

TV VERTICAL DEFLECTION BOOSTER

ADVANCE DATA

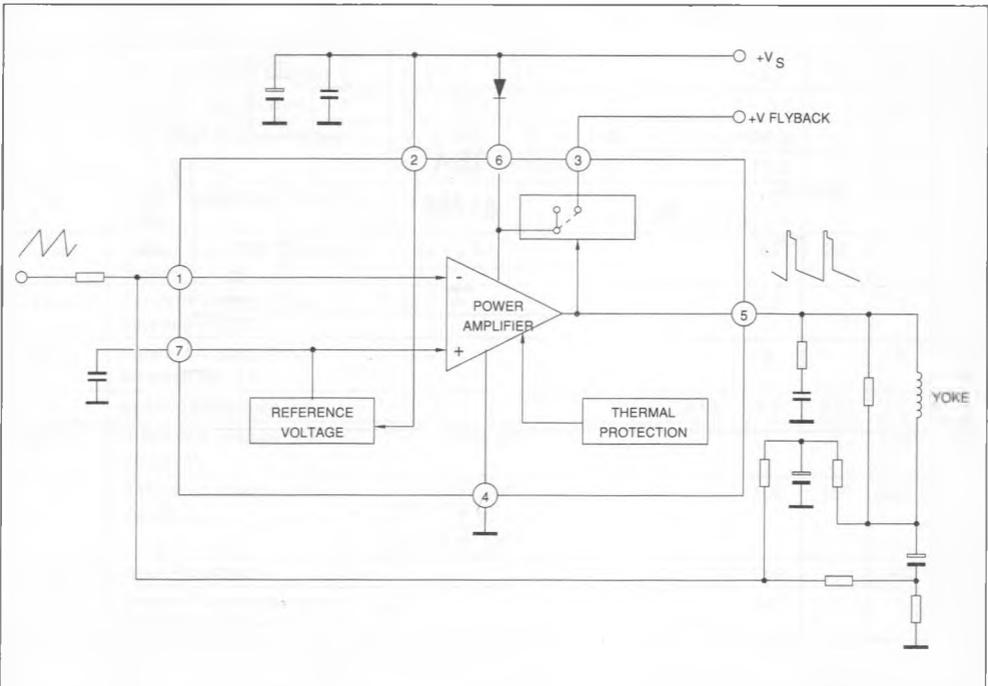
- POWER AMPLIFIER
- FLYBACK SUPPLY VOLTAGE SEPARATED
- THERMAL PROTECTION
- REFERENCE VOLTAGE
- CURRENT LIMITED TO GND

DESCRIPTION

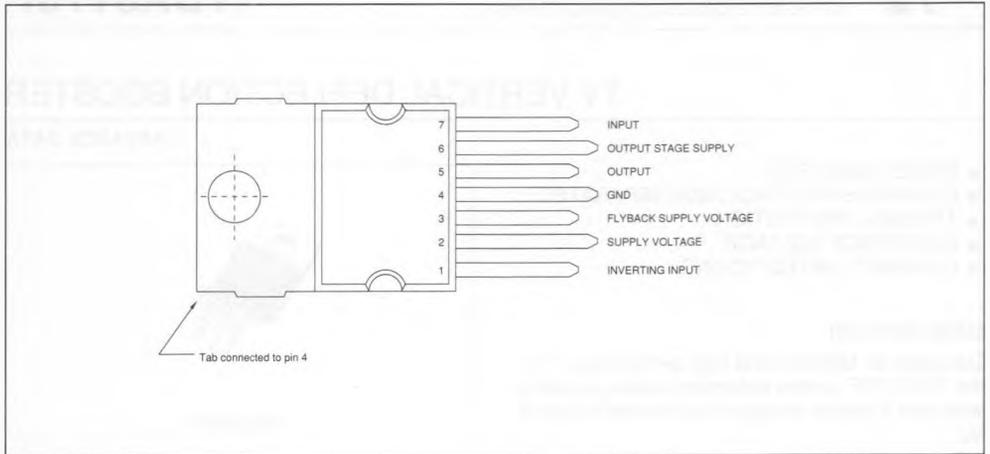
Designed for Monitors and high performance TVs, the TDA8178F vertical deflection booster is able to work with a flyback voltage more than the double of V_S .

The TDA8178F operates with supplies up to 50V, Flyback supply voltage up to 100V and provides up to 2App output current to drive to yoke.

