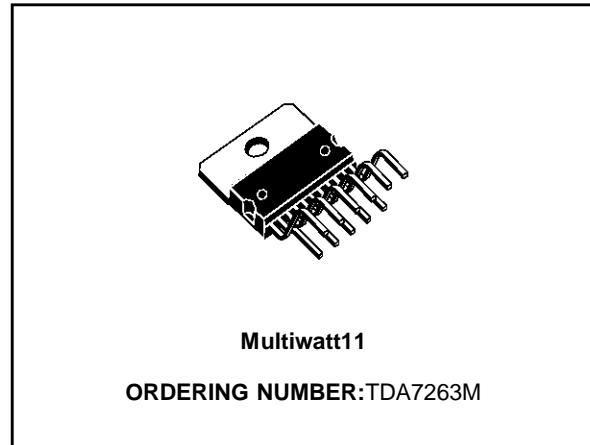


**12 +12W STEREO AMPLIFIER WITH MUTING**

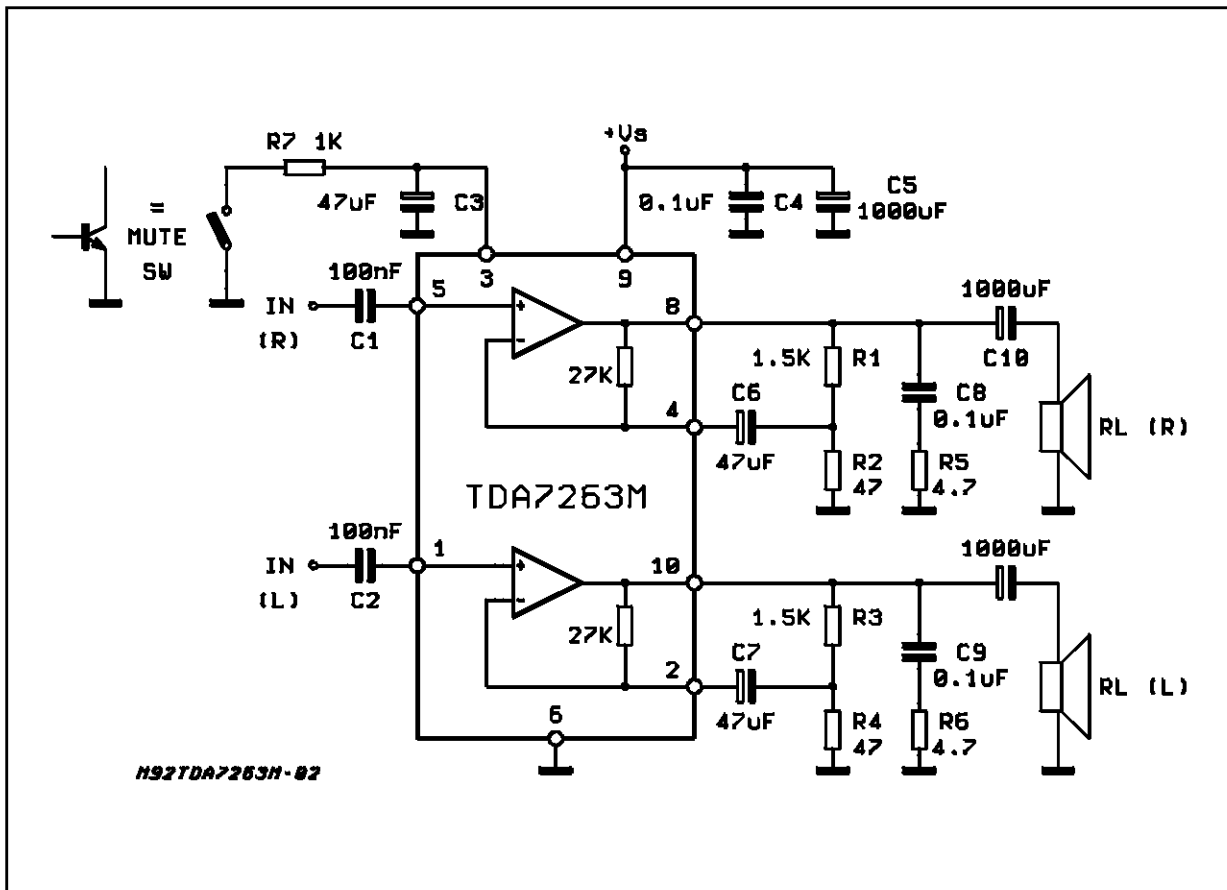
- WIDE SUPPLY VOLTAGE RANGE
- HIGH OUTPUT POWER  
12+12W @  $V_S=28V$ ,  $R_L = 8\Omega$ , THD=10%
- MUTE FACILITY (POP FREE) WITH LOW CONSUMPTION
- AC SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION



**DESCRIPTION**

The TDA7263M is class AB dual audio power amplifier assembled in the Multiwatt package, specially designed for high quality sound application as HI-FI music centers and stereo TV sets.

**APPLICATION CIRCUIT**



# TDA7263M

## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_S$	Supply Voltage	35	V
$I_O$	Output Peak Current (repetitive $f > 20\text{Hz}$ )	2.5	A
$I_O$	Output Peak Current (non repetitive, $t = 100\mu\text{s}$ )	3.5	A
$P_{tot}$	Total Power Dissipation ( $T_{case} = 70^\circ\text{C}$ )	30	W
$T_{op}$	Operating Temperature Range	0 to 70	$^\circ\text{C}$
$T_{stg,Tj}$	Storage & Junction Temperature	-40 to 150	$^\circ\text{C}$

## PIN CONNECTION (Top view)

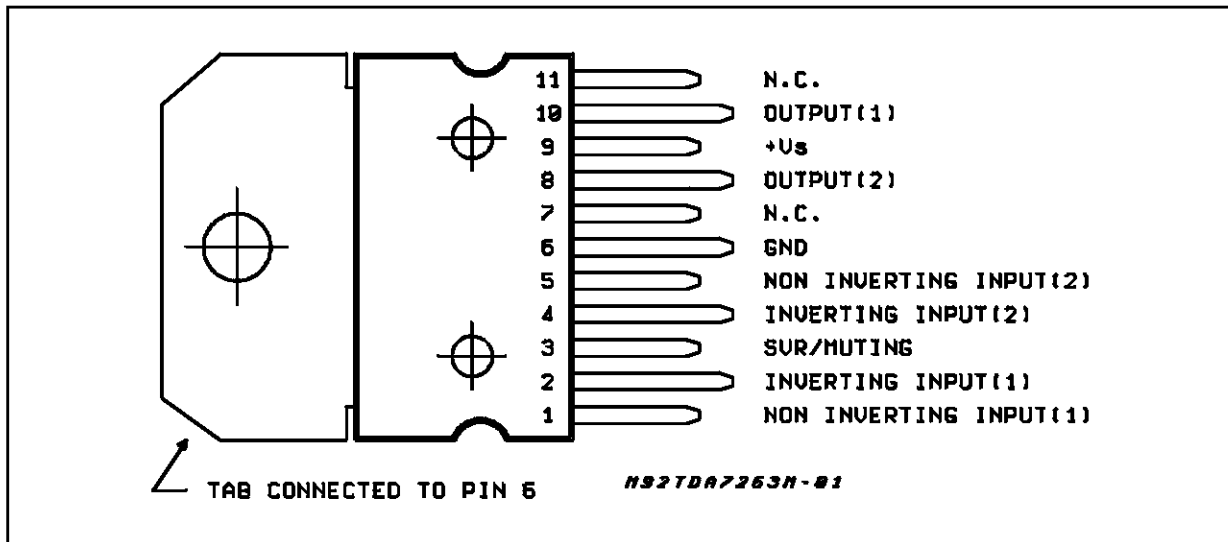
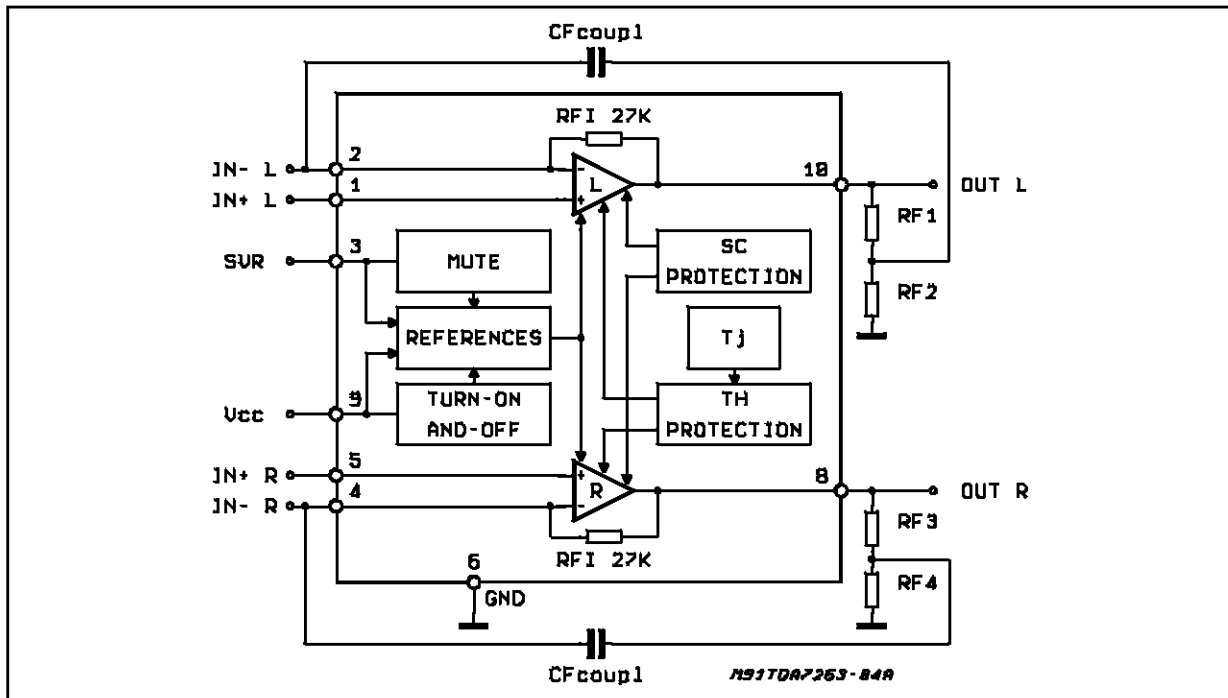


