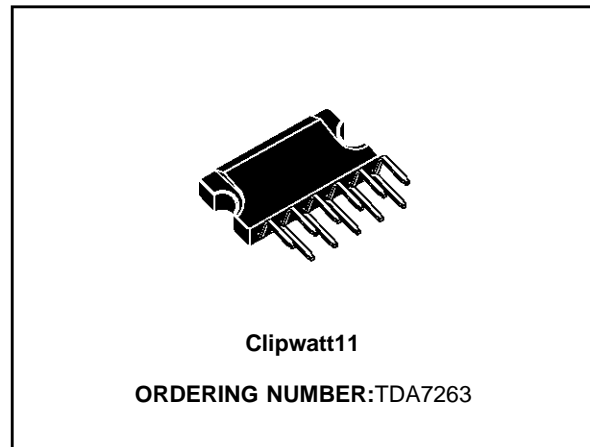


12 +12W STEREO AMPLIFIER WITH MUTING

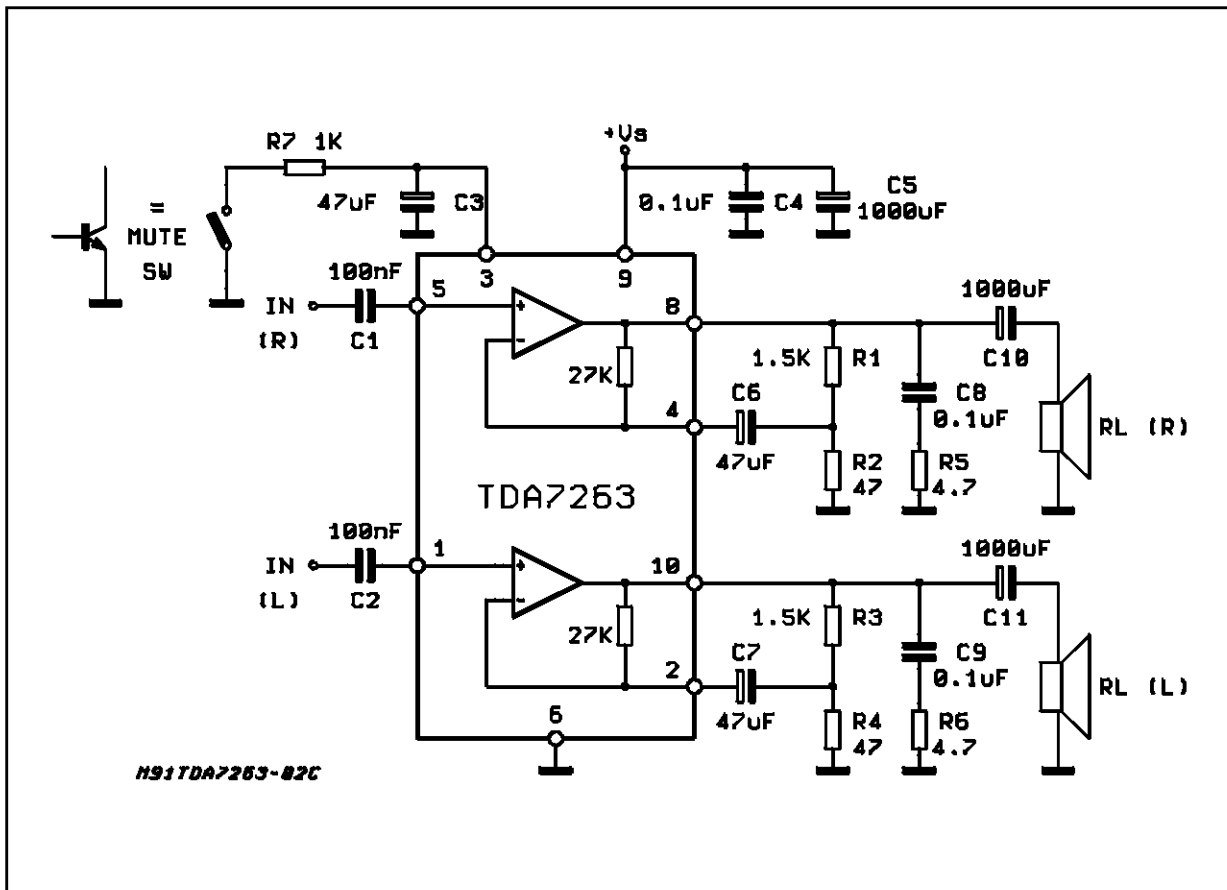
- WIDE SUPPLY VOLTAGE RANGE
- HIGH OUTPUT POWER
12+12W @ $V_S=28V$, $R_L = 8\Omega$, THD=10%
- MUTE FACILITY (POP FREE) WITH LOW CONSUMPTION
- AC SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION

