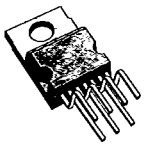
SGS-THOMSON MICROELECTRONICS

TDA8178F

TV VERTICAL DEFLECTION BOOSTER

ADVANCE DATA

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



Heptawatt

ORDER CODE : TDA8178F

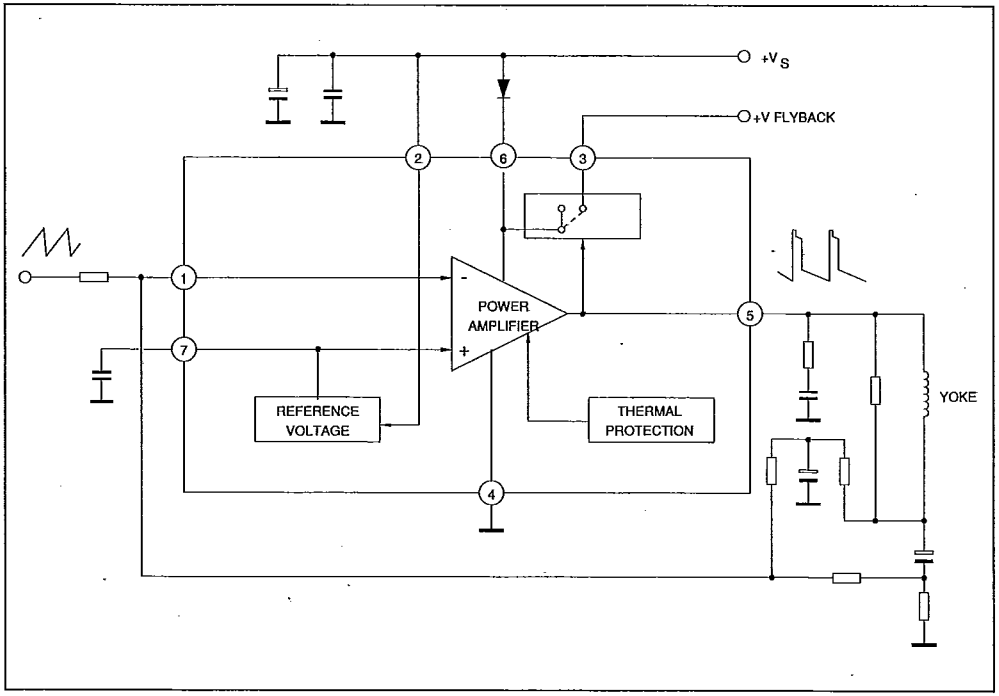
DESCRIPTION

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.

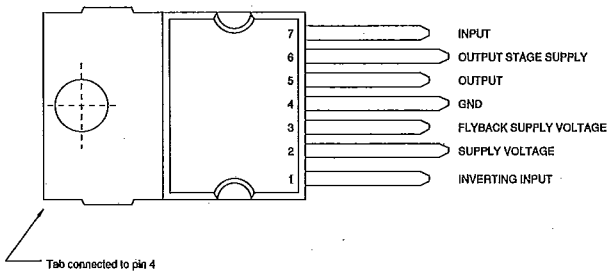
The TDA8178F operates with supplies up to 50V, Flyback supply voltage up to 100V and provides up to 2App output current to drive to yoke.

The TDA8178F is offered in HEPTAWATT package.

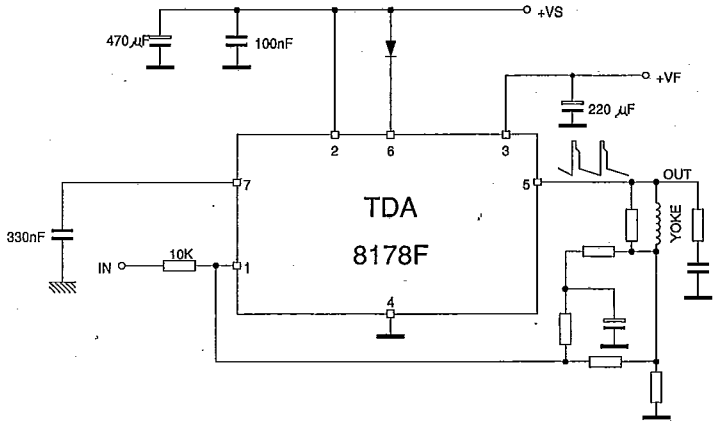
BLOCK DIAGRAM



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_1, V_7	Amplifier Input Voltage	+ V_s	
I_O	Output Peak Current (non repetitive, t = 2ms)	2	A
I_O	Output Peak Current at f = 50 or 60Hz t ≤ 10µs	2	A
I_O	Output Peak Current at f = 50 or 60Hz t > 10µs	1.8	A
I_3	Pin 3 Peak Flyback Current at f = 50 or 60Hz, t_{fly} ≤ 1.5ms	1.8	A
P_{tot}	Total Power Dissipation at T_{case} = 70°C	20	W
T_{stg}	Storage Temperature	– 40 to 150	°C
T_j	Junction Temperature	0 to 150	°C