Figure 1: Block Diagram



**THERMAL DATA**

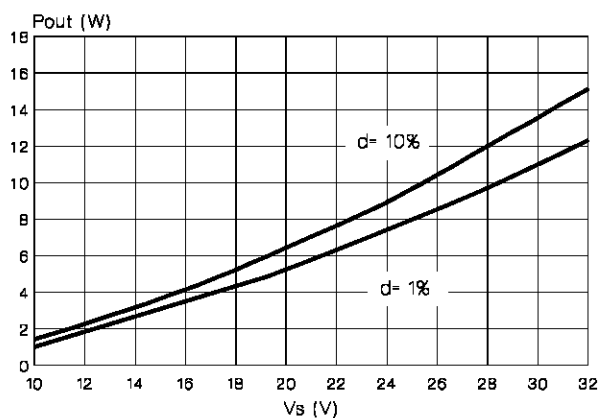
Symbol	Parameter	Value	Unit
R <sub>th j-case</sub>	Thermal resistance junction to case	Max 2.5	°C/W

**ELECTRICAL CHARACTERISTICS** (Refer to the stereo test and application circuit, V<sub>S</sub> = 28V; R<sub>L</sub> = 8Ω; G<sub>v</sub> = 30dB; f = 1KHz; T<sub>amb</sub> = 25°C unless otherwise specified.)

