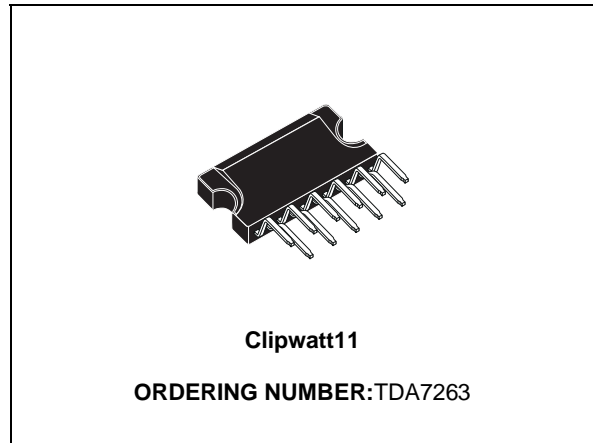


**12 +12W STEREO AMPLIFIER WITH MUTING**

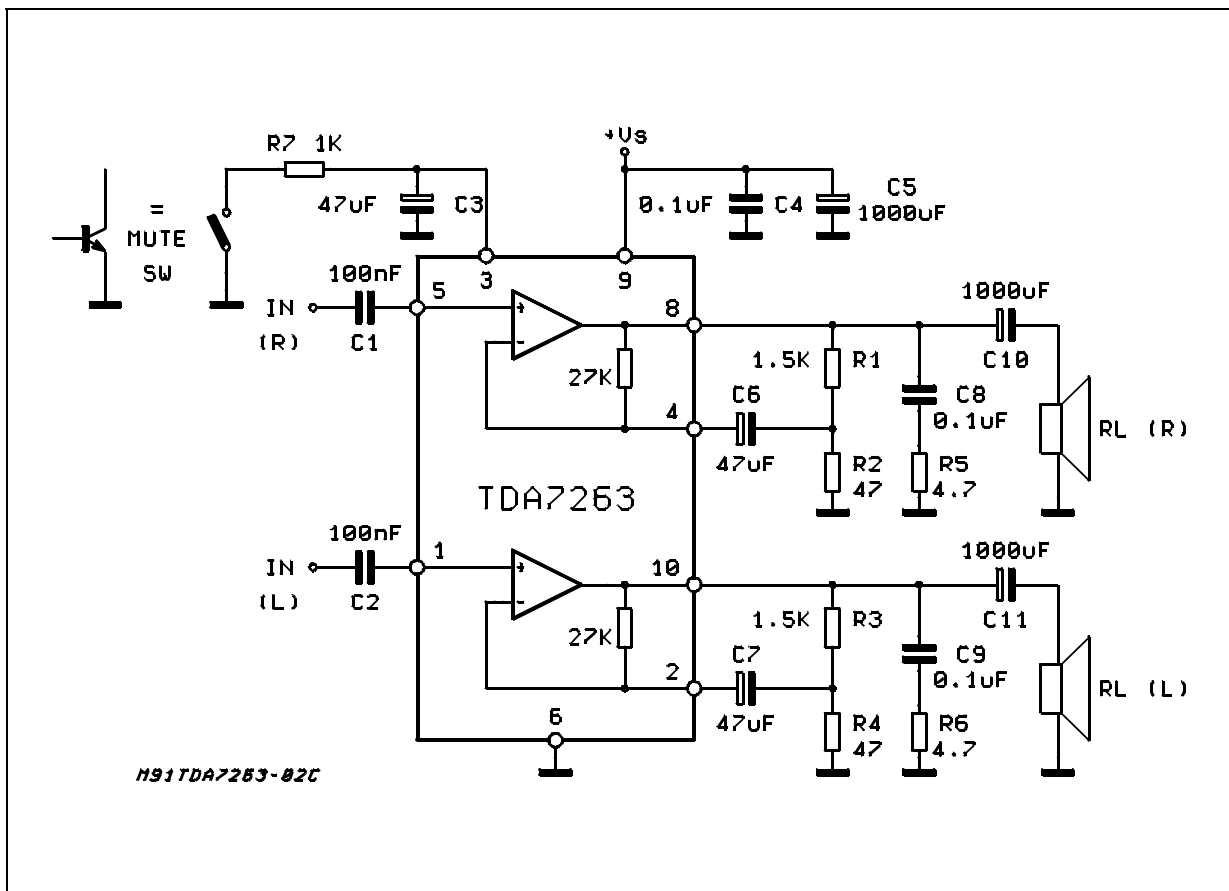
- WIDE SUPPLY VOLTAGE RANGE
- HIGH OUTPUT POWER  
12+12W @  $V_S=28V$ ,  $R_L = 8\Omega$ , THD=10%
- MUTE FACILITY (POP FREE) WITH LOW CONSUMPTION
- AC SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION



**DESCRIPTION**

The TDA7263 is class AB dual audio power amplifier assembled in the new Clipwatt package, specially designed for high quality sound application as HI-FI music centers and stereo TV sets.

**TEST AND APPLICATION CIRCUIT**

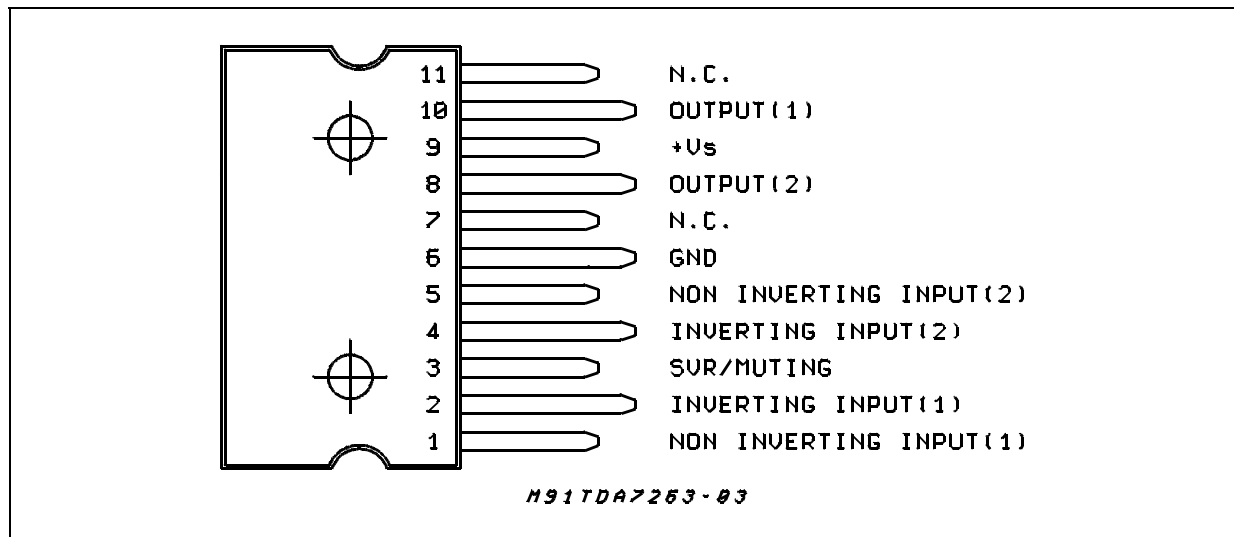


# TDA7263

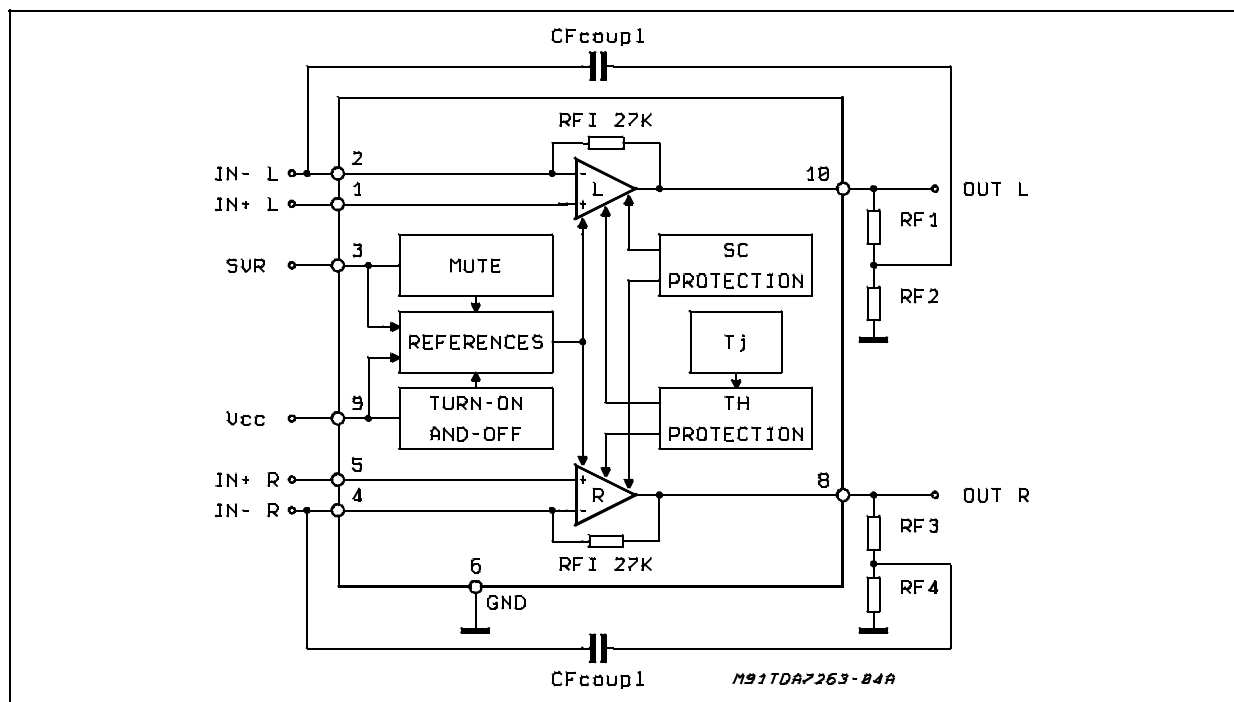
## ABSOLUTE MAXIMUM RATINGS

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 ( $T_{case} = 70^\circ\text{C}$ )	25	W
$T_{op}$	Operating Temperature Range	0 to 70	$^\circ\text{C}$
$T_{stg, T_j}$	Storage & Junction Temperature	-40 to 150	$^\circ\text{C}$

## PIN CONNECTION (Top view)



## BLOCK DIAGRAM



**THERMAL DATA**

Symbol	Parameter	Value	Unit
$R_{th\ j-case}$	Thermal resistance junction to case	Max 3	°C/W

**ELECTRICAL CHARACTERISTICS** (Refer to the stereo test and application circuit,  $V_S = 28V$ ;  $R_L = 8\Omega$ ;  $G_v = 30dB$ ;  $f = 1KHz$ ;  $T_{amb} = 25^\circ C$  unless otherwise specified.)

