

**TV VERTICAL DEFLECTION BOOSTER**

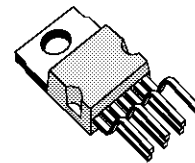
- POWER AMPLIFIER
- FLYBACK SUPPLY VOLTAGE SEPARATED
- THERMAL PROTECTION
- REFERENCE VOLTAGE

**DESCRIPTION**

Designed for monitors and high performance TVs, the TDA8178FS vertical deflection booster is able to work with a flyback voltage more than the double of  $V_s$ .

The TDA8178FS operates with supplies up to 42V, flyback output up to 92V and provides up to 2Aapp output current to drive to yoke.

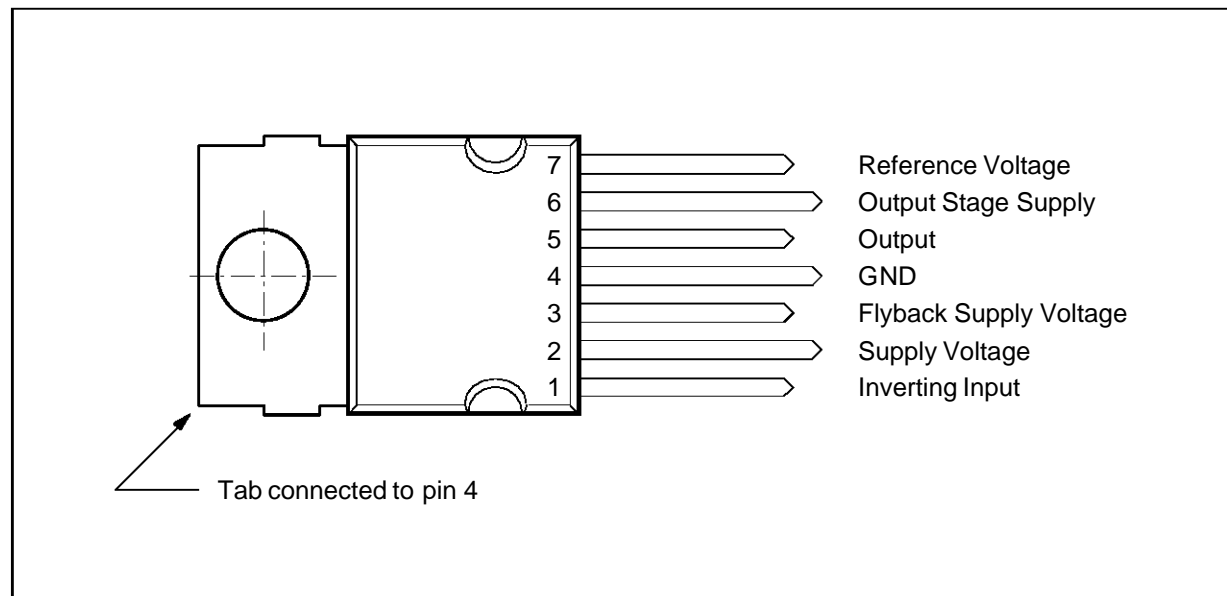
The TDA8178FS is offered in HEPTAWATT package.



