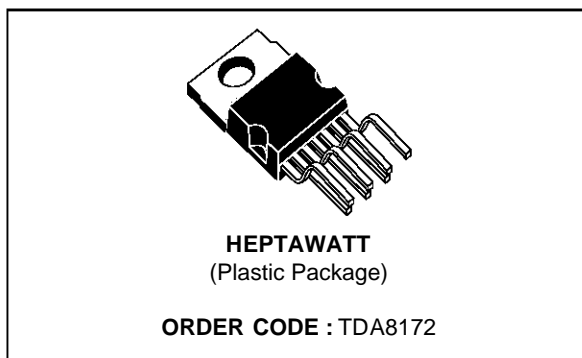


**TV VERTICAL DEFLECTION OUTPUT CIRCUIT**

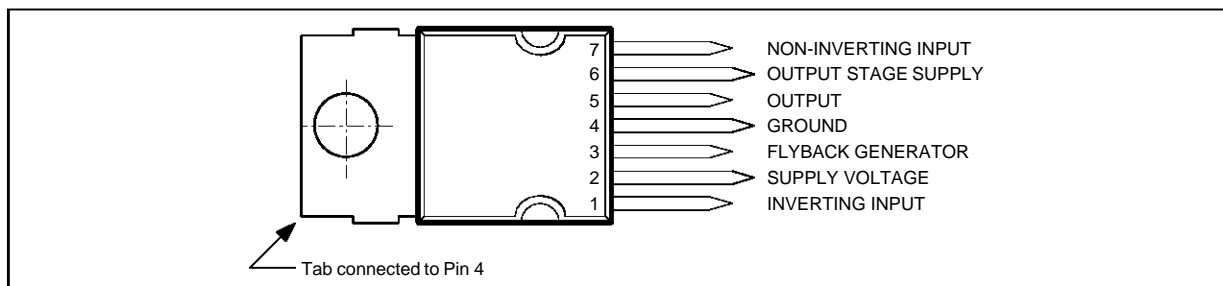
- POWER AMPLIFIER
- FLYBACK GENERATOR
- THERMAL PROTECTION

**DESCRIPTION**

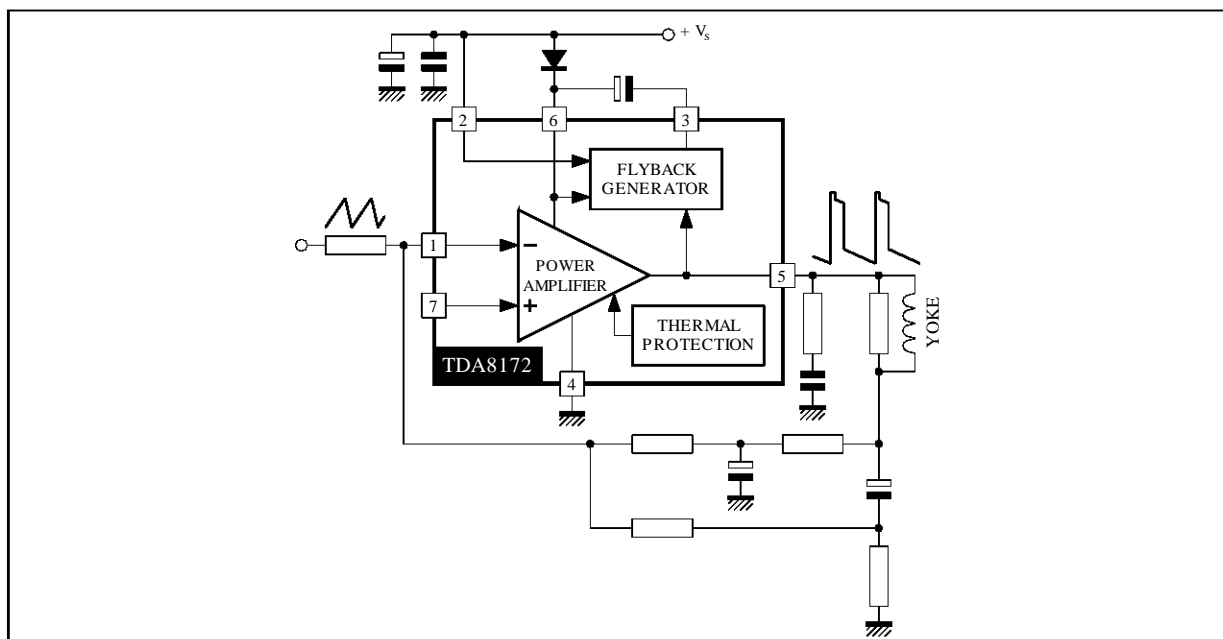
The TDA8172 is a monolithic integrated circuit in HEPTAWATT™ package. It is a high efficiency power booster for direct driving of vertical windings of TV yokes. It is intended for use in Color and B & W television as well as in monitors and displays.



