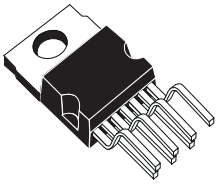
TDA8177F

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



HEPTAWATT
(Plastic Package)

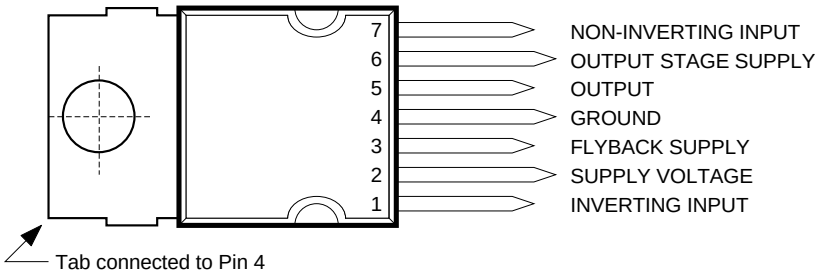
ORDER CODE : TDA8177F

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



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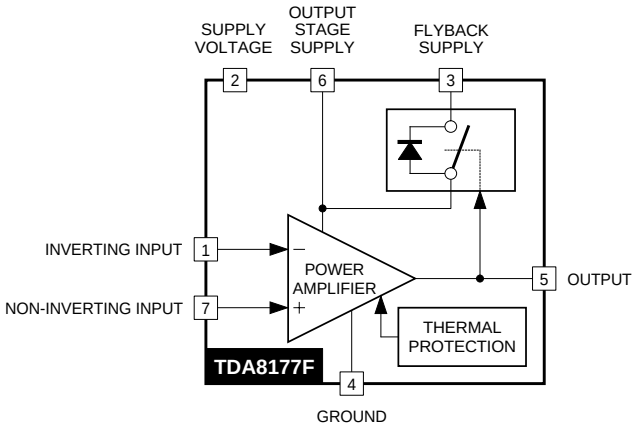
BLOCK DIAGRAM



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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	^oC
T_{stg}	Storage Temperature	- 40, + 150	^oC
T_j	Junction Temperature	+150	^oC

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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	$^oC/W$
T_t	Temperature for Thermal Shutdown	150	^oC
ΔT_t	Hysteresis on T_t	10	^oC
T_{jr}	Recommended Max. Junction Temperature	120	^oC

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ELECTRICAL CHARACTERISTICS

(V_S = 35V, T_A = 25^{o}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
$\Delta V_{IO}/dt$	Offset Drift versus Temperature			- 10		µV/^{o}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

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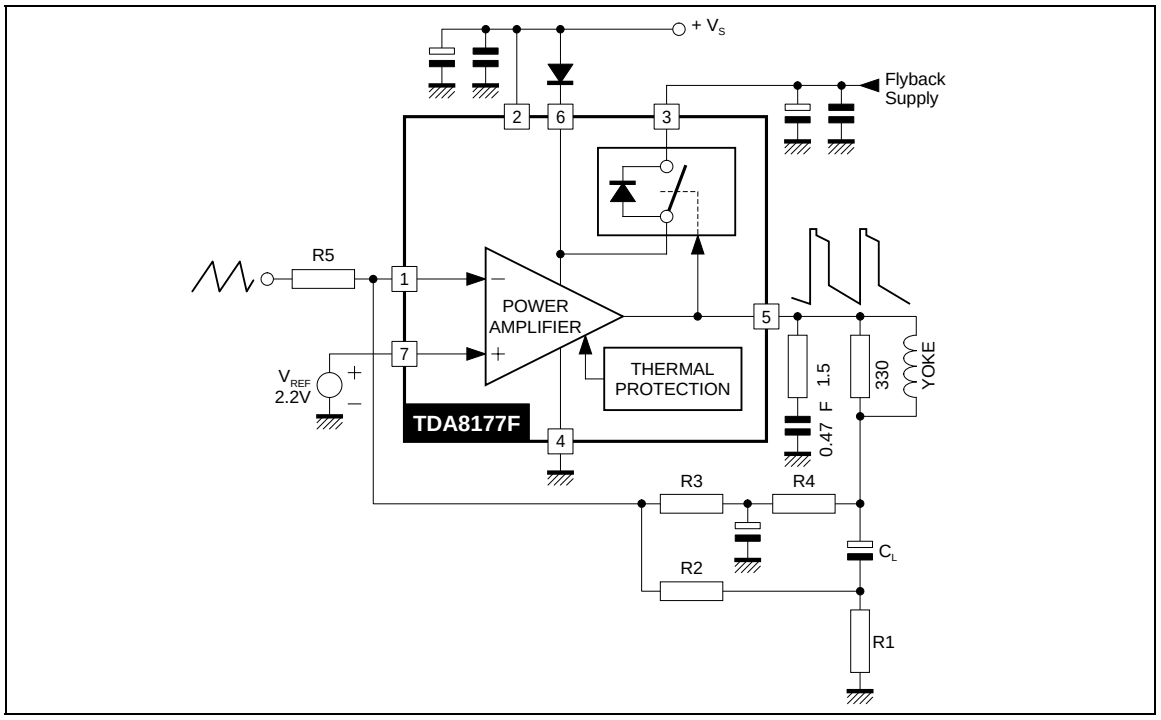
APPLICATION CIRCUITS