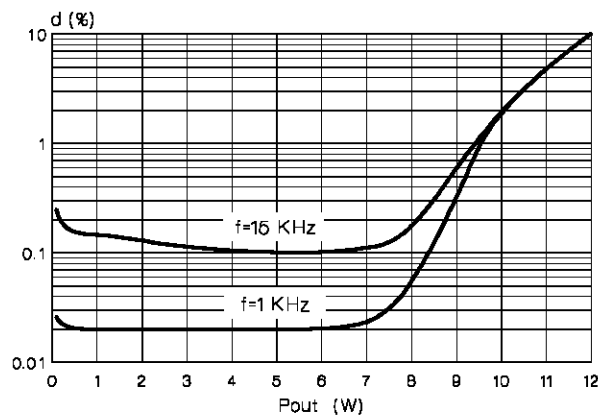
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V <sub>S</sub>	Supply Voltage		10		32	V
V <sub>O</sub>	Quiescent Output Voltage			13.5		V
I <sub>q</sub>	Total Quiescent Current			70	95	mA
P <sub>O</sub>	Output Power (RMS)	d = 10% T <sub>amb</sub> = 85°C d = 1%	10	12 9.5		W W
d	Total Harmonic Distortion	P <sub>O</sub> = 1W, f = 1kHz f = 100Hz to 10KHz; P <sub>O</sub> = 0.1 to 8W		0.02	0.2 0.5	%
CT	Cross Talk	R <sub>S</sub> = 10KΩ; f = 1KHz		70		dB
		R <sub>S</sub> = 10KΩ; f = 10KHz		60		dB
R <sub>I</sub>	Input Resistance		100	200		KΩ
f <sub>L</sub>	Low Frequency Roll-off (-3dB)			40		Hz
f <sub>H</sub>	High Frequency Roll-off (-3dB)			80		KHz
e <sub>N</sub>	Total Input Noise Voltage	A Curve; R <sub>S</sub> = 10KΩ		1.5		mV
		f = 22Hz to 22KHz; R <sub>S</sub> = 10KΩ		3	10	μV
SVR	Supply Voltage Rejection (each channel)	R <sub>S</sub> = 10KΩ; f = 100Hz; V <sub>r</sub> = 0.5V	45	60		dB
T <sub>j</sub>	Thermal Shutdown Junction Temperature			145		°C
<b>MUTE FUNCTION</b>						
V <sub>T MUTE</sub>	Mute Threshold		1	1.6		V
V <sub>T PLAY</sub>	Play Threshold			4.5		V
ATT <sub>AM</sub>	Mute Attenuation		70	100		dB
I <sub>q MUTE</sub>	Quiescent Current @ Mute			7	10	mA

**TYPICAL CHARACTERISTICS** (referred to the typical Application Circuit, V<sub>S</sub> = 28V, R<sub>L</sub> = 8Ω, unless otherwise specified)

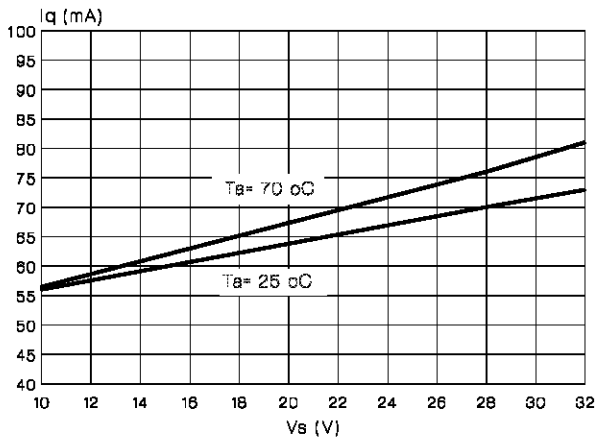
**Figure 1: Output Power vs. Supply Voltage**



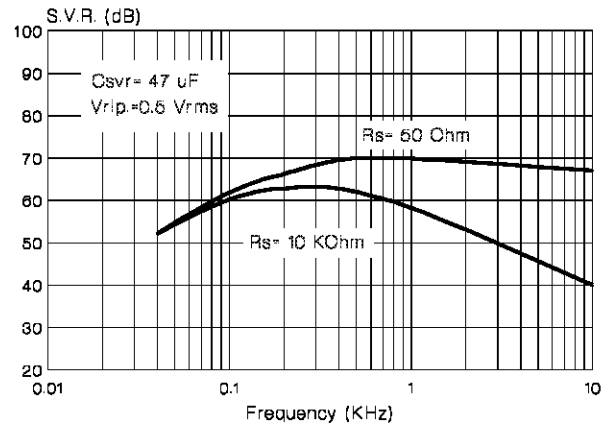
**Figure 2: Distortion vs. Output Power**



