



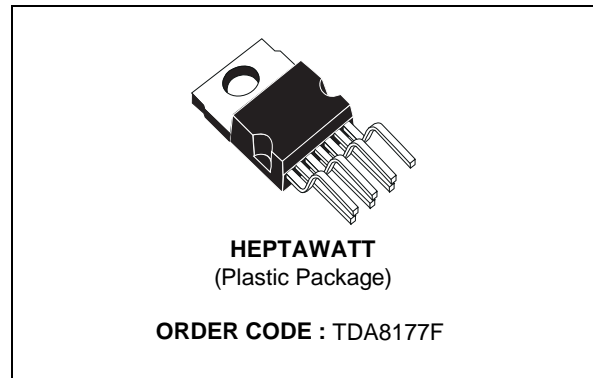
TDA8177F

VERTICAL DEFLECTION BOOSTER

- POWER AMPLIFIER
- THERMAL PROTECTION
- OUTPUT CURRENT UP TO 3.0A_{PP}
- FLYBACK VOLTAGE UP TO 70V (on Pin 5)
- SUITABLE FOR DC COUPLING APPLICATION
- EXTERNAL FLYBACK SUPPLY

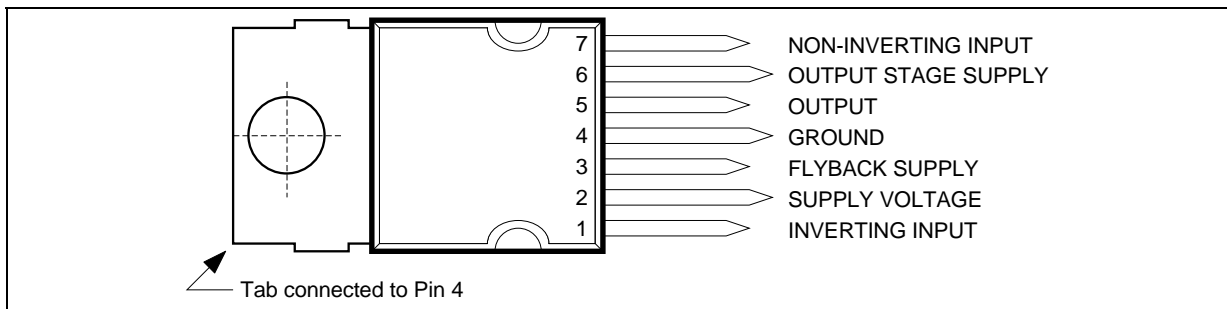
DESCRIPTION

Designed for monitors and high performance TVs, the TDA8177F vertical deflection booster can handle flyback voltage up to 70V. More than this it is possible to have a flyback voltage which is more than the double of the supply (Pin 2). This allows to decrease the power consumption or to decrease the flyback time for a given supply voltage.



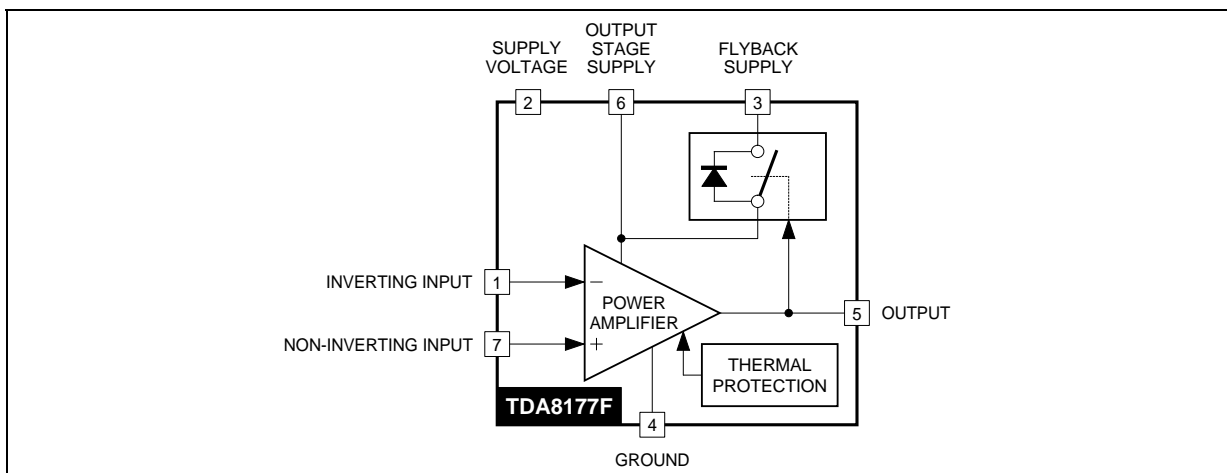
The TDA8177F operates with supplies up to 35V and provides up to 3A_{PP} output current to drive the yoke. The TDA8177F is offered in HEPTAWATT package.

