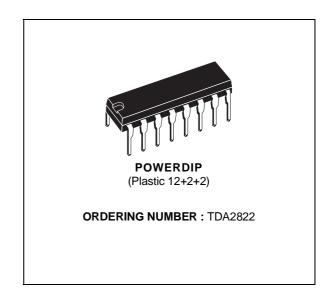




DUAL POWER AMPLIFIER

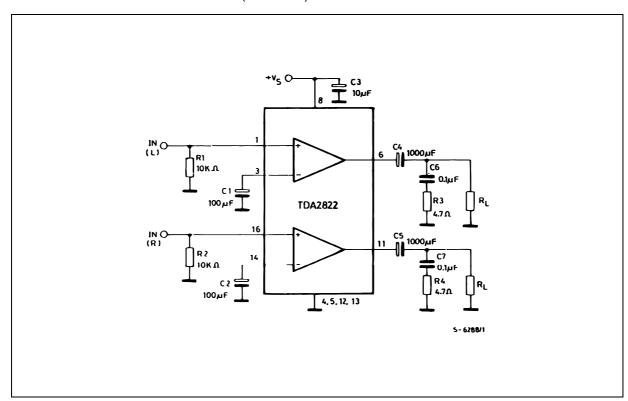
- SUPPLY VOLTAGE DOWN TO 3 V
- LOW CROSSOVER DISTORSION
- LOW QUIESCENT CURRENT
- BRIDGE OR STEREO CONFIGURATION



DESCRIPTION

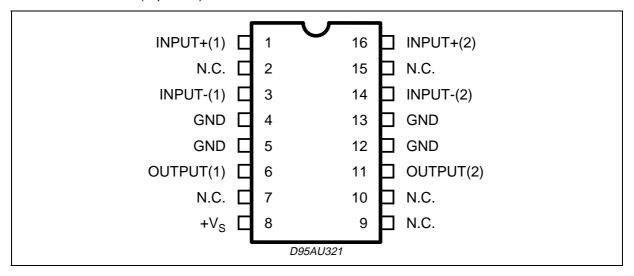
The TDA2822 is a monolithic integrated circuit in 12+2+2 powerdip, intended for use as dual audio power amplifier in portable radios and TS sets.

TYPICAL APPLICATION CIRCUIT (STEREO)

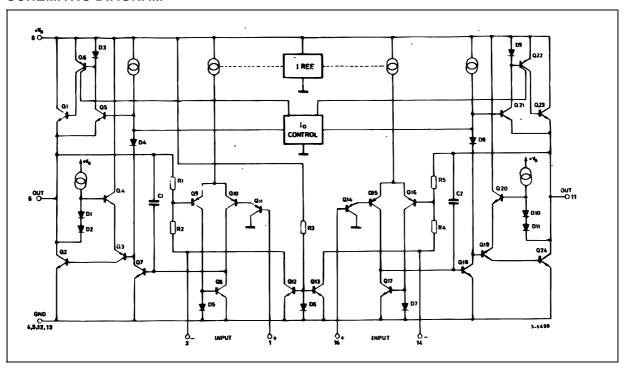


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PIN CONNECTION (top view)



SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
Vs	Supply Voltage	15	V
lo	Output Peak Current	1.5	Α
P _{tot}	Total Power Dissipation at T_{amb} = 50 °C at T_{case} = 70 °C	1.25 4	W W
T _{stg} , T _j	Storage and Junction Temperature	- 40 to 150	°C

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THERMAL DATA

Symbol	Parameter	Value	Unit
R _{th i-amb}	Thermal Resistance Junction-ambient Max	80	°C/W
R _{th j-case}	Thermal Resistance Junction-pins Max	20	°C/W

ELECTRICAL CHARACTERISTICS (Vs = 6 V, T_{amb} = 25 °C, unless otherwise specified) STEREO (test circuit of fig. 1)