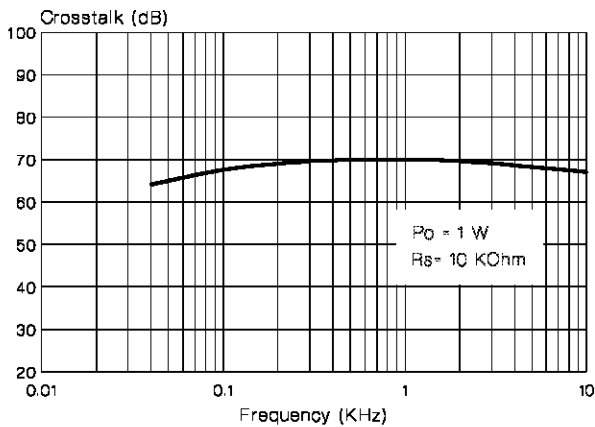
**Figure 3: Quiescent Current vs. Supply Voltage**



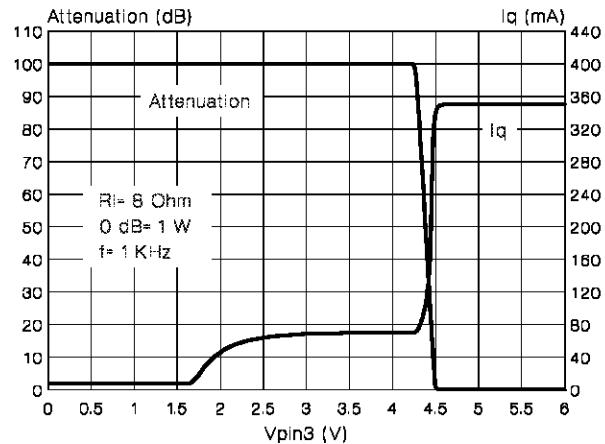
**Figure 4: Supply Voltage Rejection vs. Frequency**



