

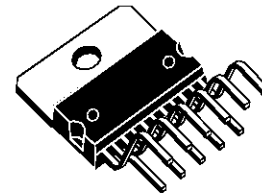
VERTICAL DEFLECTION CIRCUIT

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

DESCRIPTION

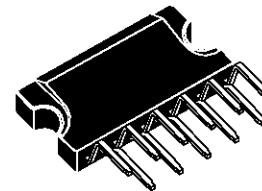
TDA8174 and TDA8174W are a monolithic integrated circuits.

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)

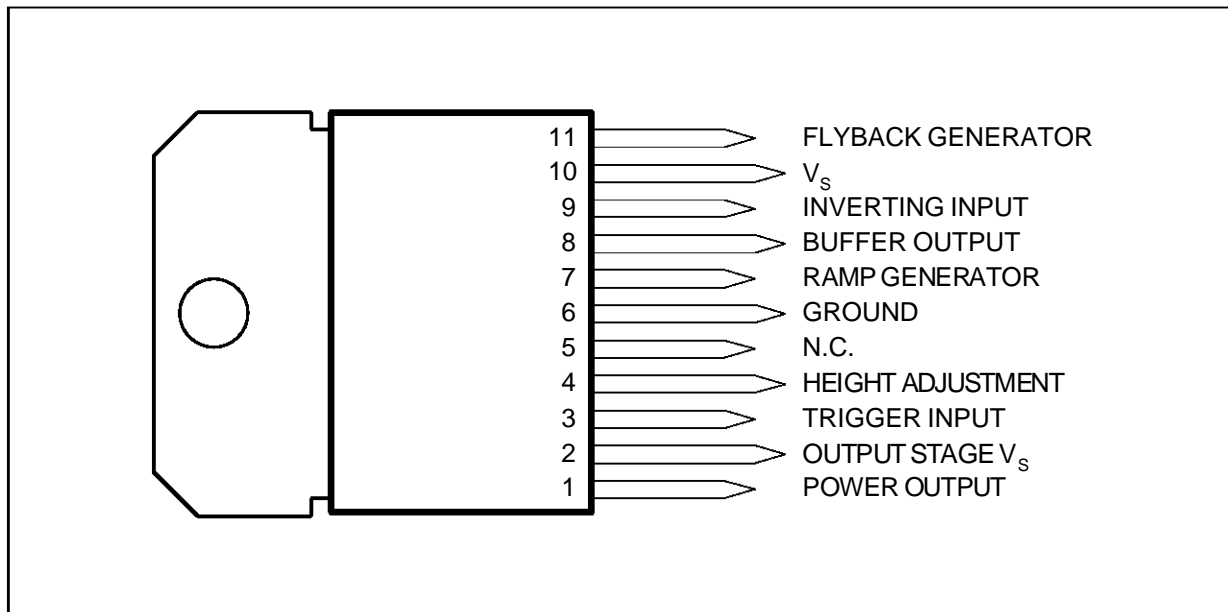
ORDER CODE :TDA8174



CLIPWATT11
(Plastic Package)

ORDER CODE :TDA8174W

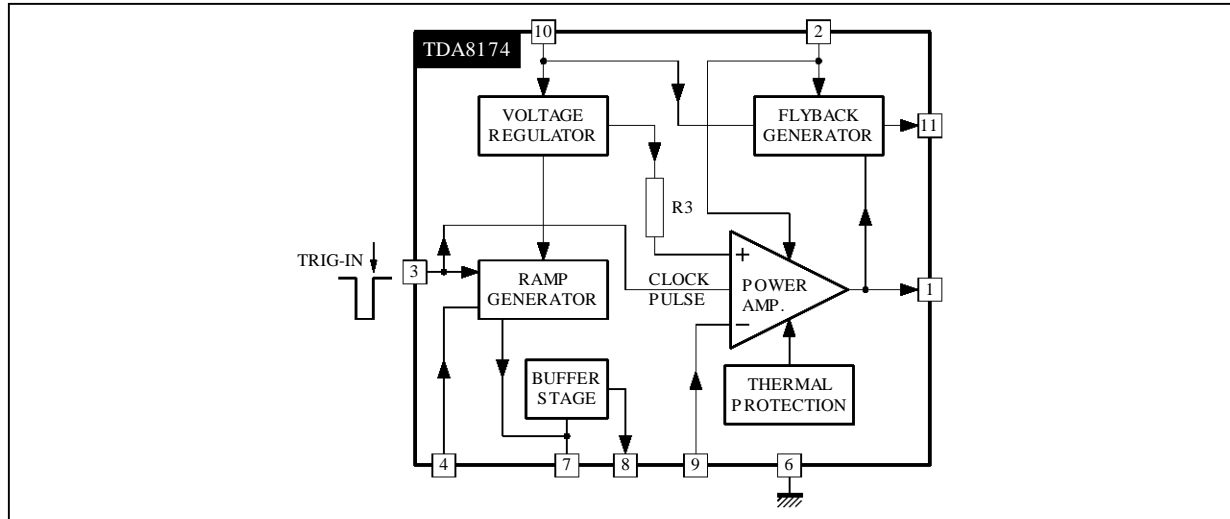
PIN CONNECTIONS (top view)



