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TDA7379

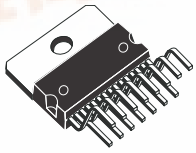
4 X 13 - 2 X 38W AUDIO POWER AMPLIFIER
2 X 13 + 1 X 38W AUDIO POWER AMPLIFIER

PRODUCT PREVIEW

- HIGH OUTPUT POWER CAPABILITY
  2 x 38W/4Ω @18V, 1KHz, 10%
  4 x 11W/4Ω @18V, 1KHz, 10%
  2 x 20W/8Ω @18V; 1KHz, 10%
  4 x 13W/2Ω @15V, 1KHz, 10%
  2 x 34W/8Ω @ 22V, 1kHz, 10%
- MINIMUM EXTERNAL COMPONENTS COUNT:
  – NO BOOTSTRAP CAPACITORS
  – NO BOUCHEROT CELLS
  – INTERNALLY FIXED GAIN (26dB BTL)
- ST-BY FUNCTION (CMOS COMPATIBLE)
- NO AUDIBLE POP DURING ST-BY OPERATIONS
- DIAGNOSTIC FACILITIES
  – CLIP DETECTOR
  – OUT TO GND SHORT
  – OUT TO V_S SHORT
  – SOFT SHORT AT TURN-ON
  – THERMAL SHUTDOWN PROXIMITY

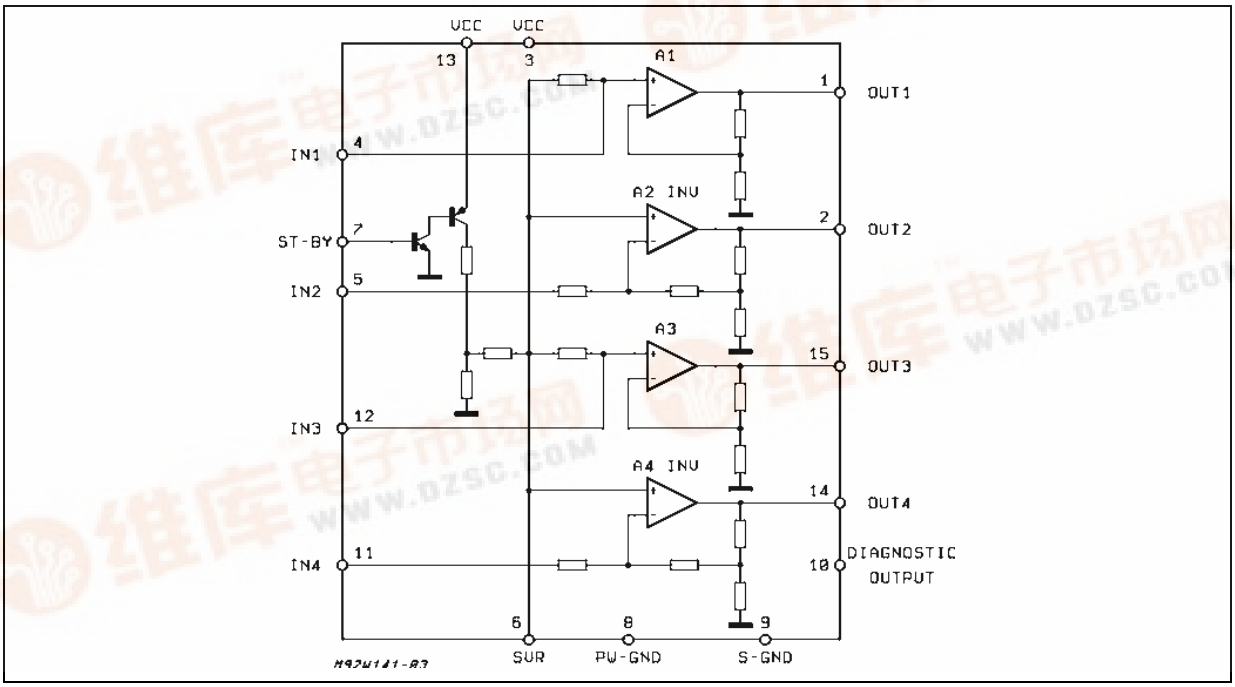
Protections:

- OUPUT AC/DC SHORT CIRCUIT
  – TO GND
  – TO V_S
  – ACROSS THE LOAD
- SOFT SHORT AT TURN-ON
- OVERRATING CHIP TEMPERATURE WITH SOFT THERMAL LIMITER
- FORTUITOUS OPEN GND
- REVERSED BATTERY
- ESD



Multiwatt15 (Vertical)
ORDERING NUMBER: TDA7379

BLOCK DIAGRAM



This is preliminary information on a new product now in development. Details are subject to change without notice.

