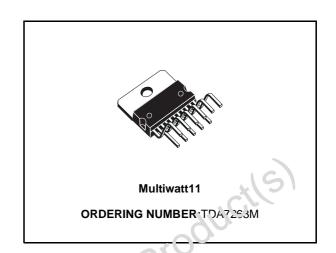


12 +12W STEREO AMPLIFIER WITH MUTING

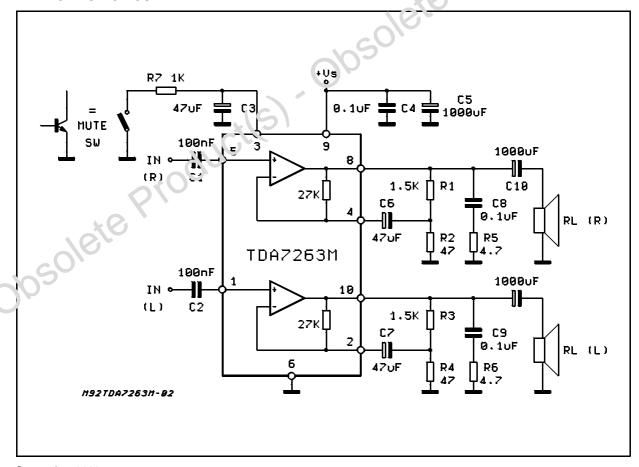
- WIDE SUPPLY VOLTAGE RANGE
- HIGH OUTPUT POWER 12+12W @ V_S =28V, R_L = 8 Ω , THD=10%
- MUTE FACILITY (POP FREE) WITH LOW CONSUMPTION
- AC SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION

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



September 2003

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
Vs	Supply Voltage without load	35	V
Ιο	Output Peak Current (repetitive f >20Hz)	2	Α
P _{tot}	Total Power Dissipation (T _{case} = 70°C)	30	W
T _{op}	Operating Temperature Range	0 to 70	°C
T _{stq,Tj}	Storage & Junction Temperature	-40 to 150	°C

PIN CONNECTION (Top view)

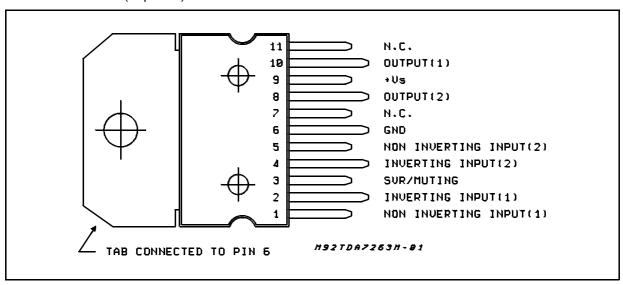
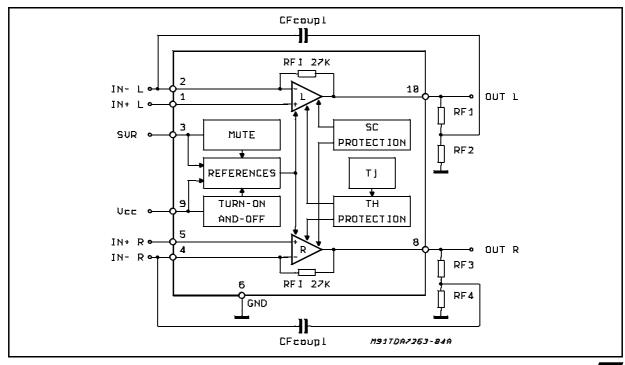


Figure 1: Block Diagram



THERMAL DATA

Symbol	Parameter	Value	Unit
R _{th j-case}	Thermal resistance junction to case Max	2.5	°C/W

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

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Unit	
Vs	Supply Voltage		10		30	V	
Vo	Quiescent Output Voltage			13.5		V	
Iq	Total Quiescent Current			70	95	mA	
Po	Output Power (RMS)	d = 10% Tamb = 85°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		ΚΩ	
fL	Low Frequency Roll-off (-3dB)			40		Hz	
f _H	High Frequency Roll-off (-3dB)			80		KHz	
en	Total Input Noise Voltage	A Curve; Rs = $10K\Omega$		1.5		mV	
		$f = 22Hz$ to $22KHz$; $R_S = 10K\Omega$		3	10	μV	
SVR	Supply Voltage Rejection (each channel)	$R_S = 10K\Omega$; $f = 100Hz$; $Vr = 0.5V$	45	60		dB	
Tj	Thermal Shutdown Junction Temperature			145		°C	
MUTE FUN	MUTE FUNCTION						
VT _{MUTE}	Mute Threshold		1	1.6		V	
VT_{PLAY}	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

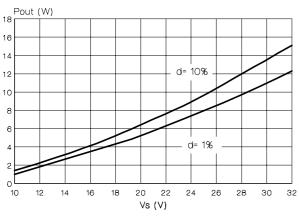
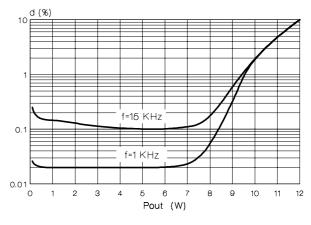


Figure 2: Distortion vs. Output Power



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Figure 3: Quiescent Current vs. Supply Voltage

