

**PT90 A**  
**CHASSIS SERVICE**  
**MANUAL**

# TDA1771

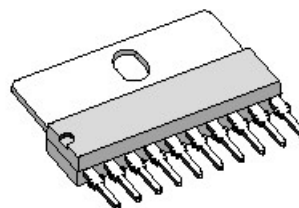
## Vertical Deflection Circuit

### DESCRIPTION

The TDA1771 is a monolithic integrated circuit in SIP10 package.

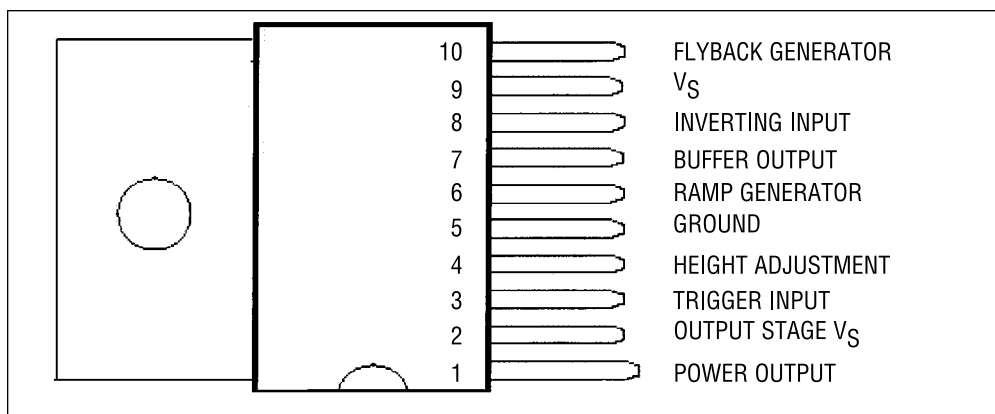
It is a full performance and very efficient vertical deflection circuit intended for direct drive of a TV picture tube in Color and B & W television as well as in Monitor and Data displays.

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

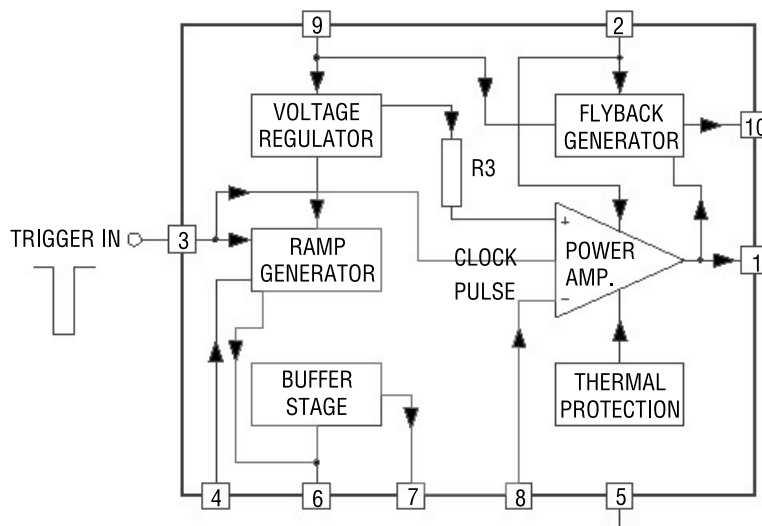


**SIP10**  
(Plastic Package)

### PIN CONNECTION (Top view)



### BLOCK DIAGRAM



**ABSOLUTE MAXIMUM RATINGS**

| Symbol     | Parameter   | Value        | Unit       |
|------------|---|--------------|------------|
| $V_{DD}$   | 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          |
| $I_O$      | Output Peak to Peak Current (non repetitive $t = 2ms$ ) | 6            | A          |
| $I_O$      | Output Peak to Peak Current $> 10\mu s$                 | 4            | A          |
| $I_{10}$   | Pin 10 DC Current at $V_1 > V_9$                        | 100          | mA         |
| $I_{10}$   | Pin 10 Peak to Peak Current @ $T_{fly} < 1.5ms$         | 3            | A          |
| $P_{tot}$  | Total Power Dissipation @ $T_{tab} = 60^\circ C$        | 9            | W          |
| $T_s, T_j$ | Storage and Junction Temperature                        | -40, +150    | $^\circ C$ |

