



# TDA8171

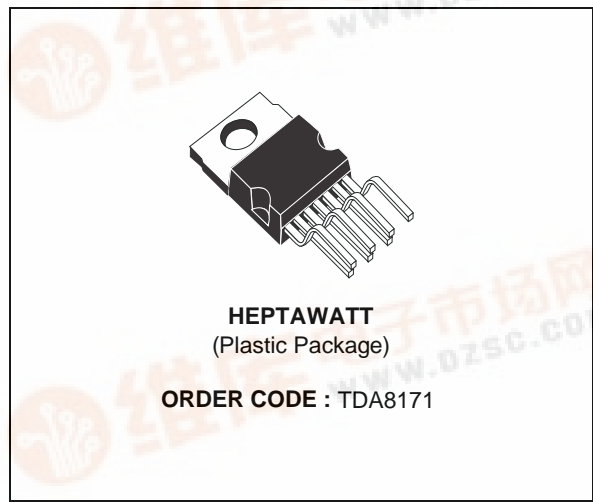
## VERTICAL DEFLECTION BOOSTER

- POWER AMPLIFIER
- FLYBACK GENERATOR
- THERMAL PROTECTION
- OUTPUT CURRENT UP TO 3.0A<sub>PP</sub>
- FLYBACK VOLTAGE UP TO 70V (on Pin 5)
- INTERNAL REFERENCE VOLTAGE

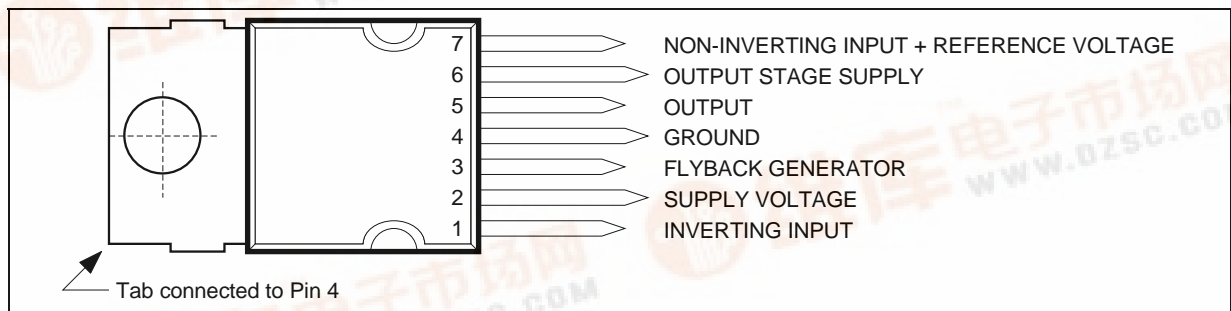
### DESCRIPTION

Designed for monitors and high performance TVs, the TDA8171 vertical deflection booster delivers flyback voltages up to 70V.

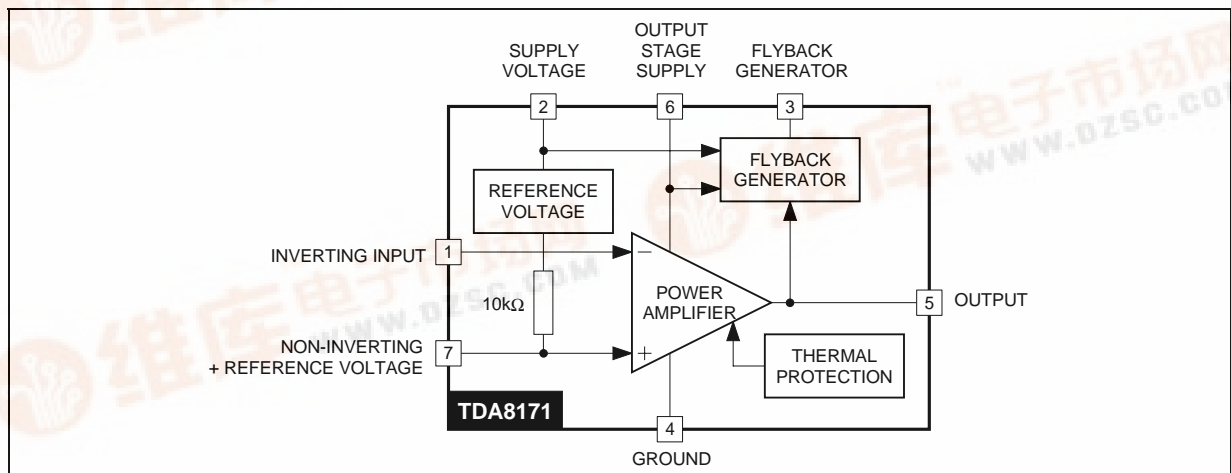
The TDA8171 operates with supplies up to 35V and provides up to 3A<sub>PP</sub> output current to drive the yoke. The TDA8171 is offered in HEPTAWATT package.