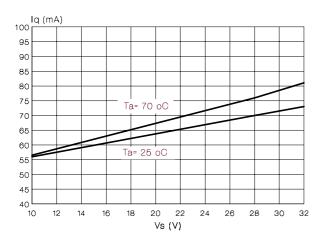


Figure 4: Supply Voltage Rejection vs. Frequency

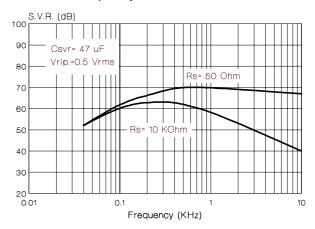


Figure 5: Crosstalk vs. Frequency

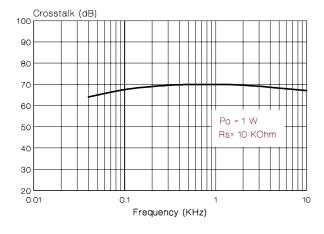


Figure 6: Output Attenuation & Quiescent Current vs. V_{pin3}

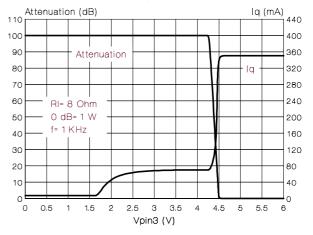
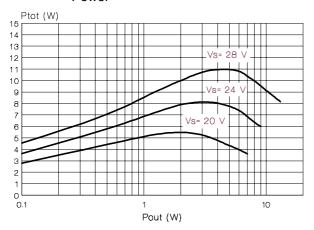


Figure 7: Total Power Dissipation vs. Output Power



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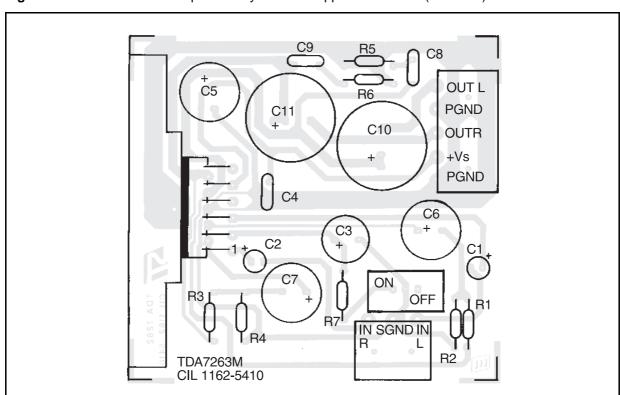
APPLICATION SUGGESTION

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	1.5ΚΩ	Close loop gain setting (*)	Increase of gain	Decrease of gain
R2 and R4	47Ω	Close loop gain setting (*)	Decrease of gain	Increase of gain
R5 and R6	4.7Ω	Frequency stability	Danger of oscillations	
C1 and C2	100nF	Input DC decoupling	Higher SVR	Higher low frequency cutoff
C3	47μF	- 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	1000μF	Supply Voltage Bypass		
C6 and C7	47μF	Feedback input DC decoupling	Increase of the Switch-on time	Decrease of the Switch-on time
C8 and C9	0.1μF	Frequency stability		Danger of oscillations
C10 and C11	1000μF	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

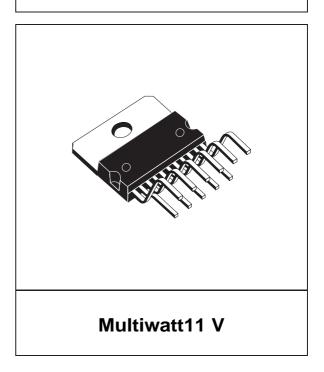
circuit. There is no device damage in the case of excessive junction temperature; all that happens is that Po (and therefore Ptot) and Io are reduced.

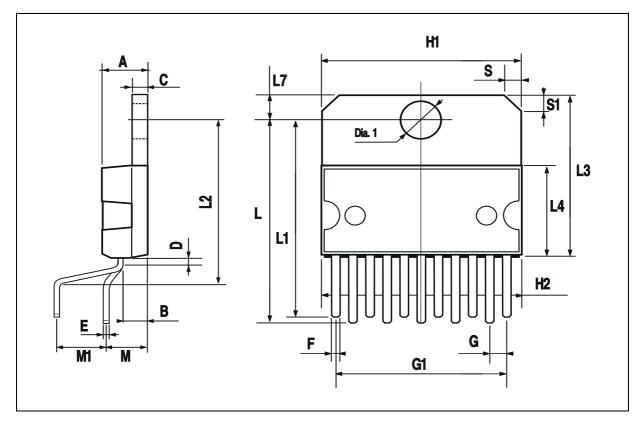
SHORT CIRCUIT (AC CONDITIONS)

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

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
Α			5			0.197
В			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	1.45	1.7	1.95	0.057	0.067	0.077
G1	16.75	17	17.25	0.659	0.669	0.679
H1	19.6			0.772		
H2			20.2			0.795
L	21.9	22.2	22.5	0.862	0.874	0.886
L1	21.7	22.1	22.5	0.854	0.87	0.886
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
М	4.25	4.55	4.85	0.167	0.179	0.191
M1	4.73	5.08	5.43	0.186	0.200	0.214
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

OUTLINE AND MECHANICAL DATA





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