**PIN CONNECTIONS (top view)**



**BLOCK DIAGRAM**



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V <sub>S</sub>	Supply Voltage (pin 2)	35	V
V <sub>5</sub> , V <sub>6</sub>	Flyback Peak Voltage	60	V
V <sub>3</sub>	Voltage at Pin 3	+ V <sub>S</sub>	
V <sub>1</sub> , V <sub>7</sub>	Amplifier Input Voltage	+ V <sub>S</sub> - 0.5	V
I <sub>o</sub>	Output Peak Current (non repetitive, t = 2 ms)	2.5	A
I <sub>o</sub>	Output Peak Current at f = 50 or 60 Hz, t ≤ 10 μs	3	A
I <sub>o</sub>	Output Peak Current at f = 50 or 60 Hz, t > 10 μs	2	A
I <sub>3</sub>	Pin 3 DC Current at V <sub>5</sub> < V <sub>2</sub>	100	mA
I <sub>3</sub>	Pin 3 Peak to Peak Flyback Current at f = 50 or 60 Hz, t <sub>fly</sub> ≤ 1.5 ms	3	A
P <sub>tot</sub>	Total Power Dissipation at T <sub>case</sub> = 90 °C	20	W
T <sub>stg</sub> , T <sub>j</sub>	Storage and Junction Temperature	- 40, +150	°C

8172-01.TBL

**THERMAL DATA**

Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Thermal Resistance Junction-case	Max. 3	°C/W

8172-02.TBL

**ELECTRICAL CHARACTERISTICS**

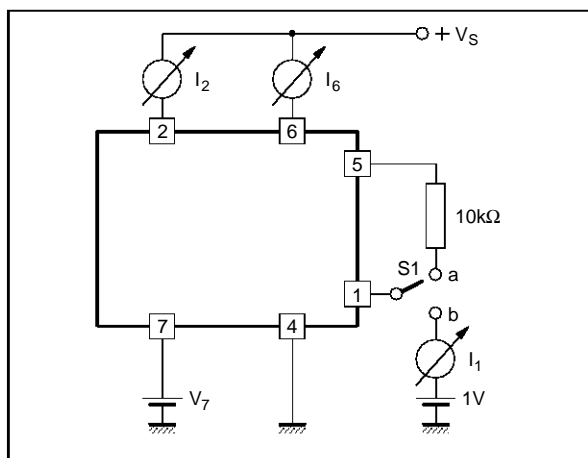
(refer to the test circuits, V<sub>S</sub> = 35V, T<sub>amb</sub> = 25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	Fig.
I <sub>2</sub>	Pin 2 Quiescent Current	I <sub>3</sub> = 0, I <sub>5</sub> = 0		8	16	mA	1a
I <sub>6</sub>	Pin 6 Quiescent Current	I <sub>3</sub> = 0, I <sub>5</sub> = 0		16	36	mA	1a
I <sub>1</sub>	Amplifier Input Bias Current	V <sub>1</sub> = 1 V, V <sub>7</sub> = 2 V		- 0.1	- 1	μA	1a
		V <sub>1</sub> = 2 V, V <sub>7</sub> = 1 V		- 0.1	- 1	μA	1a
V <sub>3L</sub>	Pin 3 Saturation Voltage to GND	I <sub>3</sub> = 20 mA		1	1.5	V	1c
V <sub>5</sub>	Quiescent Output Voltage	V <sub>S</sub> = 35V, R <sub>a</sub> = 39 kΩ		18		V	1d
V <sub>5L</sub>	Output Saturation Voltage to GND	I <sub>5</sub> = 1.2 A		1	1.4	V	1c
		I <sub>5</sub> = 0.7 A		0.7	1	V	1c
V <sub>5H</sub>	Output Saturation Voltage to Supply	- I <sub>5</sub> = 1.2 A		1.6	2.2	V	1b
		- I <sub>5</sub> = 0.7 A		1.3	1.8	V	1b
T <sub>j</sub>	Junction Temperature for Thermal Shut Down			140		°C	

