



TDA8174A

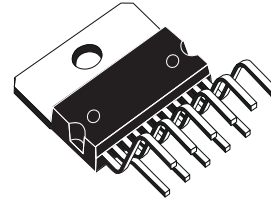
VERTICAL DEFLECTION CIRCUIT

- Ramp Generator
- Independent Amplitude Adjustment
- Buffer Stage
- Power Amplifier
- Flyback Generator
- Thermal Protection
- Internal Reference Voltage Decoupling

DESCRIPTION

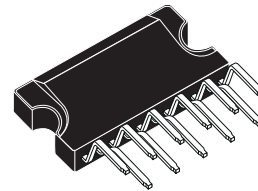
TDA8174A and TDA8174AW are monolithic integrated circuits.

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.



**MULTIWATT11
(Plastic Package)**

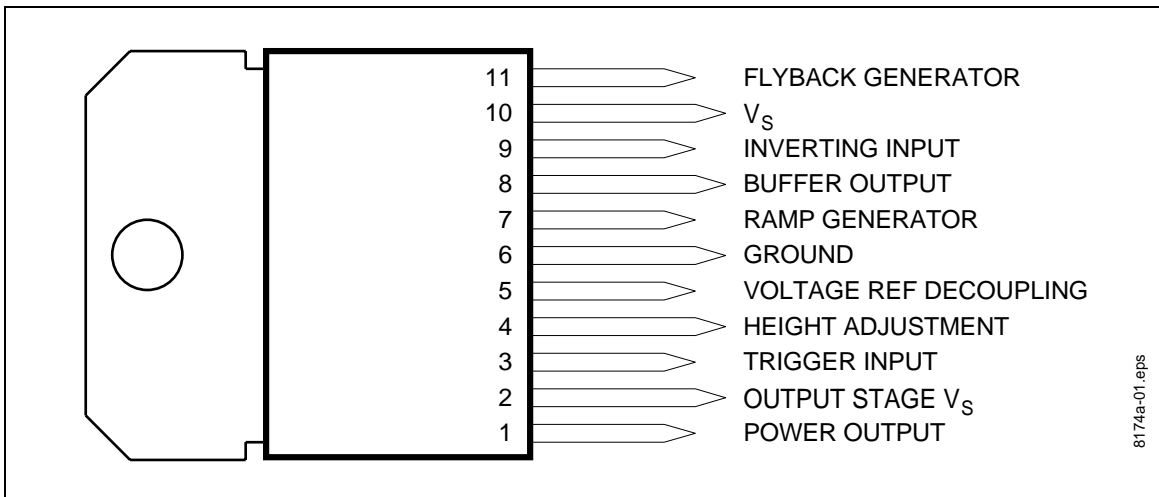
ORDER CODE: TDA8174A



**CLIPWATT11
(Plastic Package)**

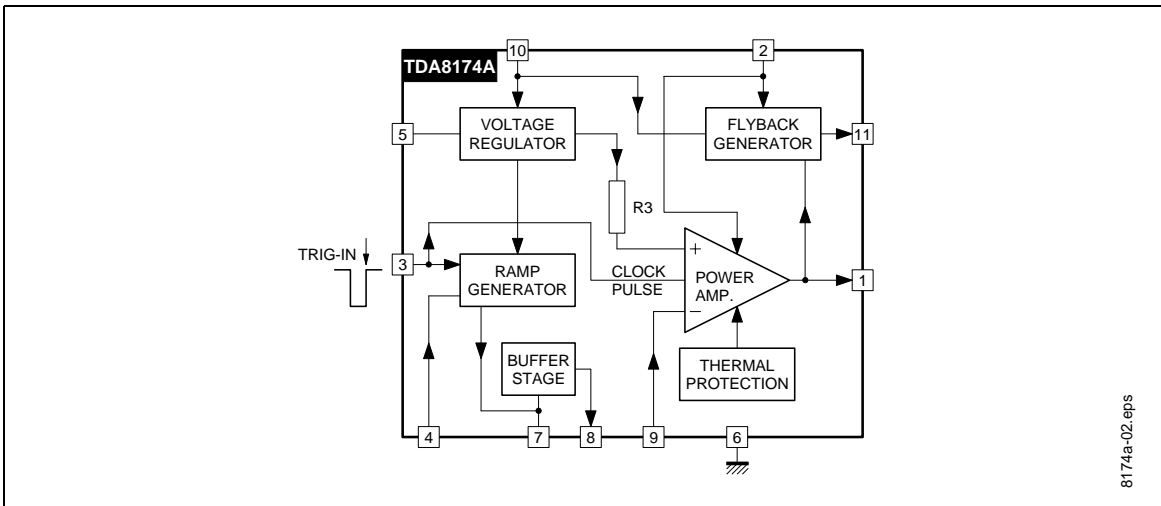
ORDER CODE: TDA8174AW

Figure 1. Pin Connections



TDA8174A

Figure 2. Block Diagram



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|------------------|--|------------|------------------|
| V_S | Supply Voltage | 35 | V |
| V_1, V_2 | Flyback Peak Voltage | 65 | V |
| V_3 | Trigger Input Voltage | 20 | V |
| V_9 | Amplifier Input Voltage | GND, 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_{11} | Pin 11 DC Current at $V_1 < V_{10}$ | 100 | mA |
| I_{11} | Pin 11 Peak-to-peak Current @ $t_{\text{fly}} < 1.5\text{ms}$ | 3 | A |
| P_{tot} | Total Power Dissipation @ $T_{\text{tab}} = 60^\circ\text{C}$ | 30 | W |
| T_{stg} | Storage Temperature | - 40, +150 | $^\circ\text{C}$ |
| T_j | Junction Temperature | 0, +150 | $^\circ\text{C}$ |
| T_{amb} | Ambient Temperature | 0, +70 | $^\circ\text{C}$ |

THERMAL DATA

| Symbol | Parameter | Value | Unit |
|-------------------------------|-------------------------------------|---------|---------------------------|
| $R_{\text{th}}(\text{j-tab})$ | Thermal Resistance Junction-tab | Max. 3 | $^\circ\text{C}/\text{W}$ |
