



TDA8172

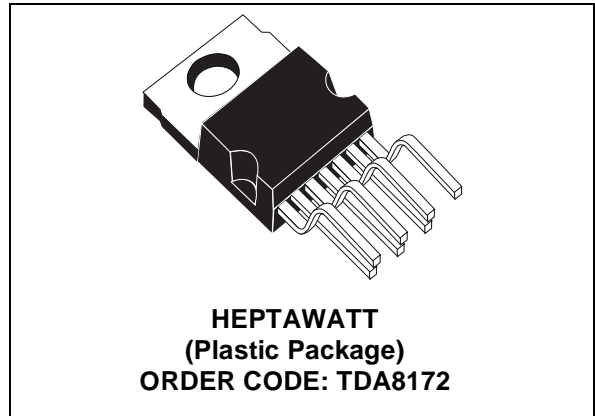
TV VERTICAL DEFLECTION OUTPUT CIRCUIT

FEATURES

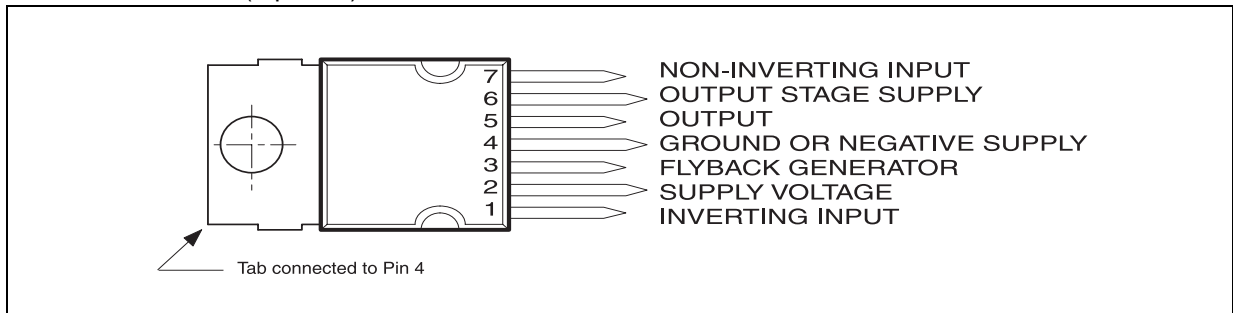
- Power Amplifier
- Flyback Generator
- Thermal Protection

DESCRIPTION

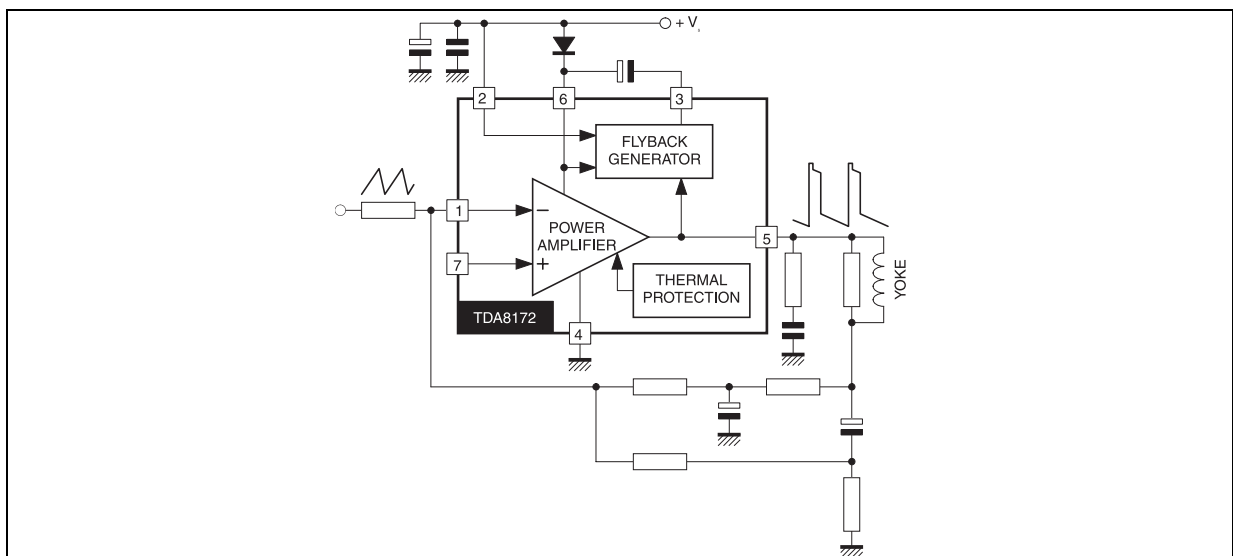
The TDA8172 is a monolithic integrated circuit in Heptawatt™ package. It is a high efficiency power booster for direct driving of vertical windings of TV yokes. It is intended for use in color and black & white television as well as in monitors and displays.



