



TDA7297

15+15W DUAL BRIDGE AMPLIFIER

- WIDE SUPPLY VOLTAGE RANGE (6V -18V)
- MINIMUM EXTERNAL COMPONENTS
 - NO SVR CAPACITOR
 - NO BOOTSTRAP
 - NO BOUCHEROT CELLS
 - INTERNALLY FIXED GAIN
- STAND-BY & MUTE FUNCTIONS
- SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION

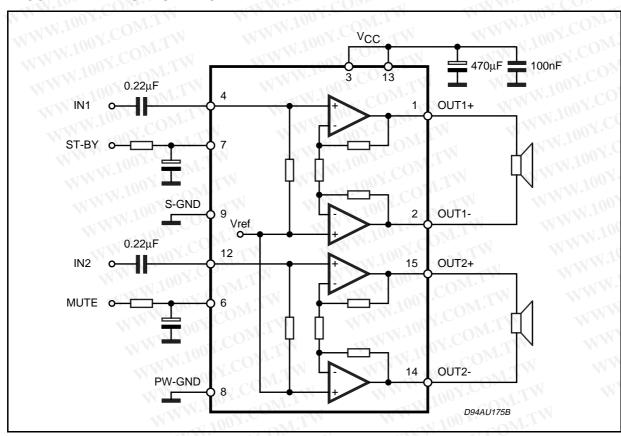
Multiwatt 15 ORDERING NUMBER: TDA7297

TECHNOLOGY BI20II

DESCRIPTION

The TDA7297 is a dual bridge amplifier specially designed for TV and Portable Radio applications.

BLOCK AND APPLICATION DIAGRAM



September 2003

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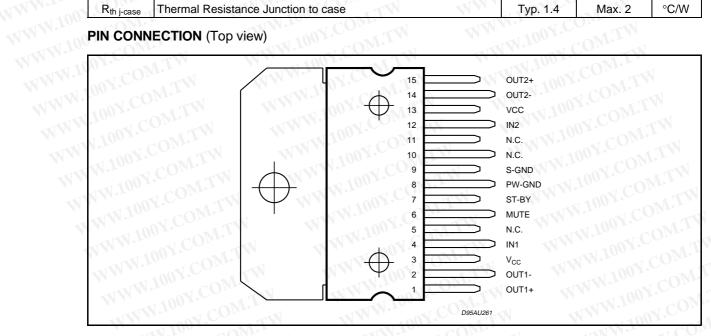
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
Vs	Supply Voltage	20	V
lo	Output Peak Current (internally limited)	COM 2	А
P _{tot}	Total Power Dissipation (T _{case} = 70°C)	33	W
T_{op}	Operating Temperature	0 to 70	°C
T_{stg} , T_j	Storage and Junction Temperature	-40 to +150	°C

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N V	stg, ij	Storage and Junction Temperature	-40 10	C		
WW.100	THERMAI	DATA WWW.100Y.COM.TW				
11/1/1/100	Symbol	Description Value		lue	Unit	
WWW.I	R _{th j-case}	Thermal Resistance Junction to case	MM	Typ. 1.4	Max. 2	°C/W



ELECTRICAL CHARACTERISTICS ($V_{CC} = 16.5V$, $R_L = 8\Omega$, f = 1kHz, $T_{amb} = 25^{\circ}C$ unless otherwise specified.) specified.) MMAN TOOX.C

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Unit
Vcc	Supply Range	W 100 CON	6.5		18	V
l _q	Total Quiescent Current	R _L = ∞	TW	50	65	mA
Vos	Output Offset Voltage	I WWW.TO OV.CO	W		120	mV
Po	Output Power	THD = 10%	13	15	TXN	W
THD	Total Harmonic Distortion	$P_0 = 1W$	MIN	0.1	0.3	%
	WWW.100X.COM	$P_0 = 0.1W \text{ to } 5W$ f = 100Hz to 15kHz	OM.T	N	1	%
SVR	Supply Voltage Rejection	$f = 100Hz V_R = 0.5V$	40	56		dB
CT	Crosstalk	TO THE VIEW	46	60		dB
A _{MUTE}	Mute Attenuation	W 100	60	80		dB
T_W	Thermal Threshold	TY WY TIO		150		°C
G_V	Closed Loop Voltage Gain	WWW.	31	32	33	dB
ΔGv	Voltage Gain Matching	ON',	-1 CC	Mr	0.5	dB
R_i	Input Resistance	M.TW	25	30		ΚΩ