| $R_{\text{th}}(\text{j-a})$ | Thermal Resistance Junction-ambient | Max. 40 | $^\circ\text{C}/\text{W}$ |

DC ELECTRICAL CHARACTERISTICS ($V_S = 35V$; $T_{amb} = 25^{\circ}C$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--------------|--------------------------------------|--|------|------|------|-------------|
| I_2 | Pin 2 Quiescent Current | $I_1 = 0, I_{11} = 0$ | | 16 | 36 | mA |
| I_{10} | Pin 10 Quiescent Current | $I_1 = 0, I_{11} = 0$ | | 15 | 30 | mA |
| $-I_7$ | Ramp Generator Bias Current | $V_7 = 0$ | | | 0.5 | μA |
| $-I_7$ | Ramp Generator Current | $V_7 = 0, -I_4 = 20\mu A$ | 18.5 | 20 | 21.5 | μA |
| dl_7/l_7 | Ramp Generator Linearity | $V_6 = 0$ to $15V, -I_4 = 20\mu A$ | | 0.2 | 1 | % |
| V_1 | Quiescent Output Voltage | $R_a = 30k\Omega, R_b = 10k\Omega, V_s = 35V$ | 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} | Out Saturation Voltage to GND | $I_1 = 0.5A$ | | 0.5 | 1 | V |
| | | $I_1 = 1.2A$ | | 1 | 1.4 | V |
| V_{1H} | Out 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 $35V$ | | 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/ μA |
| V_5 | Internal Reference Voltage | | 4.25 | 4.45 | 4.65 | V |
| V_{D11-10} | Diode Fwd Voltage | $I_D = 1.2A$ | | 2.2 | 3 | V |
| V_{D1-2} | Diode Fwd Voltage | $I_D = 1.2A$ | | 2.2 | 3 | V |
| G_V | Output Stage Open Loop Gain | $f = 100Hz$ | | 60 | | dB |
| V_{fs} | V_{10-11} Saturation Voltage | $-I_{11} = 1.2A$ | | 1.5 | 2.5 | V |
| V_{11} | Pin 11 Scanning Voltage | $I_{11} = 20mA$ | | 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 | μA |
| t_3 | Trigger Input Width | (see note 2) | 20 | 60 | Th | μS |

Notes:

