



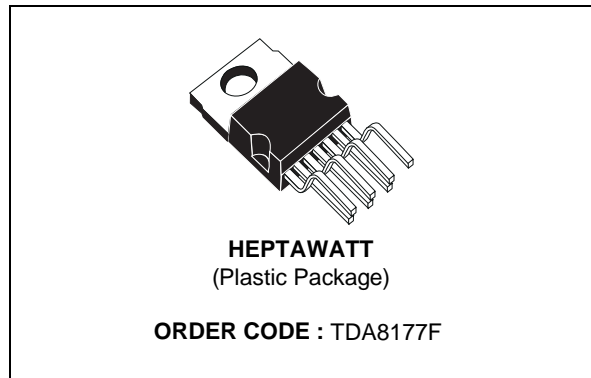
# TDA8177F

## VERTICAL DEFLECTION BOOSTER

- POWER AMPLIFIER
- THERMAL PROTECTION
- OUTPUT CURRENT UP TO 3.0A<sub>PP</sub>
- FLYBACK VOLTAGE UP TO 70V (on Pin 5)
- SUITABLE FOR DC COUPLING APPLICATION
- EXTERNAL FLYBACK SUPPLY

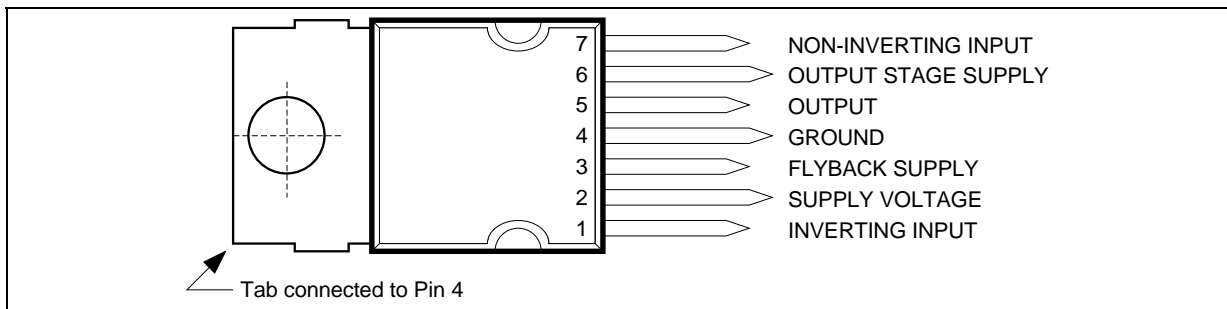
### DESCRIPTION

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.



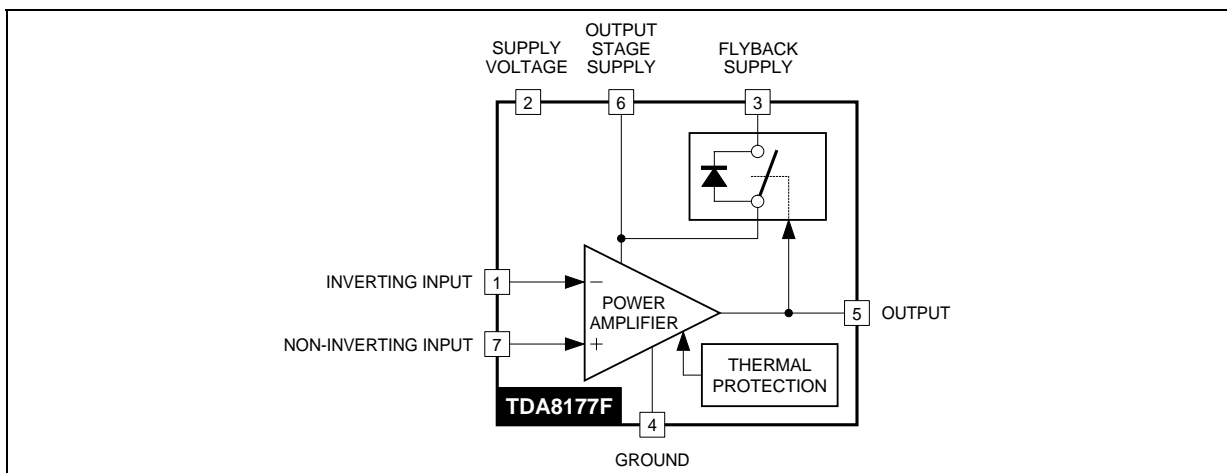
The TDA8177F operates with supplies up to 35V and provides up to 3A<sub>PP</sub> output current to drive the yoke. The TDA8177F is offered in HEPTAWATT package.