PIN CONNECTION (top view)



BLOCK DIAGRAM



1 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 (see Note 1)	$V_S + 3$	V
V_1, V_7	Amplifier Input Voltage	$V_S - 0.5$	V
I_0	Output Peak Current (non repetitive, $t = 2\text{ms}$)	2.5	A
I_0	Output Peak Current at $f = 50$ to 200 Hz, $t \leq 10\mu\text{s}$	± 5	A
I_0	Output Peak Current at $f = 50$ to 200 Hz, $t > 10\mu\text{s}$	2	A
I_3	Pin 3 DC Current at $V_5 < V_2$	100	mA
I_3	Pin 3 Flyback Current at $f = 50$ to 200 Hz, $t_{\text{fly}} \leq 1.5\text{ms}$	± 1.5	A
I_3	Pin 3 Sink Current at $f = 50$ to 200 Hz, $t \leq 10\mu\text{s}$	5	A
P_{tot}	Total Power Dissipation at $T_{\text{case}} = 90^\circ\text{C}$	20	W
T_{stg}, T_j	Storage and Junction Temperature	-40, +150	$^\circ\text{C}$

Note 1: This occurs during the first part of flyback pulse

2 THERMAL DATA

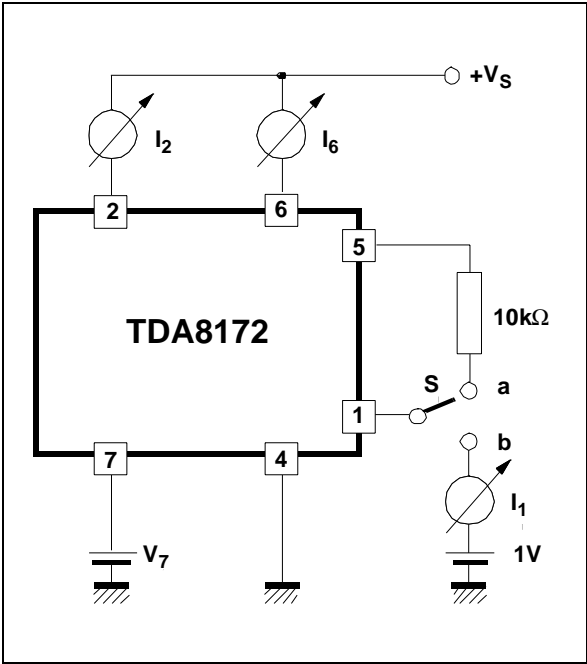
Symbol	Parameter	Value	Unit
$R_{\text{th(j-c)}}$	Thermal Resistance Junction-case	3	$^\circ\text{C/W}$

3 ELECTRICAL CHARACTERISTICS

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

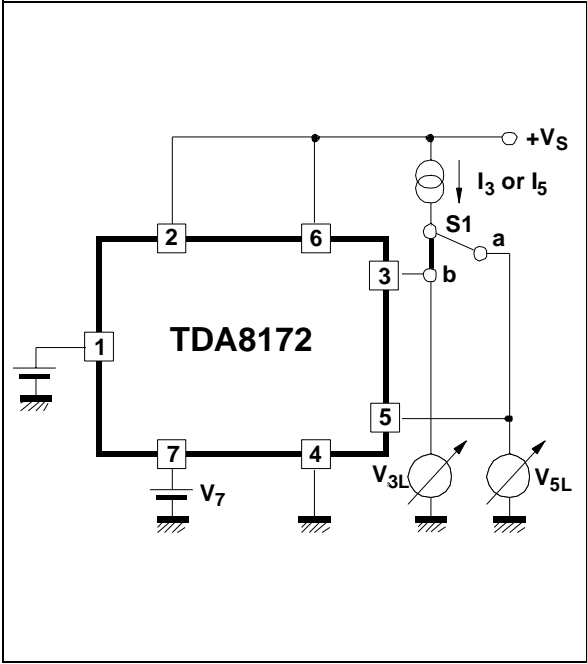
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	Fig.
I_2	Pin 2 Quiescent Current	$I_3 = 0, I_5 = 0$		8	16	mA	1
I_6	Pin 6 Quiescent Current	$I_3 = 0, I_5 = 0$		16	36	mA	1
I_1	Amplifier Input Bias Current	$V_1 = 1\text{ V}, V_7 = 2\text{ V}$		-0.1	-1	μA	1
		$V_1 = 2\text{ V}, V_7 = 1\text{ V}$		-0.1	-1	μA	1
V_{3L}	Pin 3 Saturation Voltage to GND	$I_3 = 20\text{ mA}$		1	1.5	V	3
V_5	Quiescent Output Voltage	$V_S = 35\text{V}, R_a = 39\text{ k}\Omega$		18		V	4
V_{5L}	Output Saturation Voltage to GND	$I_5 = 1.2\text{ A}$		1	1.4	V	3
		$I_5 = 0.7\text{ A}$		0.7	1	V	3
V_{5H}	Output Saturation Voltage to Supply	$-I_5 = 1.2\text{ A}$		1.6	2.2	V	2
		$-I_5 = 0.7\text{ A}$		1.3	1.8	V	2
T_j	Junction Temperature for Thermal Shutdown			140		$^\circ\text{C}$	