PIN CONNECTIONS



8177F-01.EPS

BLOCK DIAGRAM



8177F-02.EPS

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 (t < 1ms) | 2.5 | A |
| I ₃ | Maximum Source Current (t < 1ms) (in the diode, see Block Diagram) | 2.5 | A |
| V _{ESD1} V _{ESD2} | ESD Susceptibility Tool Model (see note 4) Human Model (see note 5) | 300 2 | V kV |
| V ₃ - V ₂ | Voltage Difference between Flyback Supply and Supply Voltage | 50 | V |
| V ₃ , V ₅ , V ₆ | Min. Voltage (see note 1) | -0.4 | 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 ≤ 10μs (up to 120Hz).
 3. Provided SOAR is respected (see Figures 1 and 2).
 4. Equivalent to discharging a 200pF capacitor through a 0Ω series resistor.
 5. Equivalent to discharging a 150pF capacitor through a 1.5kΩ series resistor.

THERMAL DATA

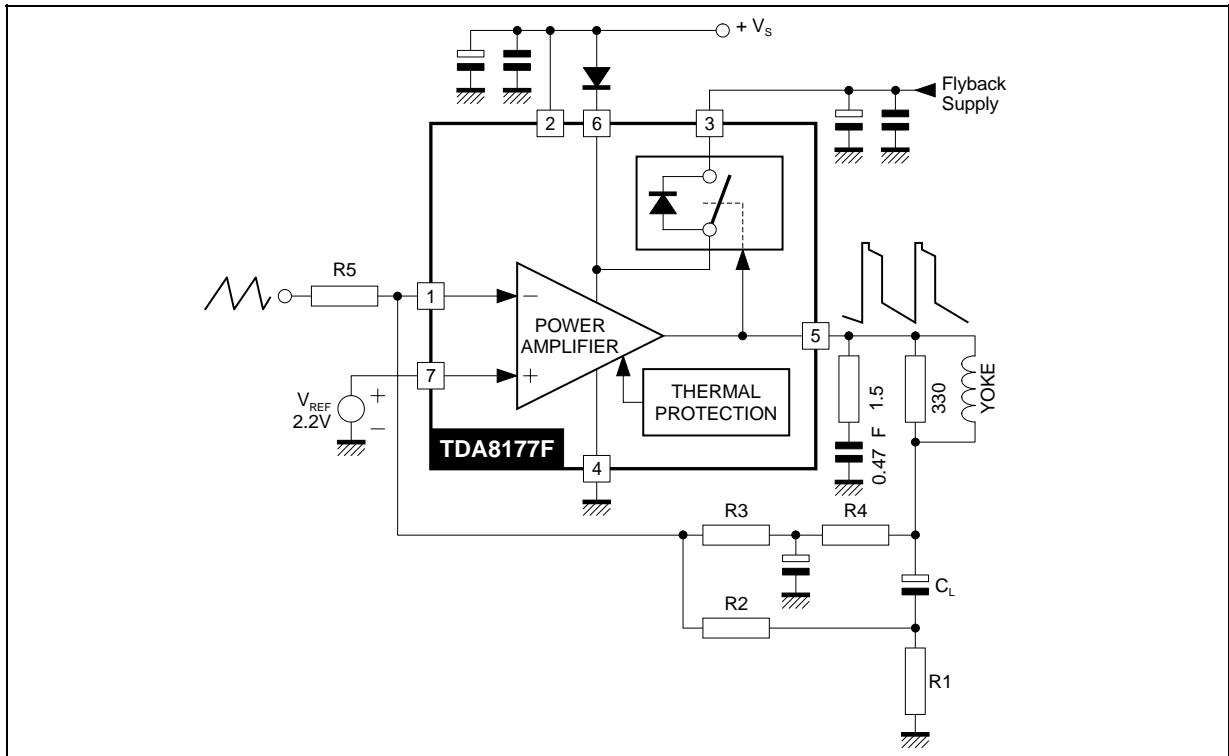
| Symbol | Parameter | Value | Unit |
|----------------------|--|-------|------|
| R _{th(j-c)} | Junction-case Thermal Resistance Max. | 3 | °C/W |
| T _t | Temperature for Thermal Shutdown | 150 | °C |
| ΔT _t | Hysteresis on T _t | 10 | °C |
| T _{jr} | Recommended Max. Junction Temperature | 120 | °C |

