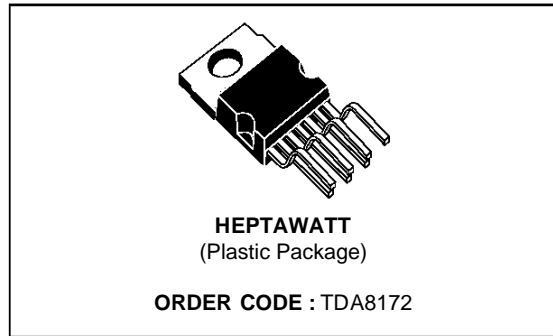


**TV VERTICAL DEFLECTION OUTPUT CIRCUIT**

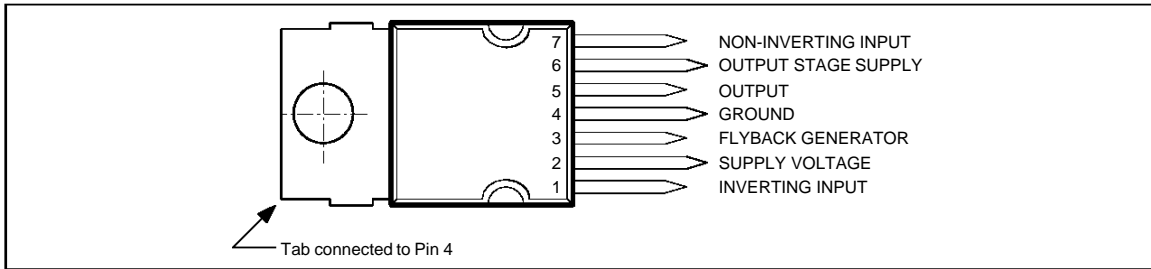
- POWER AMPLIFIER
- FLYBACK GENERATOR
- THERMAL PROTECTION

**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.

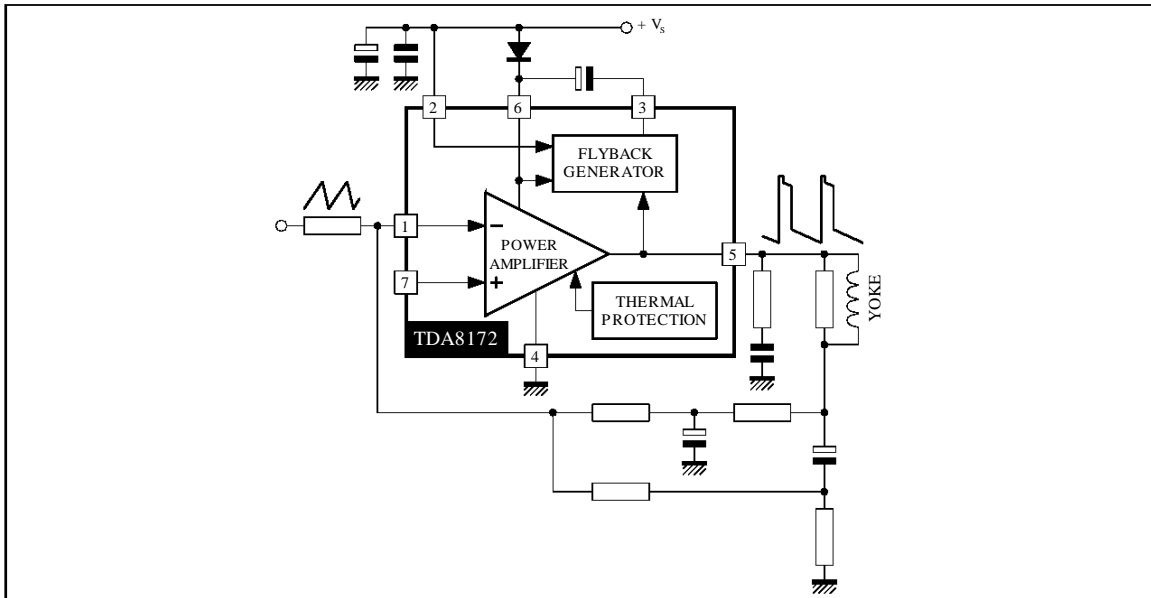


**PIN CONNECTIONS (top view)**



8172-01.EPS

**BLOCK DIAGRAM**



8172-02.EPS

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_S$	Supply Voltage (pin 2)	35	V
$V_5, V_6$	Flyback Peak Voltage	60	V
$V_3$	Voltage at Pin 3	+ $V_S$	
$V_1, V_7$	Amplifier Input Voltage	+ $V_S$ - 0.5	V
$I_o$	Output Peak Current (non repetitive, $t = 2$ ms)	2.5	A
$I_o$	Output Peak Current at $f = 50$ or $60$ Hz, $t \leq 10$ $\mu$ s	3	A
$I_o$	Output Peak Current at $f = 50$ or $60$ Hz, $t > 10$ $\mu$ s	2	A
$I_3$	Pin 3 DC Current at $V_5 < V_2$	100	mA
$I_3$	Pin 3 Peak to Peak Flyback Current at $f = 50$ or $60$ Hz, $t_{fly} \leq 1.5$ ms	3	A
$P_{tot}$	Total Power Dissipation at $T_{case} = 90$ °C	20	W
$T_{stg}, T_j$	Storage and Junction Temperature	- 40, +150	°C

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**THERMAL DATA**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Thermal Resistance Junction-case	Max. 3	°C/W