**THERMAL DATA**

| Symbol    | Parameter                             | Value   | Unit         |
|-----------|---------------------------------------|---------|--------------|
| Rth j-tab | Thermal Resistance Junction - tab     | max. 10 | $^\circ C/W$ |
| Rth j-a   | Thermal Resistance Junction - ambient | Typ. 70 | $^\circ C/W$ |

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

| Symbol             | Parameter                            | Test Conditions                                | Min. | Typ. | Max. | Unit        |
|--------------------|--------------------------------------|--|------|------|------|-------------|
| DC ( $V_S = 30V$ ) |                                      |  |      |      |      |             |
| $I_2$              | 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  | $\mu A$     |
| $-I_6$             | Ramp Generator Current               | $V_6 = 0; -I_4 = 20\mu A$                      | 18.5 | 20   | 21.5 | $\mu A$     |
| $dI_6/I_6$         | Ramp Generator Linearity             | $V_6 = 0$ to $15V; -I_4 = 20\mu A$             |      | 0.2  | 1    | %           |
| $V_1$              | Quiescent Output Voltage             | $R_a = 30k\Omega, R_b = 10k\Omega, V_S = 30V$  | 17.0 | 17.8 | 18.6 | V           |
|                    |                                      | $R_a = 6.8k\Omega, R_b = 10k\Omega, V_S = 15V$ | 7.2  | 7.5  | 7.8  | V           |
| $V_{1L}$           | Output Saturation Voltage to GND     | $I_1 = 0.5A$                                   |      | 0.5  | 1    | V           |
|                    |                                      | $I_1 = 1.2A$                                   |      | 1    | 1.4  | V           |
| $V_{1H}$           | Output Saturation Voltage to $V_S$   | $-I_1 = 0.5A$                                  |      | 1.1  | 1.6  | V           |
|                    |                                      | $-I_1 = 1.2A$                                  |      | 1.6  | 2.2  | V           |
| $V_4$              | Reference Voltage                    | $-I_4 = 20\mu A$                               | 6.3  | 6.6  | 6.9  | V           |
| $dV_4/V_S$         | Reference Voltage Drift Versus $V_S$ | $V_S = 10V$ to $30V$                           |      | 1    | 2    | mV/V        |
| $dV_4/DI_4$        | Reference Voltage Drift Versus $I_4$ | $I_4 = 10\mu A$ to $30\mu A$                   |      | 1.5  | 2    | mV/ $\mu A$ |
| $V_r$              | Internal Reference 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        | $-I_{10} = 1.2A$                               |      | 1.5  | 2.5  | V           |
| $V_{10}$           | Pin 10 Scanning Voltage              | $I_{10} = 20mA$                                |      | 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           | $V_{IN} = V_3 - 0.2V$                          |      |      | 30   | $\mu A$     |
| $t_3$              | Trigger Input Width                  | (see note 2)                                   | 20   | 60   | th   | $\mu S$     |

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25^{\circ}C$ ; unless otherwise specified.) (continued)

| 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                       | $I_Y = 2.4App$  |      | 315  |      | mA          |
| $V_1$              | Flyback Voltage                      | $I_Y = 2.4App$  |      | 51   |      | V           |
| $V_7$              | Sawtooth Pedestal Voltage            |                 |      | 1.85 |      | V           |
| $T_{JS}$           | Junction Temp. for Thermal Shutdown  |                 |      | 145  |      | $^{\circ}C$ |

**APPLICATION CIRCUIT**

