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# TDA1771

## 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.

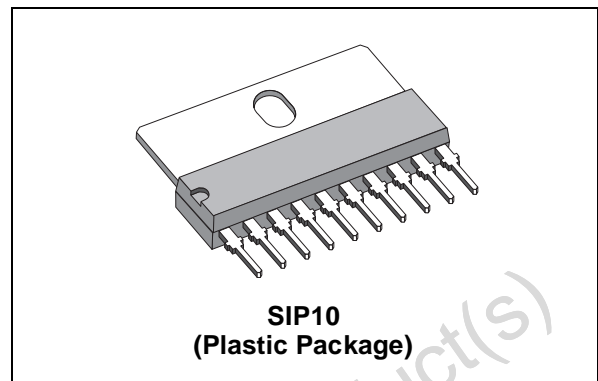


Figure 1. PIN CONNECTIONS (Top View)

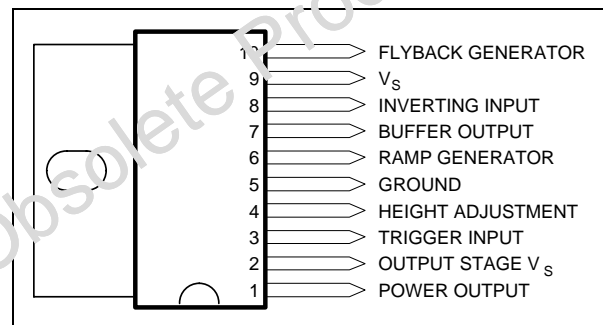
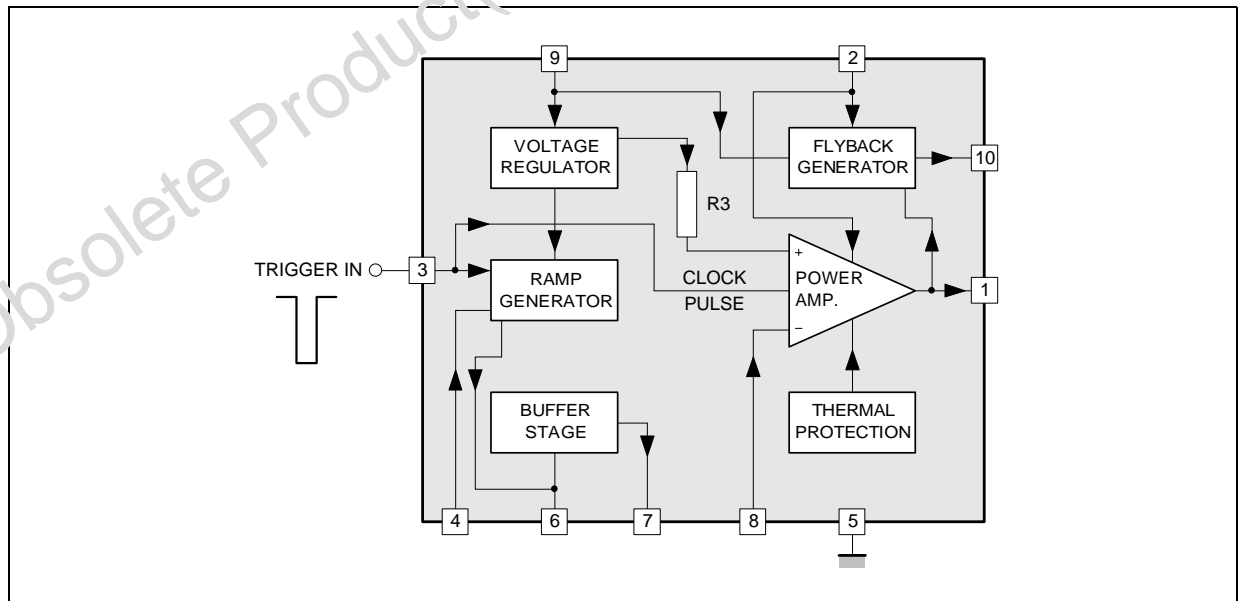