### PIN CONNECTIONS



### BLOCK DIAGRAM



8171-01.EPS

8171-02.EPS



## TDA8171

### ABSOLUTE MAXIMUM RATINGS

| Symbol     | Parameter   | Value          | Unit |
|------------|---|----------------|------|
| $V_S$      | Supply Voltage (Pin 2) (see Note 1)                               | 40             | V    |
| $V_6$      | Flyback Peak Voltage (Pin 6) (see Note 1)                         | 75             | V    |
| $V_1, V_7$ | Amplifier Input Voltage (Pins 1-7) (see Note 1)                   | - 0.3, + $V_S$ | V    |
| $I_O$      | Maximum Output Peak Current (see Notes 2 and 3)                   | 2.5            | A    |
| $I_3$      | Maximum Sink Current (first part of flyback) ( $t < 1\text{ms}$ ) | 2.5            | A    |
| $I_3$      | Maximum Source Current ( $t < 1\text{ms}$ )                       | 2.5            | A    |
| $V_{ESD}$  | Electrostatic Handling for all pins (see Note 4)                  | 2000           | V    |
| $T_{oper}$ | Operating Ambient Temperature                                     | - 20, + 75     | °C   |
| $T_{stg}$  | Storage Temperature   | - 40, + 150    | °C   |
| $T_j$      | Junction Temperature  | +150           | °C   |

- Notes :**
1. Versus Pin 4.
  2. The output current can reach 4A peak for  $t \leq 10\mu\text{s}$  (up to 120Hz).
  3. Provided SOAR is respected (see Figures 1 and 2).
  4. Equivalent to discharging a 100pF capacitor through a 1.5k $\Omega$  series resistor.

### THERMAL DATA

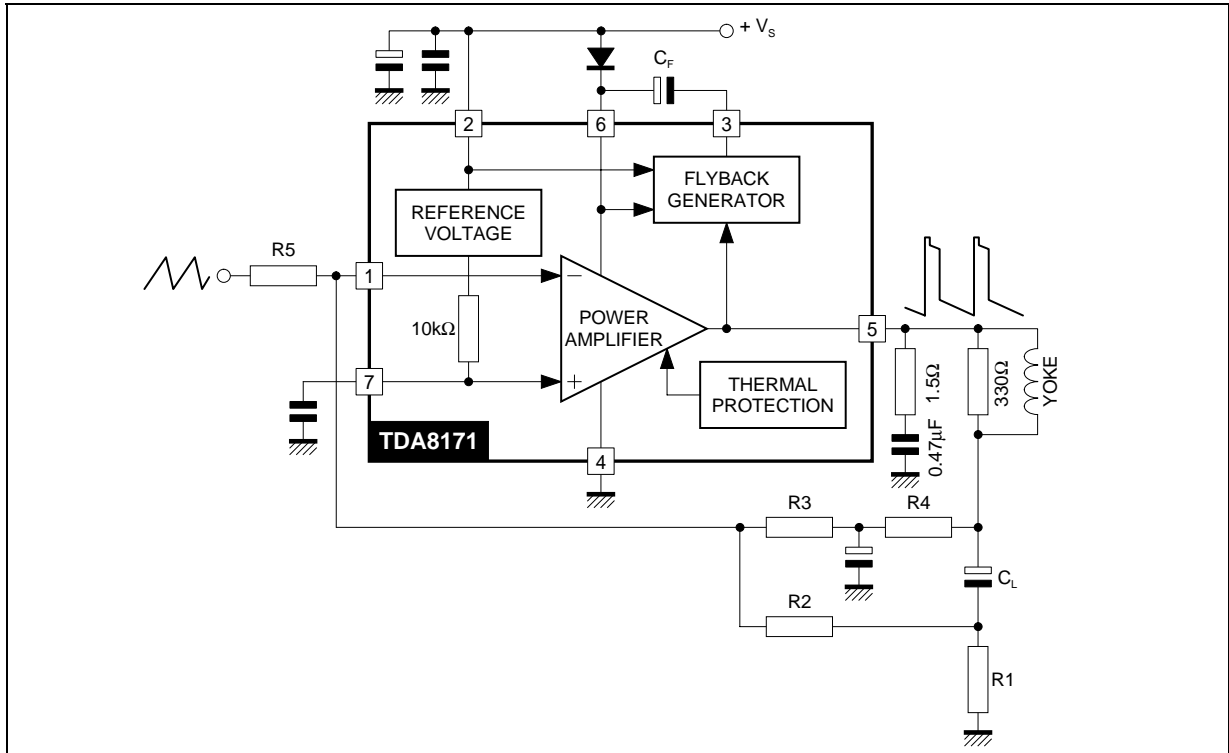
| Symbol        | Parameter  | Value | Unit |
|---------------|--|-------|------|
| $R_{th(j-c)}$ | Junction-case Thermal Resistance <span style="float: right;">Max.</span> | 3     | °C/W |
| $T_t$         | Temperature for Thermal Shutdown   | 150   | °C   |
| $T_{jr}$      | Recommended Max. Junction Temperature                                    | 120   | °C   |