DESCRIPTION

The TDA7379 is a new technology class AB audio processor amplifier able to work either in DUAL BRIDGE or QUAD SINGLE ENDED configuration.

The exclusive fully complementary structure of the output stage and the internally fixed gain guarantee the highest power performances with extremely reduced component count. The on board clip detector simplifies gain compression operation. The fault diagnostic makes it possible to detect mistakes during the set assembly and wiring in the equipment.

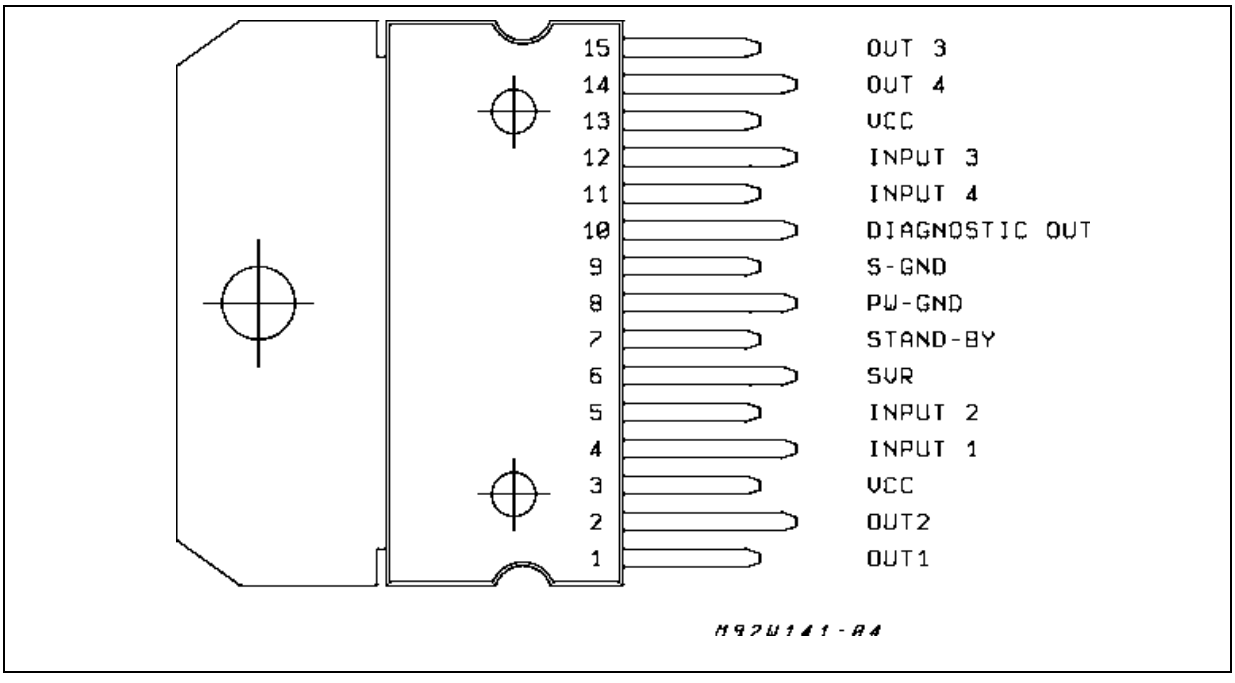
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage Idle mode (no signal)	24	V
	Supply Voltage operating	22	V
	Supply Voltage AC-DC-short safe	20	V
I_O	Output Peak Current (not repetitive t = 100µs)	5	A
I_O	Output Peak Current (repetitive f > 10Hz)	4	A
P_{tot}	Power Dissipation T_{case} = 85°C	36	W
T_{stg}, T_j	Storage and Junction Temperature	-40 to 150	°C