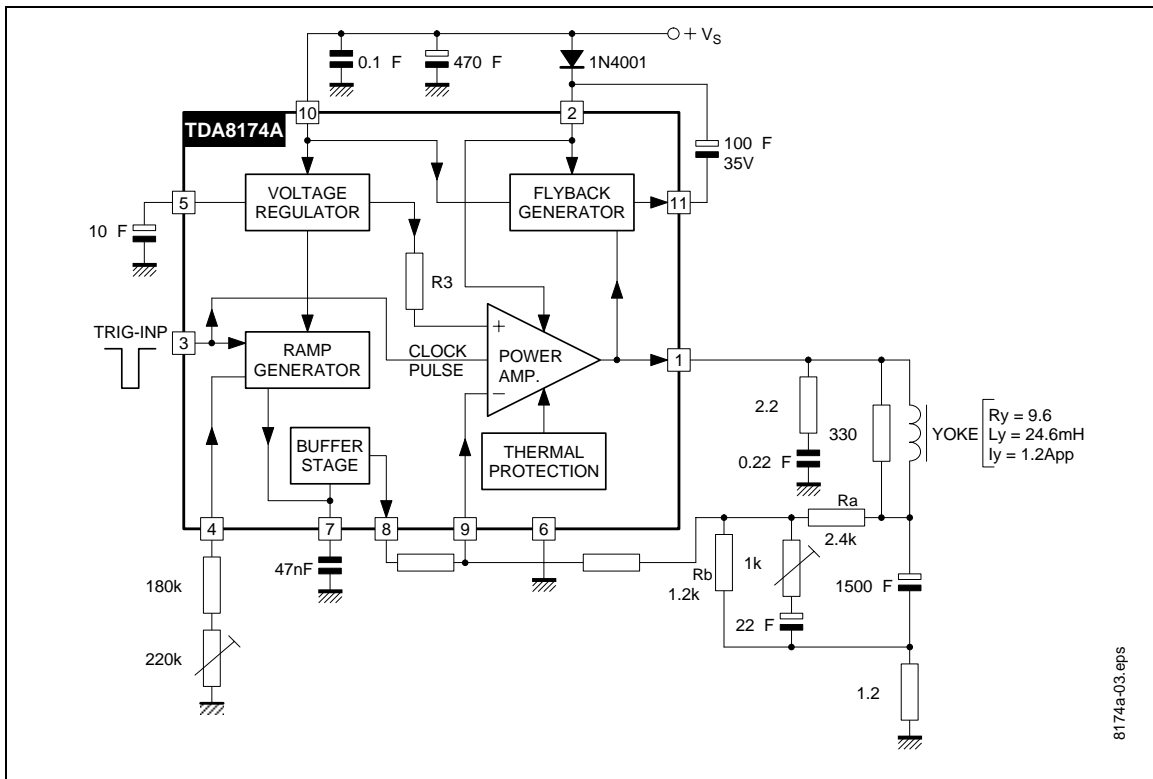
- The trigger input circuit can accept, with a metal option, positive and negative going input pulses.
- $Th = \frac{1.2 \cdot T_S}{V_{PP}}$ where: T_S is the vertical period and V_{PP} is ramp amplitude at Pin7.

AC ELECTRICAL CHARACTERISTICS ($V_S = 24V$; $T_{amb} = 25^{\circ}C$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------|--------------------------------------|-------------------|------|------|------|-------------|
| V_s | Operating Supply Voltage Range | | 10 | | 30 | V |
| I_1 | Peak-to-peak Operating Current Range | | 0.4 | | | A |
| I_s | Supply Current | $I_y = 2.4A_{pp}$ | | 315 | | mA |
| V_1 | Flyback Voltage | $I_y = 2.4A_{pp}$ | | 51 | | V |
| V_8 | Sawtooth Pedestall Voltage | | | 1.85 | | V |
| T_{js} | Junction Temp. for Thermal Shutdown | | | 145 | | $^{\circ}C$ |