8174-01.EPS

TDA8174 - TDA8174W

BLOCK DIAGRAM



8174-02.EPS

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 @ $t_{fly} < 1.5\text{ms}$ | 3 | A |
| P_{tot} | Total Power Dissipation @ $T_{tab} = 60^\circ\text{C}$ | 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 | $^\circ\text{C}$ |

8174-01.TBL

THERMAL DATA

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

8174-02.TBL

DC ELECTRICAL CHARACTERISTICS ($V_S = 35\text{V}$; $T_{amb} = 25^\circ\text{C}$ 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 | $V_7 = 0, -I_4 = 20\mu\text{A}$ | 18.5 | 20 | 21.5 | μA |
| dI_7/I_7 | Ramp Generator Linearity | $V_6 = 0$ to $15\text{V}, -I_4 = 20\mu\text{A}$ | | 0.2 | 1 | % |
| V_1 | Quiescent Output Voltage | $R_a = 30\text{k}\Omega, R_b = 10\text{k}\Omega, V_S = 35\text{V}$ | 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 |

8174-03.TBL

DC ELECTRICAL CHARACTERISTICS (continued)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--------------|--------------------------------------|---|------|------|------|-------------------|
| 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 | $V_s = 10\text{V to } 35\text{V}$ | | 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 Reference Voltage | | 4.26 | 4.40 | 4.54 | V |
| V_{D11-10} | Diode Fwd Voltage | $I_D = 1.2\text{A}$ | | 2.2 | 3 | V |
| V_{D1-2} | Diode Fwd Voltage | $I_D = 1.2\text{A}$ | | 2.2 | 3 | V |
| G_V | Output Stage Open Loop Gain | $f = 100\text{Hz}$ | | 60 | | dB |
| V_{fs} | V_{10-11} Saturation Voltage | $-I_{11} = 1.2\text{A}$ | | 1.5 | 2.5 | V |
| V_{11} | Pin 11 Scanning Voltage | $I_{11} = 20\text{mA}$ | | 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 |

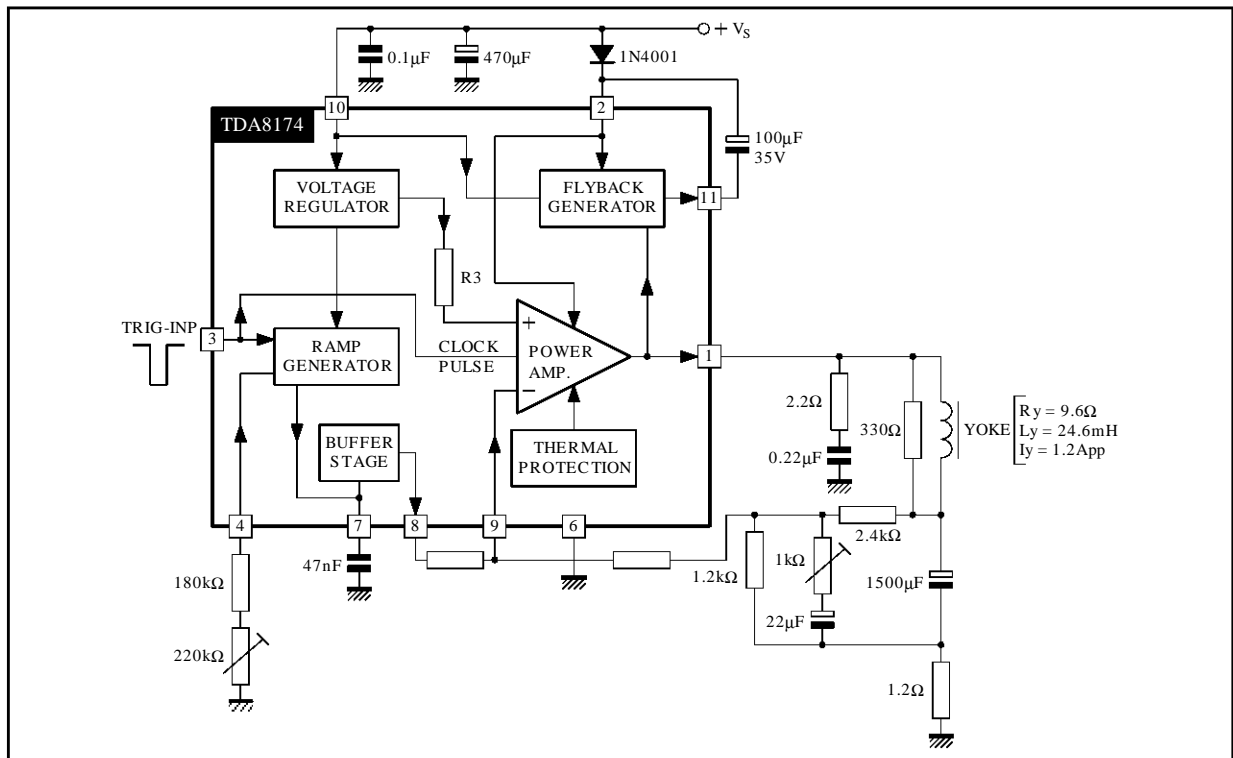
Notes : 1. The trigger input circuit can accept, with a metal option, positive and negative going input pulses.