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**ELECTRICAL CHARACTERISTICS**

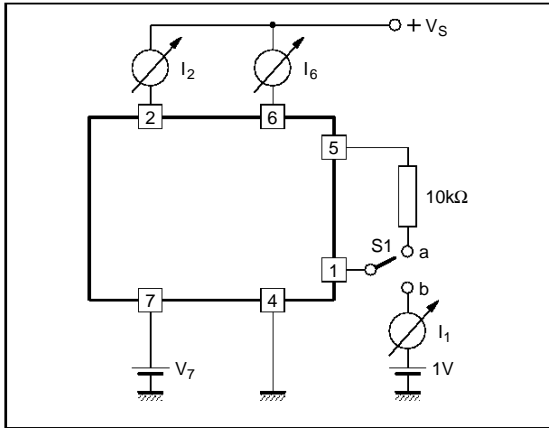
(refer to the test circuits,  $V_S = 35V$ ,  $T_{amb} = 25^\circ C$  unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	Fig.
$I_2$	Pin 2 Quiescent Current	$I_3 = 0, I_5 = 0$		8	16	mA	1a
$I_6$	Pin 6 Quiescent Current	$I_3 = 0, I_5 = 0$		16	36	mA	1a
$I_1$	Amplifier Input Bias Current	$V_1 = 1$ V, $V_7 = 2$ V		- 0.1	- 1	$\mu$ A	1a
		$V_1 = 2$ V, $V_7 = 1$ V		- 0.1	- 1	$\mu$ A	1a
$V_{3L}$	Pin 3 Saturation Voltage to GND	$I_3 = 20$ mA		1	1.5	V	1c
$V_5$	Quiescent Output Voltage	$V_S = 35V, R_a = 39$ k $\Omega$		18		V	1d
$V_{5L}$	Output Saturation Voltage to GND	$I_5 = 1.2$ A		1	1.4	V	1c
		$I_5 = 0.7$ A		0.7	1	V	1c
$V_{5H}$	Output Saturation Voltage to Supply	- $I_5 = 1.2$ A		1.6	2.2	V	1b
		- $I_5 = 0.7$ A		1.3	1.8	V	1b
$T_j$	Junction Temperature for Thermal Shut Down			140		°C	

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Figure 1 : DC Test Circuits.

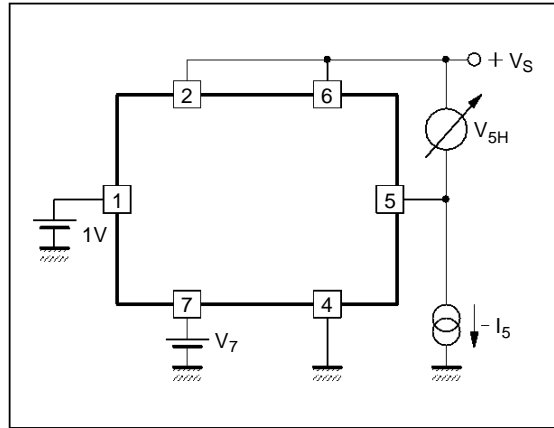
Figure 1 a : Measurement of  $I_1$  ;  $I_2$  ;  $I_6$



