TDA9302H

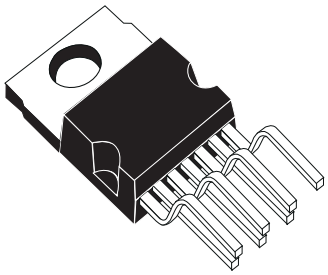
TV VERTICAL DEFLECTION OUTPUT CIRCUIT

FEATURES

- Power Amplifier
- Flyback Generator
- Thermal Protection

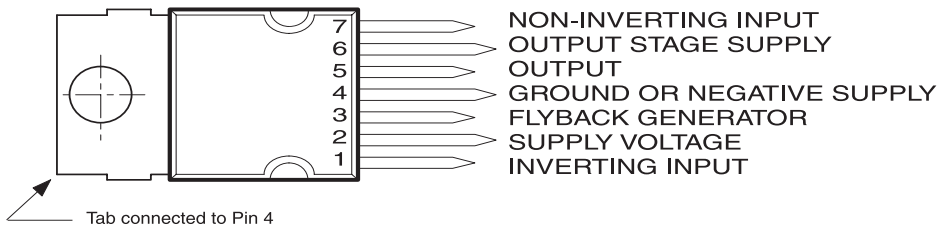
DESCRIPTION

The TDA9302H 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.

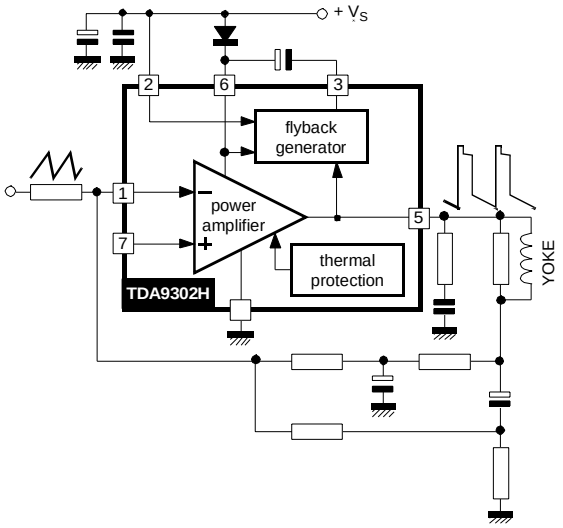


HEPTAWATT
(Plastic Package)
ORDER CODE: TDA9302H

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 = 2ms)	1.8	A
I_0	Output Peak Current at f = 50 to 200 Hz, t ≤ 10µs	±4	A
I_0	Output Peak Current at f = 50 to 200 Hz, t > 10µs	1.5	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, $t_{fly} \leq 1.5$ms	±1.5	A
I_3	Pin 3 Sink Current at f = 50 to 200 Hz, t ≤ 10µs	4	A
P_{tot}	Total Power Dissipation at T_{case} = 90 °C	20	W
T_{stg}, T_j	Storage and Junction Temperature	-40, +150	°C

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

2 THERMAL DATA

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

3 ELECTRICAL CHARACTERISTICS

(refer to the test circuits, V_S = 35V, T_{amb} = 25°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 V, V_7 = 2 V		- 0.1	- 1	µA	1
		V_1 = 2 V, V_7 = 1 V		- 0.1	- 1	µA	1
V_{3L}	Pin 3 Saturation Voltage to GND	I_3 = 20 mA		1	1.5	V	3
V_5	Quiescent Output Voltage	V_S = 35V, R_a = 39 kΩ		18		V	4
V_{5L}	Output Saturation Voltage to GND	I_5 = 1 A		0.9	1.3	V	3
		I_5 = 0.7 A		0.7	1	V	3
V_{5H}	Output Saturation Voltage to Supply	- I_5 = 1 A		1.5	2	V	2
		- I_5 = 0.7 A		1.3	1.8	V	2
T_j	Junction Temperature for Thermal Shutdown			140		°C	