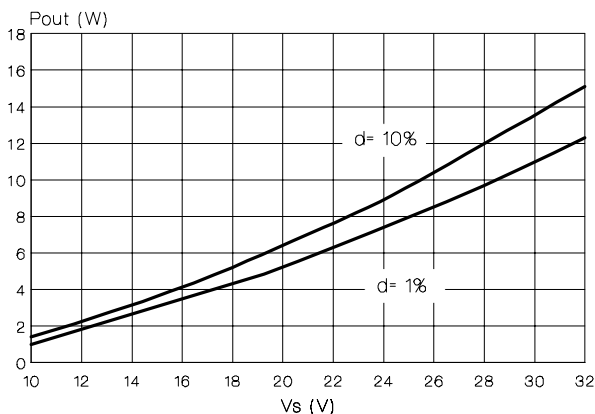
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_S$	Supply Voltage		10		32	V
$V_O$	Quiescent Output Voltage			13.5		V
$I_q$	Total Quiescent Current			70	95	mA
$P_O$	Output Power (RMS)	$d = 10\%$ $T_{amb} = 85^\circ C$ $d = 1\%$	10	12 9.5		W W
$d$	Total Harmonic Distortion	$P_O = 1W$ , $f = 1kHz$ $f = 100Hz$ to $10KHz$ ; $P_O = 0.1$ to $8W$		0.02	0.2 0.5	%
CT	Cross Talk	$R_S = 10K\Omega$ ; $f = 1KHz$		70		dB
		$R_S = 10K\Omega$ ; $f = 10KHz$		60		dB
$R_i$	Input Resistance		100	200		K $\Omega$
$f_L$	Low Frequency Roll-off (-3dB)			40		Hz
$f_H$	High Frequency Roll-off (-3dB)			80		KHz
eN	Total Input Noise Voltage	A Curve; $R_S = 10K\Omega$		1.5		mV
		$f = 22Hz$ to $22KHz$ ; $R_S = 10K\Omega$		3	10	$\mu V$
SVR	Supply Voltage Rejection (each channel)	$R_S = 10K\Omega$ ; $f = 100Hz$ ; $V_r = 0.5V$	45	60		dB
$T_j$	Thermal Shutdown Junction Temperature			145		°C

**MUTE FUNCTION**

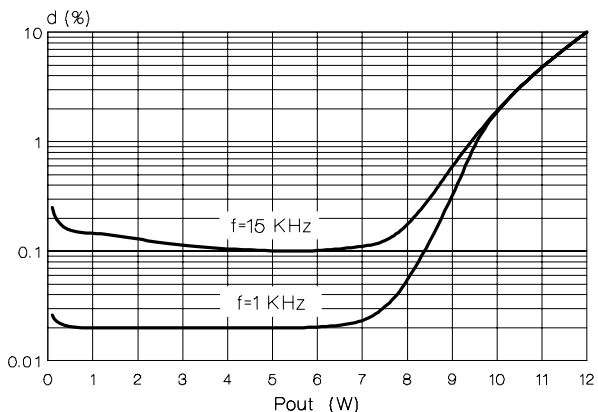
$V_{T\_MUTE}$	Mute Threshold		1	1.6		V
$V_{T\_PLAY}$	Play Threshold			4.5		V
ATT <sub>AM</sub>	Mute Attenuation		70	100		dB
$I_{q\_MUTE}$	Quiescent Current @ Mute			7	10	mA

**TYPICAL CHARACTERISTICS** (referred to the typical Application Circuit,  $V_S = 28V$ ,  $R_L = 8\Omega$ , unless otherwise specified)

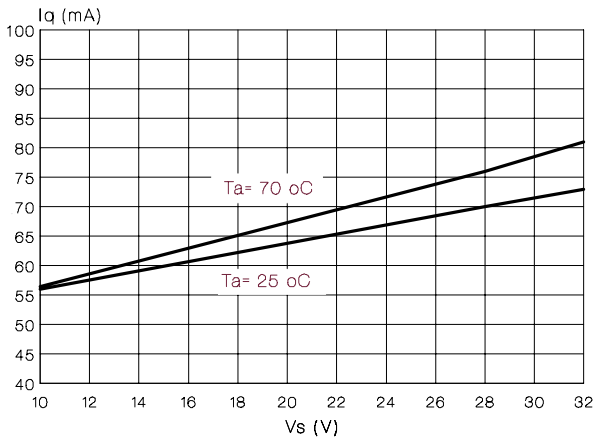
**Figure 1: Output Power vs. Supply Voltage**



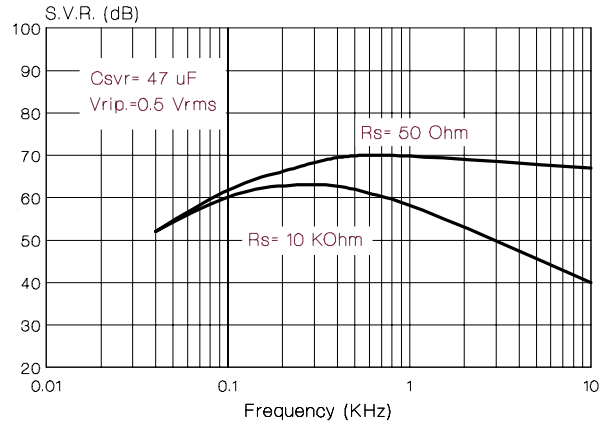
**Figure 2: Distortion vs. Output Power**