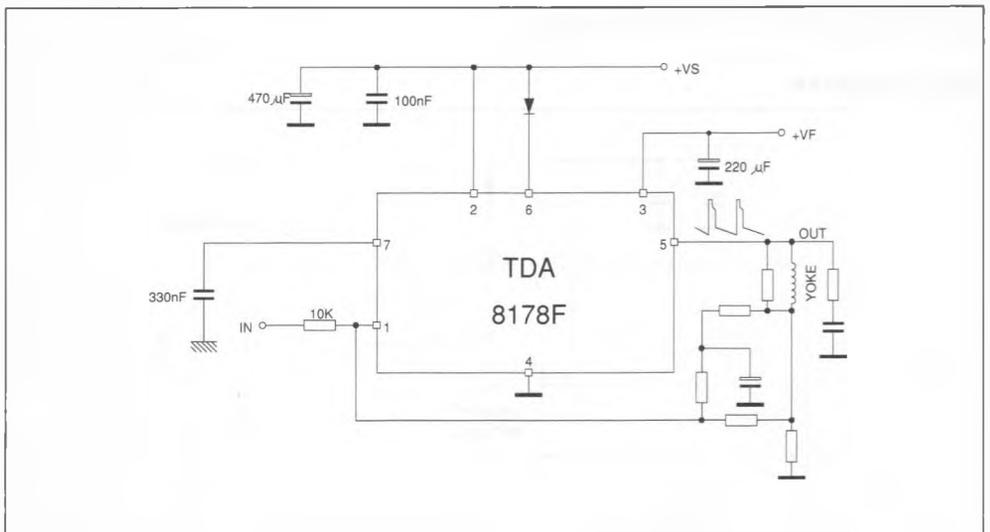
The TDA8178F is offered in HEPTAWATT package.


BLOCK DIAGRAM


PIN CONNECTION (top view)



APPLICATION CIRCUIT



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage (pin 2)	50	V
V_f	Flyback Supply Voltage	100	V
$V_f - V_s$	Difference between Flyback Supply Voltage and Supply Voltage	50	V
V_{T+}, V_{T-}	Amplifier Input Voltage	+ V_s	
I_O	Output Peak Current (non repetitive, $t = 2\text{ms}$)	2	A
I_O	Output Peak Current at $f = 50$ or 60Hz $t \leq 10\mu\text{s}$	2	A
I_O	Output Peak Current at $f = 50$ or 60Hz $t > 10\mu\text{s}$	1.8	A
I_3	Pin 3 Peak Flyback Current at $f = 50$ or 60Hz , $t_{\text{fly}} \leq 1.5\text{ms}$	1.8	A
P_{tot}	Total Power Dissipation at $T_{\text{case}} = 70^\circ\text{C}$	20	W
T_{stg}	Storage Temperature	- 40 to 150	$^\circ\text{C}$
T_j	Junction Temperature	0 to 150	$^\circ\text{C}$

THERMAL DATA

$R_{\text{th J-C}}$	Thermal Resistance Junction-case	Max	3	$^\circ\text{C/W}$
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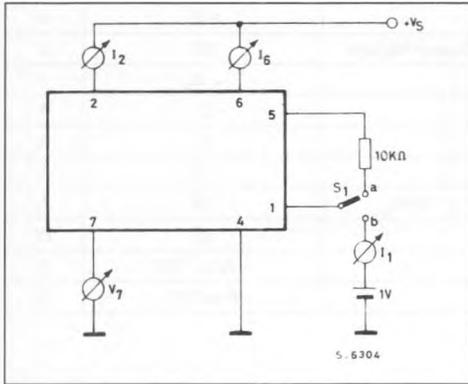
ELECTRICAL CHARACTERISTICS

(refer to the test circuits, $V_s = 48\text{V}$, $T_{\text{amb}} = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	Fig.
V_s	Operating Supply Voltage Range		10		48	V	
I_2	Pin 2 Quiescent Current	$I_3 = 0$ $I_5 = 0$		10	20	mA	1a
I_6	Pin 6 Quiescent Current	$I_3 = 0$ $I_5 = 0$		20	40	mA	1a
I_1	Amplifier bias Current	$V_s = 1\text{V}$		- 0.2	- 1	μA	1a
V_5	Quiescent Output Voltage	$V_s = 48\text{V}$ $R_a = 3.9\text{K}\Omega$		24.2		V	1d
		$V_s = 35\text{V}$ $R_a = 5.6\text{K}\Omega$		17.5			
V_{5L}	Output Saturation Voltage to GND	$I_5 = 1\text{A}$		1.2	1.5	V	1c
V_{5H}	Output Saturation Voltage to Supply	- $I_5 = 1\text{A}$		2.2	2.6	V	1b
V_{D5-6}	Forward Voltage Diode between Pin 5-6	$I_D = 1\text{A}$		1.5		V	
V_{D3-6}	Forward Voltage Diode between Pin 3-6	$I_3 = 1\text{A}$		2		V	
V_7	Internal Reference		2.15	2.2	2.25	V	1a
$\Delta V_7/\Delta V_s$	Reference Voltage Drift Versus V_s	$V_s = 15$ to 50V		1	2	mV/V	1a
K_T	Reference Voltage Drift Versus T_j	$K_T = \frac{\Delta V_7 \cdot 10^6}{\Delta T_j \cdot V_7}$ $T_j = 0$ to 125°C		100	150	ppm/ $^\circ\text{C}$	1a
R_1	Input Resistance			200		$\text{K}\Omega$	
T_j	Junction Temperature for Thermal Shutdown			140		$^\circ\text{C}$	