Figure 1. Measurement of I_1, I_2, I_6



S1: (a) I_2 and I_6 ; (b) I_1

Figure 3. Measurement of V_{3L}, V_{5L}



S: (a) V_{3L} ; (b) V_{5L}

Figure 2. Measurement of V_{5H}

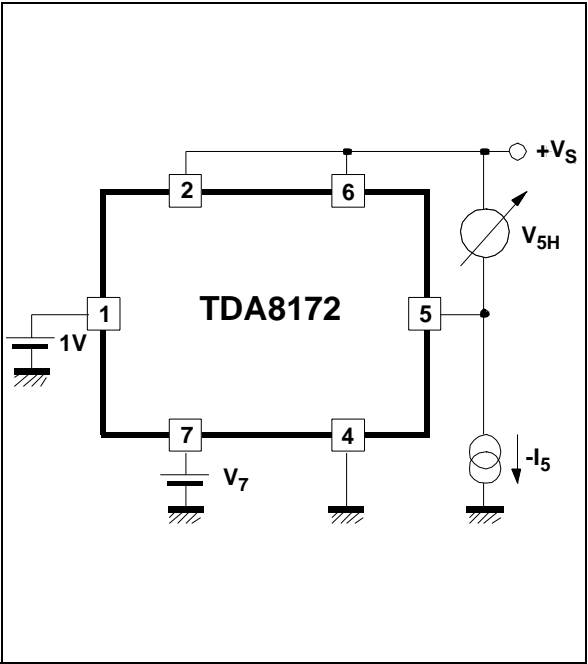


Figure 4. Measurement of V_5

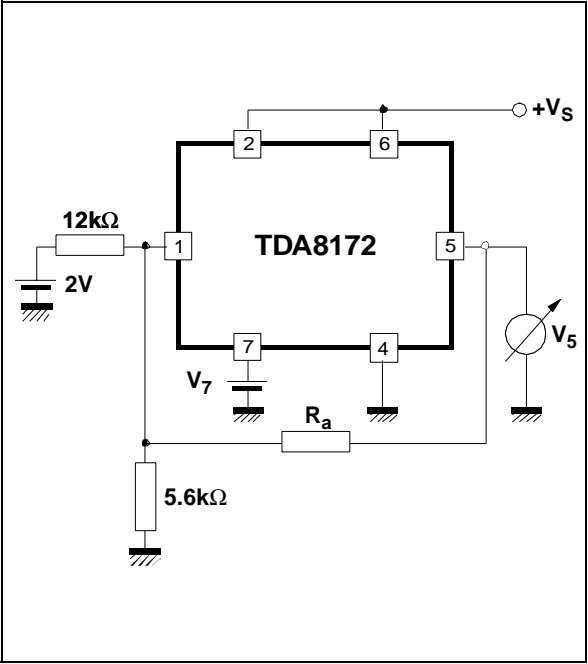
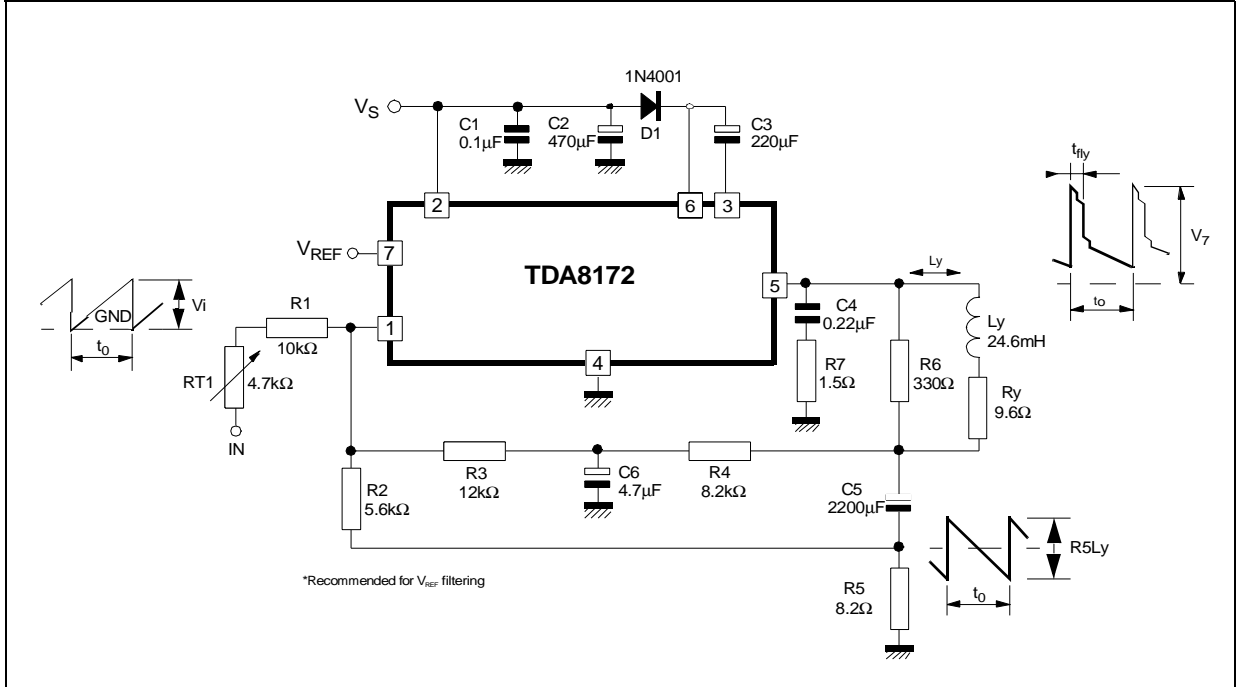