Figure 2. BLOCK DIAGRAM



**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	GNDto $V_S$	V
$I_0$	Output Peak to Peak Current (non repetitive t = 2ms)	6	A
$I_0$	Output Peak to Peak Current t > 10 $\mu$ s	4	A
$I_{10}$	Pin 10 DC Current at $V_1 < V_9$	100	mA
$I_{10}$	Pin 10 Peak to Peak Current @ $t_{fly} < 1.5$ 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	TestConditions	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	$\mu\text{A}$
$-I_6$	Ramp Generator Current	$V_6 = 0, -I_4 = 20\mu\text{A}$	18.5	20	21.5	$\mu\text{A}$
$dI_6/I_6$	Ramp Gener. Linearity	$V_6 = 0$ to 15V, $-I_4 = 20\mu\text{A}$		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/ $\mu\text{A}$
$V_r$	Internal Ref. Voltage		4.26	4.40	4.54	V
$G_v$	Output Stage Open Loop Gain	f = 100Hz		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	$\mu\text{A}$
$t_3$	Trigger Input Width	(see note 2)	20	60	th	$\mu\text{S}$

**Notes:**

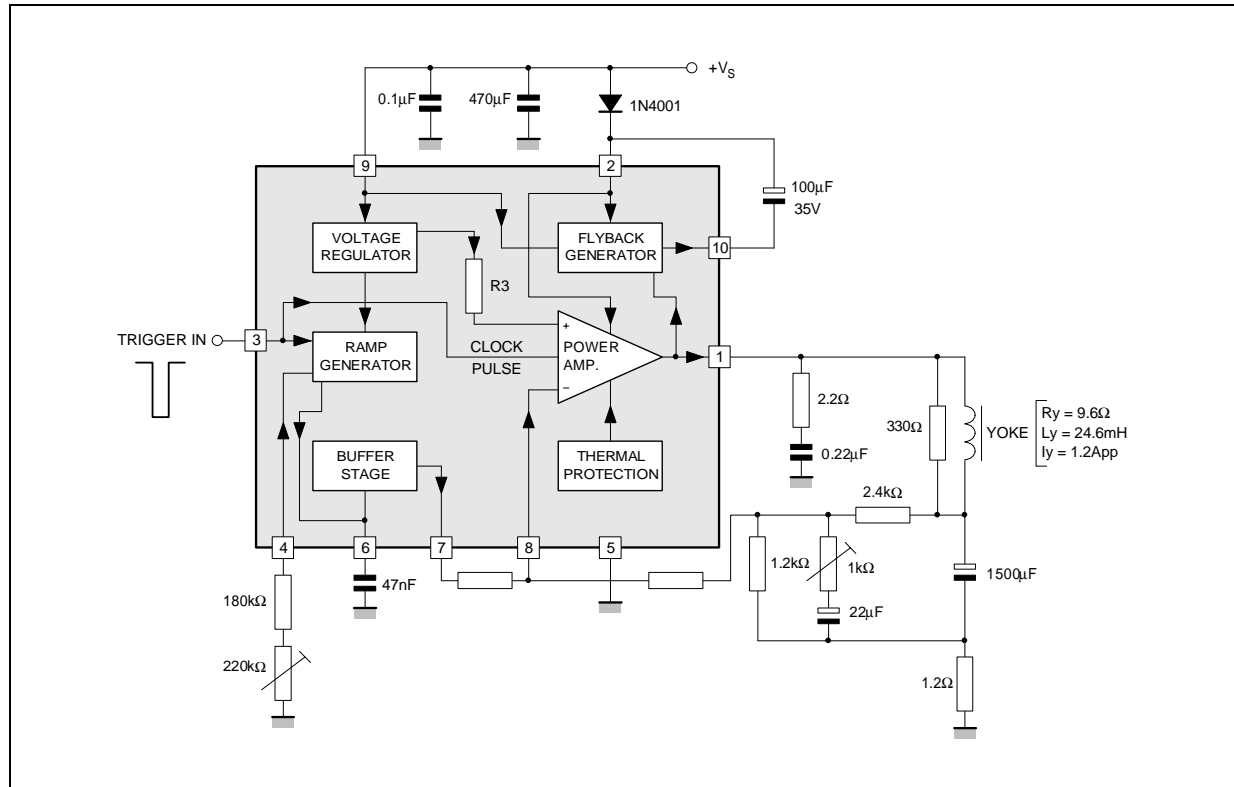
- The trigger input circuit can accept, with a metal option, positive and negative going pulses.
- $t_3 = \frac{1.2 \cdot t_S}{V_{PP}}$  where  $t_S$  is the vertical period and  $V_{PP}$  is ramp amplitude at Pin 6.

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**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	$I_Y = 2.4A_{pp}$		315		mA
$V_1$	Flyback Voltage	$I_Y = 2.4A_{pp}$		51		V
$V_7$	Sawtooth Pedestall Voltage			1.85		V
$T_{JS}$	Junction Temp. for Thermal Shutdown			145		$^{\circ}\text{C}$

**APPLICATION CIRCUIT**

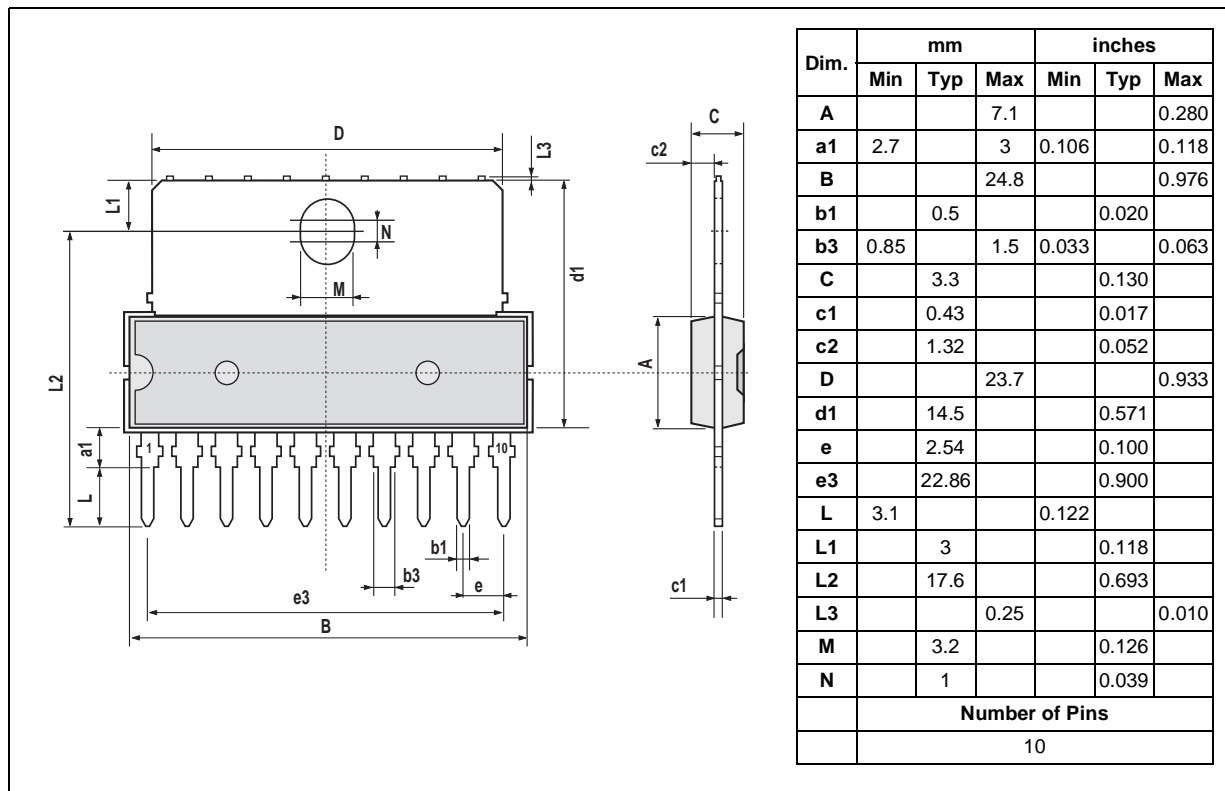


**TDA1771**

**PACKAGE MECHANICAL DATA**

10 PINS - PLASTIC SIP

**Figure 3. 10-Pin Plastic Single in Line Package**



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