Figure 1. Measurement of I_1, I_2, I_6

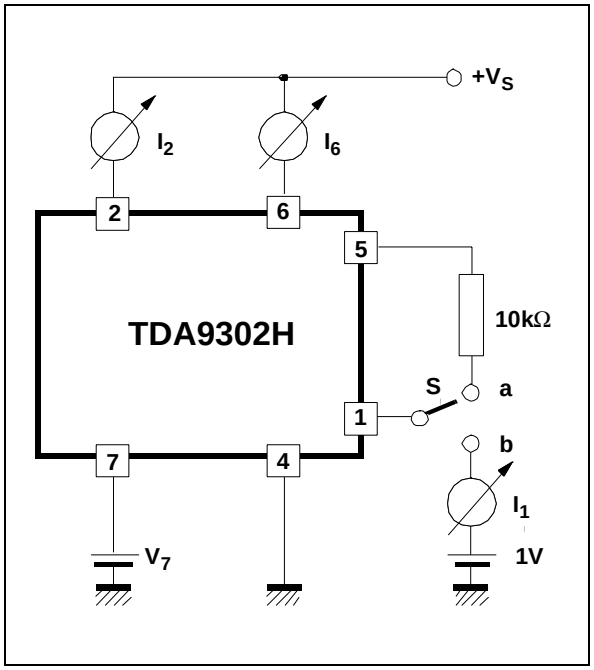
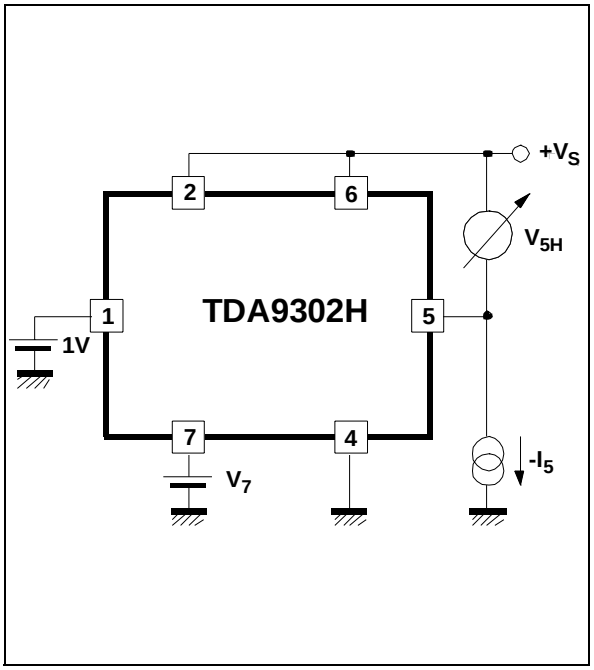