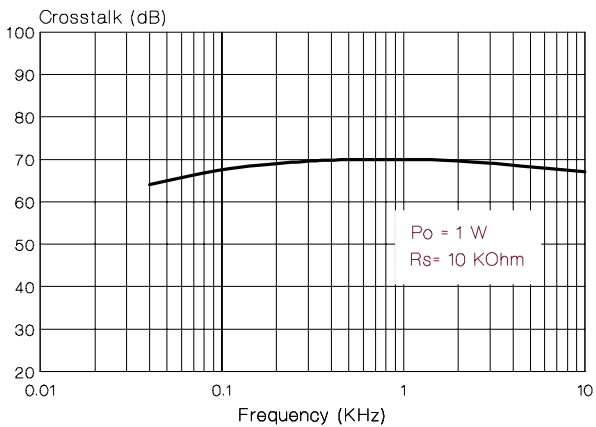
**Figure 3: Quiescent Current vs. Supply Voltage**



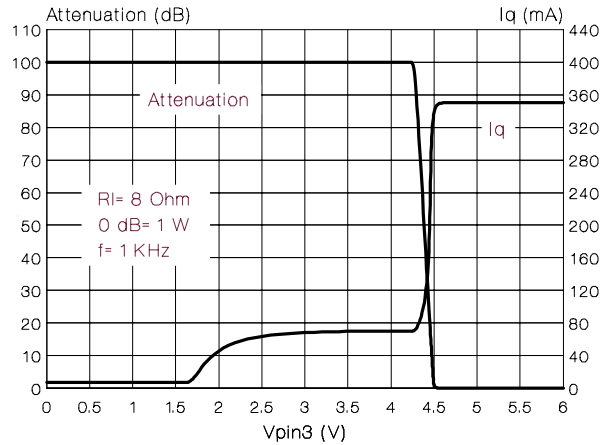
**Figure 4: Supply Voltage Rejection vs. Frequency**



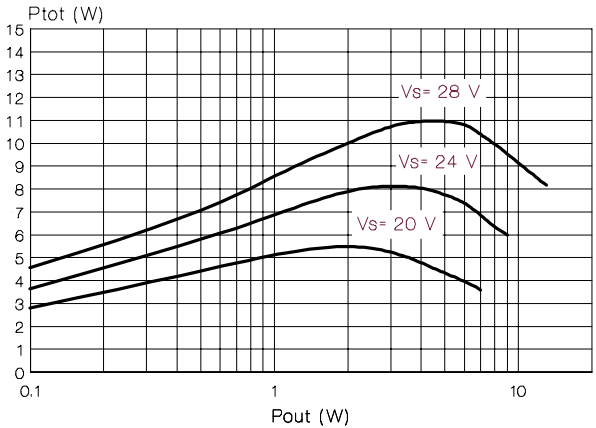
**Figure 5: Crosstalk vs. Frequency**



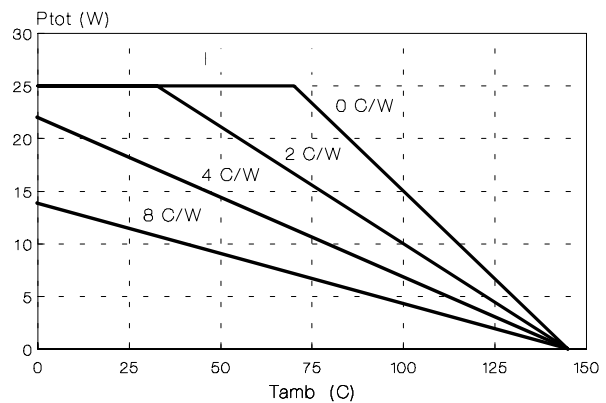
**Figure 6: Output Attenuation & Quiescent Current vs.  $V_{pin3}$**