### ELECTRICAL CHARACTERISTICS

( $V_S = 35\text{V}$ ,  $T_A = 25^\circ\text{C}$ , unless otherwise specified)

| Symbol                  | Parameter   | Test Conditions                      | Min. | Typ. | Max. | Unit          |
|-------------------------|---|--------------------------------------|------|------|------|---------------|
| $V_S$                   | Operating Supply Voltage Range                    |                                      | 10   |      | 35   | V             |
| $I_2$                   | Pin 2 Quiescent Current                           | $I_3 = 0, I_5 = 0$                   |      | 9    | 20   | mA            |
| $I_6$                   | Pin 6 Quiescent Current                           | $I_3 = 0, I_5 = 0, V_6 = 35\text{V}$ | 8    | 15   | 30   | mA            |
| $I_O$                   | Max. Peak Output Current                          |                                      |      |      | 1.5  | A             |
| $I_1$                   | Amplifier Bias Current                            | $V_1 = 1\text{V}$                    |      |      | - 1  | $\mu\text{A}$ |
| $V_7$                   | Reference Voltage                                 |                                      |      | 2.35 |      | V             |
| $\Delta V_7/\Delta V_S$ | Reference Voltage Drift versus Supply Voltage     |                                      |      | 1    | 2    | mV/V          |
| $\Delta V_7/\Delta t$   | Reference Voltage Drift versus Temperature        |                                      |      | 0.15 |      | mV/°C         |
| GV                      | Voltage Gain                                      |                                      | 80   |      |      | dB            |
| $V_{5L}$                | Output Saturation Voltage to GND (Pin 4)          | $I_5 = 1.5\text{A}$                  |      | 1    | 1.7  | V             |
| $V_{5H}$                | Output Saturation Voltage to Supply (Pin 6)       | $I_5 = - 1.5\text{A}$                |      | 1.8  | 2.3  | V             |
| $V_{D5-6}$              | Diode Forward Voltage between Pins 5-6            | $I_5 = 1.5\text{A}$                  |      | 1.8  | 2.3  | V             |
| $V_{D3-2}$              | Diode Forward Voltage between Pins 3-2            | $I_3 = 1.5\text{A}$                  |      | 1.6  | 2.2  | V             |
| $V_{3SL}$               | Saturation Voltage on Pin 3                       | $I_3 = 20\text{mA}$                  |      | 0.4  | 1    | V             |
| $V_{3SH}$               | Saturation Voltage to Pin 2 (2nd part of flyback) | $I_3 = - 1.5\text{A}$                |      | 2.1  | 2.8  | V             |