TDA8174A

Figure 3. Application Circuit

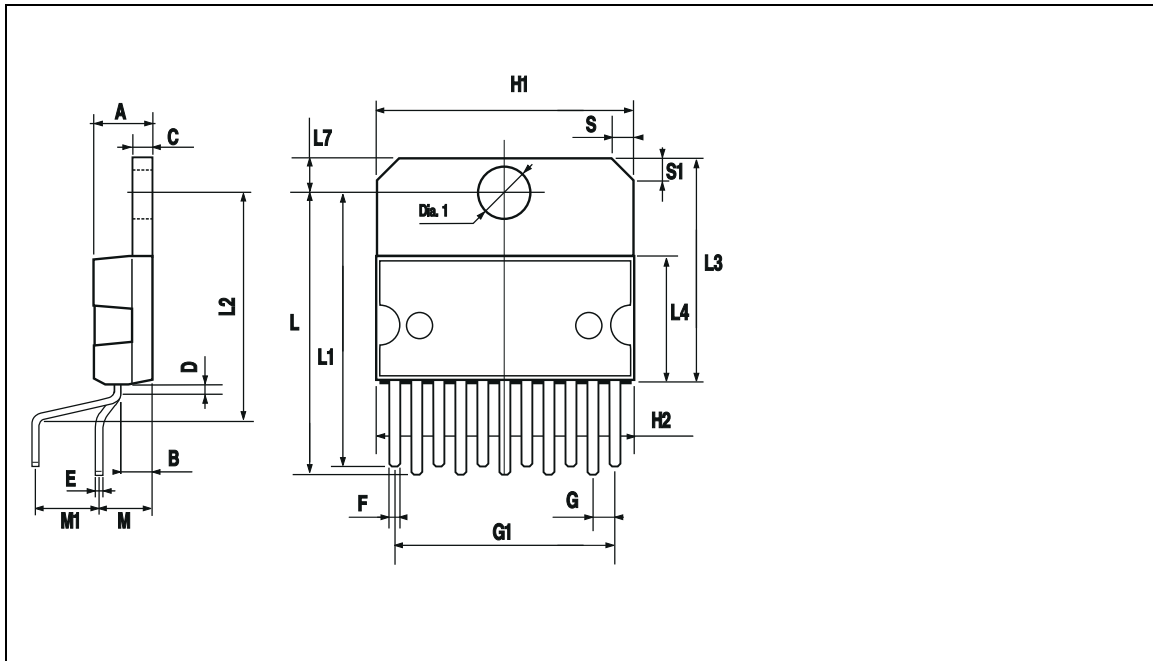


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PACKAGE MECHANICAL DATA

11 PINS - PLASTIC MULTIWATT

Figure 4. 11-Pin Package

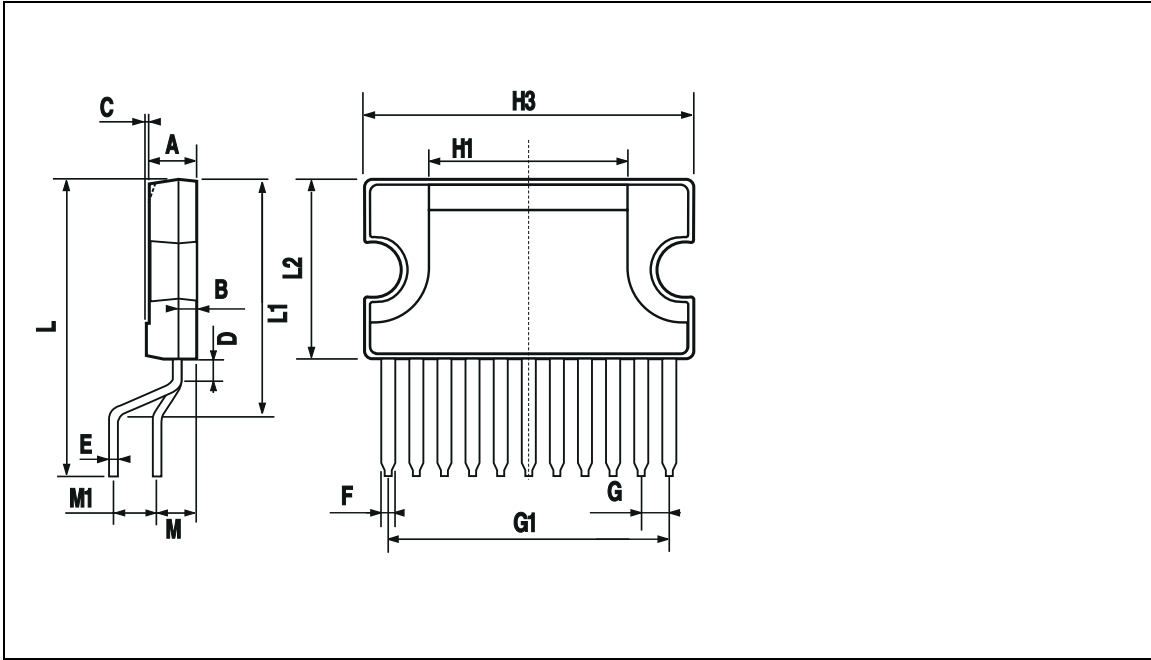


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PACKAGE MECHANICAL DATA (Cont'd)

11 PINS - PLASTIC CLIPWATT

Figure 5. 11-Pin Package



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