### PIN CONNECTIONS



8177F-01.EPS

### BLOCK DIAGRAM



8177F-02.EPS

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V <sub>S</sub>	Supply Voltage (Pin 2) (see note 1)	40	V
V <sub>6</sub>	Flyback Peak Voltage (Pin 6) (see note 1)	75	V
V <sub>1</sub> , V <sub>7</sub>	Amplifier Input Voltage (Pins 1-7) (see note 1)	- 0.3, + V <sub>S</sub>	V
I <sub>O</sub>	Maximum Output Peak Current (see notes 2 and 3)	2.5	A
I <sub>3</sub>	Maximum Sink Current (t < 1ms)	2.5	A
I <sub>3</sub>	Maximum Source Current (t < 1ms) (in the diode, see Block Diagram)	2.5	A
V <sub>ESD1</sub> V <sub>ESD2</sub>	ESD Susceptibility Tool Model (see note 4) Human Model (see note 5)	300 2	V kV
V <sub>3</sub> - V <sub>2</sub>	Voltage Difference between Flyback Supply and Supply Voltage	50	V
V <sub>3</sub> , V <sub>5</sub> , V <sub>6</sub>	Min. Voltage (see note 1)	-0.4	V
T <sub>oper</sub>	Operating Ambient Temperature	- 20, + 75	°C
T <sub>stg</sub>	Storage Temperature	- 40, + 150	°C
T <sub>j</sub>	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**

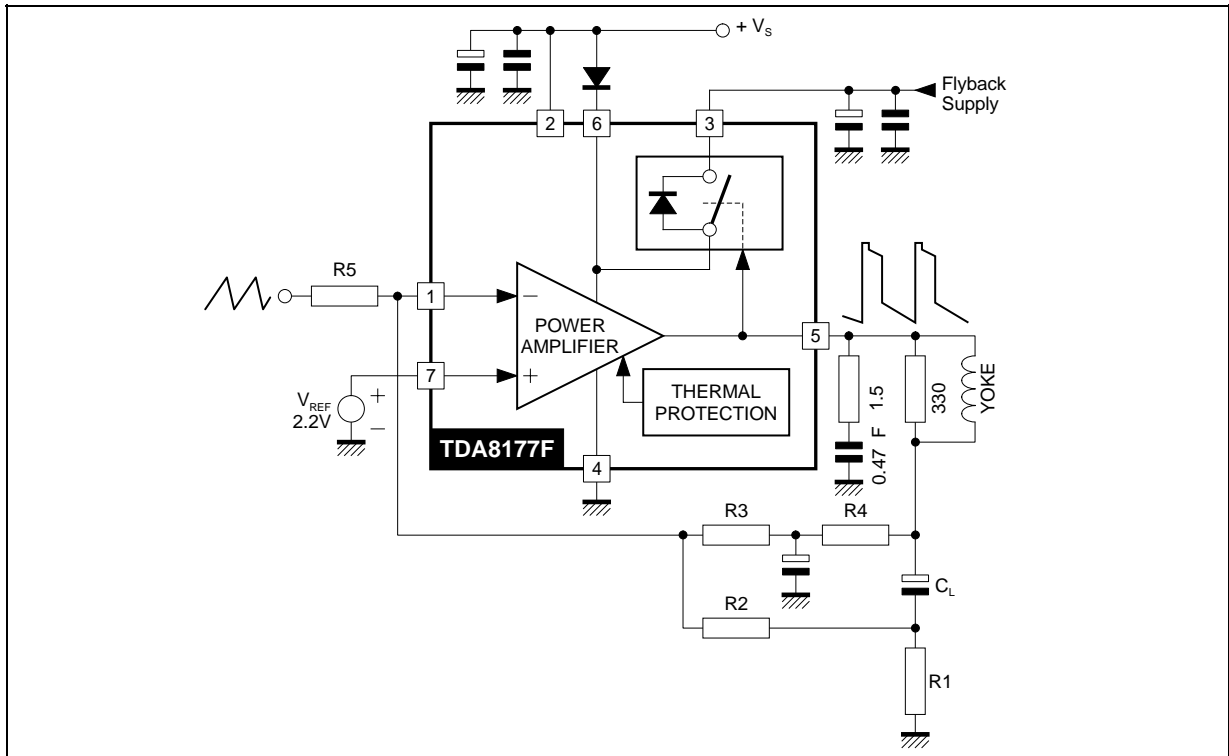
Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Junction-case Thermal Resistance Max.	3	°C/W
T <sub>t</sub>	Temperature for Thermal Shutdown	150	°C
ΔT <sub>t</sub>	Hysteresis on T <sub>t</sub>	10	°C
T <sub>jr</sub>	Recommended Max. Junction Temperature	120	°C

