

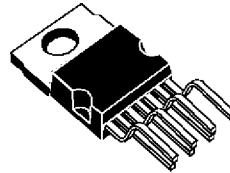


SGS-THOMSON
MICROELECTRONICS

TDA9309

VERTICAL DEFLECTION BOOSTER

- POWER AMPLIFIER
- FLYBACK GENERATOR
- THERMAL PROTECTION
- OUTPUT CURRENT UP TO 2.0A_{PP}
- FLYBACK VOLTAGE UP TO 70V (on Pin 5)
- SUITABLE FOR DC COUPLING APPLICATION



HEPTAWATT
(Plastic Package)

ORDER CODE : TDA9309

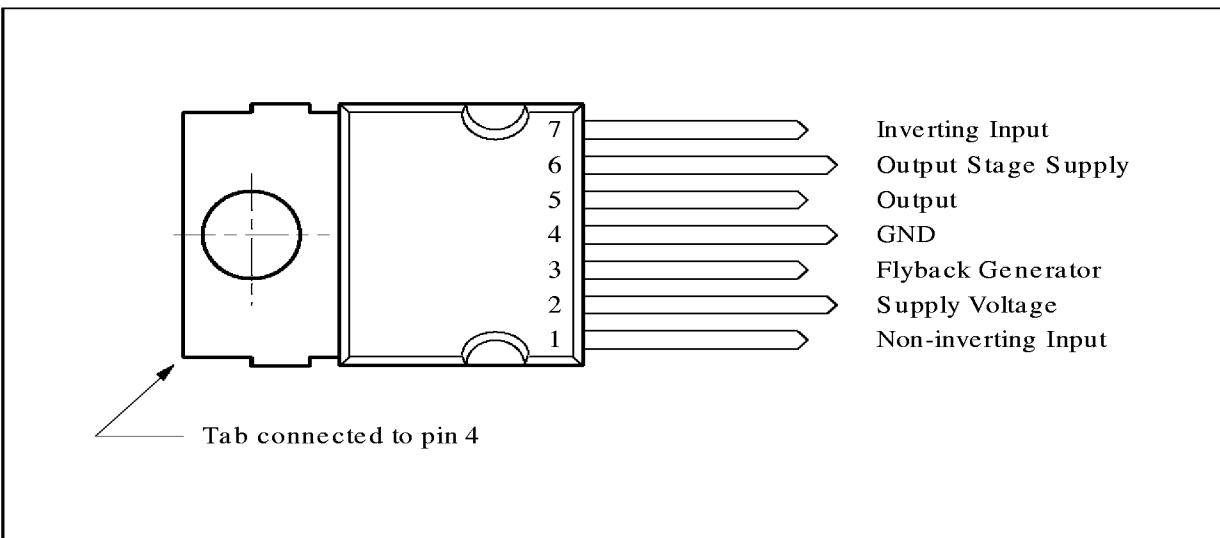
DESCRIPTION

Designed for monitors and high performance TVs, the TDA9309 vertical deflection booster delivers flyback voltages up to 70V.

The TDA9309 operates with supplies up to 35V and provides up to 2App output current to drive the yoke.

The TDA9309 is offered in HEPTAWATT package.