2. $T_h = \frac{1.2 \cdot T_s}{V_{PP}}$ where : T_s is the vertical period and V_{PP} is ramp amplitude at Pin7

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

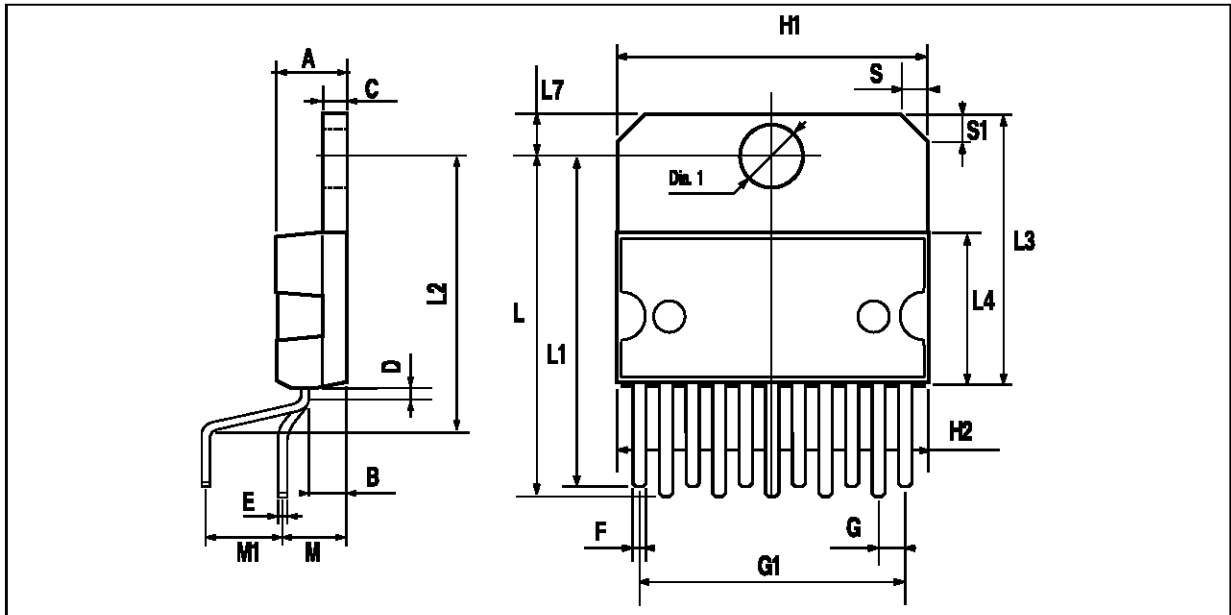
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------|--------------------------------------|--------------------------|------|------|------|------------------|
| V_s | Operating Supply Voltage Range | | 10 | | 30 | V |
| I_1 | Peak-to-peak Operating Current Range | | 0.4 |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