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

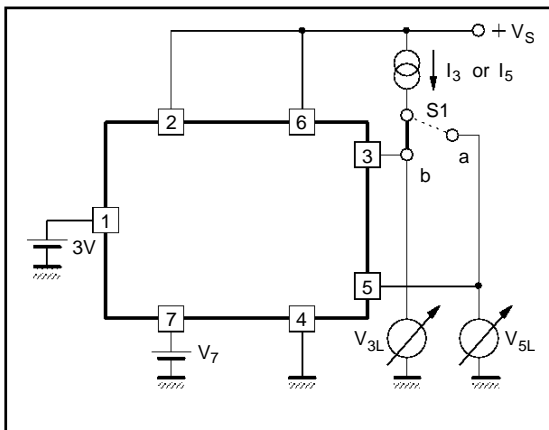
8172-03.EPS

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



8172-04.EPS

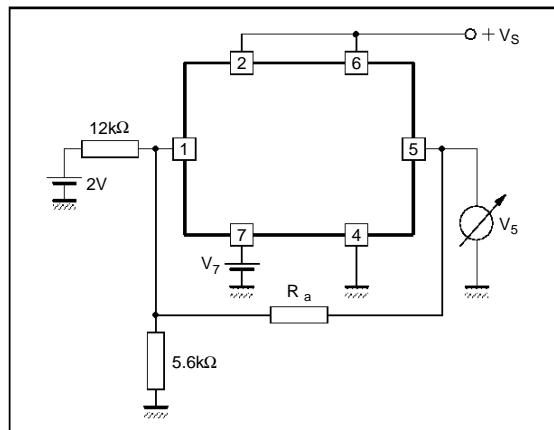
Figure 1 c : Measurement of  $V_{3L}$  ;  $V_{5L}$