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



**Figure 8: Maximum allowable Power dissipation vs. Ambient Temperature**



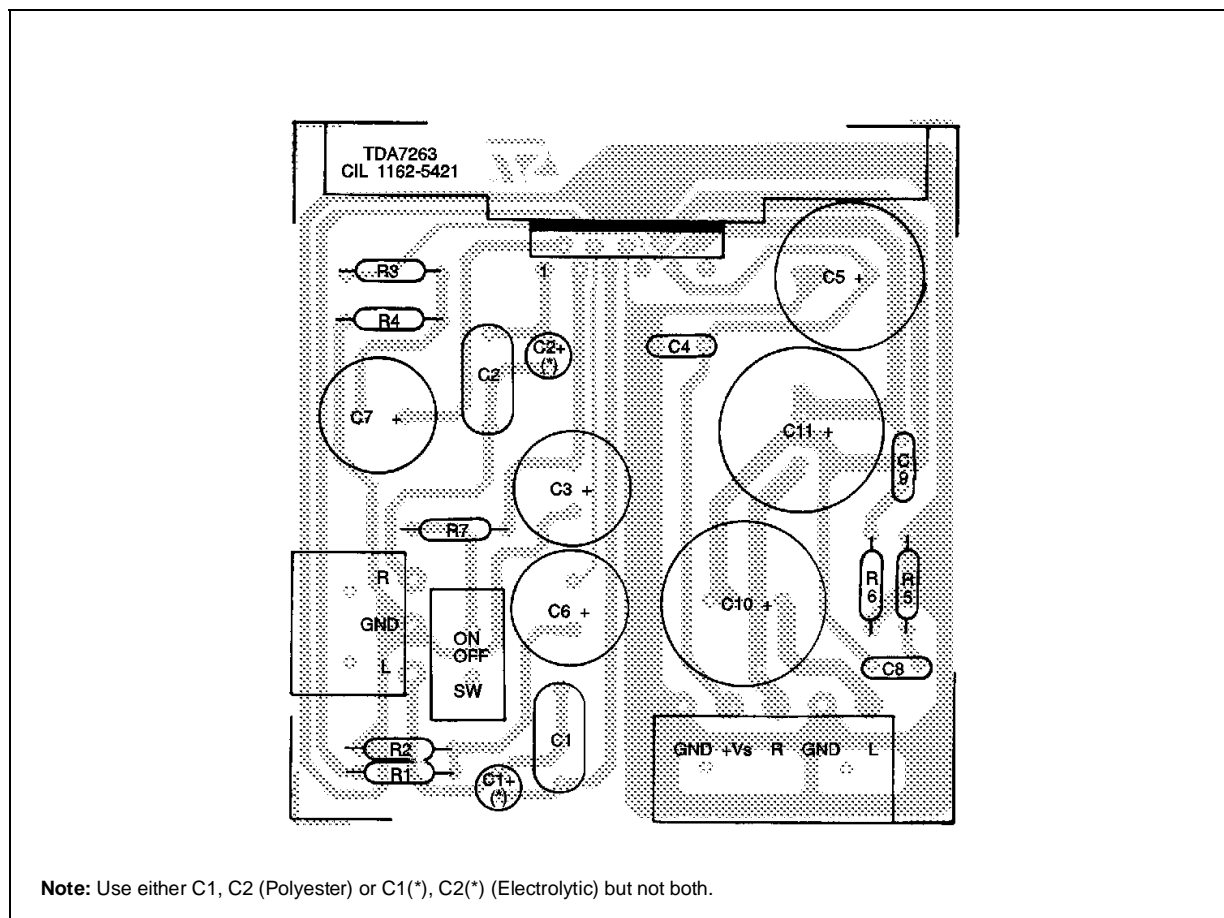
### APPLICATION SUGGESTION

The recommended values of the components are those shown on the typical application circuit. 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	Danger of 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 9:** P.C. Board and Component Layout (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; if for any reason the junction temperature increases up to 145°C. the thermal shutdown simply re-

duces the output power and therefore the power dissipation.

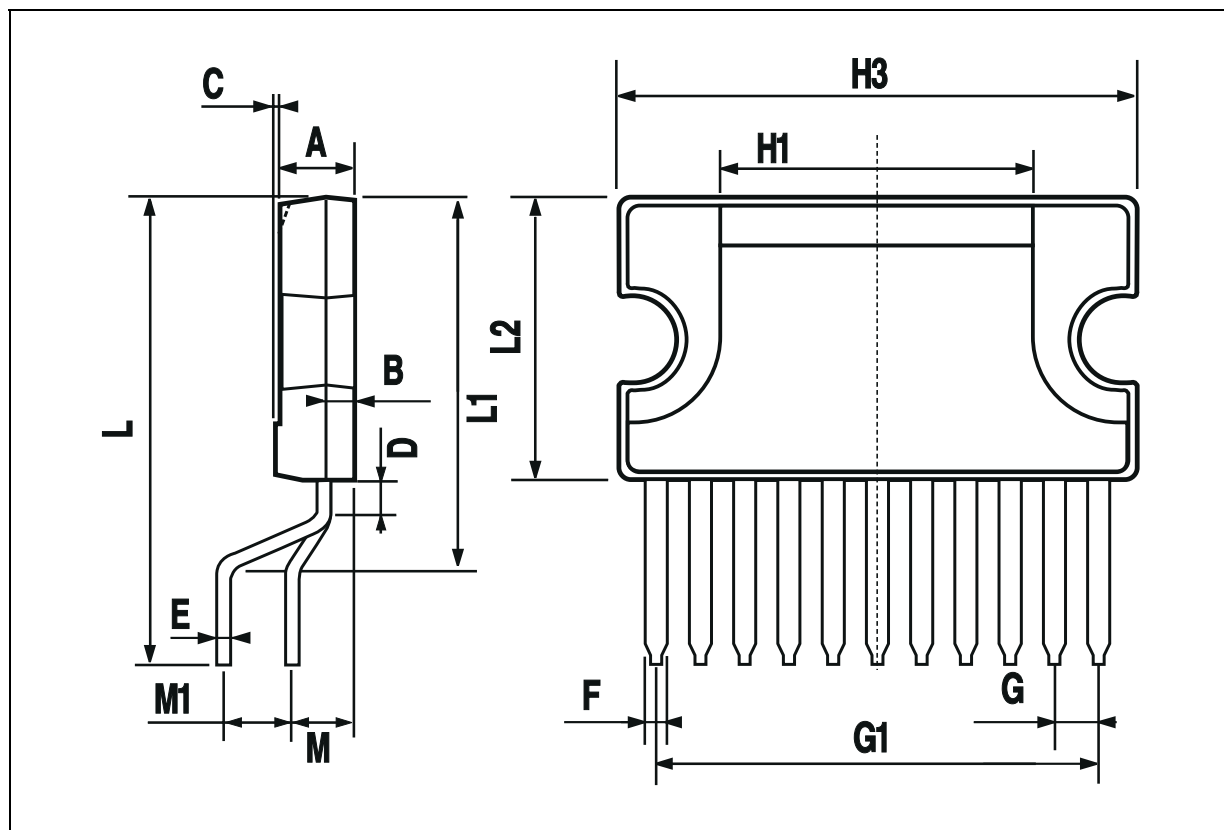
The maximum allowable power dissipation depends upon the thermal resistance junction-ambient. Figure 8 shows the dissipable power as a function of ambient temperature for different heatsink thermal resistance.

#### SHORT CIRCUIT (AC CONDITIONS)

The TDA7263 can withstand accidental short circuits across the speaker made by a wrong connection during normal play operation.

## CLIPWATT11 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			3.10			0.122
B			1.10			0.04
C		0.15			0.006	
D		1.50			0.059	
E		0.52			0.02	
F		0.80			0.03	
G		1.70			0.066	
G1		17.00			0.66	
H1		12.00			0.48	
H3		20.00			0.79	
L		17.90			0.70	
L1		14.40			0.57	
L2		11.00			0.43	
M		2.54			0.1	
M1		2.54			0.1	



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