APPLICATION CIRCUIT



TDA8174 - TDA8174W

PACKAGE MECHANICAL DATA 11 PINS - PLASTIC MULTIWATT

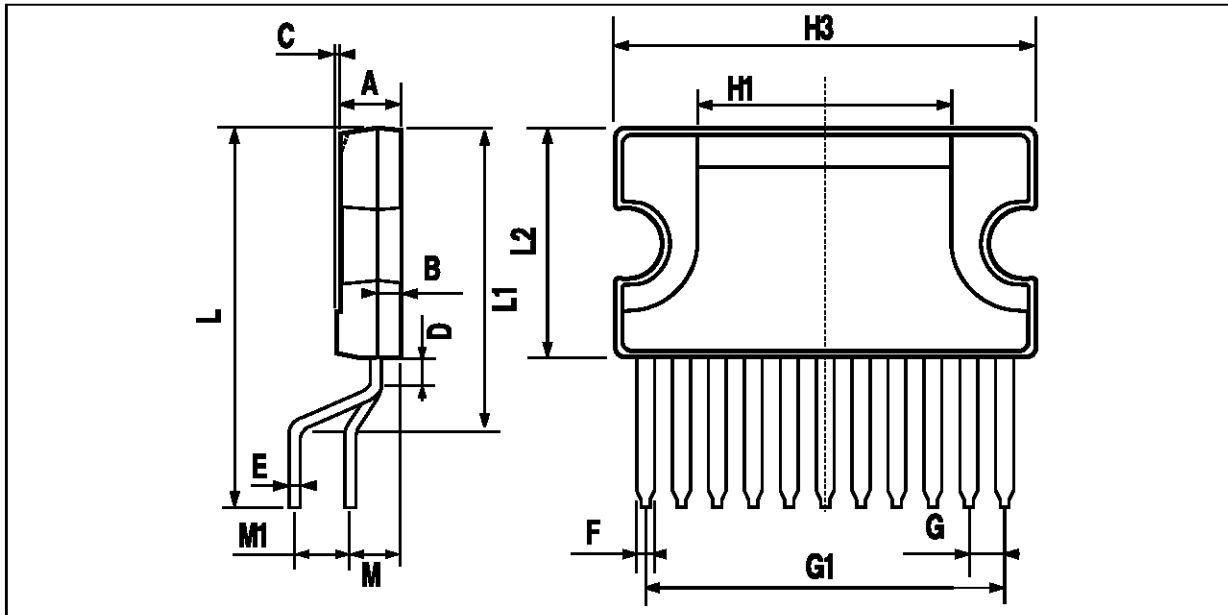


PM-MW11V/EPS

| Dimensions | Millimeters | | | Inches | | |
|------------|-------------|------|-------|--------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | | | 5 | | | 0.197 |
| B | | | 2.65 | | | 0.104 |
| C | | | 1.6 | | | 0.063 |
| D | | 1 | | | 0.039 | |
| E | 0.49 | | 0.55 | 0.019 | | 0.022 |
| F | 0.88 | | 0.95 | 0.035 | | 0.037 |
| G | 1.45 | 1.7 | 1.95 | 0.057 | 0.067 | 0.077 |
| G1 | 16.75 | 17 | 17.25 | 0.659 | 0.669 | 0.679 |
| H1 | 19.6 | | | 0.772 | | |
| H2 | | | 20.2 | | | 0.795 |
| L | 21.9 | 22.2 | 22.5 | 0.862 | 0.874 | 0.886 |
| L1 | 21.7 | 22.1 | 22.5 | 0.854 | 0.87 | 0.886 |
| L2 | 17.4 | | 18.1 | 0.685 | | 0.713 |
| L3 | 17.25 | 17.5 | 17.75 | 0.679 | 0.689 | 0.699 |
| L4 | 10.3 | 10.7 | 10.9 | 0.406 | 0.421 | 0.429 |
| L7 | 2.65 | | 2.9 | 0.104 | | 0.114 |
| M | 4.25 | 4.55 | 4.85 | 0.167 | 0.179 | 0.191 |
| M1 | 4.73 | 5.08 | 5.43 | 0.186 | 0.200 | 0.214 |
| S | 1.9 | | 2.6 | 0.075 | | 0.102 |
| S1 | 1.9 | | 2.6 | 0.075 | | 0.102 |
| Dia. 1 | 3.65 | | 3.85 | 0.144 | | 0.152 |

MW11V/TBL

PACKAGE MECHANICAL DATA
11 PINS - PLASTIC CLIPWATT



PM-CW11LEPS

| Dimensions | Millimeters | | | Inches | | |
|------------|-------------|-------|------|--------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | | | 3.10 | | | 0.122 |
| B | | | 1.10 | | | 0.04 |
| C | | 0.15 | | | 0.006 | |
| D | | 1.50 | | | 0.059 | |
| E | | 0.52 | | | 0.02 | |
| F | | 0.80 | | | 0.03 | |
| G | | 1.70 | | | 0.066 | |
| G1 | | 17.00 | | | 0.66 | |
| H1 | | 12.00 | | | 0.48 | |
| H3 | | 20.00 | | | 0.79 | |
| L | | 17.90 | | | 0.70 | |
| L1 | | 14.40 | | | 0.57 | |
| L2 | | 11.00 | | | 0.43 | |
| M | | 2.54 | | | 0.1 | |
| M1 | | 2.54 | | | 0.1 | |

CW11.TBL

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics 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 licence is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1996 SGS-THOMSON Microelectronics - All Rights Reserved

Purchase of I²C Components of SGS-THOMSON Microelectronics, conveys a license under the Philips I²C Patent. Rights to use these components in a I²C system, is granted provided that the system conforms to the I²C Standard Specifications as defined by Philips.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - China - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco
The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.