AC COUPLING



DC COUPLING

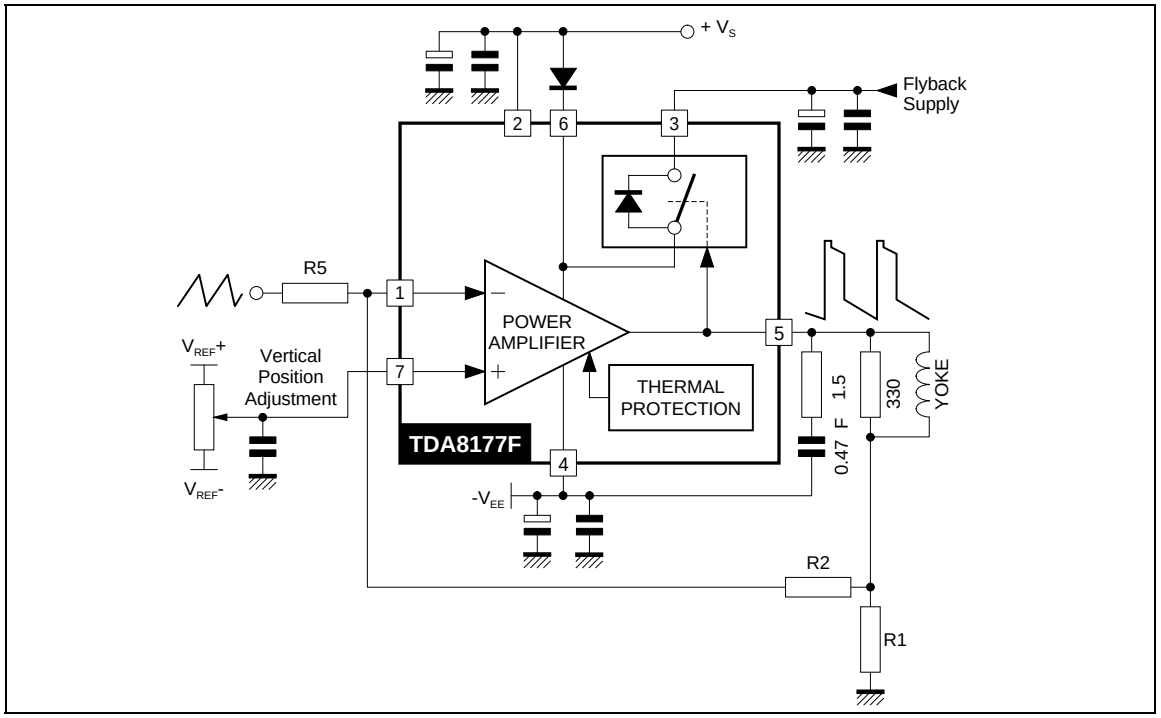


Figure 1 : Output Transistors SOA (for secondary breakdown)

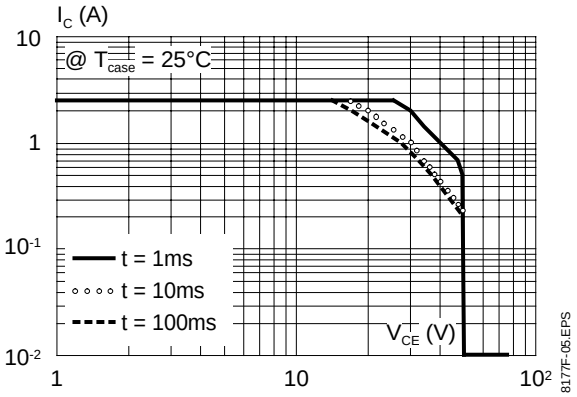
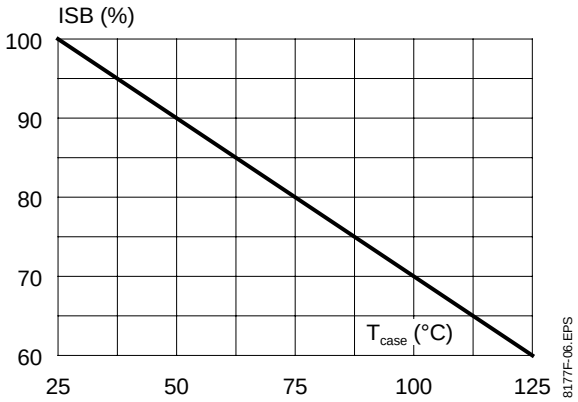
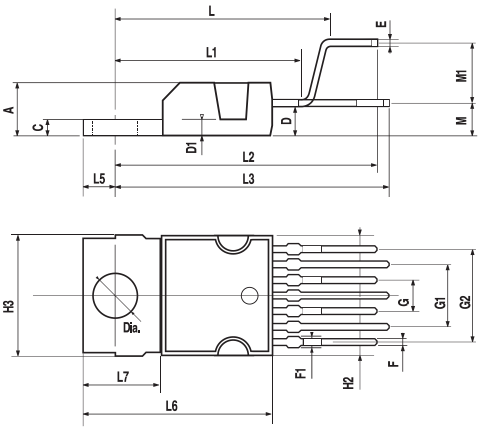


Figure 2 : Secondary Breakdown Temperature Derating Curve (ISB = secondary breakdown current)



PACKAGE MECHANICAL DATA : HEPTAWAT



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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

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