8172-03.TBL

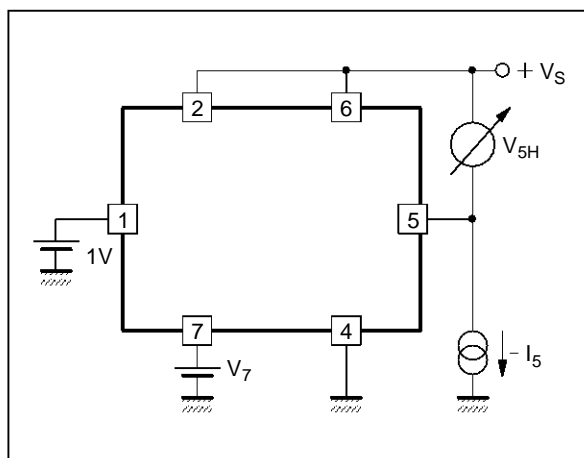
**Figure 1 : DC Test Circuits.**

**Figure 1 a : Measurement of  $I_1$  ;  $I_2$  ;  $I_6$**

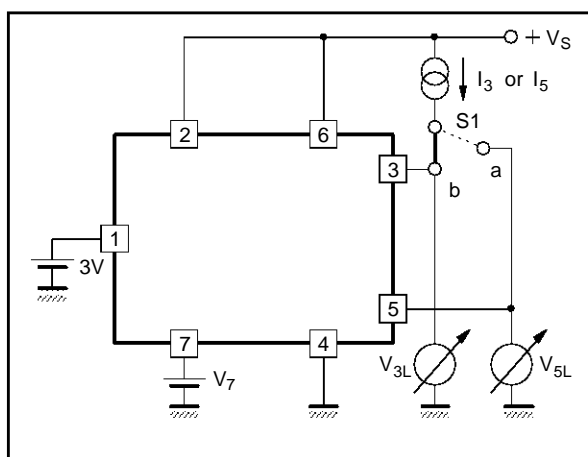


S<sub>1</sub> : (a)  $I_2$  and  $I_6$  ; (b)  $I_1$

**Figure 1 b : Measurement of  $V_{5H}$**



**Figure 1 c : Measurement of  $V_{3L}$  ;  $V_{5L}$**



S<sub>1</sub> : (a)  $V_{3L}$  ; (b)  $V_{5L}$

**Figure 1 d : Measurement of  $V_5$**

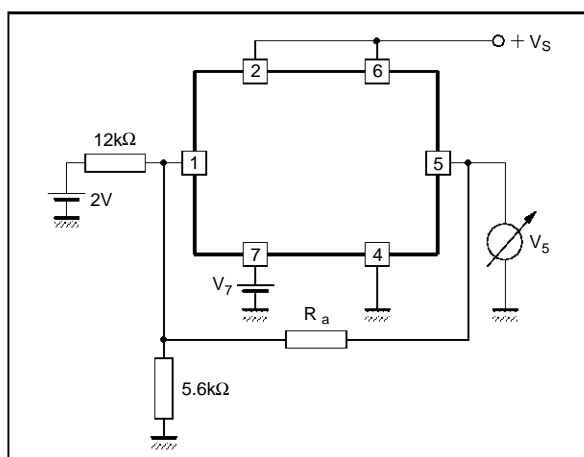
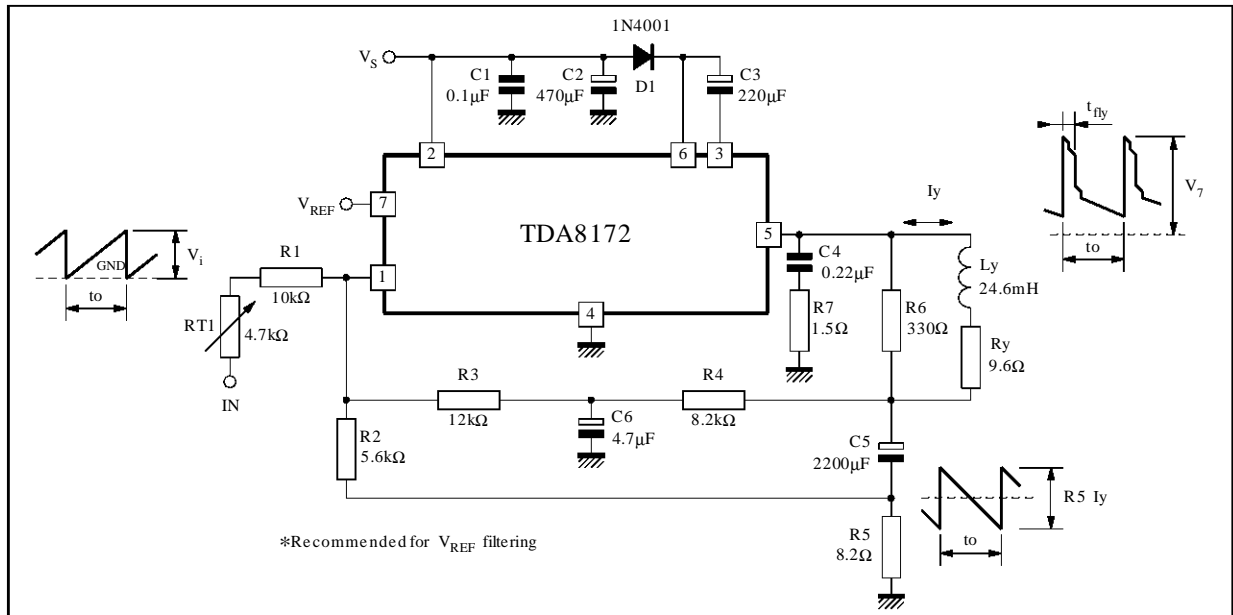