**HEPTAWATT**  
(Plastic Package)

**ORDER CODE : TDA8178FS**

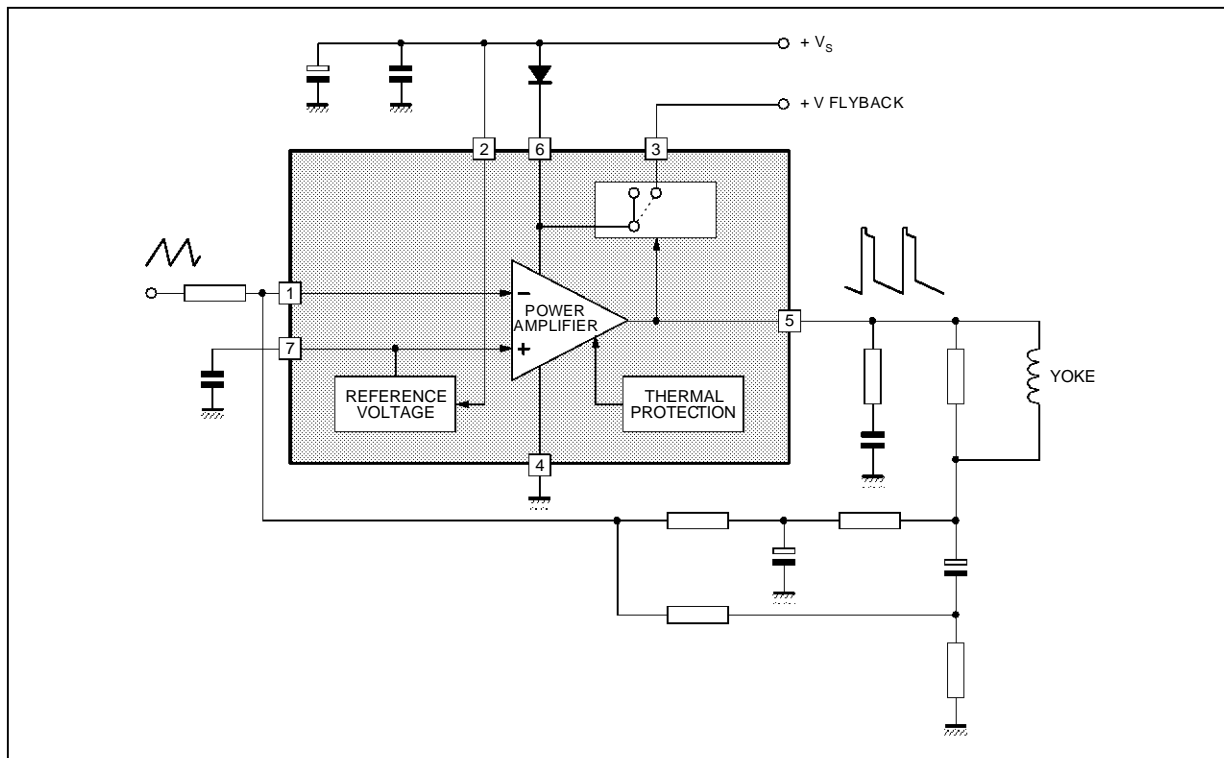
**PIN CONNECTIONS**



8178F-01.EPS

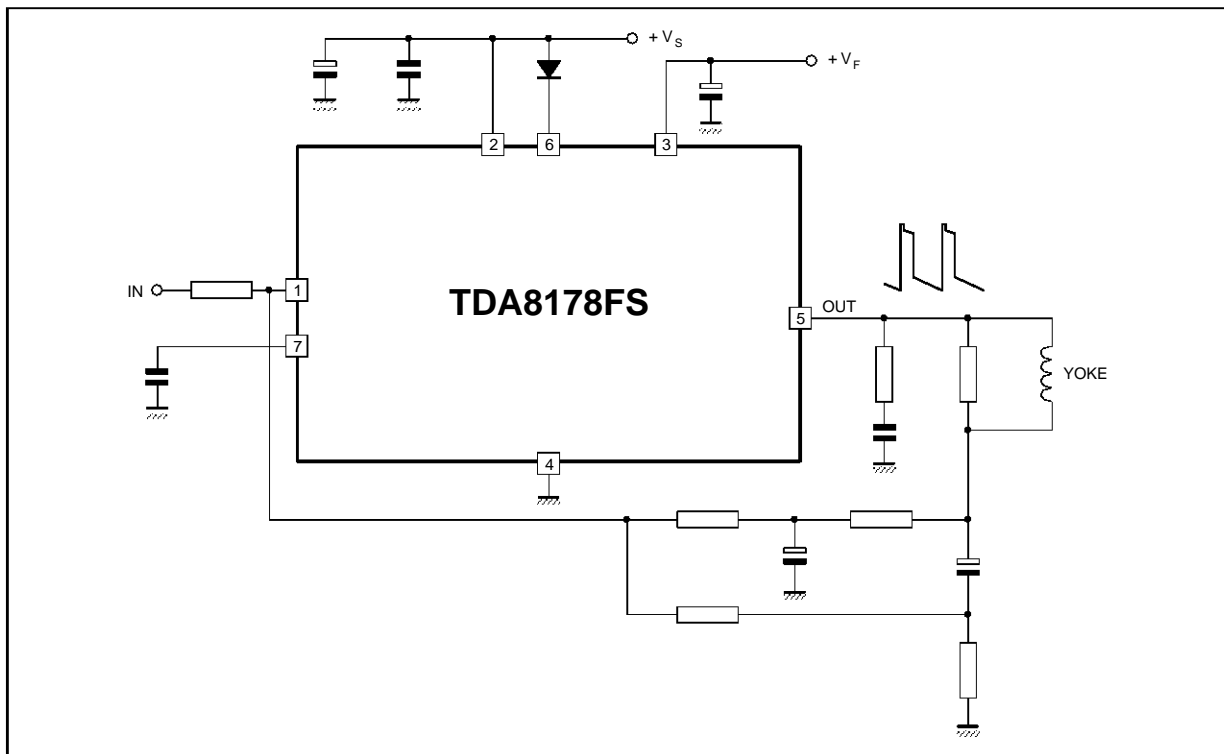
# TDA8178FS

## BLOCK DIAGRAM



8178F-02.EPS

## APPLICATION CIRCUIT



8178F-03.EPS

Note : For values see "Easy Design of Vertical Deflection Stages" (software available from our sales offices)

## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>S</sub>	Supply Voltage (pin 2)	50	V
V <sub>F</sub>	Flyback Supply Voltage	100	V
V <sub>F</sub> - V <sub>S</sub>	Difference between Flyback Supply Voltage and Supply Voltage	50	V
V <sub>1</sub> , V <sub>7</sub>	Amplifier Input Voltage	+ V <sub>S</sub>	
I <sub>O</sub>	Output Peak Current	2 2 1.8	A
I <sub>3</sub>	Pin 3 Peak Flyback Current at f = 50 or 60Hz, t <sub>fly</sub> ≤ 1.5ms	1.8	A
P <sub>tot</sub>	Total Power Dissipation at T <sub>C</sub> = 70°C	20	W
T <sub>stg</sub>	Storage Temperature	- 40, + 150	°C
T <sub>j</sub>	Junction Temperature	0, +150	°C

8178F-01.TBL

## THERMAL DATA

Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Junction-case Thermal Resistance	Max. 3	°C/W

8178F-02.TBL

## ELECTRICAL CHARACTERISTICS

(V<sub>S</sub> = 42V, T<sub>A</sub> = 25°C, unless otherwise specified)(refer to the test circuits - see Figure 1 next page)

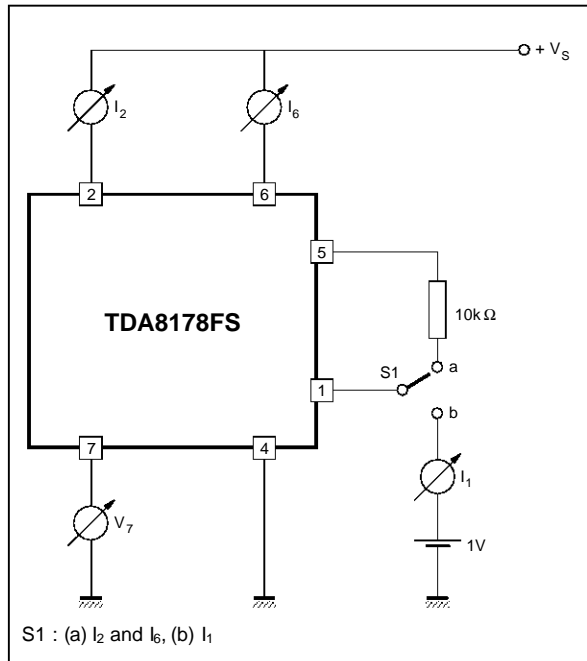
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>S</sub>	Operating Supply Voltage Range		10		42	V
I <sub>2</sub>	Pin 2 Quiescent Current	I <sub>3</sub> = 0 I <sub>5</sub> = 0		10	20	mA
I <sub>6</sub>	Pin 6 Quiescent Current	I <sub>3</sub> = 0 I <sub>5</sub> = 0		20	40	mA
I <sub>1</sub>	Amplifier Bias Current	V <sub>1</sub> = 1V		- 0.2	- 1	µA
V <sub>5</sub>	Quiescent Output Voltage	V <sub>S</sub> = 42V R <sub>a</sub> = 3.9kΩ V <sub>S</sub> = 35V R <sub>a</sub> = 5.6kΩ	23.4 17	24.2 17.8	25 18.5	V
V <sub>5L</sub>	Output Saturation Voltage to GND	I <sub>5</sub> = 1A		1.2	1.5	V
V <sub>5H</sub>	Output Saturation Voltage to Supply	- I <sub>5</sub> = 1A		2.2	2.6	V
V <sub>D5-6</sub>	Diode Forward Voltage between Pins 5-6	I <sub>D</sub> = 1A		1.5	3	V
V <sub>D3-6</sub>	Diode Forward Voltage between Pins 3-6	I <sub>D</sub> = 1A		1.5	3	V
V <sub>7</sub>	Internal Reference		2.1	2.2	2.3	V
ΔV <sub>7</sub> /ΔV <sub>S</sub>	Reference Voltage Drift versus V <sub>S</sub>	V <sub>S</sub> = 24 to 42V		2	4	mV/V
K <sub>T</sub>	Reference Voltage Drift versus T <sub>j</sub>	T <sub>j</sub> = 0 to 125°C $K_T = \frac{\Delta V_7 \cdot 10^6}{\Delta T_j \cdot V_7}$		100	150	ppm/°C
R <sub>1</sub>	Input Resistance			200		kΩ
T <sub>j</sub>	Junction Temperature for Thermal Shutdown			140		°C

