



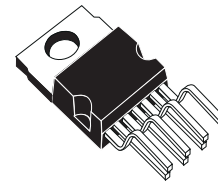
# TDA8177F

## 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.

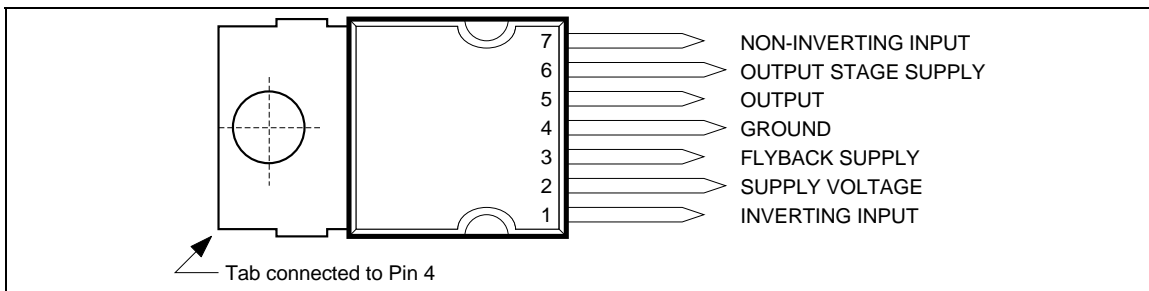


**HEPTAWATT**  
(Plastic Package)

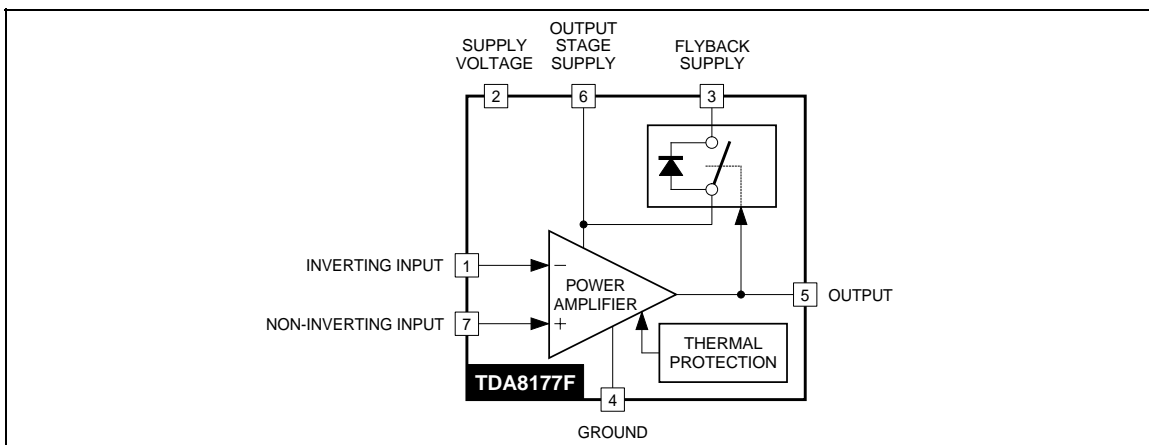
**ORDER CODE : TDA8177F**

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



### BLOCK DIAGRAM



## 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 ( $t < 1\text{ms}$ )	2.5	A
$I_3$	Maximum Source Current ( $t < 1\text{ms}$ ) (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  $t \leq 10\mu\text{s}$  (up to 120Hz).  
 3. Provided SOAR is respected (see Figures 1 and 2).  
 4. Equivalent to discharging a 200pF capacitor through a 0 $\Omega$  series resistor.  
 5. Equivalent to discharging a 150pF capacitor through a 1.5k $\Omega$  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
$\Delta T_t$	Hysteresis on $T_t$	10	°C
$T_{jr}$	Recommended Max. Junction Temperature	120	°C