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Unit
Vs	Supply Voltage		3		15	V
V _c	Quiescent Output Voltage	$V_s = 9 V$ $V_s = 6 V$		4 2.7		V V
I _d	Quiescent Drain Current			6	12	mA
I _b	Input Bias Current			100		nA
Po	Output Power (each channel)	$ \begin{aligned} &d = 10 \; \% & & f = 1 \; kHz \\ &V_s = 9 \; V & & R_L = 4 \; \Omega \\ &V_s = 6 \; V & & R_L = 4 \; \Omega \\ &V_s = 4.5 \; V & & R_L = 4 \; \Omega \end{aligned} $	1.3 0.45	1.7 0.65 0.32		W W W
G_v	Closed Loop Voltage Gain	f = 1 kHz	36	39	41	dB
Ri	Input Resistance	f = 1 kHz	100			kΩ
^e N	Total Input Noise	R_s = 10 k Ω B = 22 Hz to 22 kHz Curve A		2.5 2		μV μV
SVR	Supply Voltage Rejection	f = 100 Hz	24	30		dB
CS	Channel Separation	$R_g = 10 \text{ k}\Omega \text{ f} = 1 \text{ kHz}$		50		dB

Vs	Supply Voltage		3		15	V
I_d	Quiescent Drain Current	R _L = ∞		6	12	mA
Vos	Output Offset Voltage	$R_L = 8 \Omega$		10	60	mV
l _b	Input Bias Current			100		nA
Po	Output Power	$ d = 10 \% f = 1 \text{ kHz} $ $ V_S = 9 \text{ V} R_L = 8 \Omega $ $ V_S = 6 \text{ V} R_L = 8 \Omega $ $ V_S = 4.5 \text{ V} R_L = 4 \Omega $	2.7 0.9	3.2 1.35 1		W W W
d	Distortion (f = 1 kHz)	$R_L = 8 \Omega$ $P_o = 0.5 W$		0.2		%
Gv	Closed Loop Voltage Gain	f = 1 kHz		39		dB
Ri	Input Resistance	f = 1 kHz	100			kΩ
^e N	Total Input Noise	R_s = 10 k Ω B = 22 Hz to 22 kHz Curve A		3 2.5		μV μV
SVR	Supply Voltage Rejection	f = 100 Hz		40		dB

Figure 1 : Test Circuit (stereo).

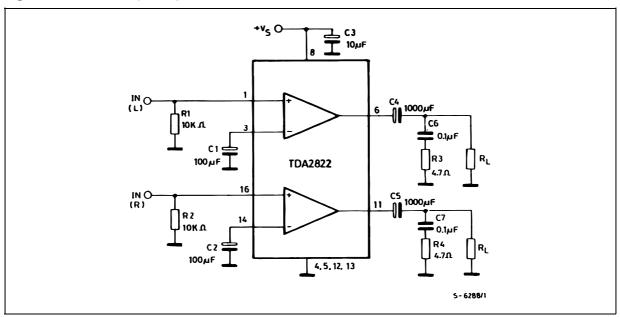
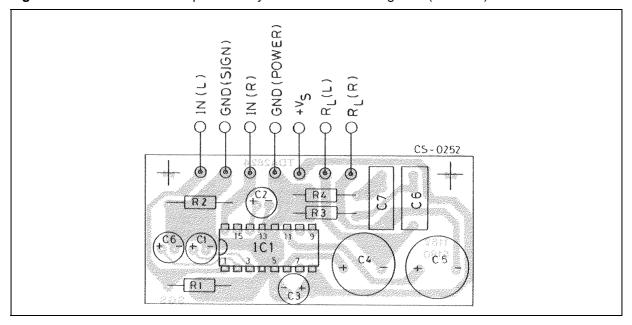


Figure 2: P.C. Board and Components Layout of the Circuit of Figure 1 (1:1 scale).



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Figure 3 : Test Circuit (bridge).