THERMAL DATA

$R_{th\ J\text{-}C}$	Thermal Resistance Junction-case	Max	3	°C/W

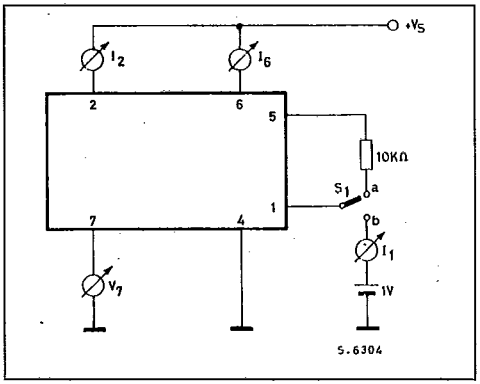
ELECTRICAL CHARACTERISTICS

(refer to the test circuits, V_s = 48V, T_{amb} = 25°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_1 = 1V		– 0.2	– 1	µA	1a
V_5	Quiescent Output Voltage	V_s = 48V R_a = 3.9KΩ		24.2		V	1d
		V_s = 35V R_a = 5.6KΩ		17.5			
V_{5L}	Output Saturation Voltage to GND	I_5 = 1A		1.2	1.5	V	1c
V_{5H}	Output Saturation Voltage to Supply	– I_5 = 1A		2.2	2.6	V	1b
$V_{D5\text{-}6}$	Forward Voltage Diode between Pin 5-6	I_D = 1A		1.5		V	
$V_{D3\text{-}6}$	Forward Voltage Diode between Pin 3-6	I_3 = 1A		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	$K_T = \frac{\Delta V_7 . 10^6}{\Delta T_j . V_7}$ Tj = 0 to 125°C		100	150	ppm/°C	1a
R_1	Input Resistance			200		KΩ	
T_j	Junction Temperature for Thermal Shutdown			140		°C	

Figure 1 : DC Test Circuits. S G S-THOMSON 30E D

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



S_1 : (a) I_2 and I_6 ; (b) I_1.

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

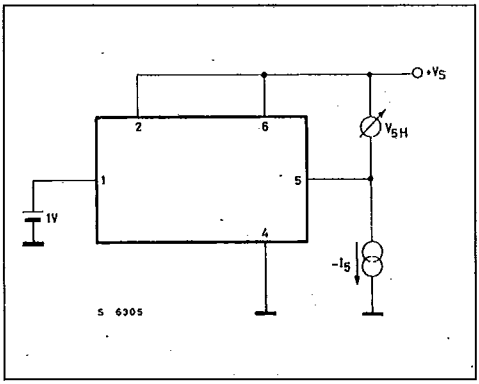


Figure 1c : Measurement of V_{5L}.

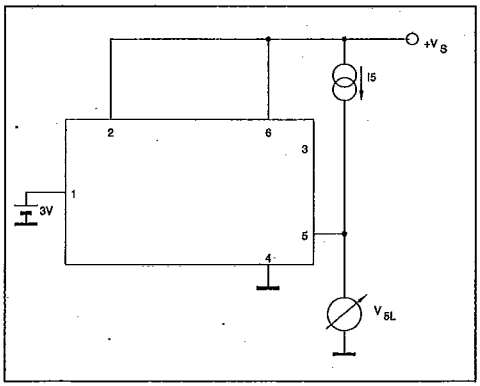


Figure 1d : Measurement of V_5.

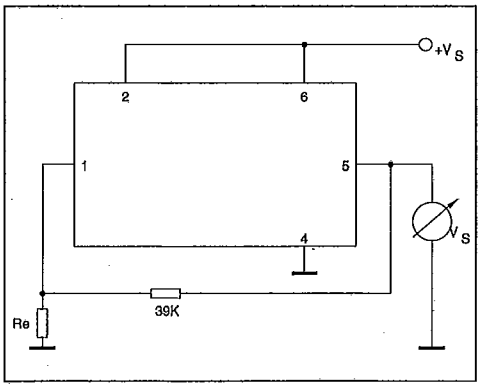


Figure 1e : Measurement of Crossover Distorsion.

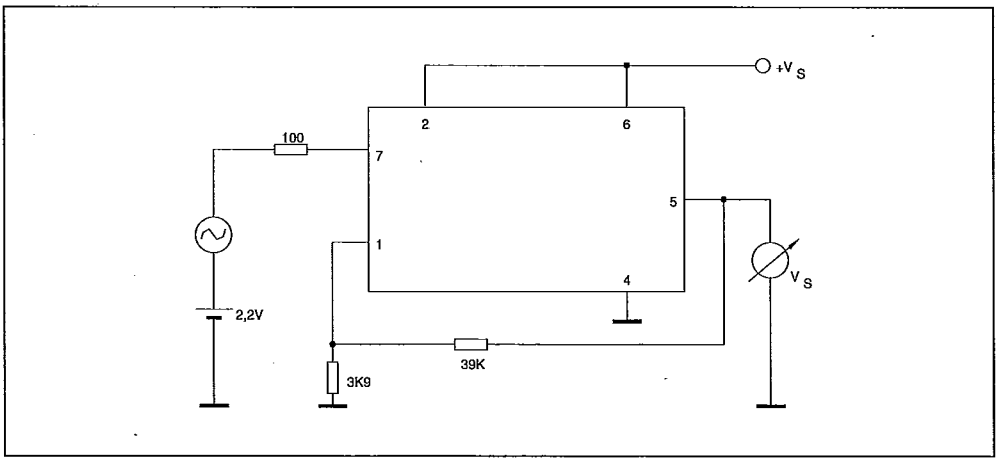


Figure 2 : SOA of Each Output Power Transistor at 25°C amb.