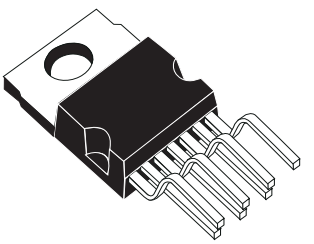
STV8179F

Vertical Deflection Booster for Slim CRTs

DATASHEET

OVERVIEW

- Power Amplifier
- Thermal Protection
- Output Current up to 3.6 A_{pp}
- Flyback Voltage up to 90 V (on Pin 5)
- Suitable for DC Coupling Application
- External Flyback Supply



HEPTAWATT
(Plastic Package)

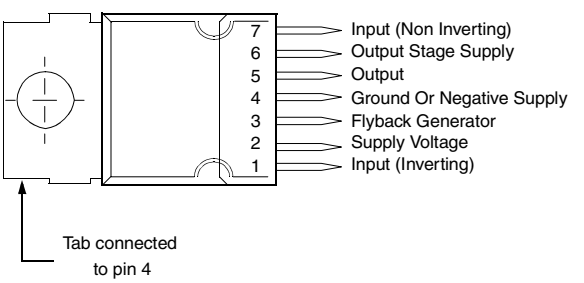
Order Code: STV8179F

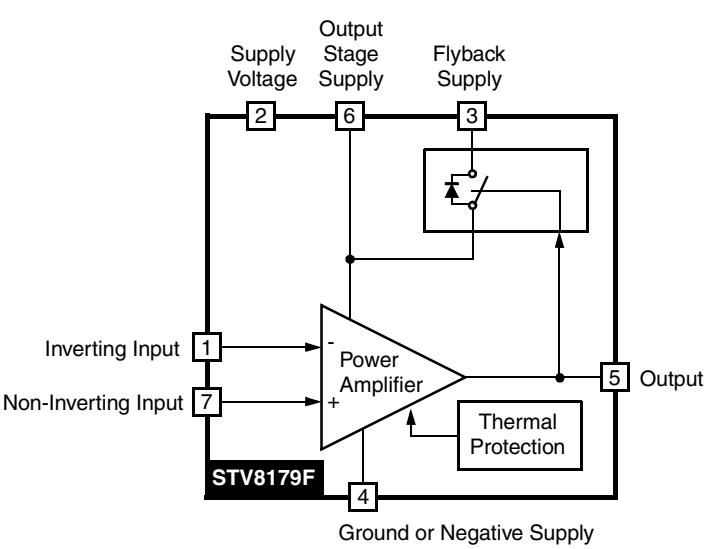
DESCRIPTION

Designed for monitors and high performance TVs, the STV8179F vertical deflection booster can handle flyback voltages of up to 90V. In addition, it is possible to have a flyback voltage which is more than double that of the supply (Pin 2). This allows decreasing power consumption or decreasing the flyback time for a given supply voltage.

The STV8179F operates with supplies of up to 42V and outputs up to 3.6 A_{PP} to drive the yoke.

The STV8179F is offered in a HEPTAWATT package.





Rev. 3

Table of Contents

1 Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_S	Supply Voltage (Pin 2) (see note 1)	50	V
V_6	Flyback Peak Voltage (Pin 6) (see note 1)	120	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)	3.0	A
I_3	Maximum Sink Current (t < 1ms)	3.0	A
I_3	Maximum Source Current (t < 1ms) (in the diode, see Block Diagram) (see note 2)	3.0	A
V_{ESD}	ESD Susceptibility: EIAJ Norm (200pF discharged through 0Ω)	300	V
V_3-V_2	Voltage Difference between Flyback Supply and Supply Voltage	50	V
T_{OPER}	Operating Ambient Temperature	-20, +75	°C
T_{STG}	Storage Temperature	-40, +150	°C
T_J	Junction Temperature	+ 150	°C

Note: 1 Versus Pin 4.

2 The output current can reach 6A peak for t ≤ 10µs (up to 120 Hz)

3 Provided SOAR is respected (see Figures 3 and 4).

2 Thermal Data

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}c)}$	Junction-Case Thermal Resistance Max.	3	°C/W
T_T	Temperature for Thermal Shutdown	150	°C
T_{JR}	Recommended Max. Junction Temperature	120	°C