Figure 1 : DC Test Circuits.

Figure 1a : Measurement of I_1 ; I_2 ; I_6 ; V_7 ; $\Delta V_7/\Delta V_S$.



S1 : (a) I_2 and I_6 ; (b) I_1 .

Figure 1b : Measurement of V_{5H} .

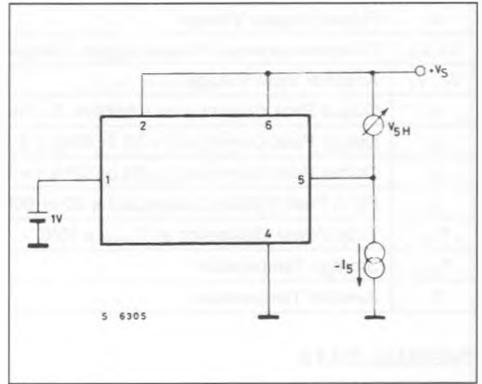


Figure 1c : Measurement of V_{5L} .

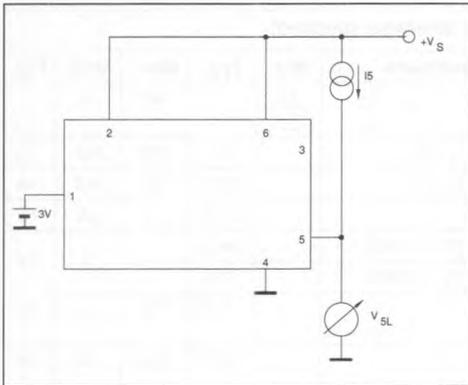


Figure 1d : Measurement of V_5 .

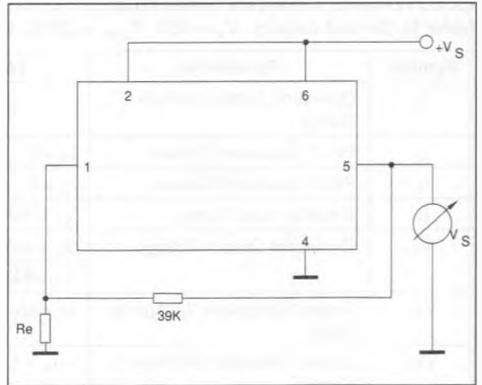


Figure 1e : Measurement of Crossover Distortion.

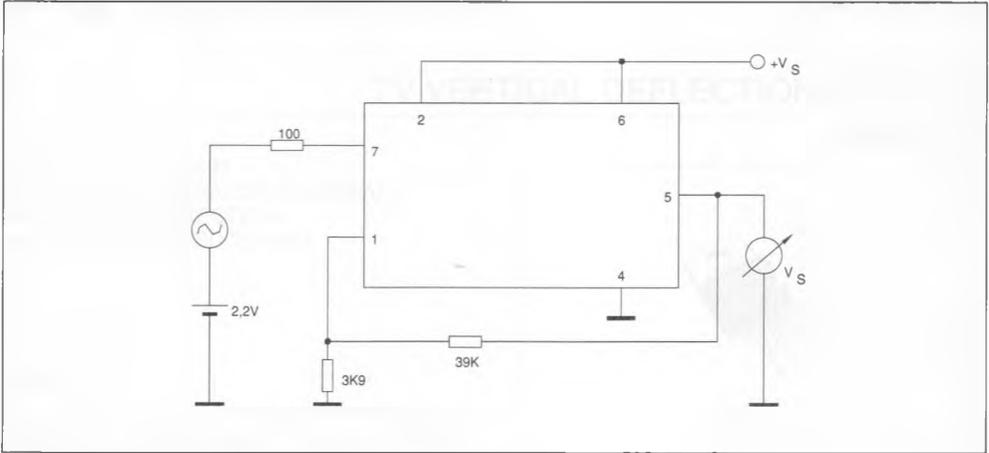


Figure 2 : SOA of Each Output Power Transistor at 25°C amb.