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th\ j\text{-}case}$	Thermal Resistance Junction to case Max	1.8	°C/W

PIN CONNECTION (Top view)



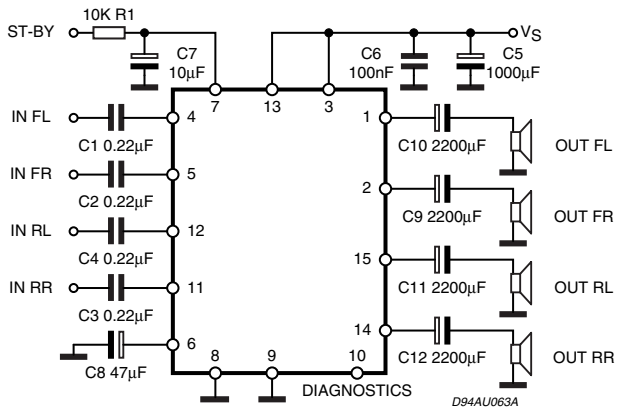
ELECTRICAL CHARACTERISTCS (Refer to the test circuit, V_S = 15V; R_L = 4Ω; f = 1KHz; T_{amb} = 25°C, unless otherwise specified).

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_S	Supply Voltage Range		8		20	V
I_d	Total Quiescent Drain Current	$R_L = \infty$			150	mA
V_{OS}	Output Offset Voltage				150	mV
P_O	Output Power	THD = 10%; R_L = 4Ω Bridge Single Ended Single Ended, R_L = 2Ω	 25 6.5	 28 7.5 13		 W W W
P_O	Output Power	THD = 10%; V_s = 18V Single Ended, R_L = 4Ω BTL, R_L = 4Ω		 11 38		 W W
		THD = 10%; V_s = 18V BTL, R_L = 8Ω		 20		 W
		THD=10%; V_S = 22V Bridge, R_L = 8Ω Single Ended, R_L = 4Ω		 34 16		 W W
THD	Distortion	R_L = 4Ω Single Ended, P_O = 0.1 to 4W Bridge, P_O = 0.1 to 10W		 0.02 0.03	 0.3	 % %
CT	Cross Talk	f = 1KHz Single Ended f = 10KHz Single Ended		 70 60		 dB dB
		f = 1KHz Bridge f = 10KHz Bridge	 55	 60		 dB dB
R_{IN}	Input Impedance	Single Ended Bridge	20 10	30 15		KΩ KΩ
G_V	Voltage Gain	Single Ended	19	20	21	dB
		Bridge	25	26	27	dB
G_V	Voltage Gain Match				0.5	dB
E_{IN}	Input Noise Voltage	R_g = 0; "A" weighted, S.E. Non Inverting Channels Inverting Channels		 2 5		 µV µV
		Bridge R_g = 0; 22Hz to 22KHz		 3.5		 µV
SVR	Supply Voltage Rejection	R_g = 0; f = 300Hz	50			dB
A_{SB}	Stand-by Attenuation	P_O = 1W	80	90		dB
I_{SB}	ST-BY Current Consumption	V_{ST-BY} = 0 to 1.5V			100	µA
V_{SB}	ST-BY In Threshold Voltage				1.5	V
V_{SB}	ST-BY Out Threshold Voltage		3.5			V
I_{pin7}	ST-BY Pin Current	Play Mode V_{pin7} = 5V			50	µA
		Max Driving Current Under Fault (*)			5	mA
$I_{cd\ off}$	Clipping Detector Output Average Current	d = 1% (**)		90		µA
$I_{cd\ on}$	Clipping Detector Output Average Current	d = 5% (**)		160		µA
$V_{sat\ pin10}$	Voltage Saturation on pin 10	Sink Current at Pin 10 = 1mA			0.7	V

(*) See built-in S/C protection description
(**) Pin 10 Pulled-up to 5V with 10KΩ; R_L = 4Ω

STANDARD TEST AND APPLICATION CIRCUIT

Figure 1. Quad Stereo



Note:
The output decoupling capacitors (C9,C10,C11,C12) could be reduced to 1000µF if the 2Ω operation is not required.