3 Electrical Characteristics

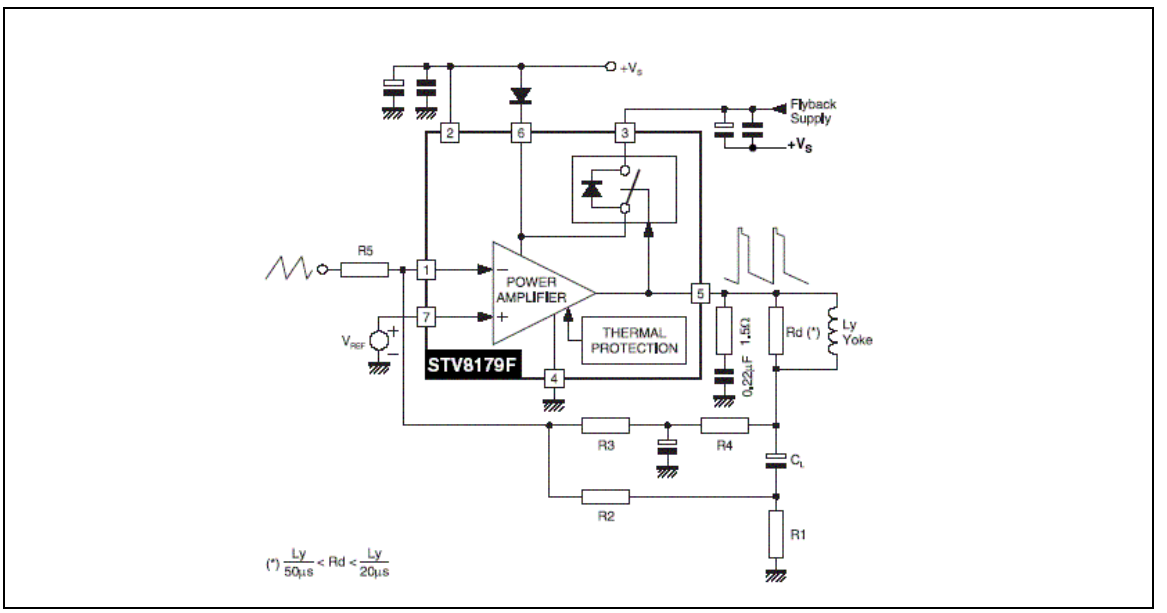
(V_S = 42V, T_A = 25°C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_S	Operating Supply Voltage Range	Versus Pin 4	10		42	V
V_{3M}	Operating Flyback Supply Voltage ($V_{3M} \leq V_S$+50V)	Versus Pin 4	V_S		90	V
I_2	Pin 2 Quiescent Current	I_3 = 0, I_5 = 0		13	20	mA
I_6	Pin 6 Quiescent Current	I_3 = 0, I_5 = 0	7	12	35	mA
I_o	Max. Operating Peak Output Current	Refer to Note 1			1.8	A
I_1	Amplifier Bias Current	V_1 = 22V, V_7 = 23V		-0.15	- 1	µA
I_3	Flyback current during scanning period	$V_{FLYBACK}$ = 100V		2.0	5.0	mA
I_7	Amplifier Bias Current	V_1 = 23V, V_7 = 22V		-0.15	- 1	µA
V_{IO}	Offset Voltage				7	mV
$\Delta V_{IO}/dt$	Offset Drift Versus Temperature			- 10		µV/°C
GV	Voltage Gain		80			dB
V_{5L}	Output Saturation Voltage to GND (Pin 4)	I_5 = 1.8A		1.35	2.2	V
V_{5H}	Output Saturation Voltage to Supply (Pin 6)	I_5 = -1.8A		2.2	3.0	V
V_{D5-6}	Diode Forward Voltage between Pins 5-6	I_5 = 1.8A		1.8	2.3	V
V_{D3-6}	Diode Forward Voltage between Pins 3-6	I_3 = 1.8A		2.3	3.3	V
V_{3-6}	Voltage Drop between Pin 3-6 (2nd part of flyback)	I_3 = - 1.8A		3.6	4.2	V
V_{5Th}	Threshold voltage for triggering Flyback			Vs+Vd		V

Note: 1 Provided SOA for the output transistors is respected (see Figures 3 and 4).