Figure 5. AC test circuit

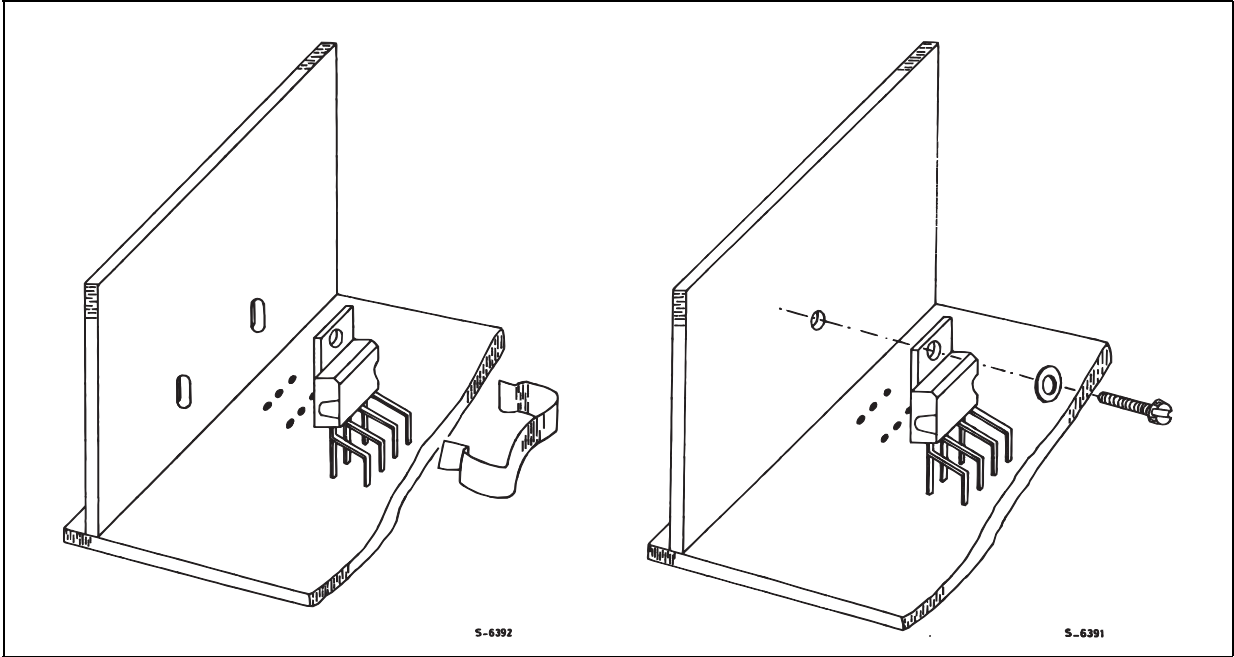


4 MOUNTING INSTRUCTIONS

The power dissipated in the circuit is removed by adding an external heatsink. With the HEPTAWATT™ package, the heatsink is simply attached with a screw or a compression spring (clip).

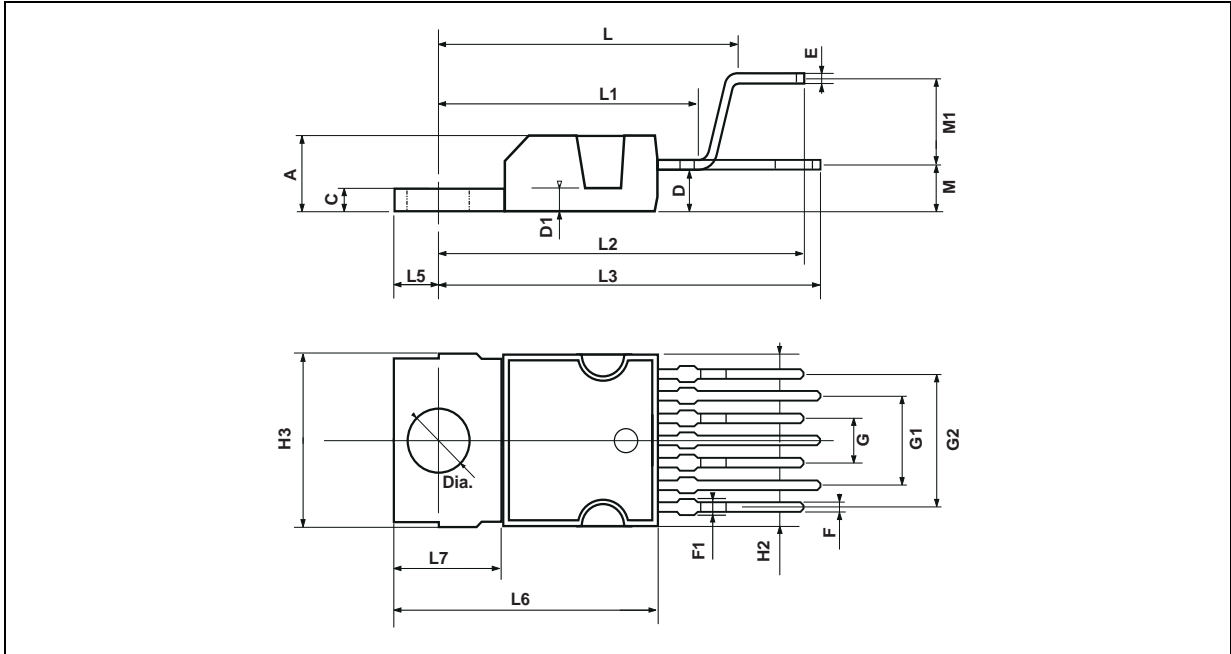
A layer of silicon grease inserted between heatsink and package optimizes thermal contact ; no electrical isolation is needed between the two surfaces since the tab is connected to Pin 4 which is ground.

Figure 6. Mounting examples



5 PACKAGE MECHANICAL DATA

9 PINS - plastic heptawatt



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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