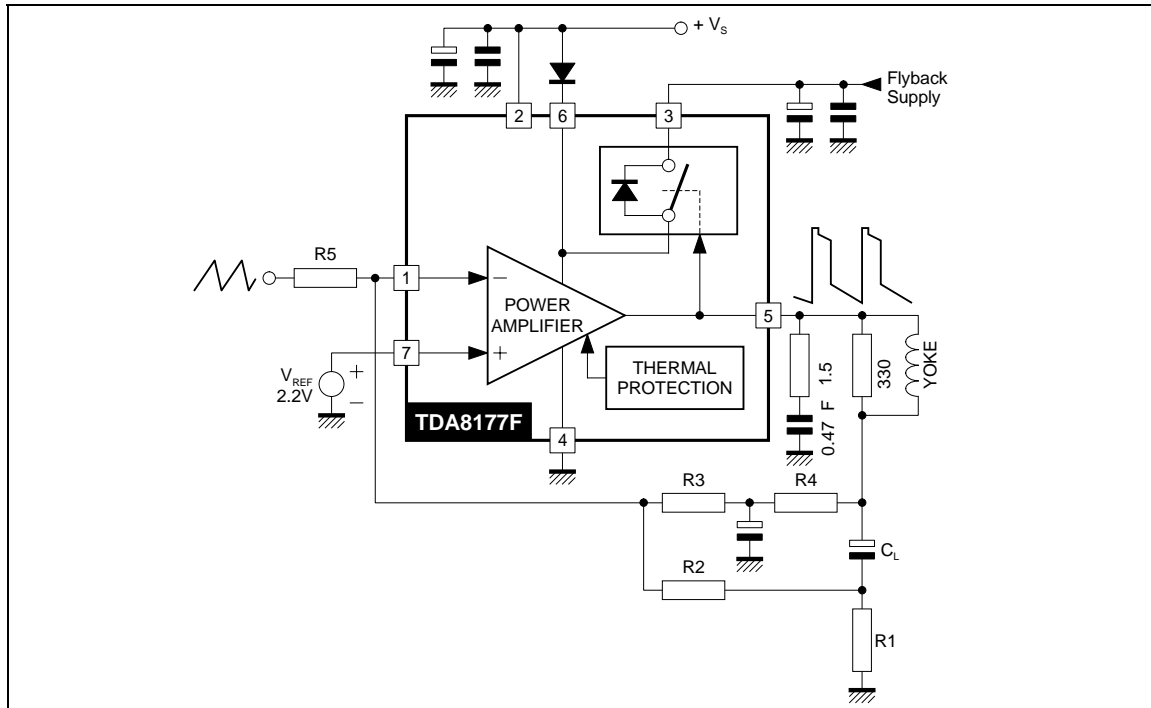
## ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_S$	Operating Supply Voltage Range		10		35	V
$V_{3M}$	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	$V_1 = 20\text{V}, V_7 = 21\text{V}$		- 0.4	- 2	$\mu\text{A}$
$I_7$	Amplifier Bias Current	$V_1 = 21\text{V}, V_7 = 20\text{V}$		- 0.4	- 2	$\mu\text{A}$
$V_{IO}$	Offset Voltage			0	7	mV
$\Delta V_{IO}/dt$	Offset Drift versus Temperature			- 10		$\mu\text{V}/^\circ\text{C}$
GV	Voltage Gain		80			dB
$V_{5L}$	Output Saturation Voltage to GND (Pin 4)	$I_5 = 1.5\text{A}$		1.0	2	V
$V_{5H}$	Output Saturation Voltage to Supply (Pin 6)	$I_5 = - 1.5\text{A}$		1.7	2.5	V
$V_{D5-6}$	Diode Forward Voltage between Pins 5-6	$I_5 = 1.5\text{A}$		1.5	2.1	V
$V_{D3-6}$	Diode Forward Voltage between Pins 3-6	$I_3 = 1.5\text{A}$		2.3	3	V
$V_{3-6}$	Voltage Drop between Pins 3-6 (2nd part of flyback)	$I_3 = - 1.5\text{A}$		4	5	V