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ELECTRICAL CHARACTERISTICS (Continued)

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Unit
VT _{MUTE}	Mute Threshold	$V_0 = -30$ dB	2.3	2.9	4.1	V
VT _{ST-BY}	St-by Threshold	W. 100 F	0.8	1.3	1.8	V
I _{ST-BY}	ST-BY current V6 = GND	W MM 1003		TW	100	μΑ
e _N	Total Output Noise Voltage	A curve f = 20Hz to 20kHz	Y.COM	150 220	500	μV μV

APPLICATION SUGGESTION

STAND-BY AND MUTE FUNCTIONS

(A) Microprocessor Application

In order to avoid annoying "Pop-Noise" during Turn-On/Off transients, it is necessary to guarantee the right St-by and mute signals sequence. It is quite simple to obtain this function using a microprocessor (Fig. 1 and 2).

At first St-by signal (from mP) goes high and the voltage across the St-by terminal (Pin 7) starts to increase exponentially. The external RC network is intended to turn-on slowly the biasing circuits of

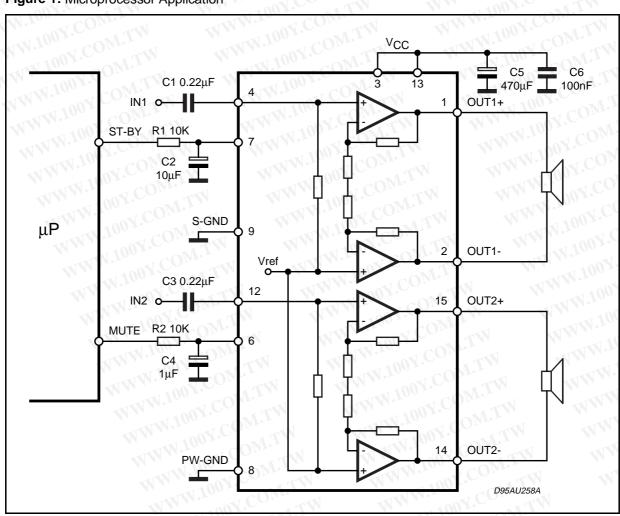
the amplifier, this to avoid "POP" and "CLICK" on the outputs.

When this voltage reaches the St-by threshold level, the amplifier is switched-on and the external capacitors in series to the input terminals (C3, C5) start to charge.

It's necessary to mantain the mute signal low until the capacitors are fully charged, this to avoid that the device goes in play mode causing a loud "Pop Noise" on the speakers.

A delay of 100-200ms between St-by and mute signals is suitable for a proper operation.

Figure 1: Microprocessor Application



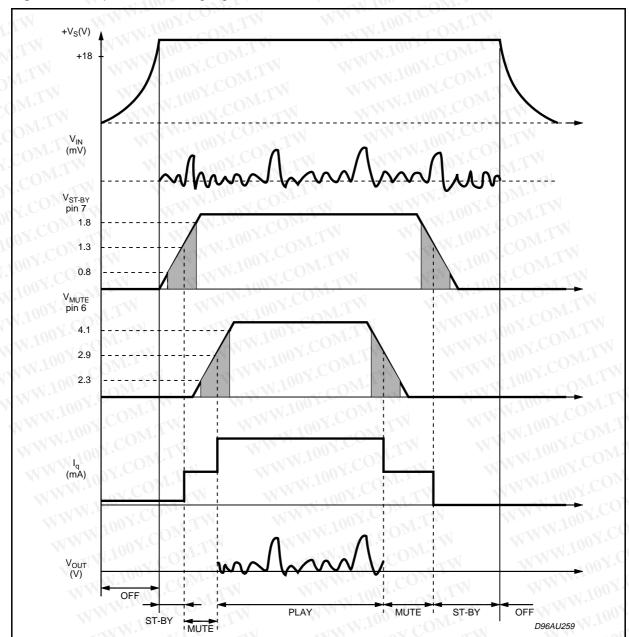


Figure 2: Microprocessor Driving Signals.

(B) Low Cost Application

The St-by and mute terminals are tied together and they are connected to the supply line via an

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external voltage divider.