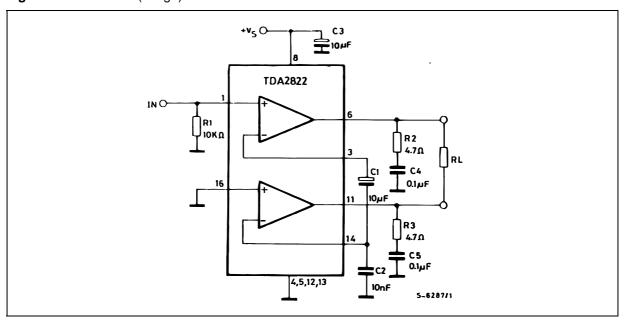


Figure 4: P.C. Board and Components Layout of the Circuit of Figure 3 (1:1 scale).

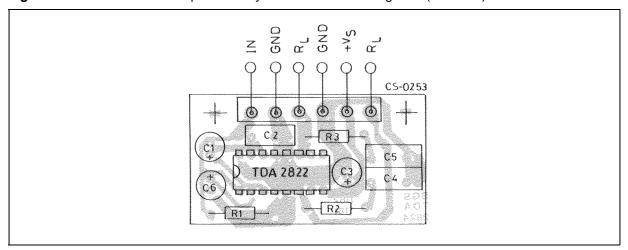


Figure 5 : Output Power vs. Supply Voltage (Stereo).

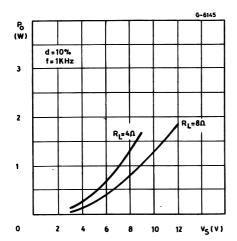


Figure 7: Distorsion vs. Output Power (Bridge).

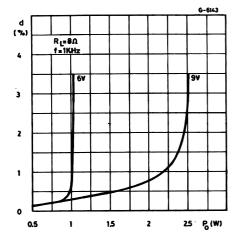


Figure 9 : Supply Voltage Rejection vs. Frequency.

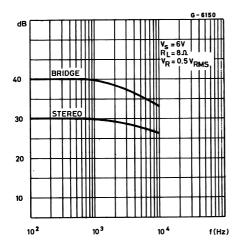


Figure 6 : Output Power vs. Supply Voltage (Bridge).

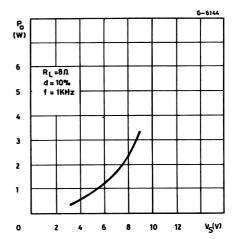


Figure 8: Distorsion vs. Output Power (Bridge).

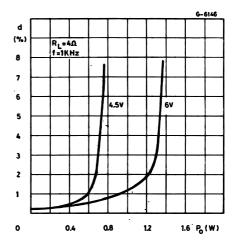
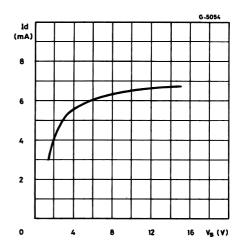


Figure 10 : Quiescent Current vs. Supply Voltage.



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Figure 11 : Total Power Dissipation vs. Output Power (Stereo).

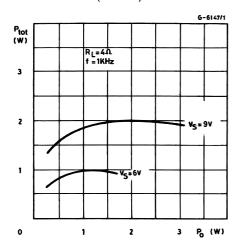


Figure 13 : Total Power Dissipation vs. Output Power (Bridge).

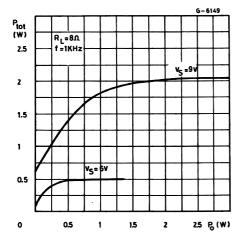


Figure 12 : Total Power Dissipation vs. Output Power (Bridge).

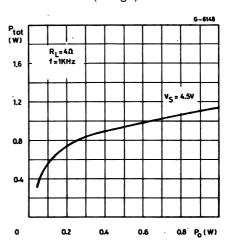
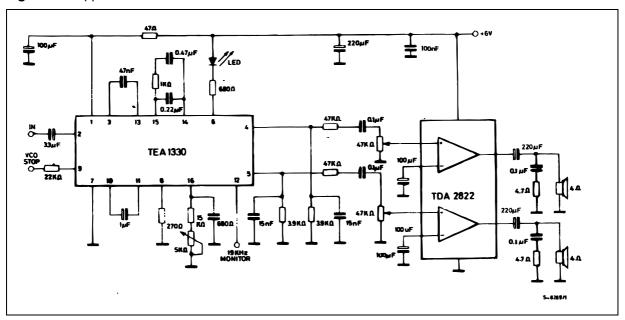


Figure 14: Application Circuit for Portable Radios.