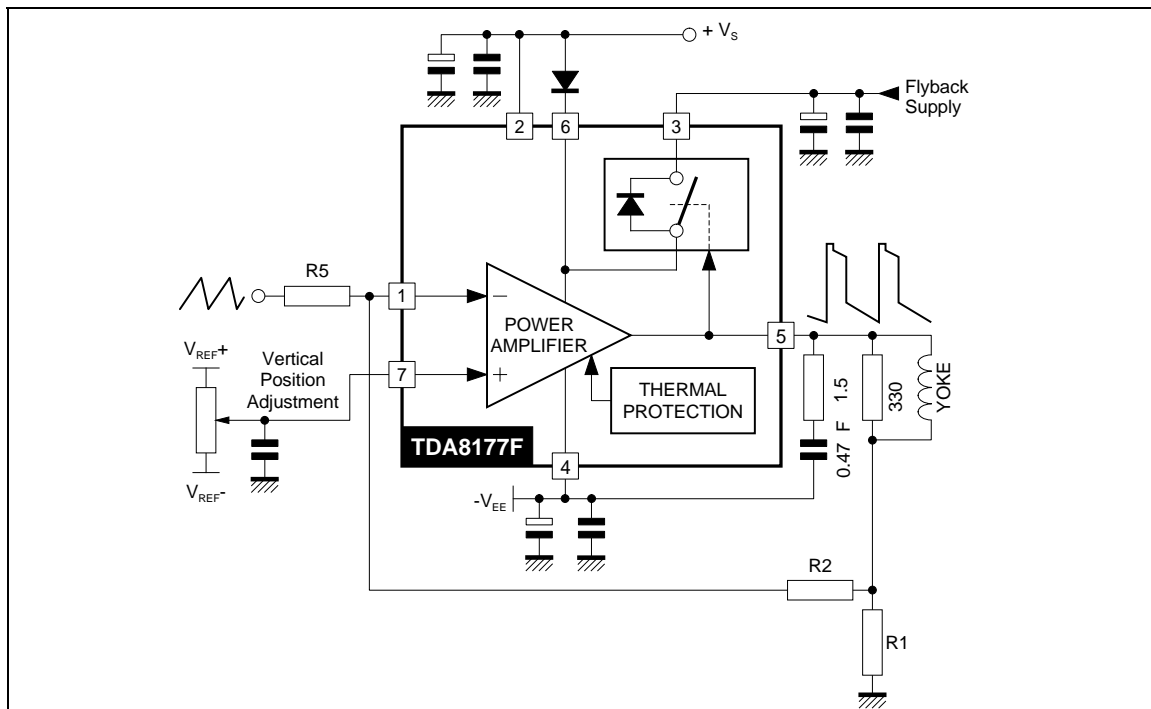
### APPLICATION CIRCUITS

#### AC COUPLING



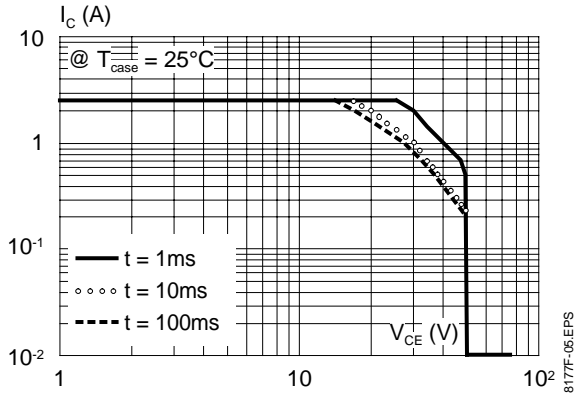
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#### DC COUPLING

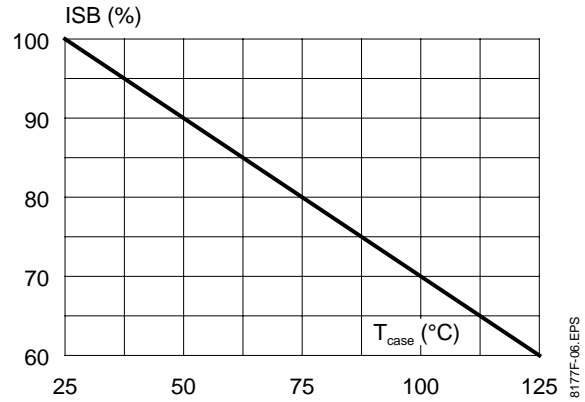


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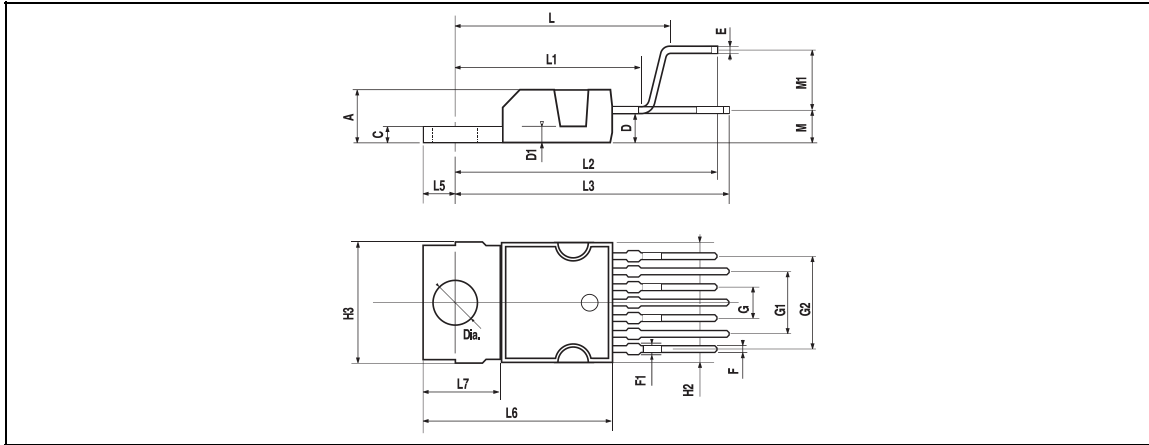
**Figure 1 :** Output Transistors SOA  
(for secondary breakdown)



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



## 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		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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