8178F-03.TBL

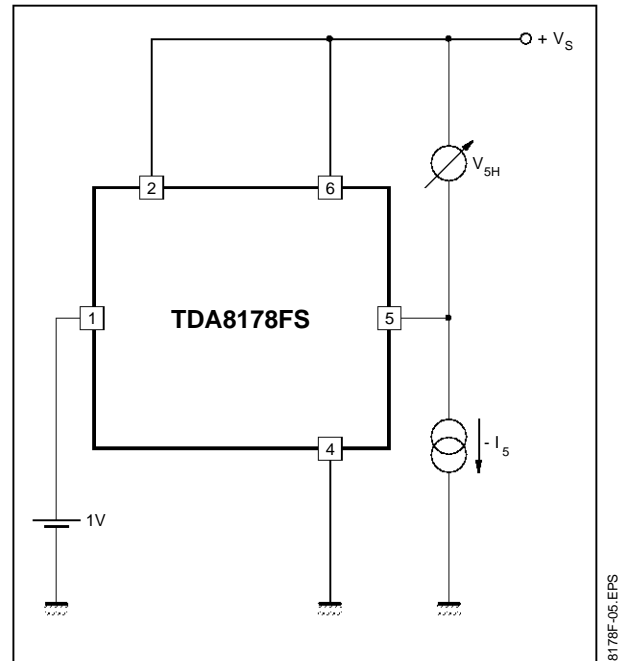
# TDA8178FS

**FIGURE 1 : DC Test Circuits**

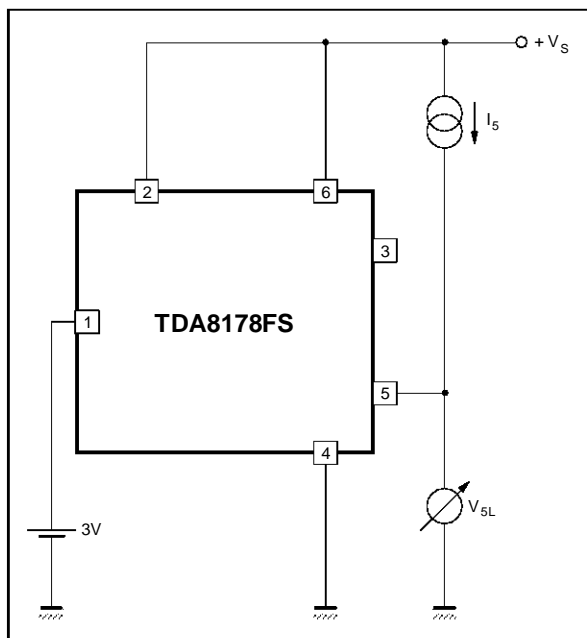
**Figure 1a : Measurement of  $I_1, I_2, I_6, V_7, \Delta V_7/\Delta V_S$**