ELECTRICAL CHARACTERISTICS

(V_S = 35V, T_A = 25°C, unless otherwise specified)

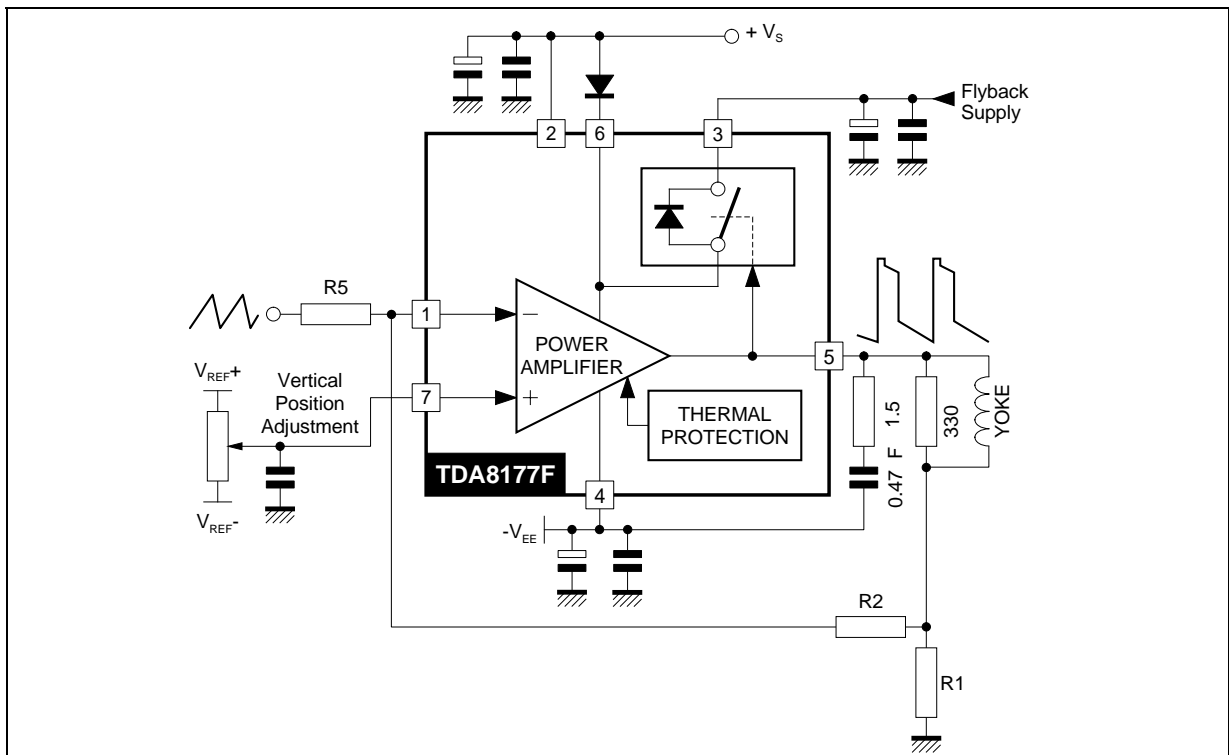
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------------------|---|--|----------------|-------|------|-------|
| V _S | Operating Supply Voltage Range | | 10 | | 35 | V |
| V _{3M} | Operating Flyback Supply Voltage | | V _S | | 70 | V |
| I ₂ | Pin 2 Quiescent Current | I ₃ = 0, I ₅ = 0 | | 10 | 20 | mA |
| I ₆ | Pin 6 Quiescent Current | I ₃ = 0, I ₅ = 0 | | 25 | 35 | mA |
| I _O | Max. Scanning Peak Output Current | | | | 1.5 | A |
| I ₁ | Amplifier Bias Current | V ₁ = 20V, V ₇ = 21V | | - 0.4 | - 2 | μA |
| I ₇ | Amplifier Bias Current | V ₁ = 21V, V ₇ = 20V | | - 0.4 | - 2 | μA |
| V _{IO} | Offset Voltage | | | 0 | 7 | mV |
| ΔV _{IO} /dt | Offset Drift versus Temperature | | | - 10 | | μV/°C |
| GV | Voltage Gain | | 80 | | | dB |
| V _{5L} | Output Saturation Voltage to GND (Pin 4) | I ₅ = 1.5A | | 1.0 | 2 | V |
| V _{5H} | Output Saturation Voltage to Supply (Pin 6) | I ₅ = - 1.5A | | 1.7 | 2.5 | V |
| V _{D5-6} | Diode Forward Voltage between Pins 5-6 | I ₅ = 1.5A | | 1.5 | 2.1 | V |
| V _{D3-6} | Diode Forward Voltage between Pins 3-6 | I ₃ = 1.5A | | 2.3 | 3 | V |
| V ₃₋₆ | Voltage Drop between Pins 3-6 (2nd part of flyback) | I ₃ = - 1.5A | | 4 | 5 | V |