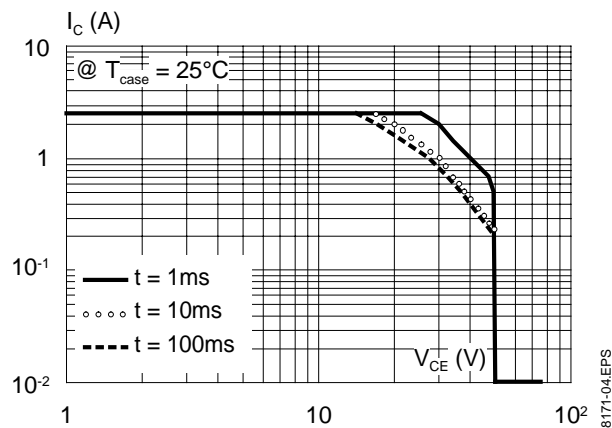
APPLICATION CIRCUIT



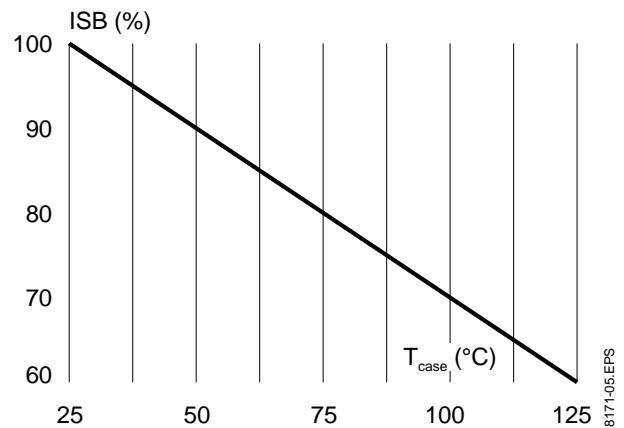
8171-03.EPS

Figure 1 : Output Transistors SOA (for secondary breakdown)

Figure 2 : Secondary Breakdown Temperature Derating Curve (ISB = secondary breakdown current)



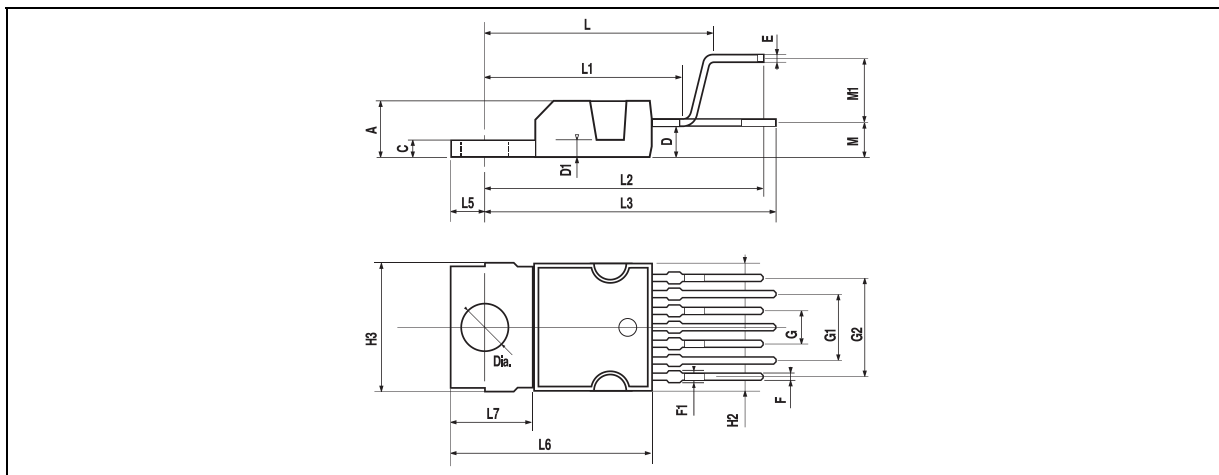
8171-04.EPS



8171-05.EPS

# TDA8171

## PACKAGE MECHANICAL DATA : HEPTAWAT



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         |       | 08   | 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

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No licence is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 1998 STMicroelectronics - All Rights Reserved

Purchase of I<sup>2</sup>C Components of STMicroelectronics, conveys a license under the Philips I<sup>2</sup>C Patent. Rights to use these components in a I<sup>2</sup>C system, is granted provided that the system conforms to the I<sup>2</sup>C Standard Specifications as defined by Philips.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Mexico - Morocco - The Netherlands  
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.

<http://www.st.com>