**ELECTRICAL CHARACTERISTICS**

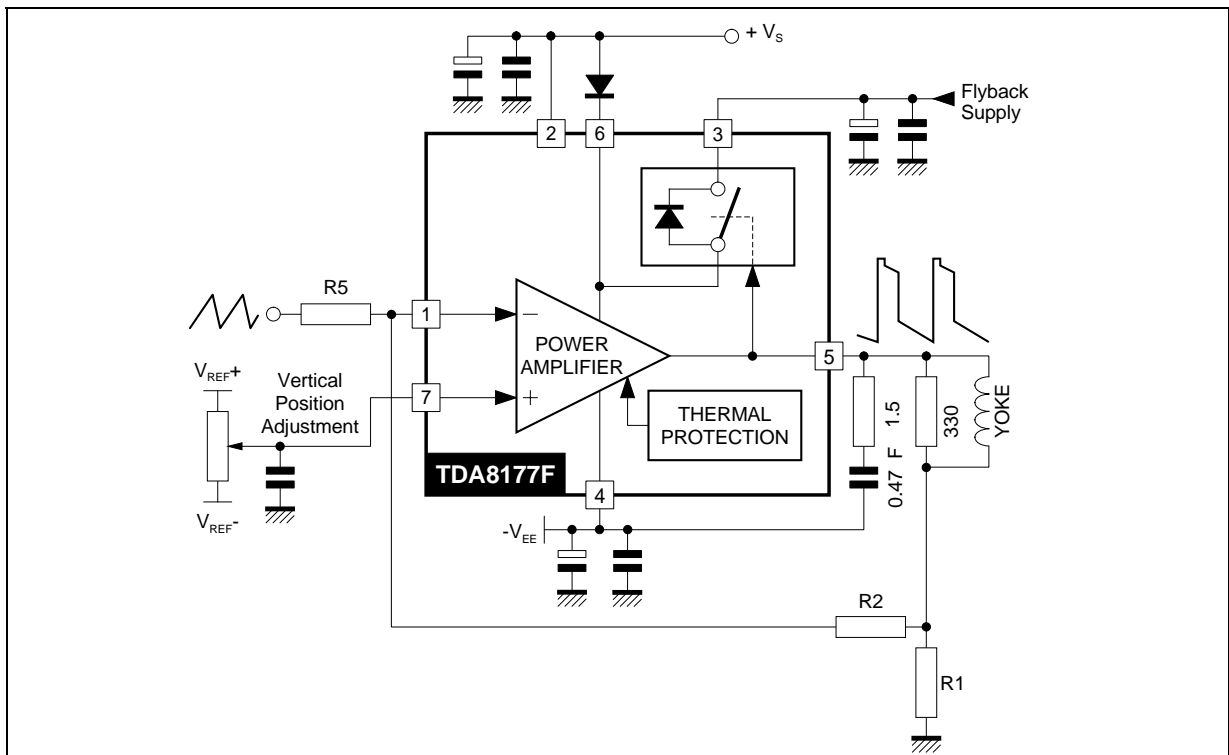
(V<sub>S</sub> = 35V, T<sub>A</sub> = 25°C, unless otherwise specified)