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

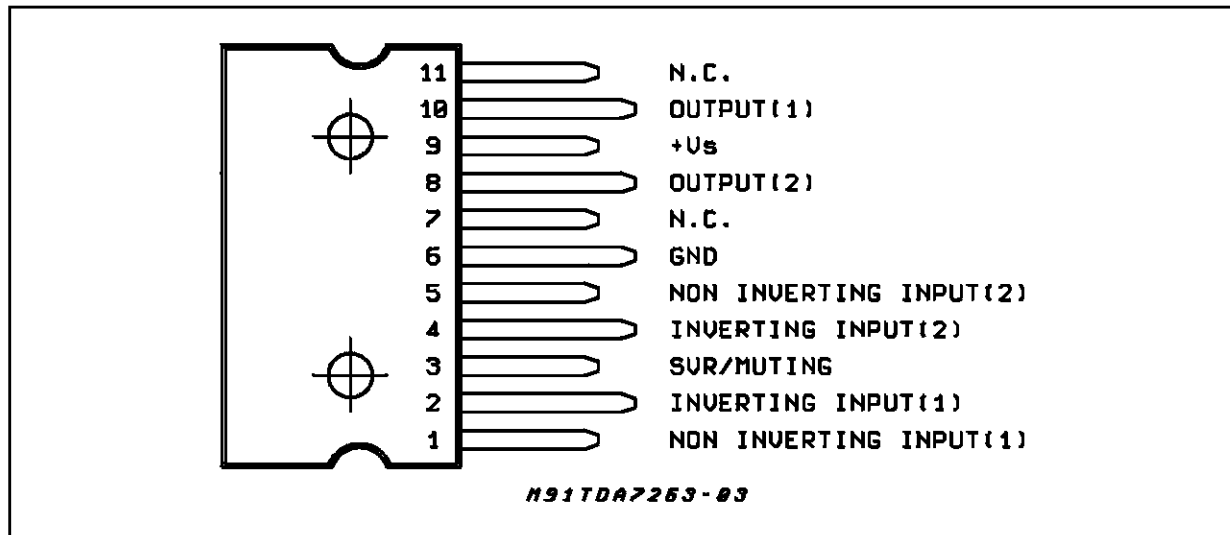


TDA7263

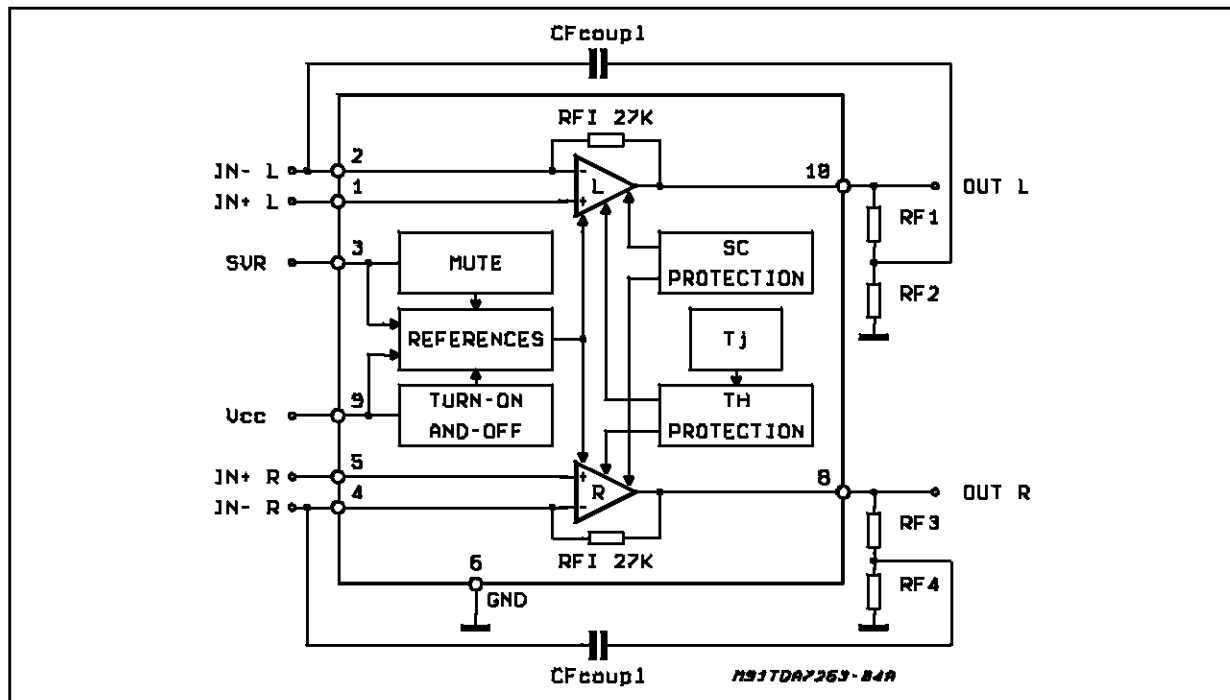
ABSOLUTE MAXIMUM RATINGS

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	$^\circ\text{C}$
$T_{stg,Tj}$	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	$^{\circ}C/W$

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	μV
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		$^{\circ}C$
MUTE FUNCTION						
V_{TMUTE}	Mute Threshold		1	1.6		V
V_{TPLAY}	Play Threshold			4.5		V
ATT _{AM}	Mute Attenuation		70	100		dB
I_{qMUTE}	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