Figure 2. Double Bridge

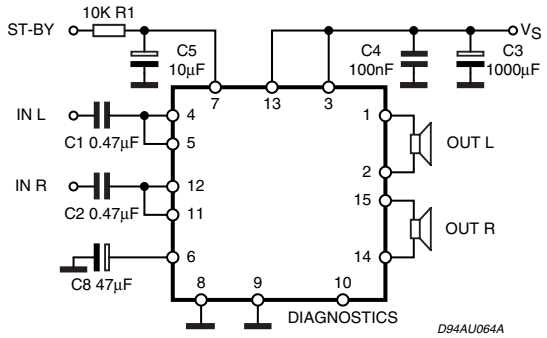


Figure 3. Stereo/Bridge

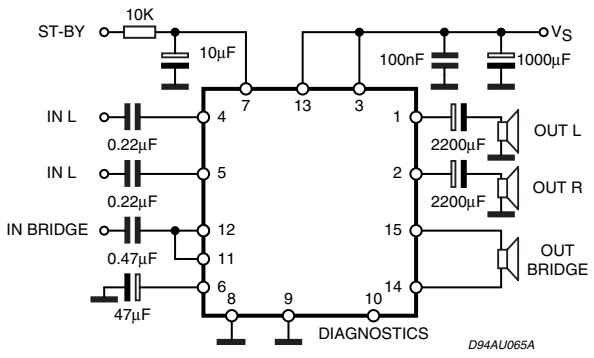


Figure 4. P.C. Board and Component Layout of the fig.1.

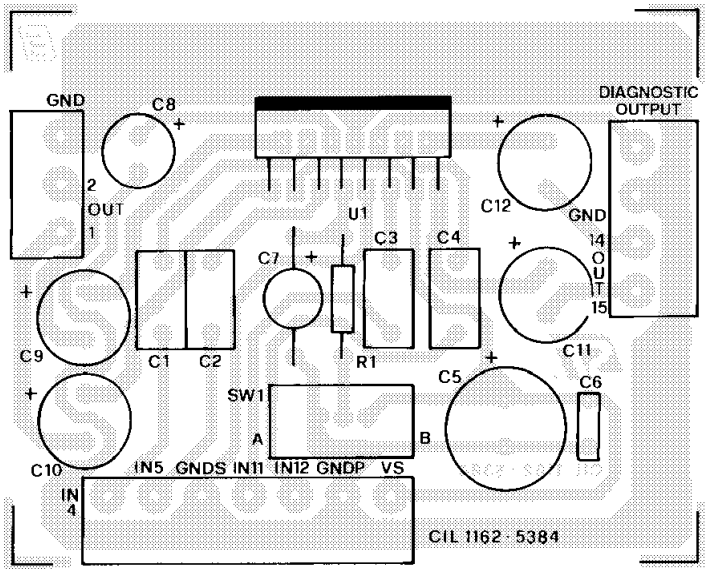
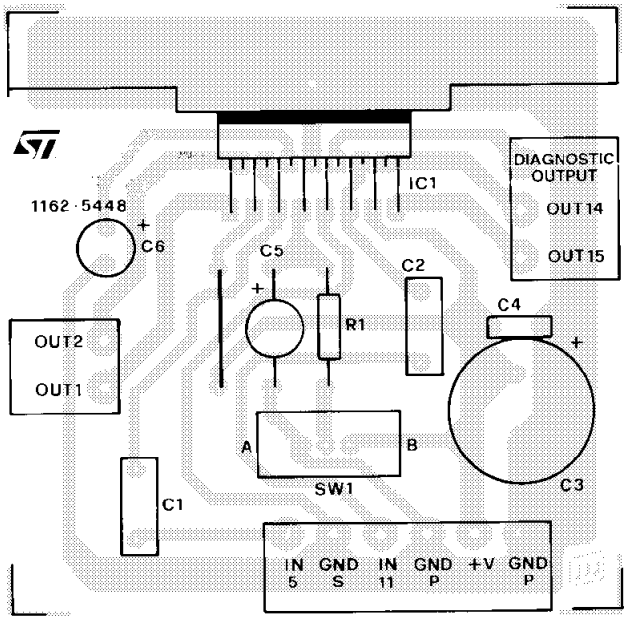
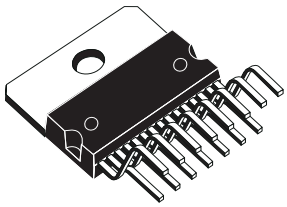