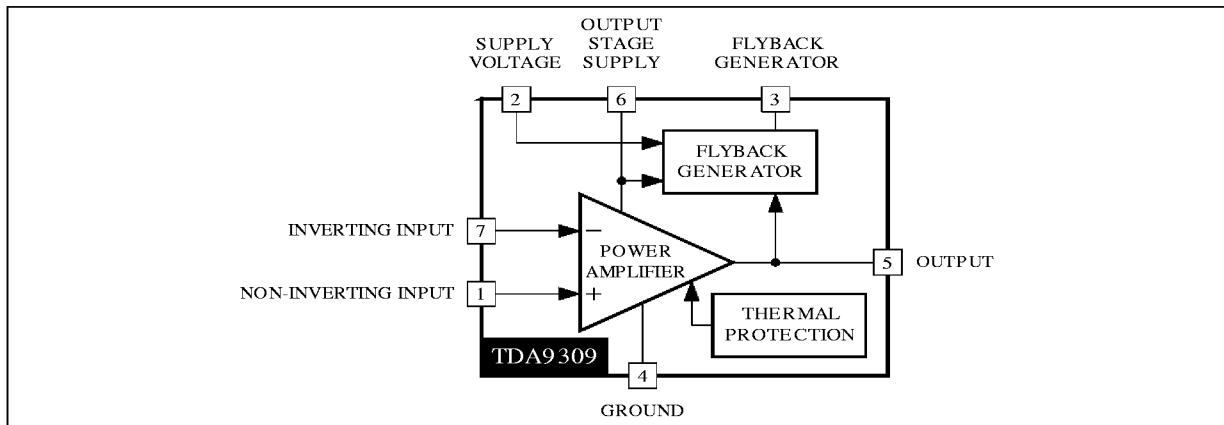
PIN CONNECTIONS



9309-01.EPS

TDA9309

BLOCK DIAGRAM



9309-01.TBL

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)	70	V
V_1, V_7	Amplifier Input Voltage (Pins 1-7) (see note 1)	V_S	V
V_3	Voltage at Pin 3 (see note 5)	$V_S + 3.0$	V
I_O	Maximum Output Peak Current (see notes 2 and 3)	1.5	A
I_3	Maximum Sink Current (first part of flyback) ($t < 1\text{ms}$)	1.5	A
I_3	Maximum Source Current ($t < 1\text{ms}$) (see note 2)	1.5	A
V_{ESD}	Electrostatic Handling for all pins (see note 4)	2000/300	V
T_{oper}	Operating Ambient Temperature	- 20, + 75	°C
T_{stg}	Storage Temperature	- 40, + 150	°C
T_j	Junction Temperature	+150	°C

- Notes :**
1. Versus Pin 4.
 2. The output current can reach 4A peak for $t \leq 10\mu\text{s}$ (up to 200Hz).
 3. Provided SOAR is respected (see Figures 1 and 2).
 4. Equivalent to discharging a 100pF capacitor through a $1.5\text{k}\Omega$ serial resistor / 200pF capacitor through 0Ω resistor.
 5. This will occur during 1st half of flyback pulse.

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THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction-case Thermal Resistance	Max.	°C/W
T_t	Temperature for Thermal Shutdown	150	°C
T_{jr}	Recommended Max. Junction Temperature	120	°C

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ELECTRICAL CHARACTERISTICS

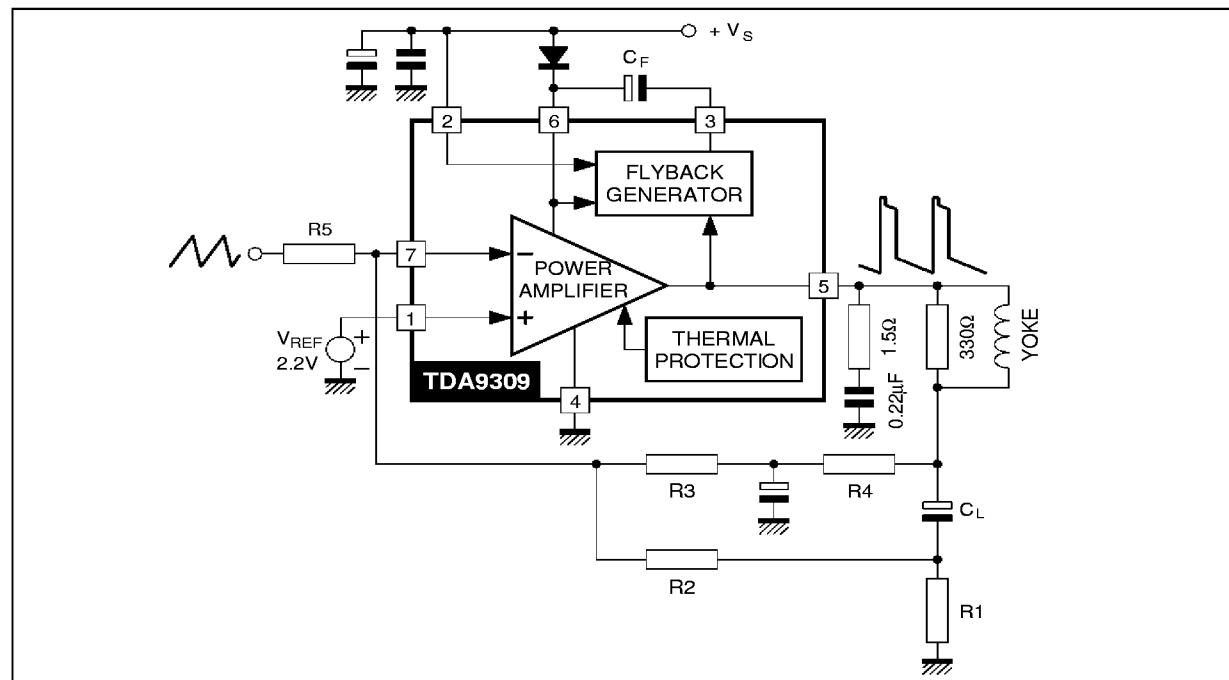
(Vs = 35V, TA = 25°C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Vs	Operating Supply Voltage Range		10	35		V
I2	Pin 2 Quiescent Current	I3 = 0, I5 = 0		9	20	mA
I6	Pin 6 Quiescent Current	I3 = 0, I5 = 0, V6 = 35V	8	19	35	mA
I0	Max. Peak Output Current				±1	A
I1	Amplifier Bias Current	V1 = 1V, V7 = 2.2V		- 0.6	- 1.5	µA
I7	Amplifier Bias Current	V1 = 2.2V, V7 = 1V		- 0.6	- 1.5	µA
VIO	Offset Voltage			3		mV
ΔVIO/dt	Offset Drift versus Temperature			- 10		µV/°C
GV	Voltage Gain		80			dB
V5L	Output Saturation Voltage to GND (Pin 4)	I5 = 1A		1	1.7	V
V5H	Output Saturation Voltage to Supply (Pin 6)	I5 = - 1A		1.8	2.3	V
VD5 - 6	Diode Forward Voltage between Pins 5-6	I5 = 1A		1.3	2	V
VD3 - 2	Diode Forward Voltage between Pins 3-2	I3 = 1A		1.2	2	V
V3SL	Saturation Voltage on Pin 3	I3 = 20mA		0.4	1	V
V3SH	Saturation Voltage to Pin 2 (2nd part of flyback)	I3 = - 1A		2.1	2.8	V

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APPLICATION CIRCUITS

AC COUPLING

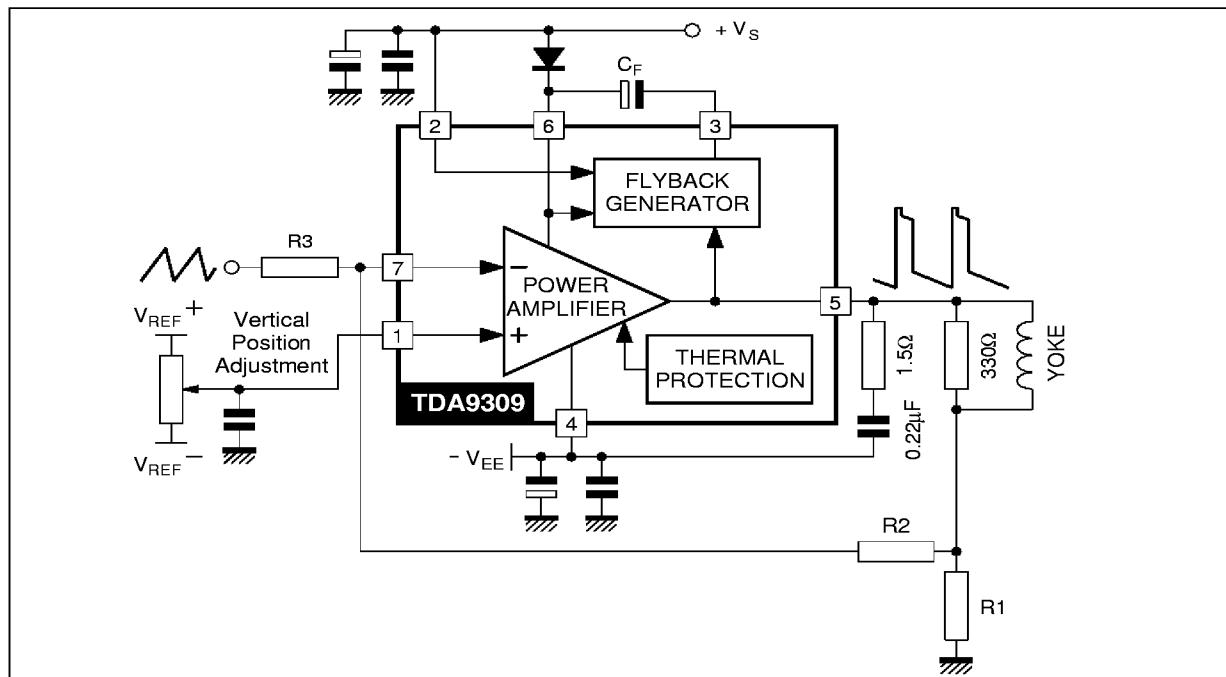


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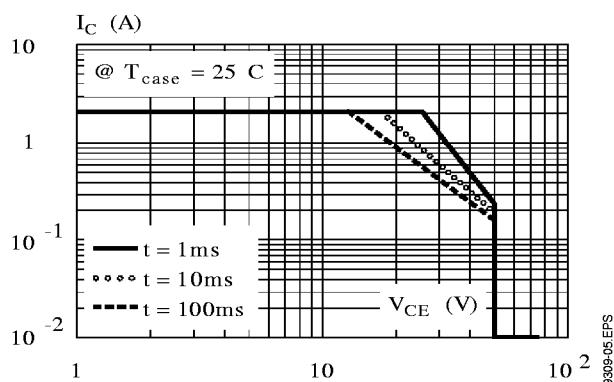
APPLICATION CIRCUITS (continued)

DC COUPLING



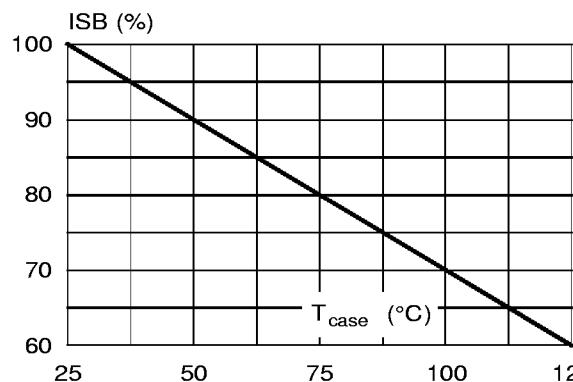
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Figure 1 : Output Transistors SOA
(for secondary breakdown)

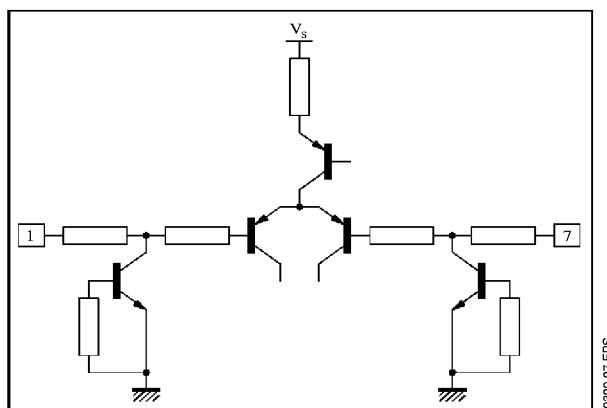
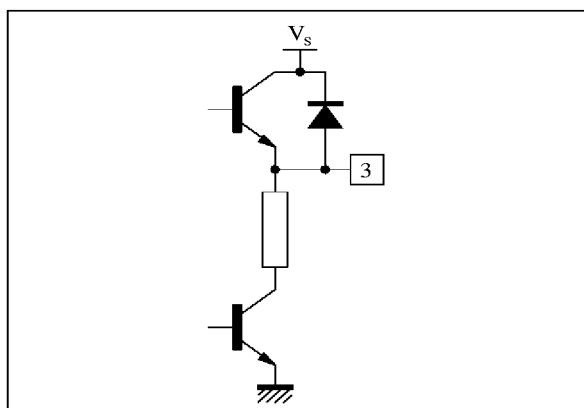


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Figure 2 : Secondary Breakdown Temperature Derating Curve
(ISB = secondary breakdown current)

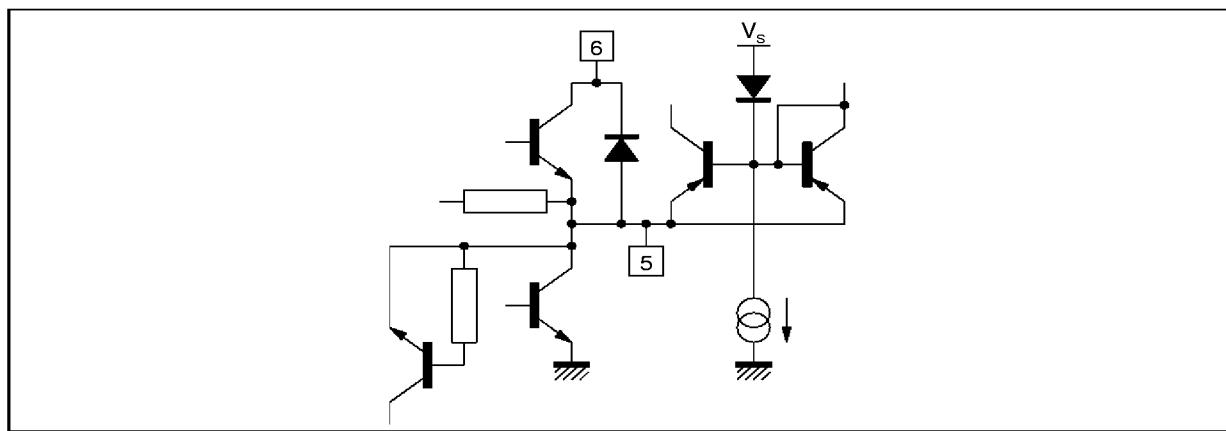


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PIN CONFIGURATION**Figure 3 : Pins 1-7****Figure 4 : Pin 3**

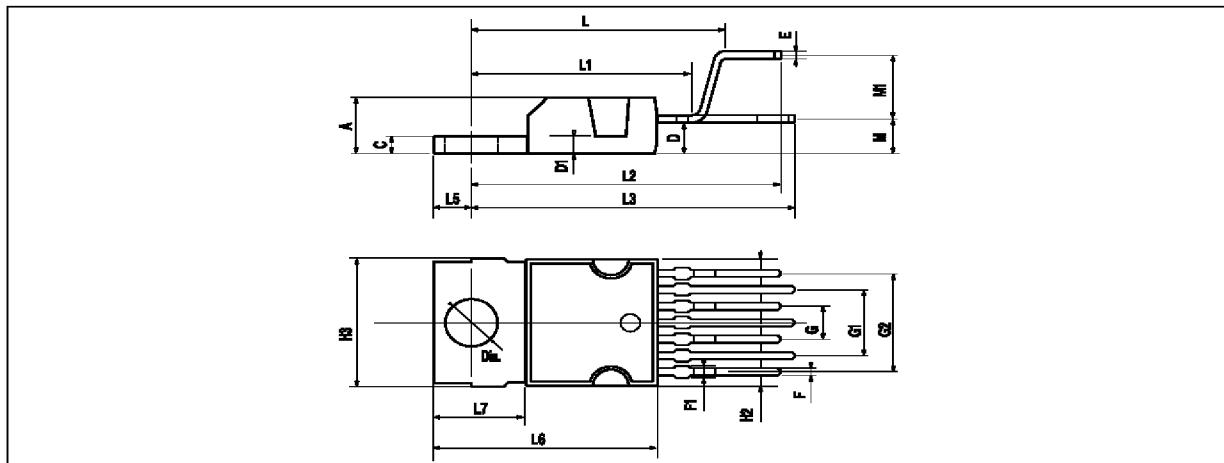
9309-07.EPS

9309-08.EPS

Figure 5 : Pins 5-6

TDA9309

PACKAGE MECHANICAL DATA : HEPTAWATT



PM-HEPTV.EPS

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

HEPTV.TBL

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