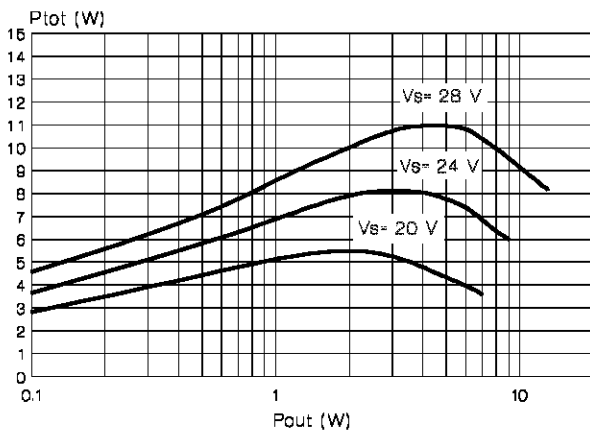
**Figure 5: Crosstalk vs. Frequency**



**Figure 6: Output Attenuation & Quiescent Current vs.  $V_{pin3}$**



**Figure 7: Total Power Dissipation vs. Output Power**



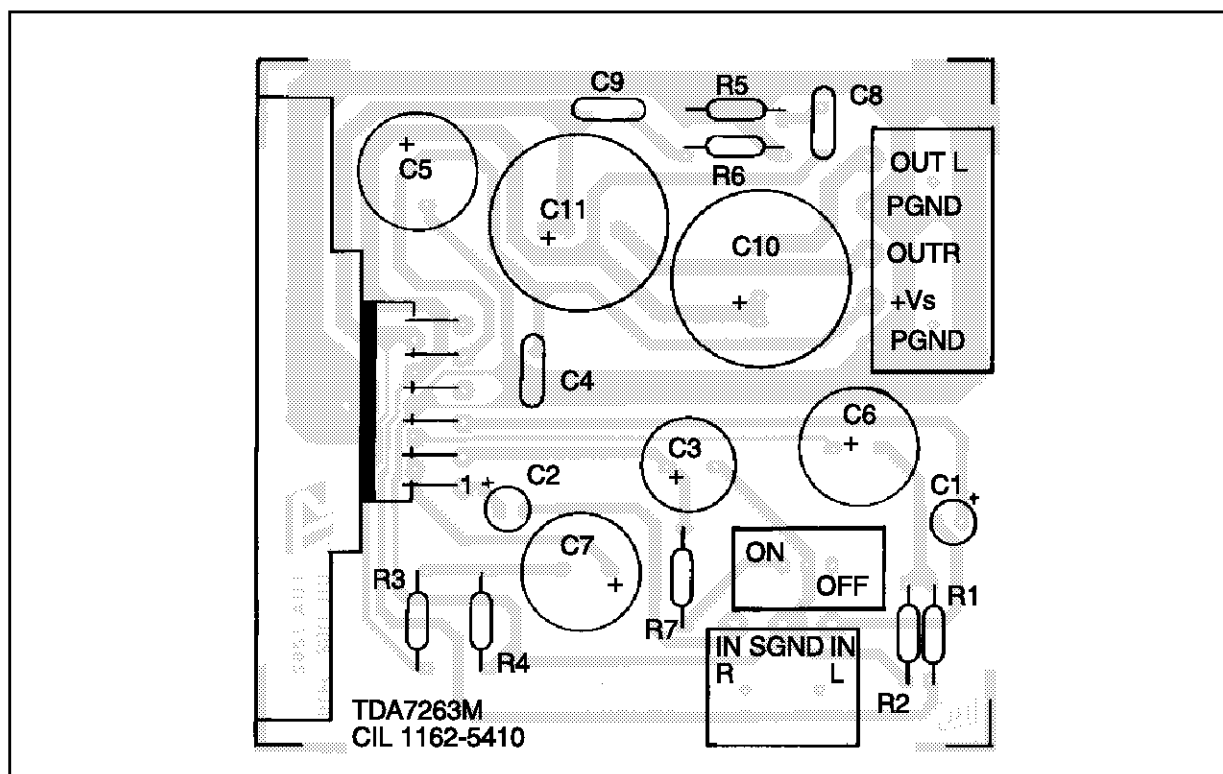
## APPLICATION SUGGESTION

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

Component	Recomm. Value	Purpose	Larger Than	Smaller Than
R1 and R3	1.5K $\Omega$	Close loop gain setting (*)	Increase of gain	Decrease of gain
R2 and R4	47 $\Omega$	Close loop gain setting (*)	Decrease of gain	Increase of gain
R5 and R6	4.7 $\Omega$	Frequency stability	Danger of oscillations	
C1 and C2	100nF	Input DC decoupling	Higher SVR	Higher low frequency cutoff
C3	47 $\mu$ F	- Ripple Rejection - Mute time constant	Increase of the Switch-on time	- Degradation of SVR - Worse turn-off pop by muting
C4	100nF	Supply Voltage Bypass		Danger of oscillations
C5	1000 $\mu$ F	Supply Voltage Bypass		
C6 and C7	47 $\mu$ F	Feedback input DC decoupling	Increase of the Switch-on time	Decrease of the Switch-on time
C8 and C9	0.1 $\mu$ F	Frequency stability		Danger of oscillations
C10 and C11	1000 $\mu$ F	Output DC decoupling		Higher low-frequency cut-off

(\*) Closed loop gain must be higher than 26dB

**Figure 8:** P. C. Board and Component Layout of the Application Circuit (1:1 scale).



### BUILT-IN PROTECTION SYSTEMS

#### THERMAL SHUT-DOWN

The presence of a thermal limiting circuit offers the following advantages:

- 1-an overload on the output (even if it is permanent), or an excessive ambient temperature can be easily withstood.
- 2-the heatsink can have a smaller factor of safety compared with that of a conventional