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

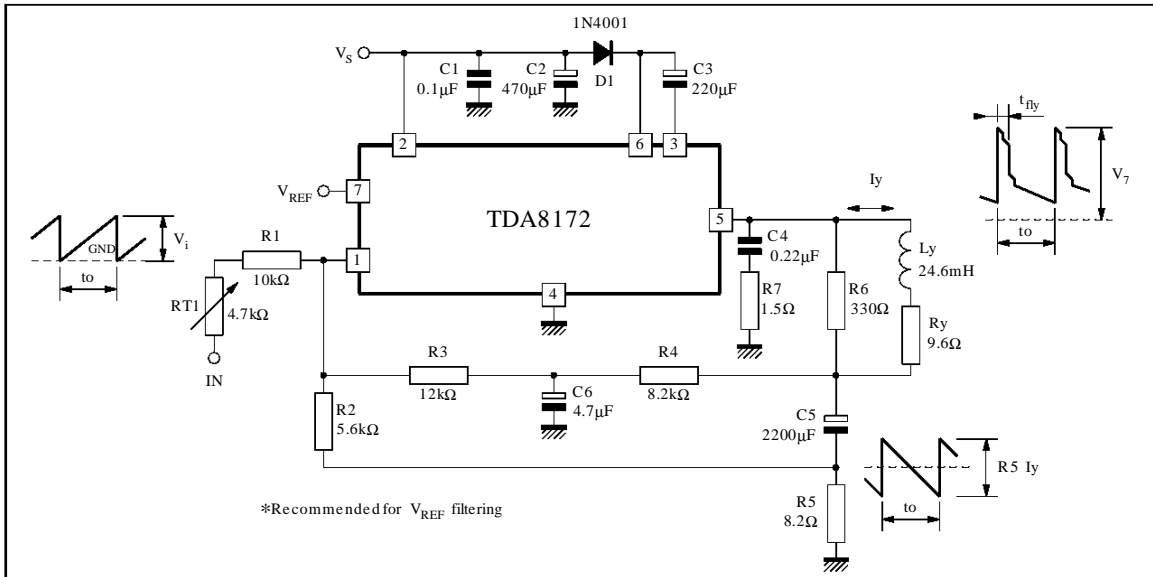
8172-05.EPS

Figure 1 d : Measurement of  $V_5$



8172-06.EPS

Figure 2 : AC Test Circuit



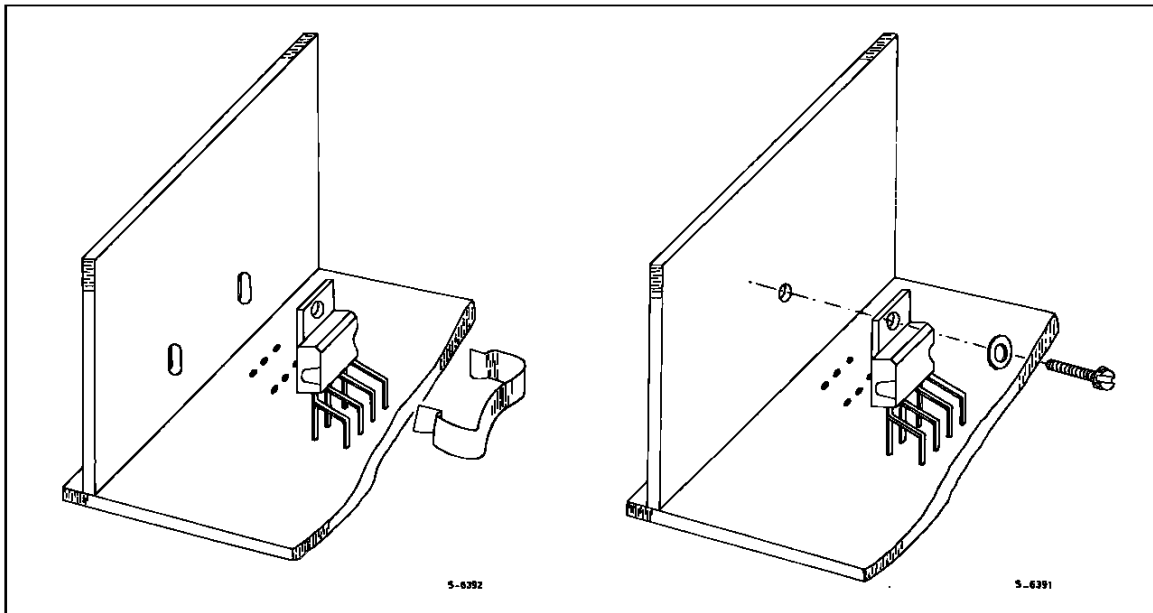
8172-07.EPS

**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.

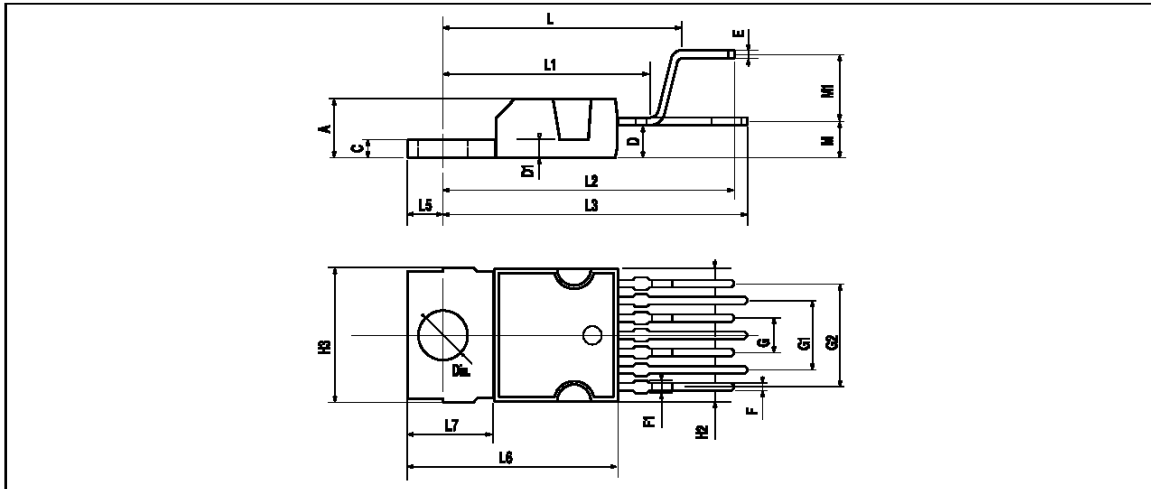
Between the heatsink and the package it is better to insert a layer of silicon grease, to optimize the thermal contact ; no electrical isolation is needed between the two surfaces, since the tab is connected to the two surfaces, since the tab is connected to Pin 4 which is ground.

Figure 3 : Mounting Examples



8172-08.EPS - 8172-08.EPS

## PACKAGE MECHANICAL DATA : 9 PINS - PLASTIC HEPTAWATT



PM-HEPTV.EPS

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

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