



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.

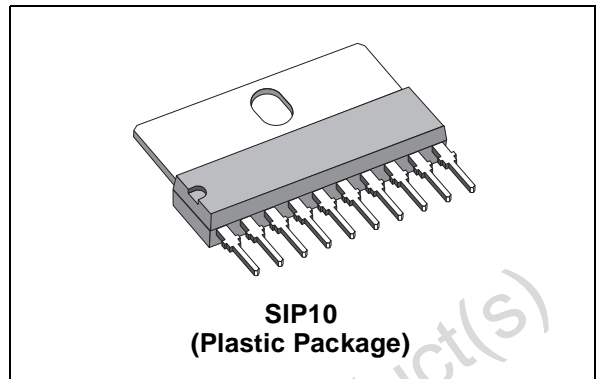


Figure 1. PIN CONNECTIONS (Top View)

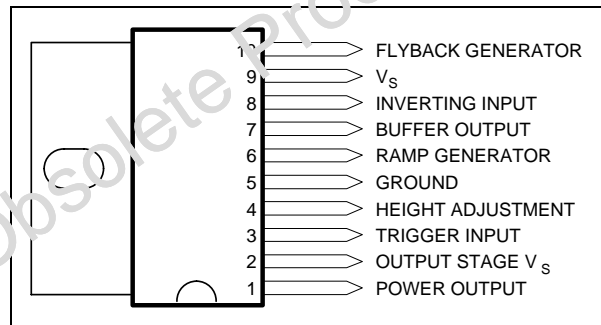
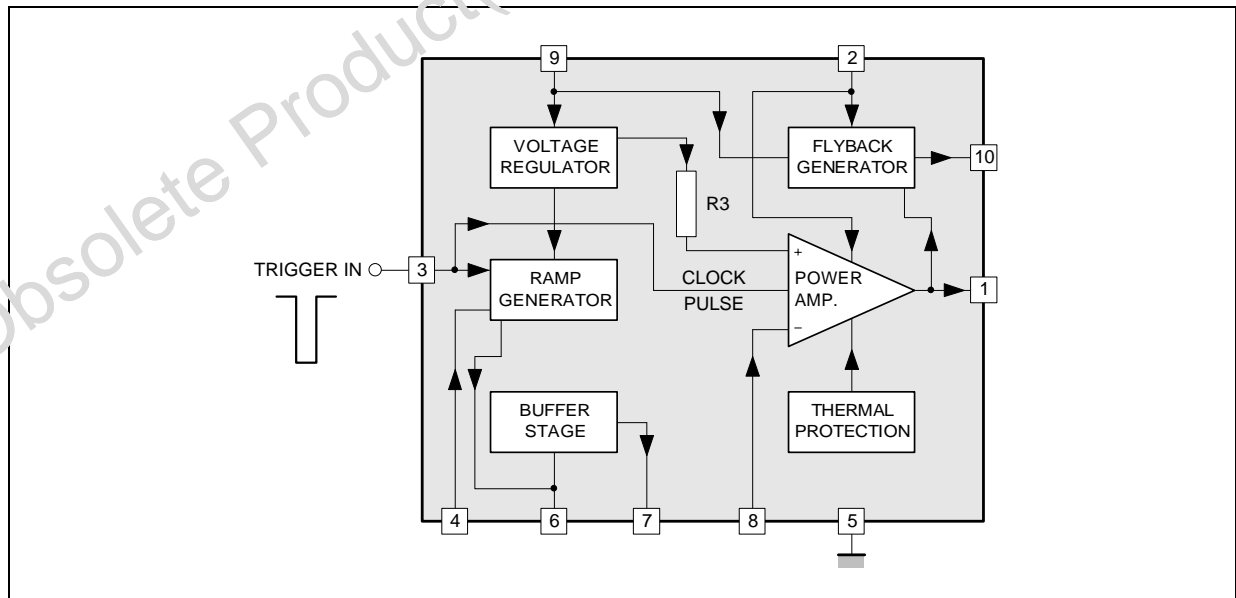


Figure 2. BLOCK DIAGRAM



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 μ 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 | 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 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 μA | | 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 = 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 | μA |
| t_3 | Trigger Input Width | (see note 2) | 20 | 60 | th | μs |