MOUNTING INSTRUCTION

The R_{th j-amb} of the TDA2822 can be reduced by soldering the GND pins to a suitable copper area of the printed circuit board (Figure 15) or to an external heatsink (Figure 16).

The diagram of Figure 17 shows the maximum dissipable power P_{tot} and the $R_{th\ j-amb}$ as a function of the side " ∂ " of two equal square copper areas having a thickness of 35 μ (1.4 mils).

Figure 15 : Example of P.C. Board Copper Area which is used as Heatsink.

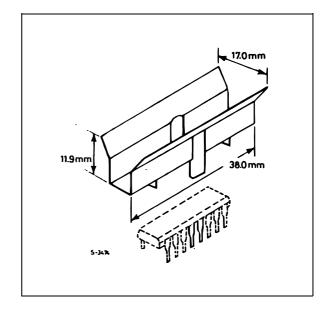
COPPER AREA 35 p THICKNESS

P.C. BOARD

During soldering the pins temperature must not exceed 260 °C and the soldering time must not be longer than 12 seconds.

The external heatsink or printed circuit copper area must be connected to electrical ground.

Figure 16 : External Heatsink Mounting Example.



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Figure 6 : Maximum Dissipable Power and Junction to Ambient Thermal Resistance vs. Side "\(\partial^n\).

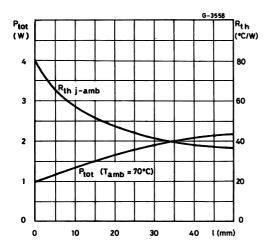
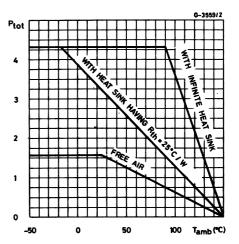
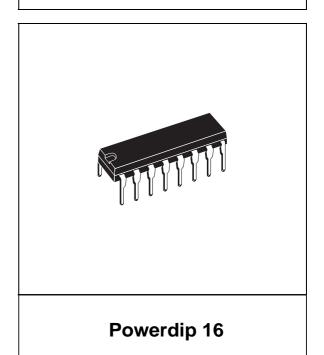


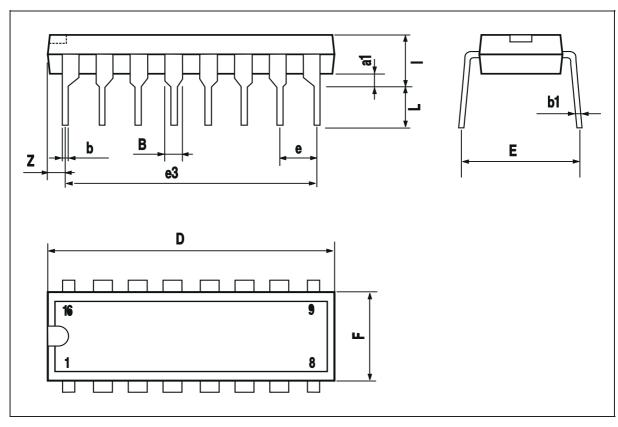
Figure 7 : Maximum Allowable Power Dissipation vs. Ambient Temperature.



DIM.	mm			inch			
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
a1	0.51			0.020			
В	0.85		1.40	0.033		0.055	
b		0.50			0.020		
b1	0.38		0.50	0.015		0.020	
D			20.0			0.787	
Е		8.80			0.346		
е		2.54			0.100		
e3		17.78			0.700		
F			7.10			0.280	
I			5.10			0.201	
L		3.30			0.130		
Z			1.27			0.050	

OUTLINE AND MECHANICAL DATA





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