Figure 5. P.C. Board and Component Layout of the fig.2

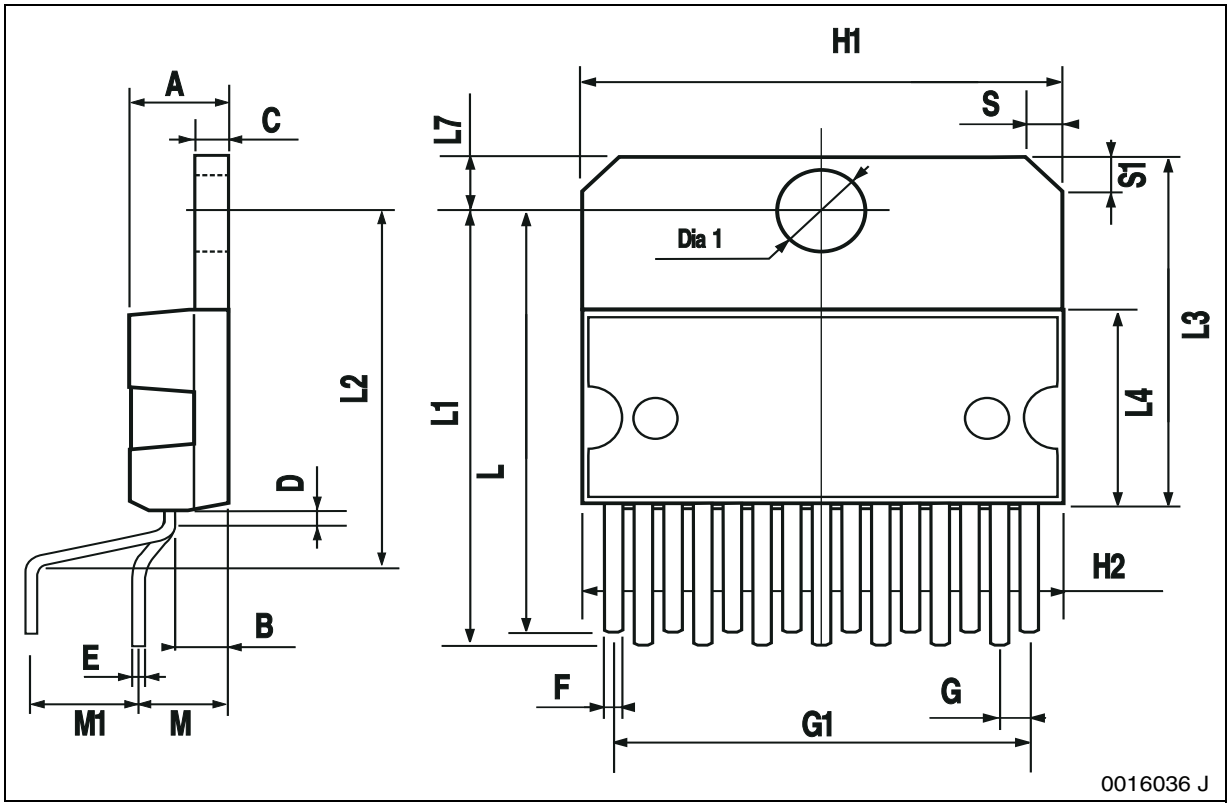


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A5						0.197
B			2.65			0.104
C			1.6			0.063
D		1			0.039	
E	0.49		0.55	0.019		0.022
F	0.66		0.75	0.026		0.030
G	1.02	1.27	1.52	0.040	0.050	0.060
G1	17.53	17.78	18.03	0.690	0.700	0.710
H1	19.6			0.772		
H2			20.2			0.795
L	21.9	22.2	22.5	0.862	0.874	0.886
L1	21.7	22.1	22.5	0.854	0.87	0.886
L2	17.65		18.1	0.695		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
M	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



Multiwatt15 (Vertical)



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