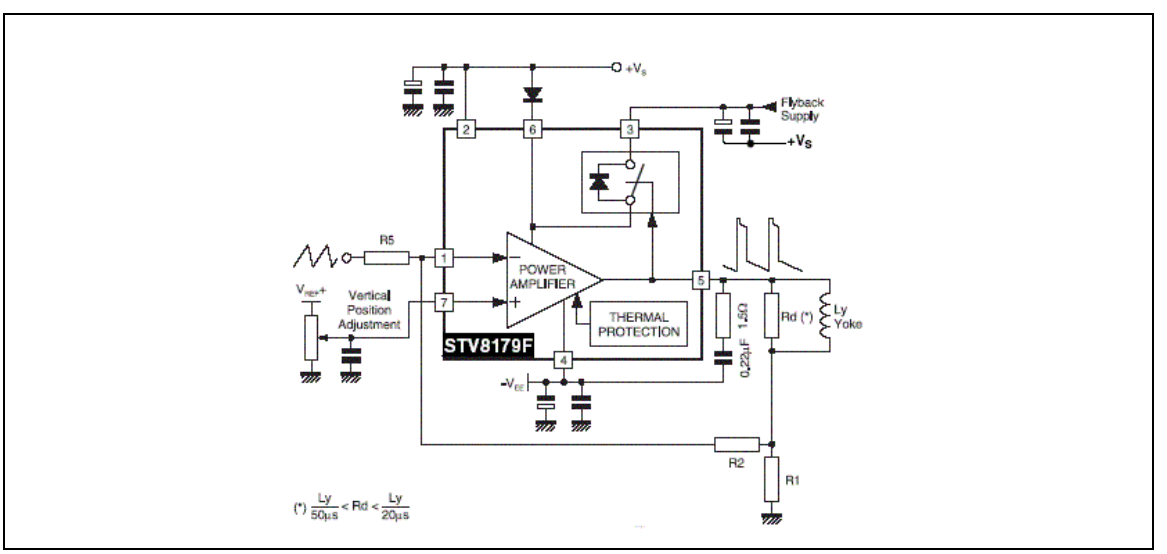
4 Application Circuits

Figure 1: AC Coupling



Note: To prevent spurious voltages during power-on/power-off phases, you must refer the flyback voltage to $+V_S$ rather than to Ground.

Figure 2: DC Coupling



Note: To prevent spurious voltages during power-on/power-off phases, you must refer the flyback voltage to $+V_S$ rather than to Ground.

Figure 3: Output Transistor SOA (for Secondary Breakdown)

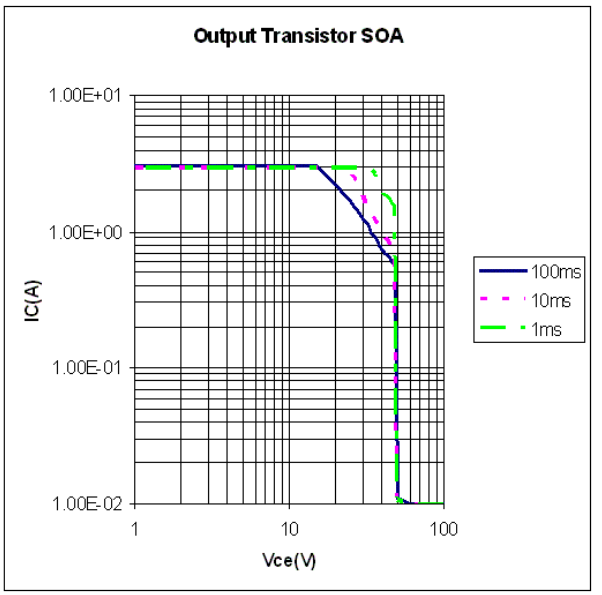
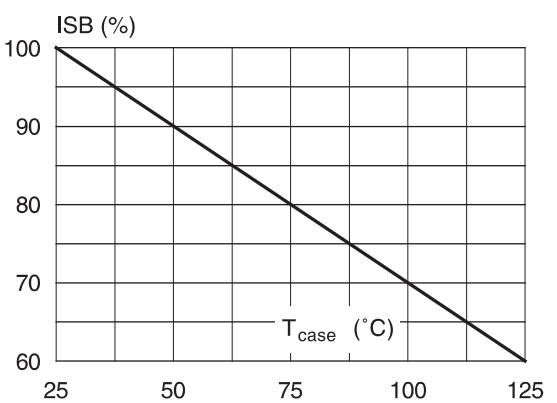


Figure 4: Secondary Breakdown Temperature De-rating Curve (ISB = Secondary Breakdown Current)