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

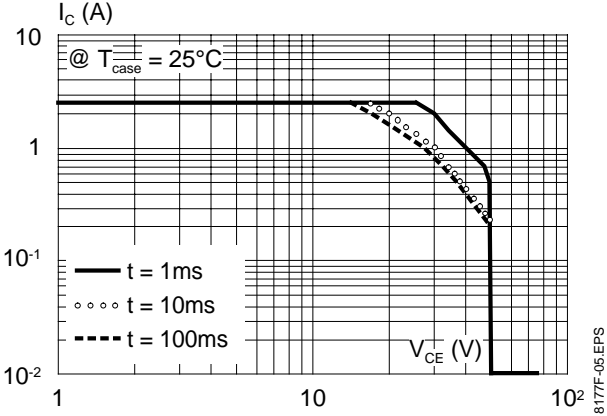
**APPLICATION CIRCUITS**  
AC COUPLING



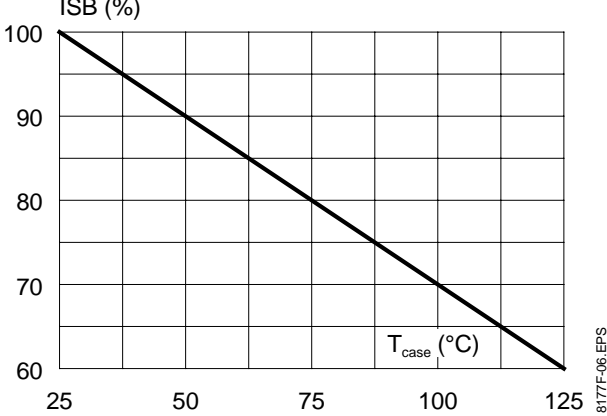
**DC COUPLING**



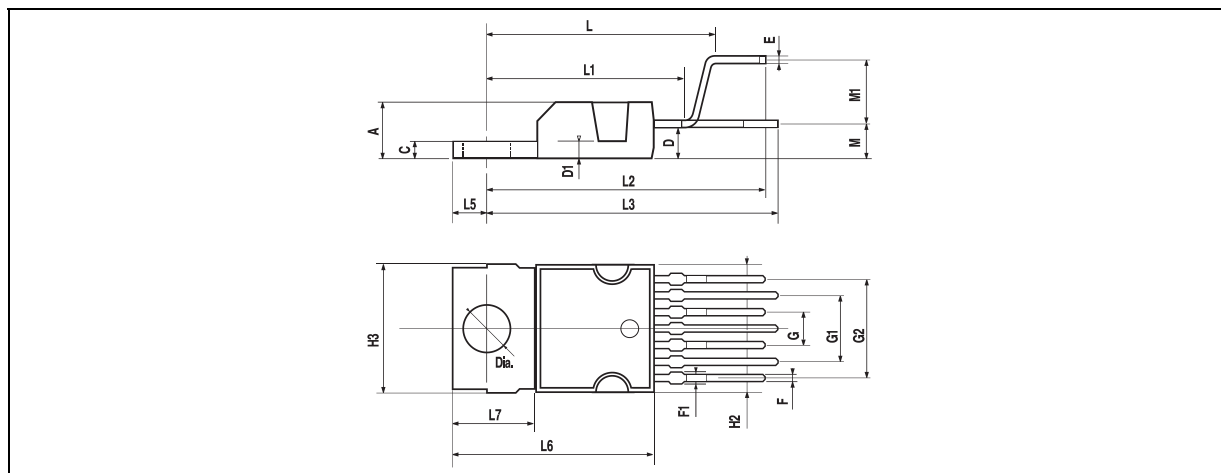
**Figure 1 :** Output Transistors SOA  
(for secondary breakdown)



**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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