Figure 2 : AC Test Circuit



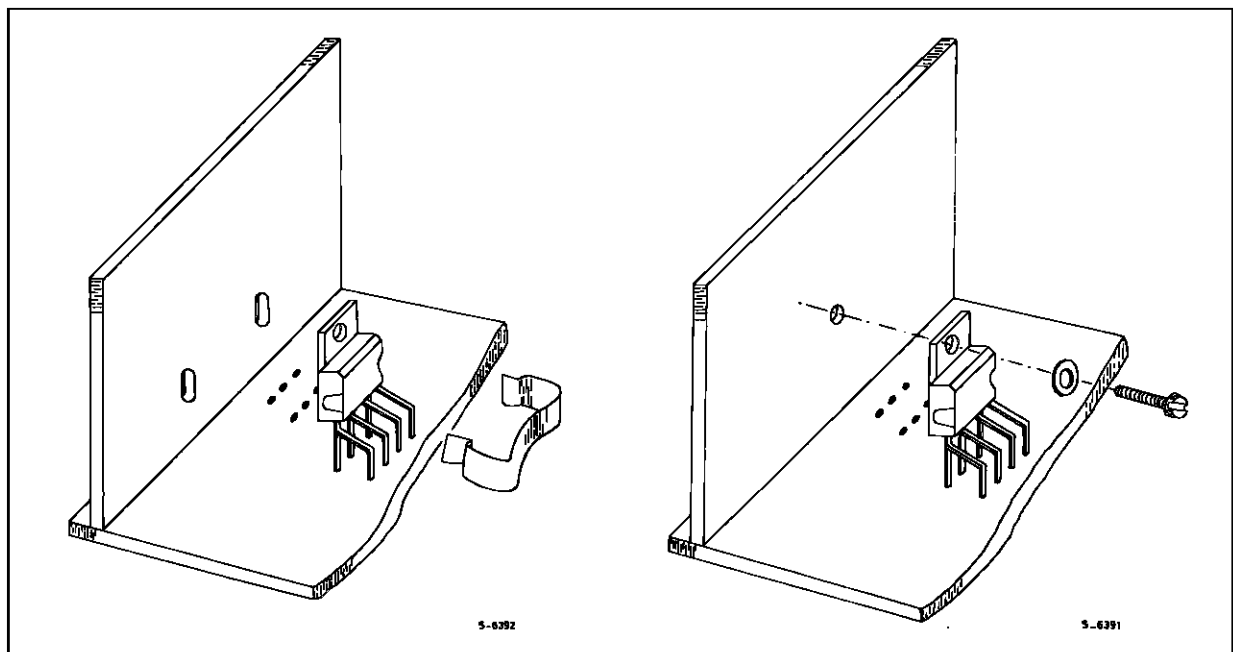
8172-07.EPS

**MOUNTING INSTRUCTIONS**

The power dissipated in the circuit must be removed by adding an external heatsink. Thanks to the HEPTAWATT™ package attaching the heatsink is very simple, a screw or a compression spring (clip) being sufficient.

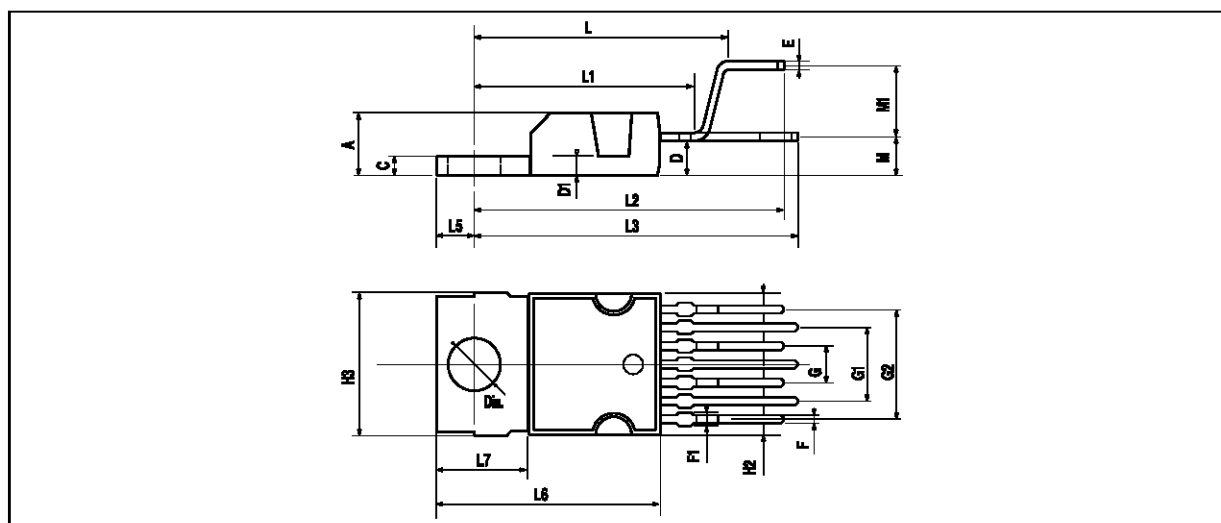
Between the heatsink and the package it is better to insert a layer of silicon grease, to optimize the thermal contact ; no electrical isolation is needed between the two surfaces, since the tab is connected to Pin 4 which is ground.

Figure 3 : Mounting Examples



8172-08.EPS - 8172-09.EPS

## PACKAGE MECHANICAL DATA : 9 PINS - PLASTIC HEPTAWATT



PM-HEPTVEPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			4.8			0.189
C			1.37			0.054
D	2.4		2.8	0.094		0.110
D1	1.2		1.35	0.047		0.053
E	0.35		0.55	0.014		0.022
F	0.6		0.8	0.024		0.031
F1			0.9			0.035
G	2.41	2.54	2.67	0.095	0.100	0.105
G1	4.91	5.08	5.21	0.193	0.200	0.205
G2	7.49	7.62	7.8	0.295	0.300	0.307
H2			10.4			0.409
H3	10.05		10.4	0.396		0.409
L		16.97			0.668	
L1		14.92			0.587	
L2		21.54			0.848	
L3		22.62			0.891	
L5	2.6		3	0.102		0.118
L6	15.1		15.8	0.594		0.622
L7	6		6.6	0.236		0.260
M		2.8			0.110	
M1		5.08			0.200	
Dia.	3.65		3.85	0.144		0.152

HEPTV.TBL

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