**Figure 1b : Measurement of  $V_{5H}$**



**Figure 1c : Measurement of  $V_{5L}$**



**Figure 1d : Measurement of  $V_5$**

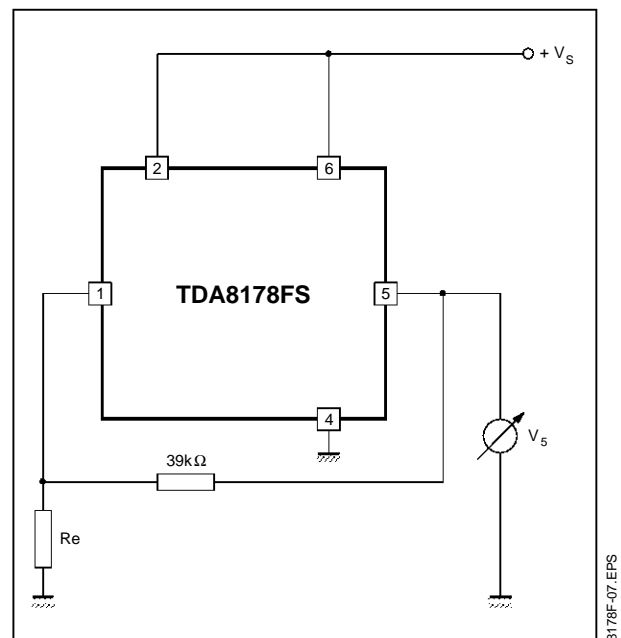
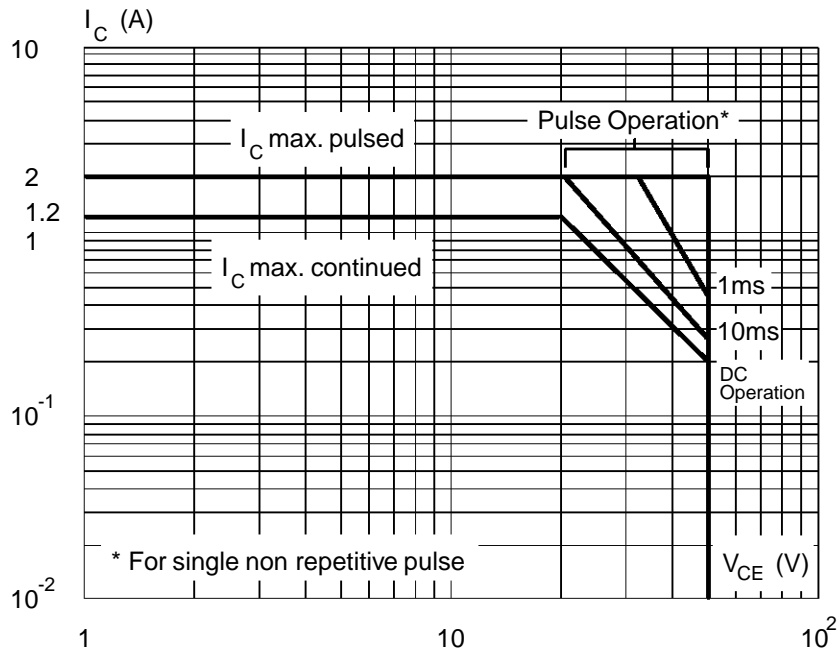


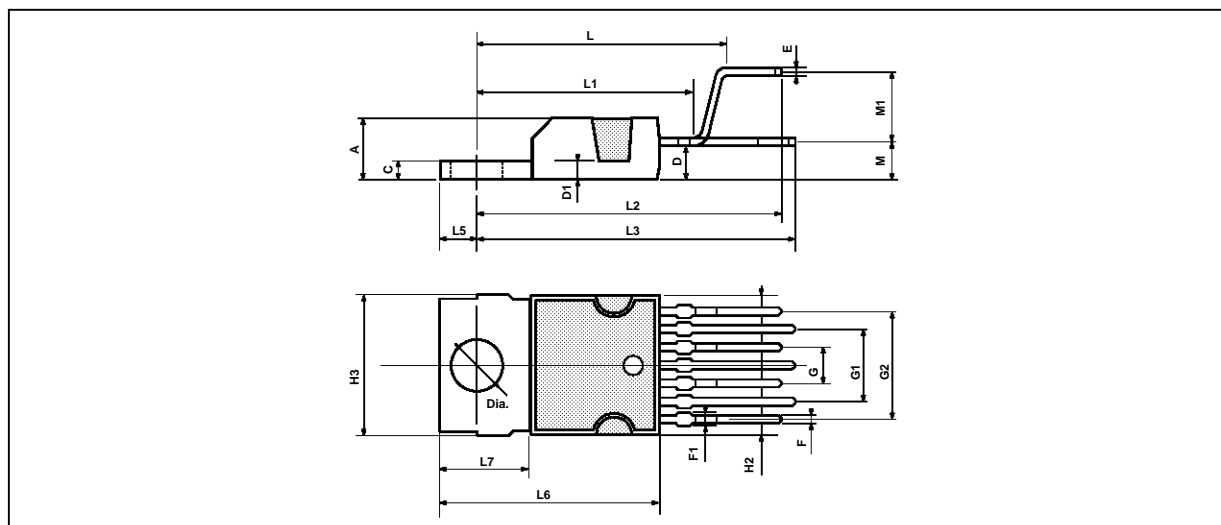
Figure 2 : SOA of Each Output Power Transistor at  $T_A = 25^\circ\text{C}$



\* For single non repetitive pulse

8178F-08.EPS

PACKAGE MECHANICAL DATA : HEPTAWATT



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

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics 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 SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

Purchase of I<sup>2</sup>C Components of SGS-THOMSON Microelectronics, 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.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

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