Figure 2. Measurement of V_{5H}



S1: (a) I2 and I6 ; (b) I1

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

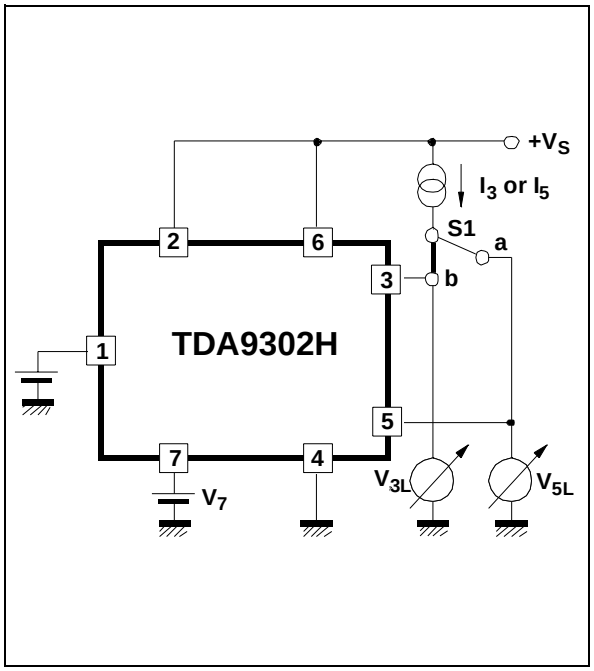
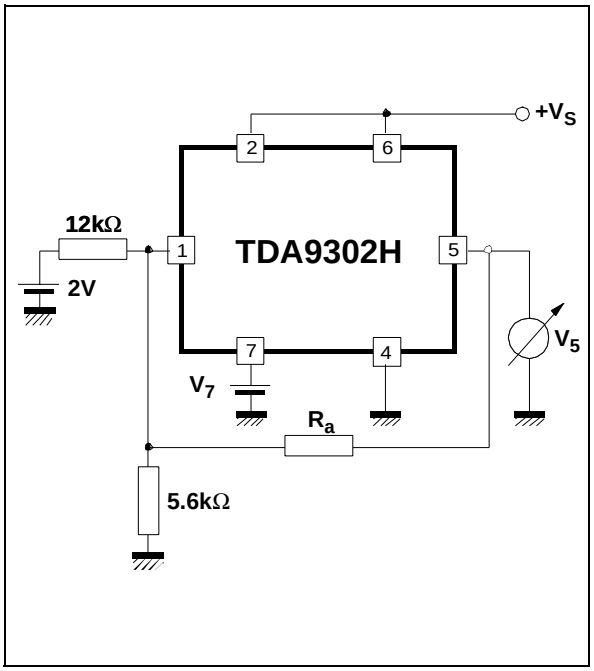
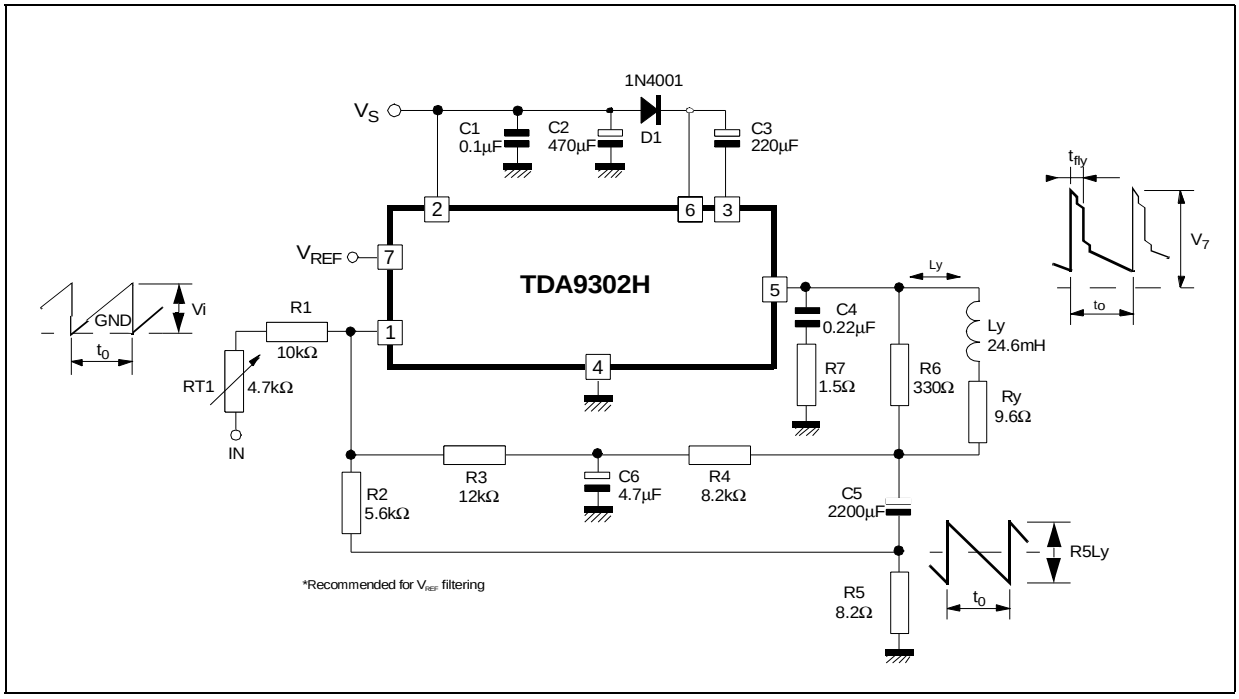