The device is switched-on/off from the supply line and the external capacitor C4 is intended to delay the St-by and mute threshold exceeding, avoiding "Popping" problems.

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Figure 3: Stand-alone Low-cost Application.

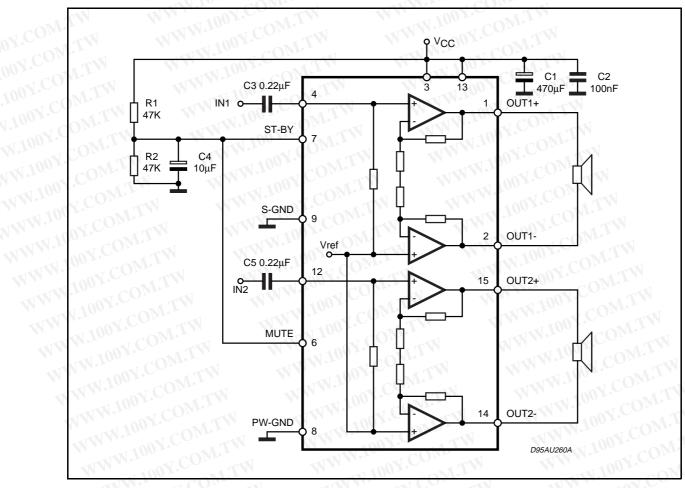
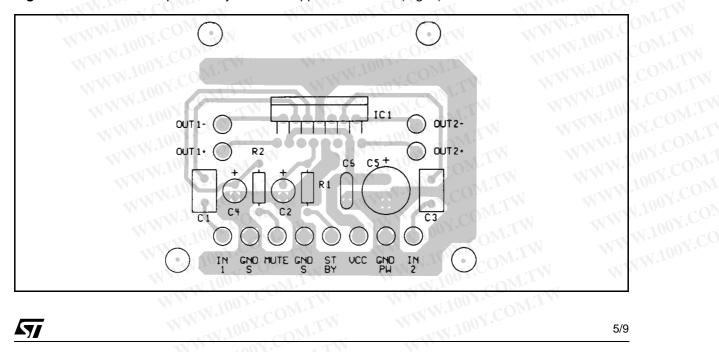


Figure 3b: PCB and Component Layout of the Application Circuit (Fig. 1).



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Figure 4: Distortion vs Output Power

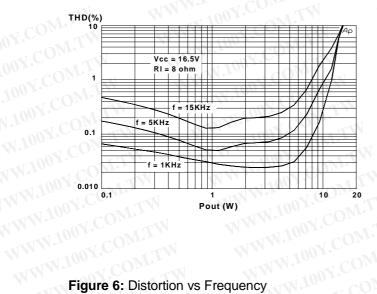


Figure 5: Distortion vs Output Power

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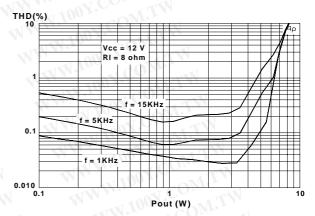


Figure 6: Distortion vs Frequency

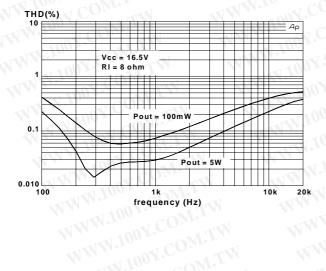


Figure 7: Frequency Respone

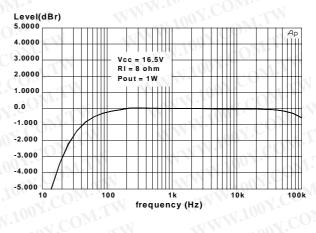


Figure 8: Output Power vs Supply Voltage

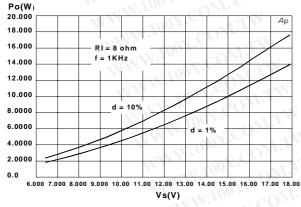
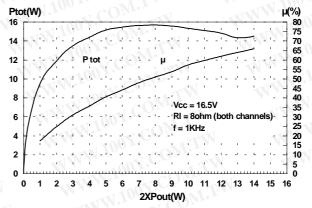


Figure 9: Total Power Dissipation & Efficiency vs **Output Power**



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Figure 10: Mute Attenuation vs. V pin.6