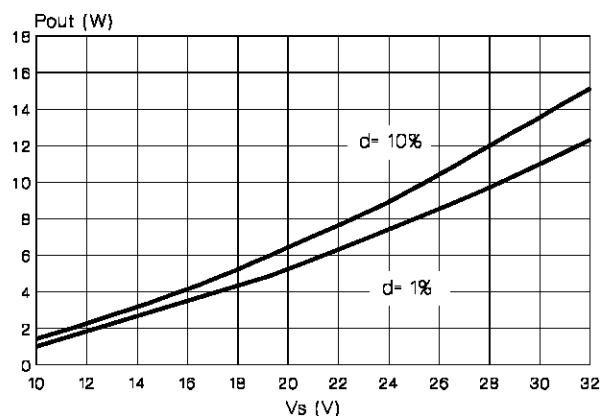


Figure 2: Distortion vs. Output Power

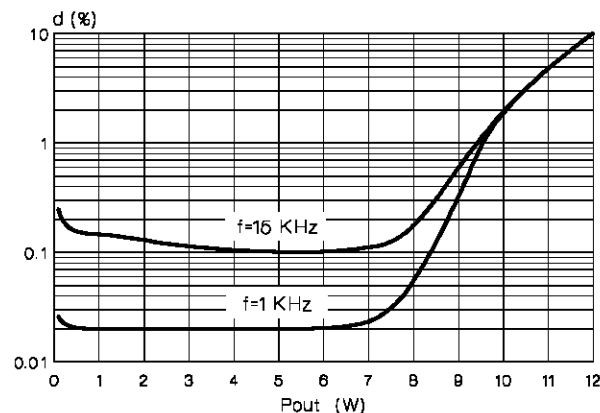


Figure 3: Quiescent Current vs. Supply Voltage

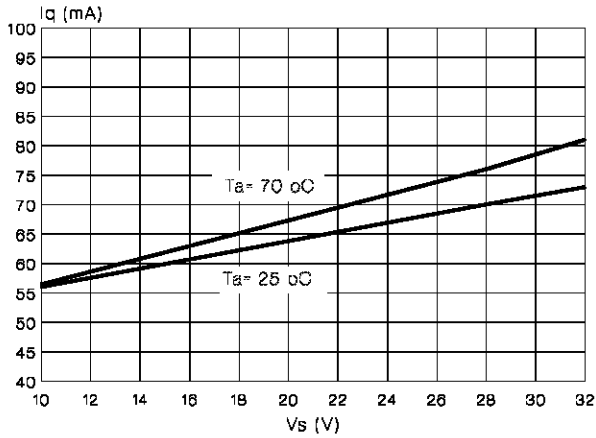


Figure 4: Supply Voltage Rejection vs. Frequency

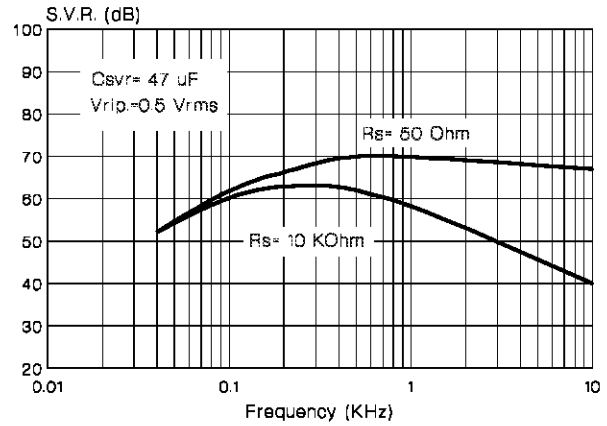