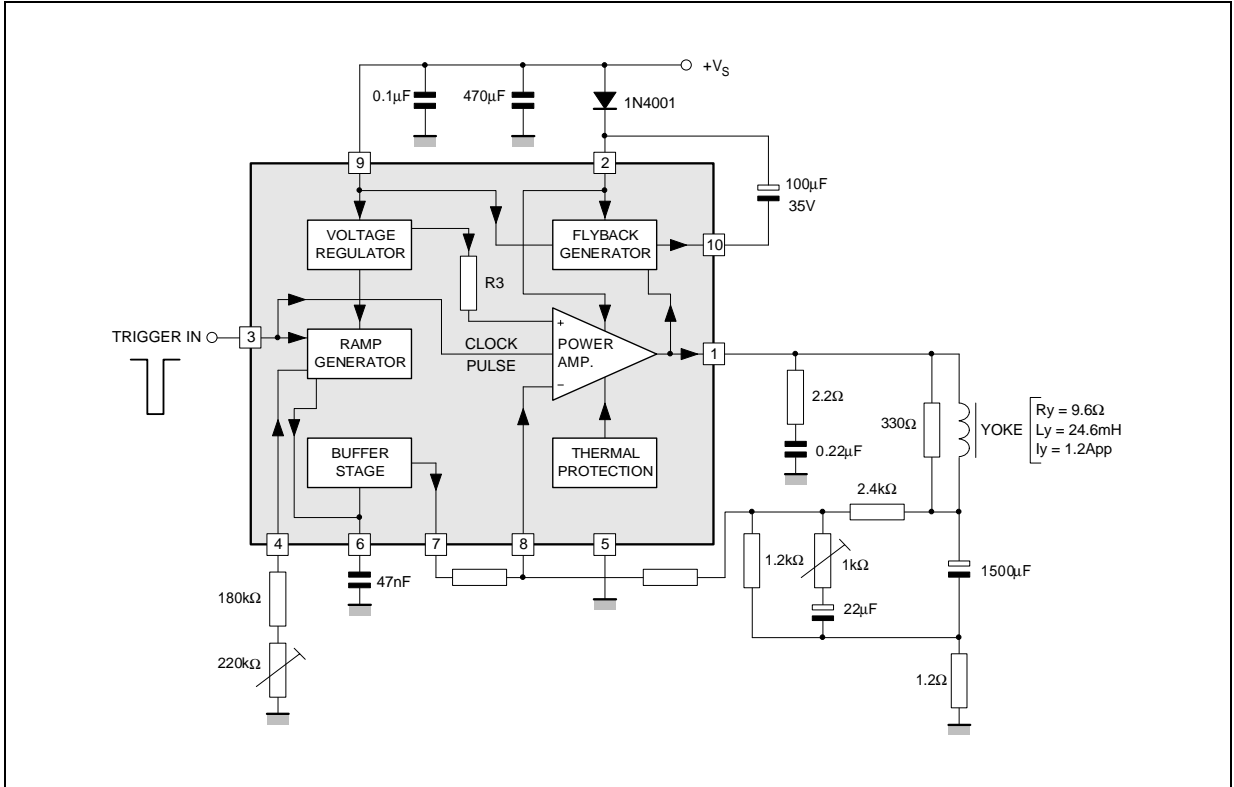
Notes:

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

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---------------------------|--------------------------------------|-------------------------------------|------|------|------|------|
| DC (V _S = 24V) | | | | | | |
| 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 Pedestal Voltage | | | 1.85 | | V |
| T _{JS} | Junction Temp. for Thermal Shutdown | | | 145 | | °C |

APPLICATION CIRCUIT

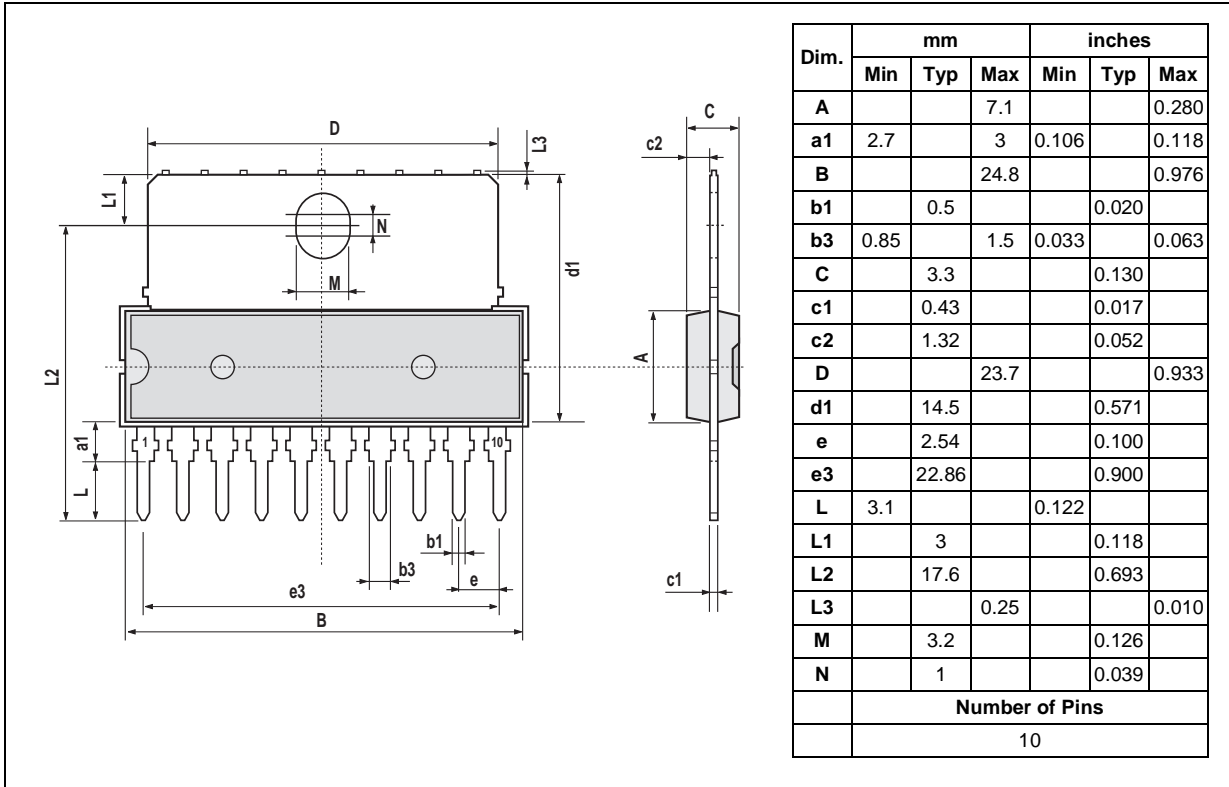


TDA1771

PACKAGE MECHANICAL DATA

10 PINS - PLASTIC SIP

Figure 3. 10-Pin Plastic Single in Line Package



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without the express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

©2003 STMicroelectronics - All Rights Reserved.



Purchase of I²C Components by STMicroelectronics conveys a license under the Philips I²C Patent. Rights to use these components in an I²C system is granted provided that the system conforms to the I²C Standard Specification as defined by Philips.

STMicroelectronics Group of Companies

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain
Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>