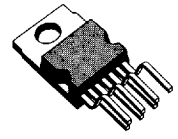
SGS-THOMSON MICROELECTRONICS

TDA8172

TV VERTICAL DEFLECTION OUTPUT CIRCUIT

- POWER AMPLIFIER
- FLYBACK GENERATOR
- THERMAL PROTECTION



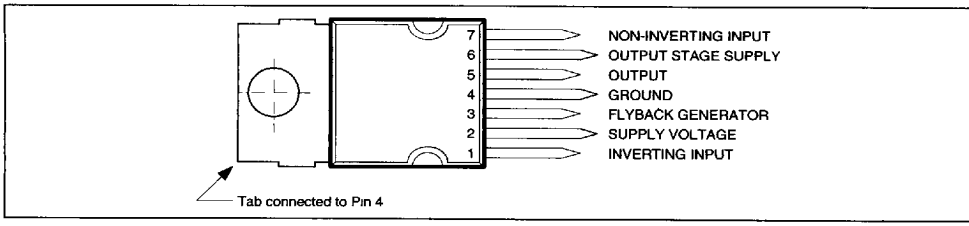
HEPTAWATT
(Plastic Package)

ORDER CODE : TDA8172

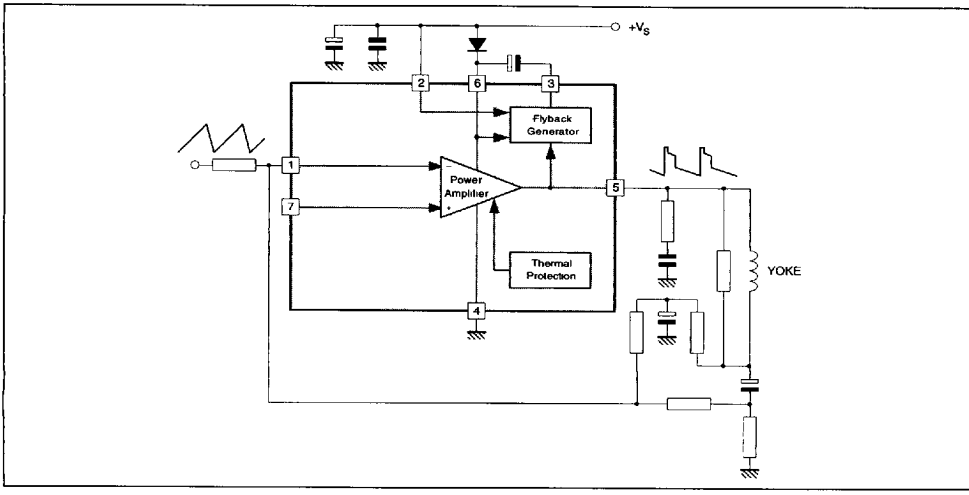
DESCRIPTION

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_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, $t \leq 10$ µs	3	A
I_o	Output Peak Current at f = 50 or 60 Hz, $t > 10$ µs	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

8172-01.TBL

THERMAL DATA

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

8172-02.TBL

ELECTRICAL CHARACTERISTICS

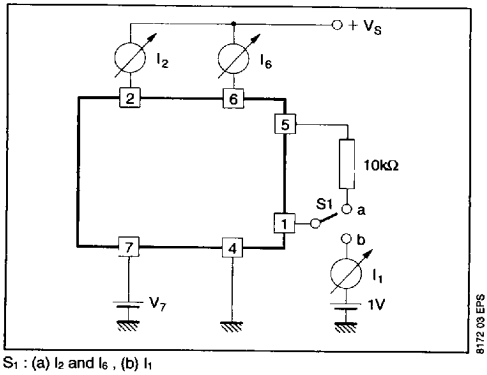
(refer to the test circuits, V_S = 35V, T_{amb} = 25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	Fig.
I_2	Pin 2 Quiescent Current	$I_3 = 0$, $I_5 = 0$		8	16	mA	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	µA	1a
		$V_1 = 2$ V, $V_7 = 1$ V		− 0.1	− 1	µA	1a
V_{3L}	Pin 3 Saturation Voltage to GND	$I_3 = 20$ mA		1	1.5	V	1c
V_5	Quiescent Output Voltage	$V_s = 35$V, $R_a = 39$ kΩ		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	

8172-03.TBL

Figure 1 : DC Test Circuits.