5 Package Mechanical Data

Figure 5: 7-pin Plastic Heptawatt Package

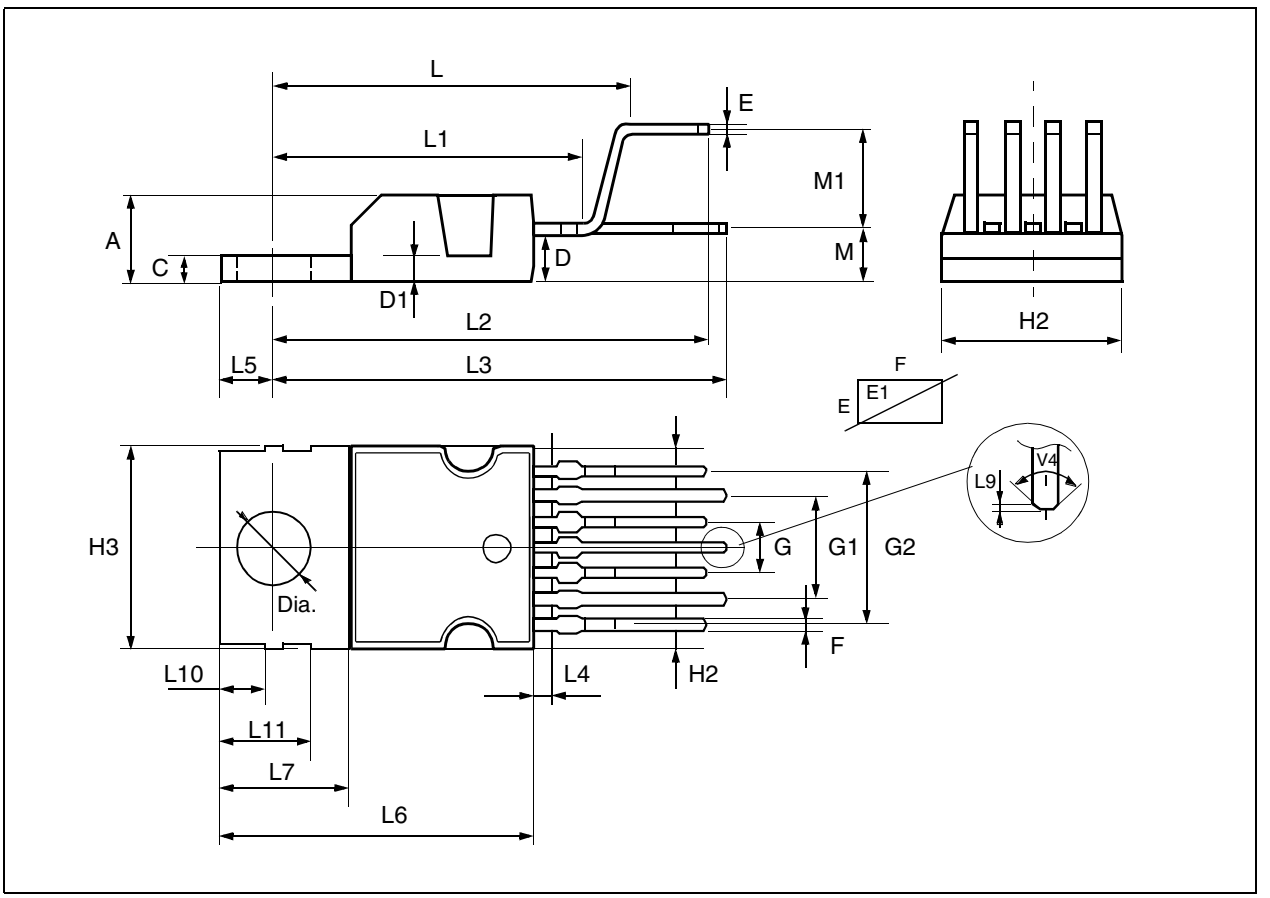


Table 1: Heptawatt Package

Dim.	mm			inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			4.8			0.189
C			1.37			0.054
D	2.40		2.80	0.094		0.110
D1	1.20		1.35	0.047		0.053
E	0.35		0.55	0.014		0.022
E1	0.70		0.97	0.028		0.038
F	0.60		0.80	0.024		0.031
G	2.34	2.54	2.74	0.095	0.100	0.105
G1	4.88	5.08	5.28	0.193	0.200	0.205
G2	7.42	7.62	7.82	0.295	0.300	0.307
H2			10.40			0.409
H3	10.05		10.40	0.396		0.409
L	16.70	16.90	17.10	0.657	0.668	0.673

Table 1: Heptawatt Package (continued)

Dim.	mm			inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
L1		14.92			0.587	
L2	21.24	21.54	21.84	0.386	0.848	0.860
L3	22.27	22.52	22.77	0.877	0.891	0.896
L4			1.29			0.051
L5	2.60	2.80	3.00	0.102	0.110	0.118
L6	15.10	15.50	15.80	0.594	0.610	0.622
L7	6.00	6.35	6.60	0.0236	0.250	0.260
L9		0.20			0.008	
L10	2.10		2.70	0.082		0.106
L11	4.30		4.80	0.169		0.190
M	2.55	2.80	3.05	0.100	0.110	0.120
M1	4.83	5.08	5.33	0.190	0.200	0.210
V4	40 (Typ.)					
Dia.	3.65		3.85	0.144		0.152

Notes: