

VERTICAL DEFLECTION CIRCUIT

- RAMP GENERATOR
- INDEPENDENT AMPLITUDE ADJUSTEMENT
- BUFFER STAGE
- POWER AMPLIFIER
- FLYBACK GENERATOR
- INTERNAL REFERENCE VOLTAGE
- THERMAL PROTECTION

DESCRIPTION

The TDA1771 is a monolithic integrated circuit in SIP10 package.

It is a full performance and very efficient vertical deflection circuit intended for direct drive of a TV picture tube in Color and B & W television as well as in Monitor and Data displays.

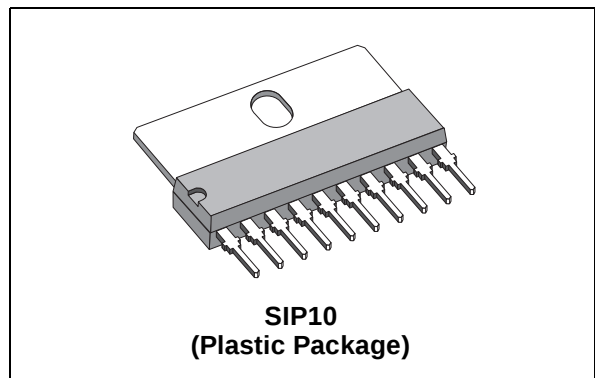


Figure 1. PIN CONNECTIONS (Top View)

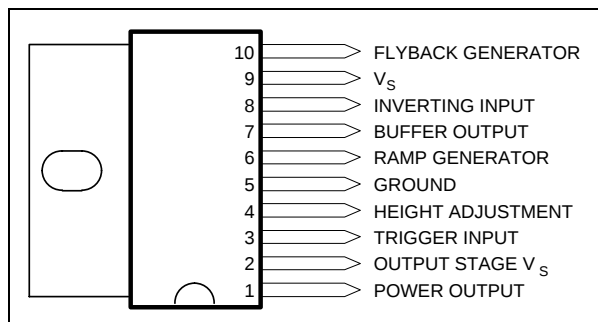
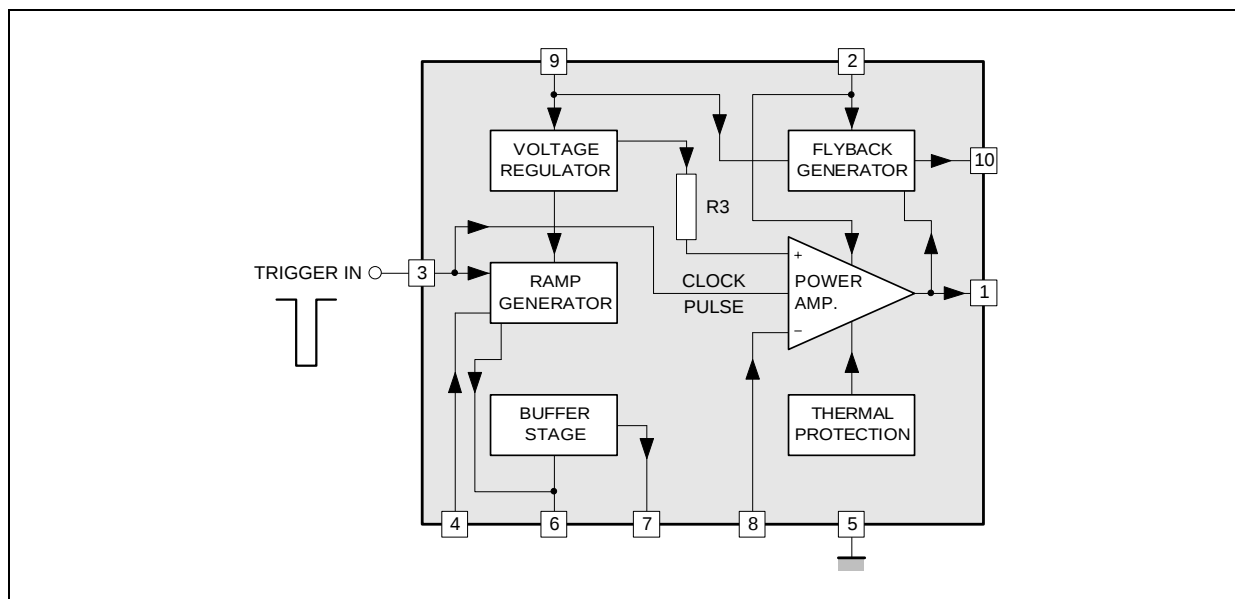


Figure 2. BLOCK DIAGRAM



TDA1771

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	Supply Voltage	30	V
V_1, V_2	Flyback Peak Voltage	65	V
V_3	Trigger Input Voltage	20	V
V_8	Amplifier Input Voltage	GND to V_S	V
I_0	Output Peak to Peak Current (non repetitive $t = 2\text{ms}$)	6	A
I_0	Output Peak to Peak Current $t > 10\mu\text{s}$	4	A
I_{10}	Pin 10 DC Current at $V_1 < V_9$	100	mA
I_{10}	Pin 10 Peak to Peak Current @ $t_{fly} < 1.5\text{ms}$	3	A
P_{tot}	Total Power Dissipation @ $T_{tab} = 60^\circ\text{C}$	9	W
T_S, T_J	Storage and Junction Temperature	- 40, + 150	$^\circ\text{C}$

THERMAL DATA

Symbol	Parameter+	Value	Unit
$R_{th}(j-tab)$	Thermal Resistance Junction-tab Max.	10	$^\circ\text{C/W}$
$R_{th}(j-a)$	Thermal Resistance Junction-ambient Max.	70	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^\circ\text{C}$ unless otherwise specified)

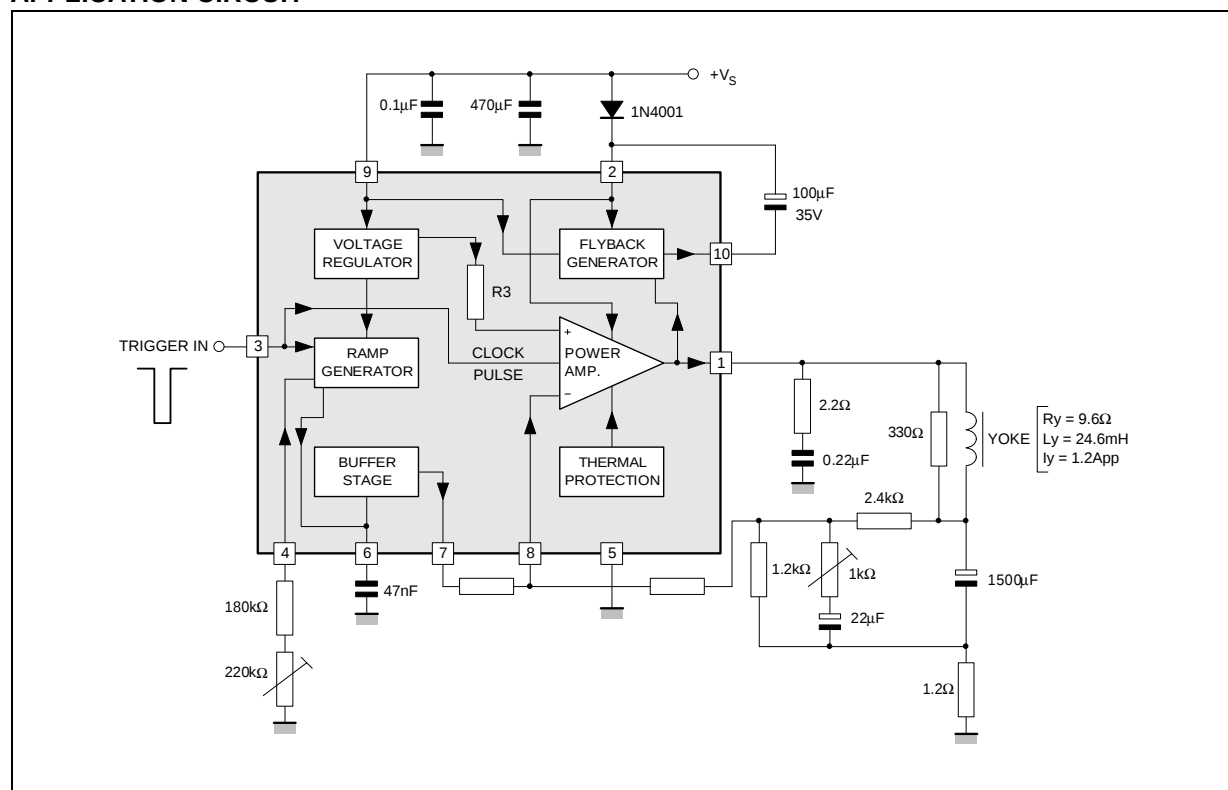
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
DC ($V_S = 30\text{V}$)						
I_2	Pin 2 Quiescent Current	$I_1 = 0, I_{10} = 0$		16	36	mA
I_9	Pin 9 Quiescent Current	$I_1 = 0, I_{10} = 0$		15	30	mA
$-I_6$	Ramp Generator Bias Current	$V_6 = 0$			0.5	μA
$-I_6$	Ramp Generator Current	$V_6 = 0, -I_4 = 20\mu\text{A}$	18.5	20	21.5	μA
dI_6/I_6	Ramp Gener. Linearity	$V_6 = 0$ to $15\text{V}, -I_4 = 20\mu\text{A}$		0.2	1	%
V_1	Quiescent Output Voltage	$R_a = 30\text{k}\Omega, R_b = 10\text{k}\Omega, V_S = 30\text{V}$	17.0	17.8	18.6	V
		$R_a = 6.8\text{k}\Omega, R_b = 10\text{k}\Omega, V_S = 15\text{V}$	7.2	7.5	7.8	V
V_{1L}	Out Saturation Voltage to GND	$I_1 = 0.5\text{A}$		0.5	1	V
		$I_1 = 1.2\text{A}$		1	1.4	V
V_{1H}	Out Saturation Voltage to V_S	$-I_1 = 0.5\text{A}$		1.1	1.6	V
		$-I_1 = 1.2\text{A}$		1.6	2.2	V
V_4	Reference Voltage	$-I_4 = 20\mu\text{A}$	6.3	6.6	6.9	V
dV_4/V_S	Reference Voltage Drift Versus V_S	$V_S = 10\text{V}$ to 30V		1	2	mV/V
dV_4/dI_4	Reference Voltage Drift Versus I_4	$I_4 = 10\mu\text{A}$ to $30\mu\text{A}$		1.5	2	mV/ μA
V_r	Internal Ref. Voltage		4.26	4.40	4.54	V
G_v	Output Stage Open Loop Gain	$f = 100\text{Hz}$		60		dB
V_{fs}	$V_9 - 10$ Saturation Voltage	$-I_{10} = 1.2\text{A}$		1.5	2.5	V
V_{10}	Pin 10 Scanning Voltage	$I_{10} = 20\text{mA}$		1.7	3	V
V_3	Trigger Input Threshold	(see note 1)	2.6	3.0	3.4	V
I_3	Trigger Input Bias Current	$V_{IN} = V_3 - 0.2\text{V}$			30	μA
t_3	Trigger Input Width	(see note 2)	20	60	th	μs

Notes:

- The trigger input circuit can accept, with a metal option, positive and negative going pulses.
- $th = \frac{1.2 \cdot t_S}{V_{PP}}$ where t_S is the vertical period and V_{PP} is ramp amplitude at Pin 6.

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
DC ($V_S = 24\text{V}$)						
V_S	Operating Supply Voltage Range		10		30	V
I_1	Peak-to-peak Operating Current Range		0.4		2.5	A
I_S	Supply Current	$I_Y = 2.4\text{A}_{pp}$		315		mA
V_1	Flyback Voltage	$I_Y = 2.4\text{A}_{pp}$		51		V
V_7	Sawtooth Pedestal Voltage			1.85		V
T_{JS}	Junction Temp. for Thermal Shutdown			145		$^{\circ}\text{C}$

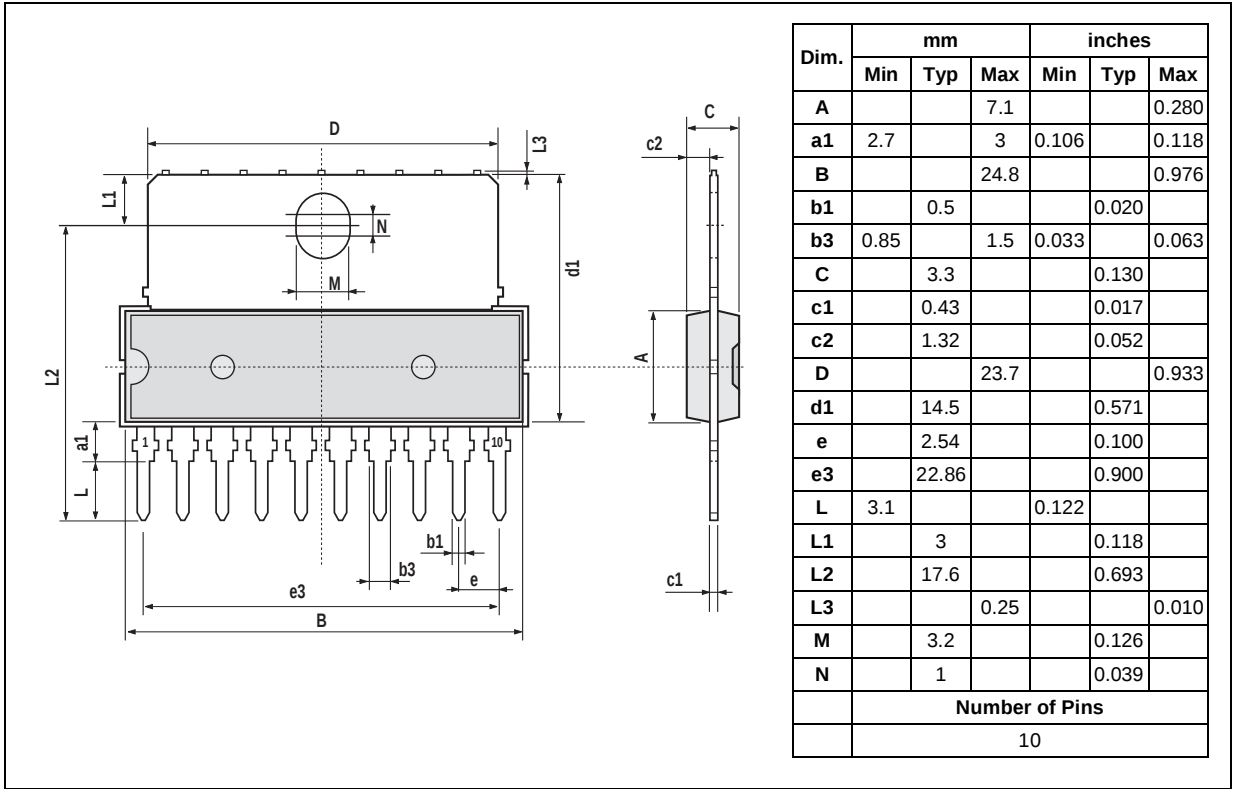
APPLICATION CIRCUIT

TDA1771

PACKAGE MECHANICAL DATA

10 PINS - PLASTIC SIP

Figure 3. 10-Pin Plastic Single in Line Package



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