Figure 5: Crosstalk vs. Frequency

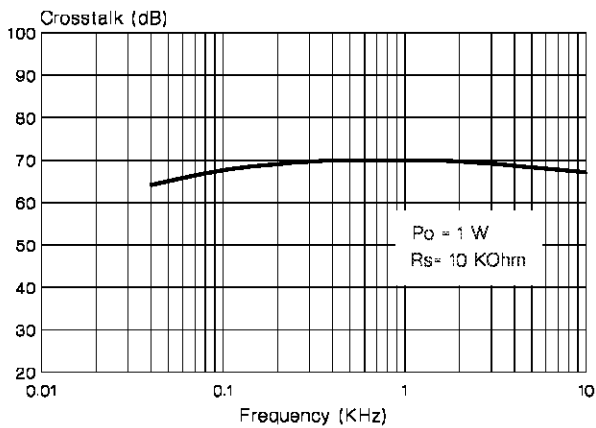


Figure 6: Output Attenuation & Quiescent Current vs. Vpin3

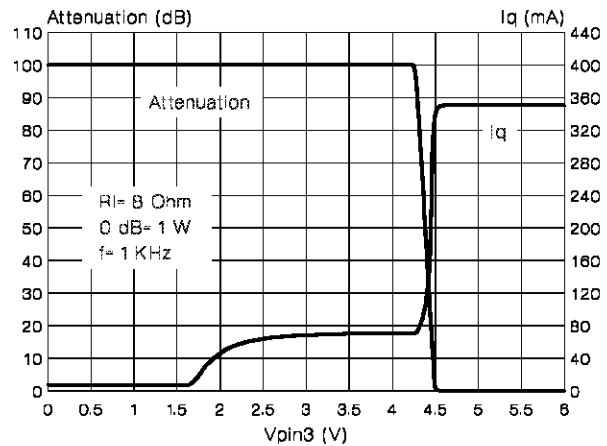


Figure 7: Total Power Dissipation vs. Output Power

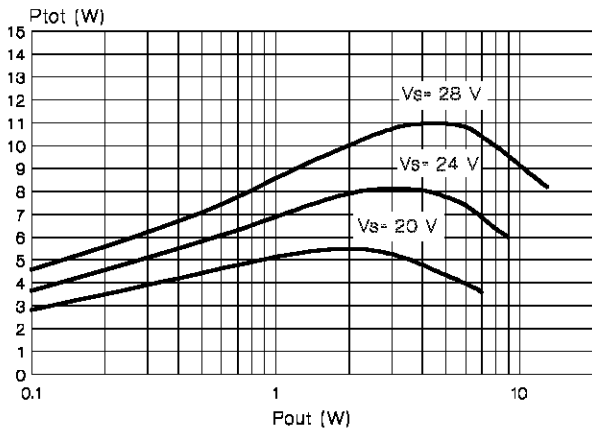
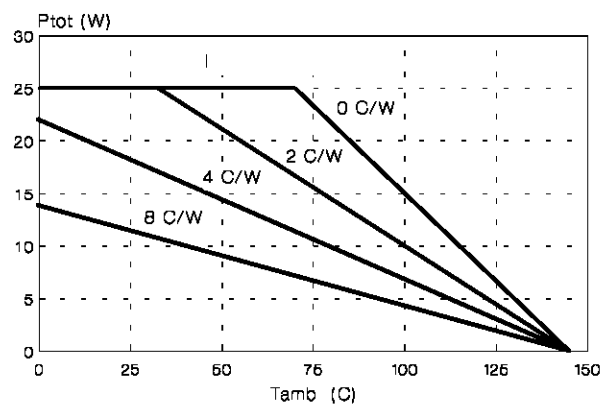


Figure 8: Maximum allowable Power dissipation vs. Ambient Temperature



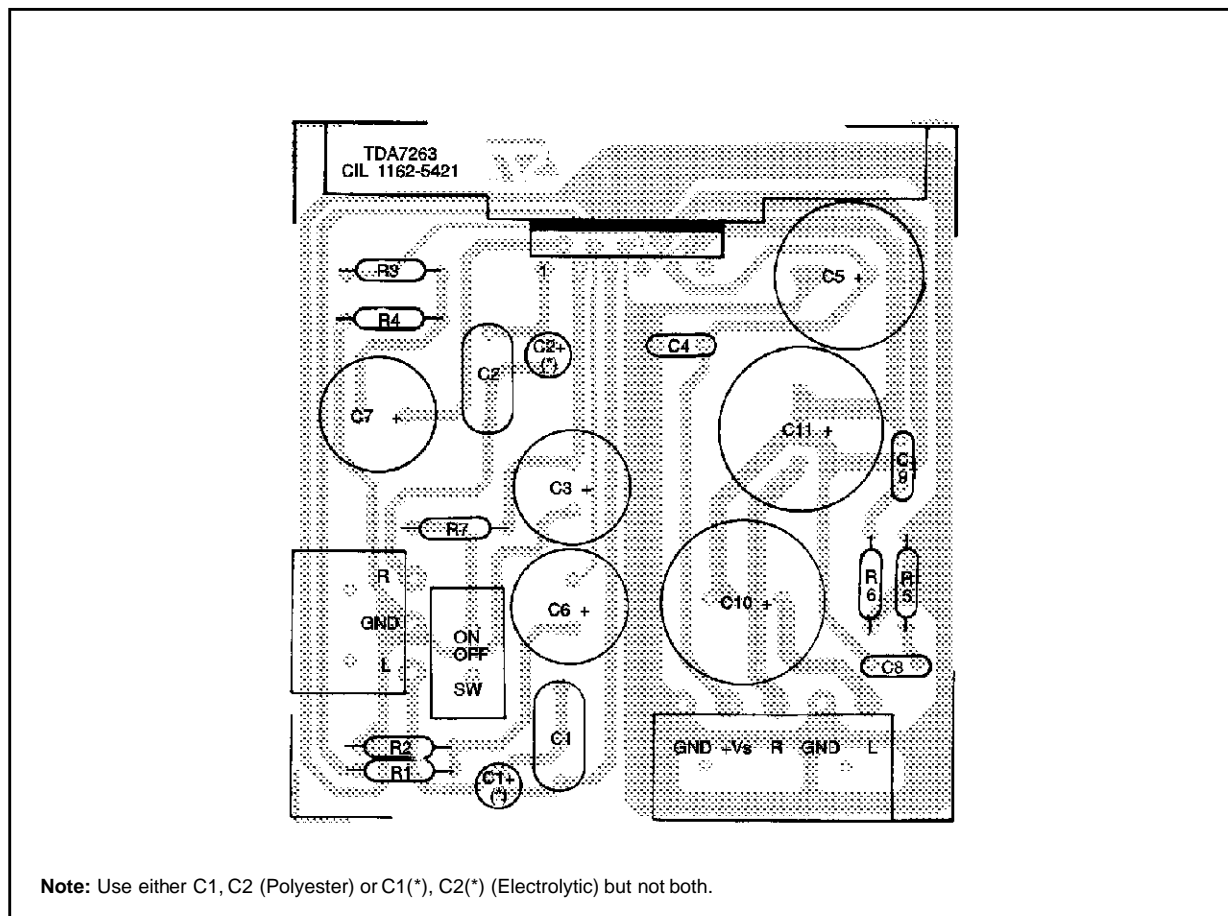
APPLICATION SUGGESTION

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 Ω	Close loop gain setting (*)	Increase of gain	Decrease of gain
R2 and R4	47 Ω	Close loop gain setting (*)	Decrease of gain	Increase of gain
R5 and R6	4.7 Ω	Frequency stability	Danger of oscillations	
C1 and C2	100nF	Input DC decoupling	Higher SVR	Higher low frequency cutoff
C3	47 μ 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 μ F	Supply Voltage Bypass		
C6 and C7	47 μ F	Feedback input DC decoupling	Increase of the Switch-on time	Danger of Switch-on time
C8 and C9	0.1 μ F	Frequency stability		Danger of oscillations
C10 and C11	1000 μ 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.

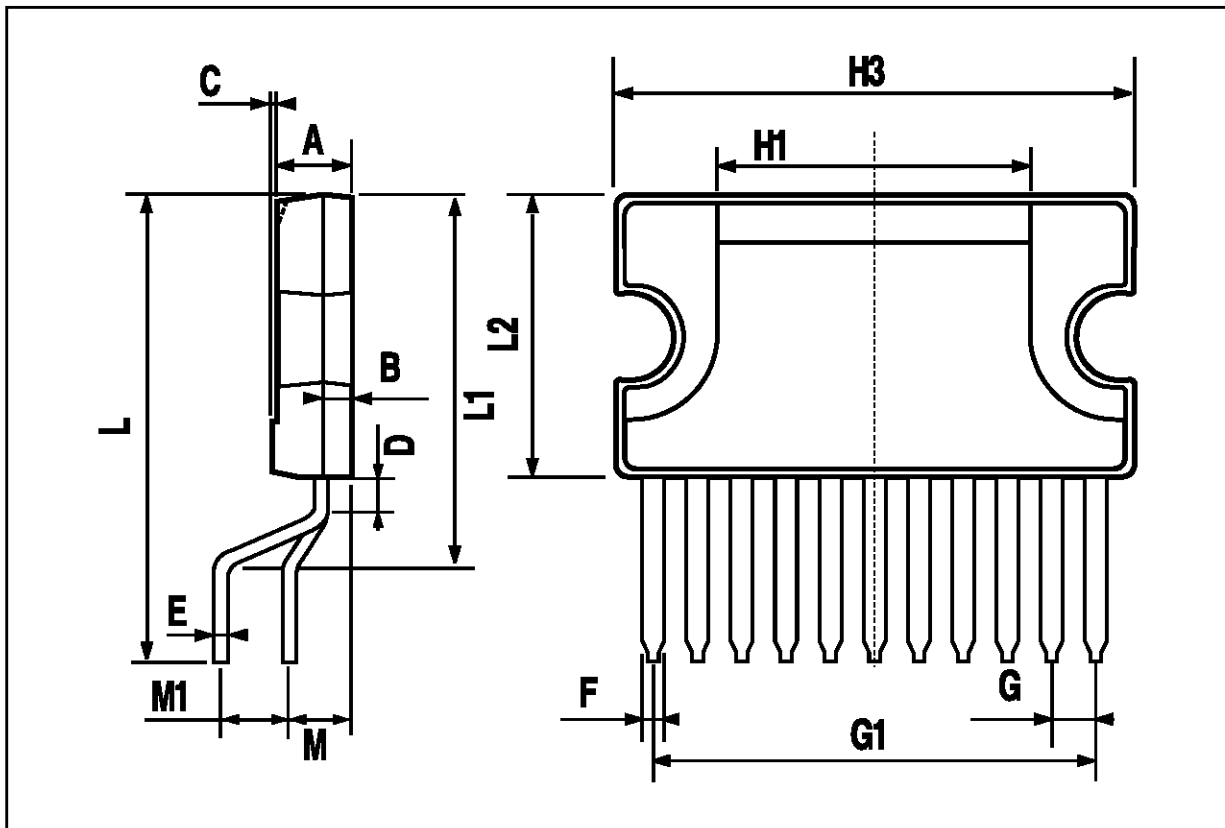
The maximum allowable power dissipation depends upon the thermal resistance junction-ambient. Figure 8 shows the dissipable power as a function of ambient temperature for different heatsink thermal resistance.

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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