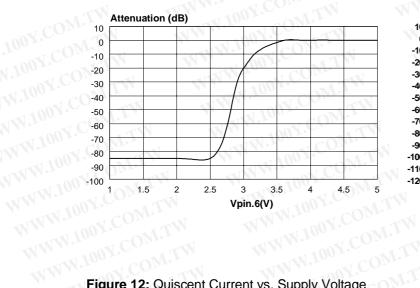
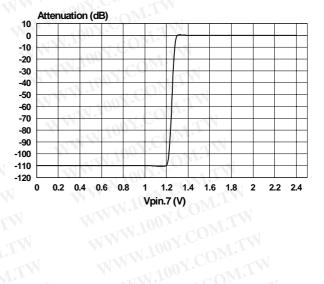


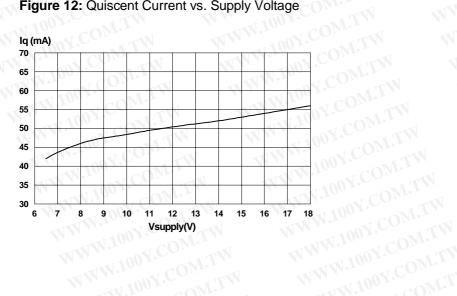
Figure 11: Stand-By Attenuation vs Vpin.7

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WWW.100Y.COM.TW Figure 12: Quiscent Current vs. Supply Voltage



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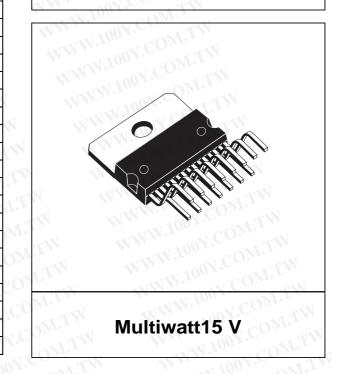
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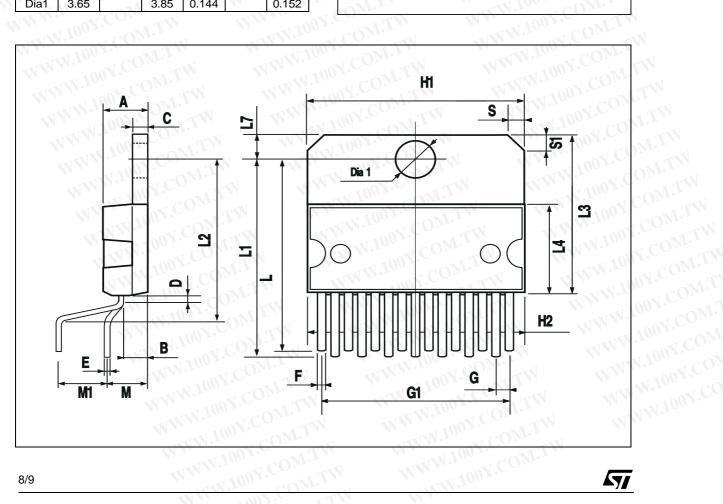
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DIM.	mm			Cor		
DIIVI.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX
Α		N T	5		$M_{i,I,A}$	0.197
В		WW	2.65	N.C.	TILL	0.104
С		NV	1.6	.V.C	Olar.	0.063
D	rT	1	NW.	JU -	0.039	- 1
E	0.49	111	0.55	0.019	Mon	0.022
F	0.66		0.75	0.026	.00-	0.030
G	1.02	1.27	1.52	0.040	0.050	0.060
G1	17.53	17.78	18.03	0.690	0.700	0.710
H1	19.6		1111	0.772	01.	Mo
H2	VT		20.2	1	ON.C	0.795
JEC	21.9	22.2	22.5	0.862	0.874	0.886
L1	21.7	22.1	22.5	0.854	0.870	0.886
L2	17.65	1	18.1	0.695	$_{1}1003$	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	T.T.	2.9	0.104	W.10	0.114
M	4.25	4.55	4.85	0.167	0.179	0.191
M1	4.63	5.08	5.53	0.182	0.200	0.218
S	1.9	DMr.	2.6	0.075	WW	0.102
S1	1.9	Mo	2.6	0.075		0.102
Dia1	3.65	- 11	3.85	0.144	M.	0.152

W.100X **OUTLINE AND MECHANICAL DATA**

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