Figure 4. Measurement of V_5



S: (a) V3L ; (b) V5L

Figure 5. AC test circuit

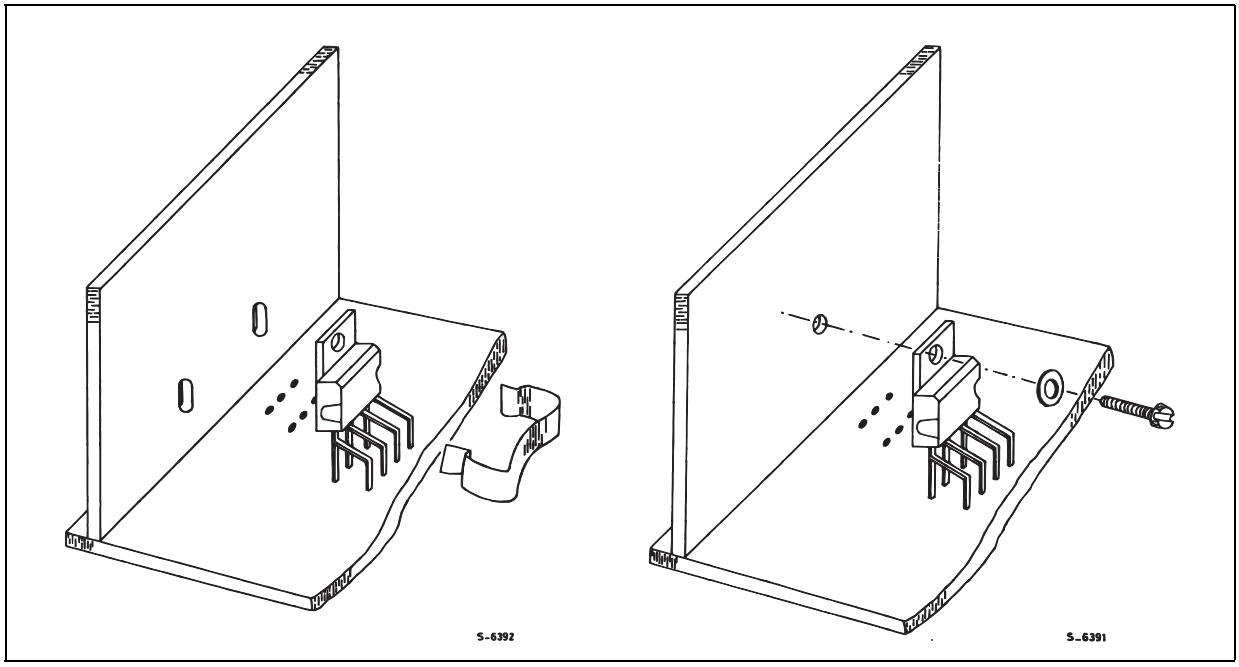


4 MOUNTING INSTRUCTIONS

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).

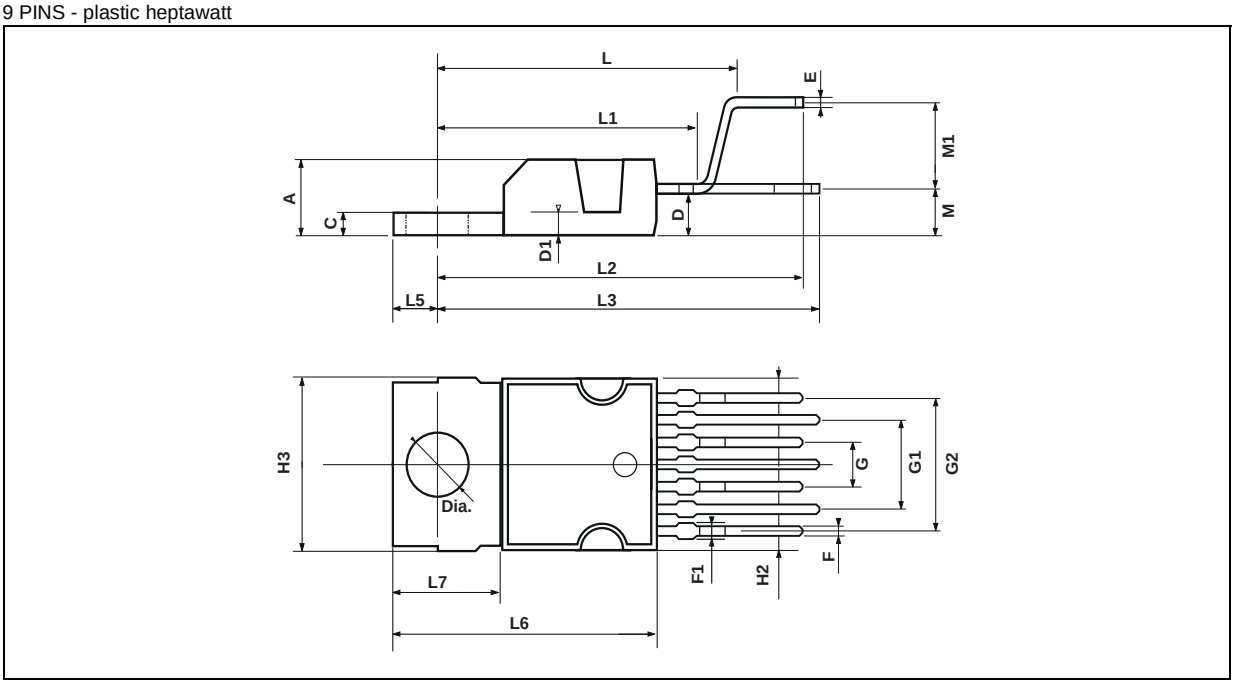
A layer of silicon grease inserted between heatsink and package optimizes thermal contact ; no electrical isolation is needed between the two surfaces since the tab is connected to Pin 4 which is ground.

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