APPLICATION CIRCUITS
AC COUPLING



8177F-03.EPS

DC COUPLING



8177F-04.EPS

Figure 1 : Output Transistors SOA (for secondary breakdown)

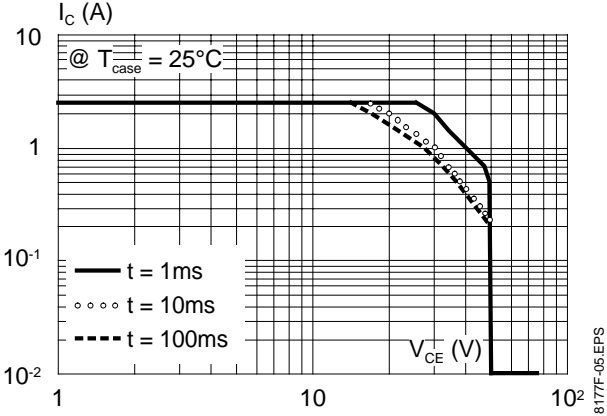
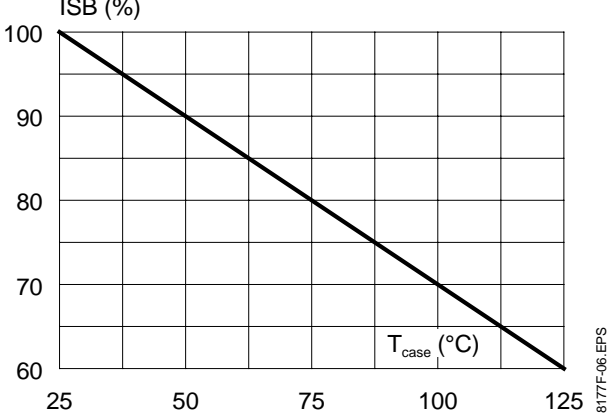
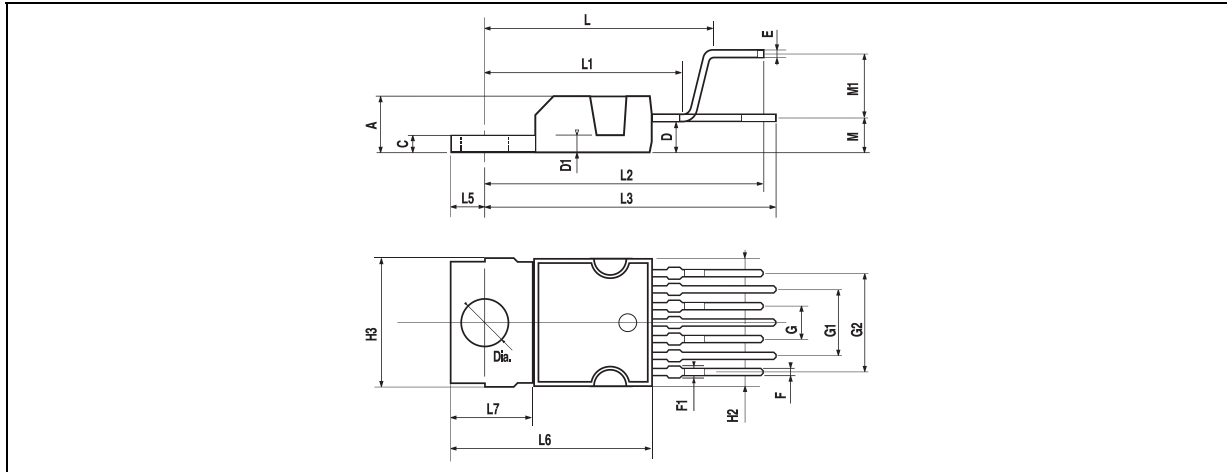


Figure 2 : Secondary Breakdown Temperature Derating Curve (ISB = secondary breakdown current)



PACKAGE MECHANICAL DATA : HEPTAWAT



PMA-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 |

HEPTV.TBL

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