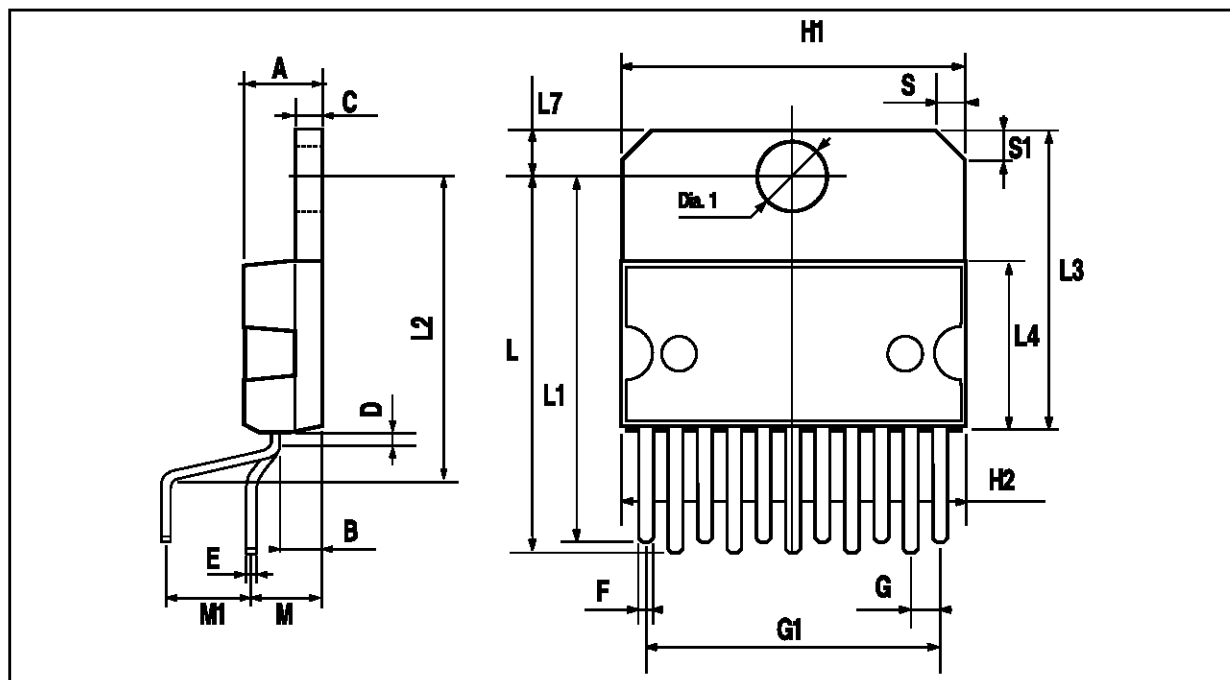
circuit. There is no device damage in the case of excessive junction temperature; all that happens is that  $P_O$  (and therefore  $P_{tot}$ ) and  $I_O$  are reduced.

#### SHORT CIRCUIT (AC CONDITIONS)

The TDA7263M can withstand accidental short circuits across the speaker made by a wrong connection during normal play operation.

MULTIWATT11 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			5			0.197
B			2.65			0.104
C			1.6			0.063
D		1			0.039	
E	0.49		0.55	0.019		0.022
F	0.88		0.95	0.035		0.037
G	1.57	1.7	1.83	0.062	0.067	0.072
G1	16.87	17	17.13	0.664	0.669	0.674
H1	19.6			0.772		
H2			20.2			0.795
L	21.5		22.3	0.846		0.878
L1	21.4		22.2	0.843		0.874
L2	17.4		18.1	0.685		0.713
L3	17.25	17.5	17.75	0.679	0.689	0.699
L4	10.3	10.7	10.9	0.406	0.421	0.429
L7	2.65		2.9	0.104		0.114
M	4.1	4.3	4.5	0.161	0.169	0.177
M1	4.88	5.08	5.3	0.192	0.200	0.209
S	1.9		2.6	0.075		0.102
S1	1.9		2.6	0.075		0.102
Dia1	3.65		3.85	0.144		0.152



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics 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 SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1995 SGS-THOMSON Microelectronics - All Rights Reserved  
MULTIWATT® is a Registered Trademark of SGS-THOMSON Microelectronics

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore -  
Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.