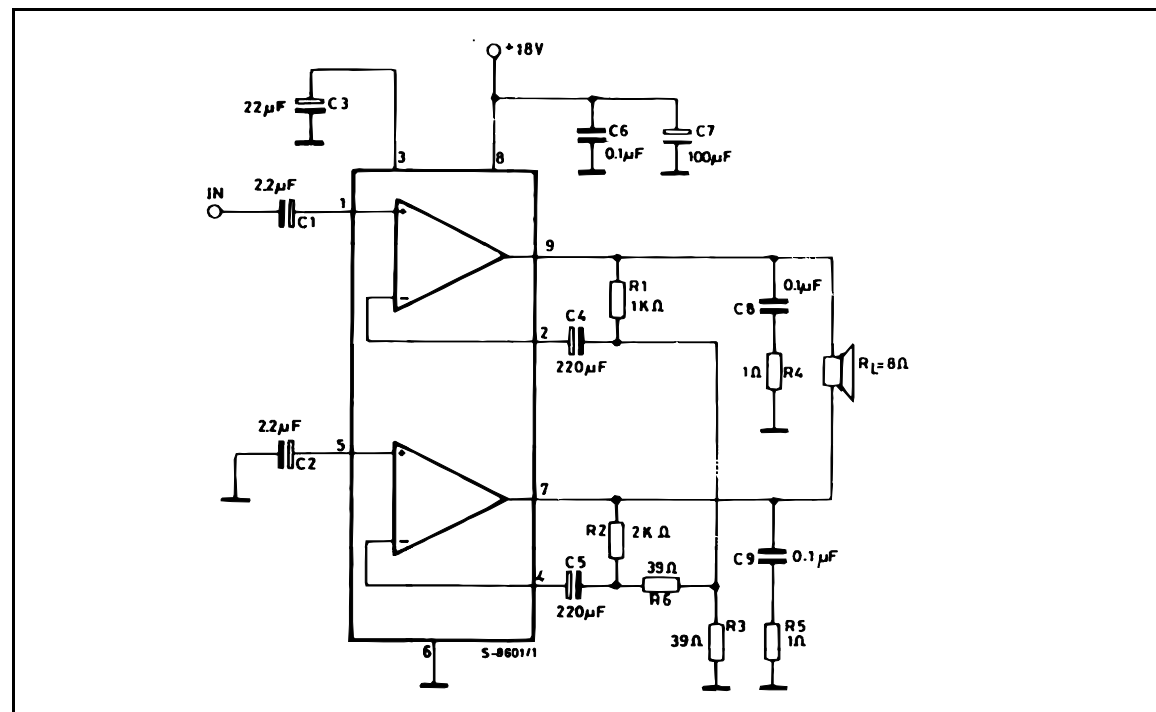
The recommended values of the components are those shown on application circuit of fig.1. Different values can be used ; the following table can help the designer.

Component	Recommended value	Purpose	Larger Than	Smaller Than
R1, R3	1.3K Ω	Close Loop Gain Setting (*)	Increase of Gain	Decrease of Gain
R2 and R4	18 Ω		Decrease of Gain	Increase of gain
R5 and R6	1 Ω	Frequency stability	Danger of Oscillation at High Frequency with Inductive Load	
C1 and C2	2.2 μ F	Input DC Decoupling	High Turn-on Delay	High Turn-on Pop Higher Low Frequency Cutoff. Increase of Noise
C3	22 μ F	Ripple Rejection	Better SVR Increase of the Switch-on Time	Degradation of SVR
C6 and C7	220 μ F	Feedback Input DC Decoupling		
C8 and C9	0.1 μ F	Frequency Stability		Danger of Oscillation
C10 and C11	1000 μ F to 2200 μ F	Output DC Decoupling		Higher Low-frequency Cut-off

(*) The closed loop gain must be higher than 26 dB.

APPLICATION INFORMATION

Figure 3 : 12 W Bridge Amplifier ($d = 0.5\%$, $G_v = 40$ dB).

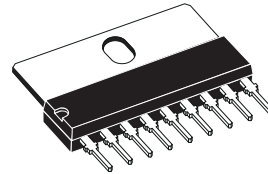


TDA2007A

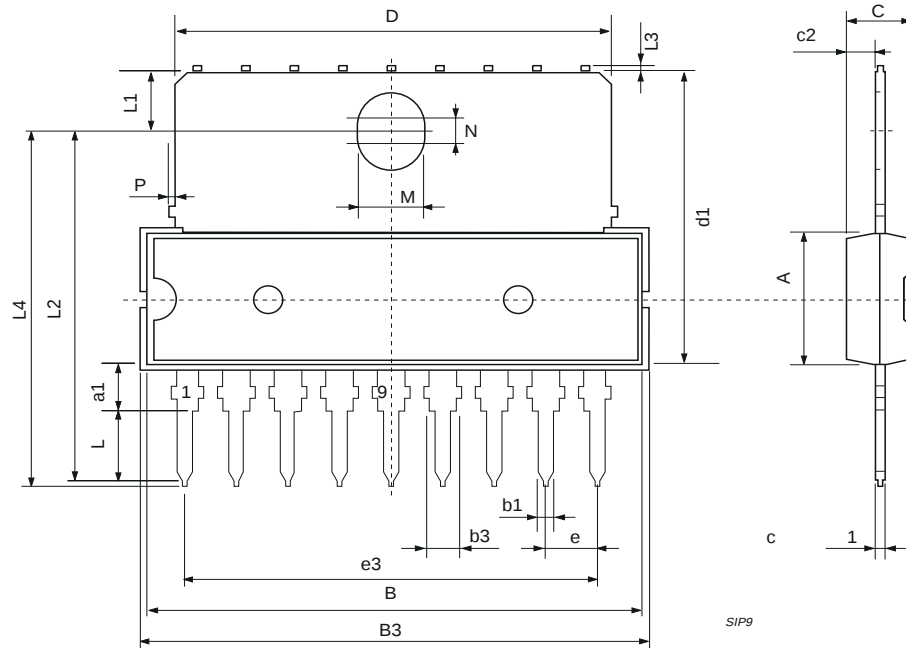
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			7.1			0.280
a1	2.7		3	0.106		0.118
B			23			0.90
B3			24.8			0.976
b1		0.5			0.020	
b3	0.85		1.6	0.033		0.063
C		3.3			0.130	
c1		0.43			0.017	
c2		1.32			0.052	
D			21.2			0.835
d1		14.5			0.571	
e		2.54			0.100	
e3		20.32			0.800	
L	3.1			0.122		
L1		3			0.118	
L2		17.6			0.693	
L3			0.25			0.010
L4	17.4		17.85	0.685		0.702
M		3.2			0.126	
N		1			0.039	
P			0.15			0.006

OUTLINE AND MECHANICAL DATA

Weight: 1.87gr



SIP9



0016107 D

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