Figure 1 a : Measurement of I_1 ; I_2 ; I_6



S_1 : (a) I_2 and I_6 , (b) I_1

Figure 1 b : Measurement of V_{5H}

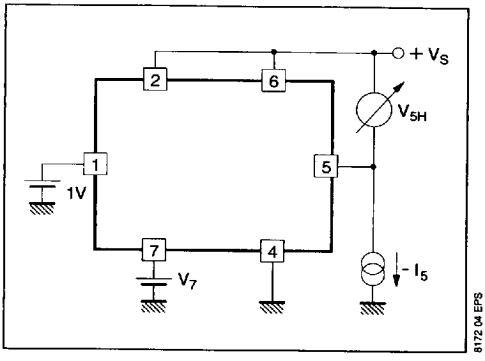
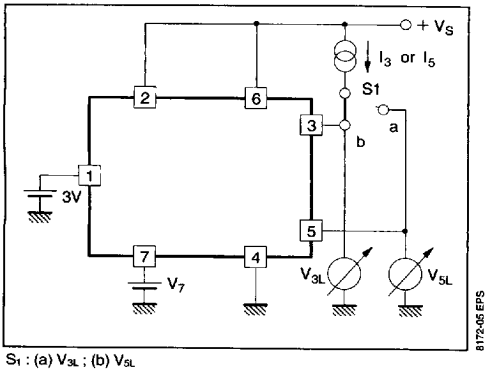


Figure 1 c : Measurement of V_{3L} ; V_{5L}



S_1 : (a) V_{3L} ; (b) V_{5L}

Figure 1 d : Measurement of V_5

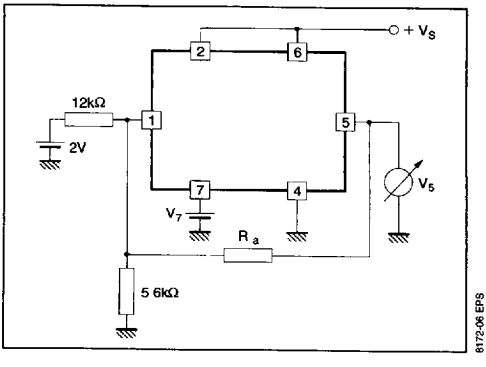
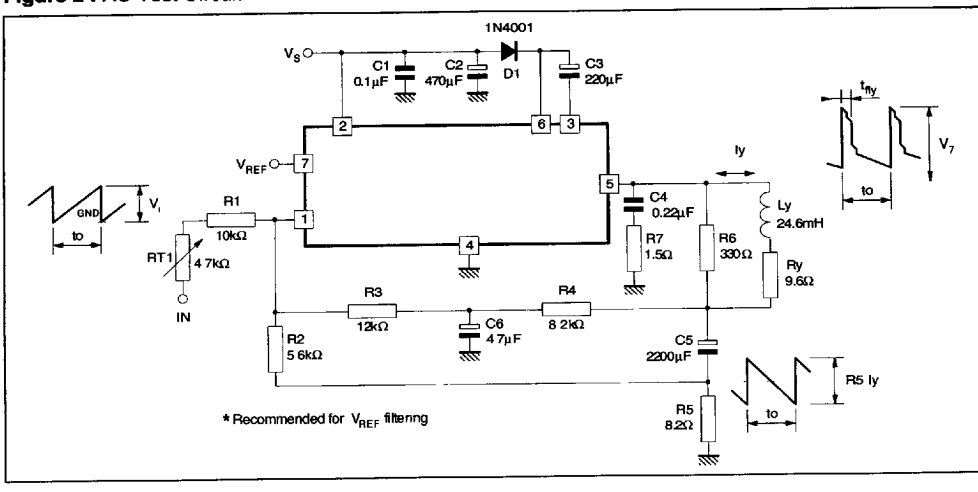


Figure 2 : AC Test Circuit



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