



# 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.

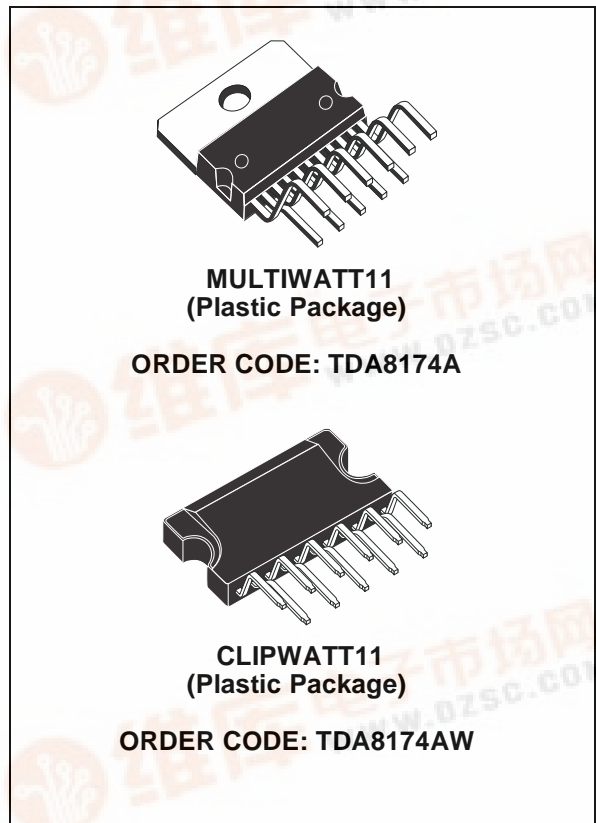
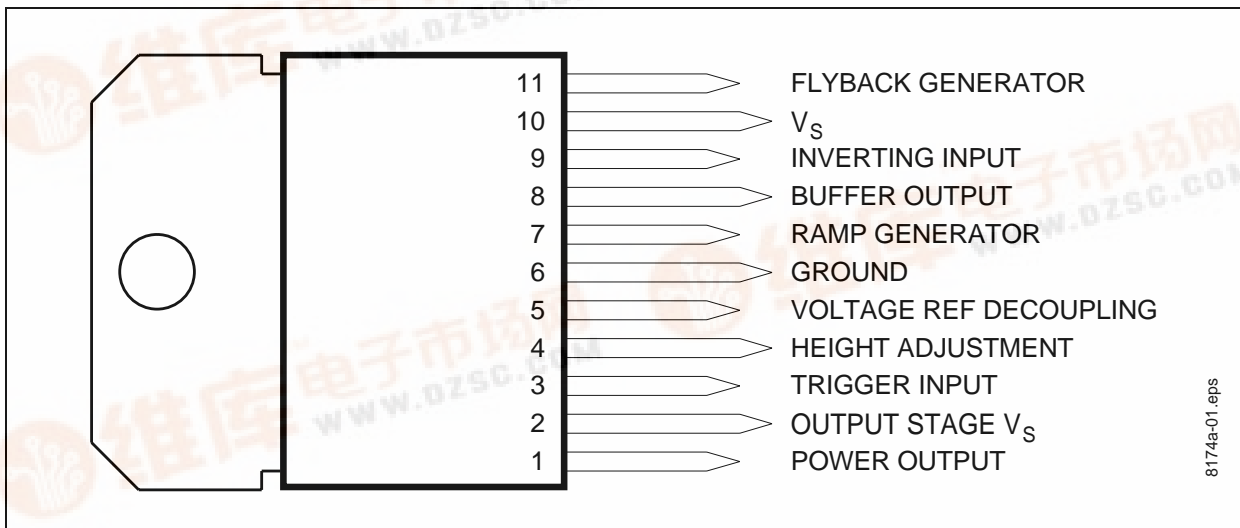
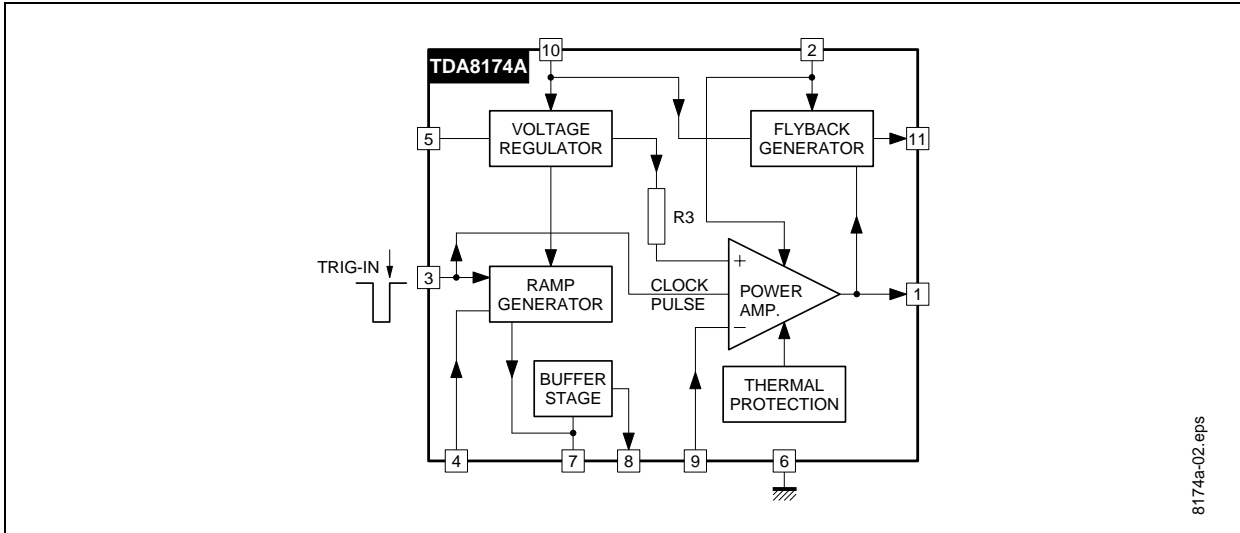


Figure 1. Pin Connections



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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
$P_{\text{tot}}$	Total Power Dissipation @ $T_{\text{tab}} = 60^\circ\text{C}$	30	W
$T_{\text{stg}}$	Storage Temperature	- 40, +150	$^\circ\text{C}$
$T_j$	Junction Temperature	0, +150	$^\circ\text{C}$
$T_{\text{amb}}$	Ambient Temperature	0, +70	$^\circ\text{C}$

## THERMAL DATA

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

**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	$\mu A$
$-I_7$	Ramp Generator Current	$V_7 = 0, -I_4 = 20\mu A$	18.5	20	21.5	$\mu A$
$dl_7/l_7$	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/ $\mu A$
$V_5$	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	$\mu A$
$t_3$	Trigger Input Width	(see note 2)	20	60	Th	$\mu S$

**Notes:**

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

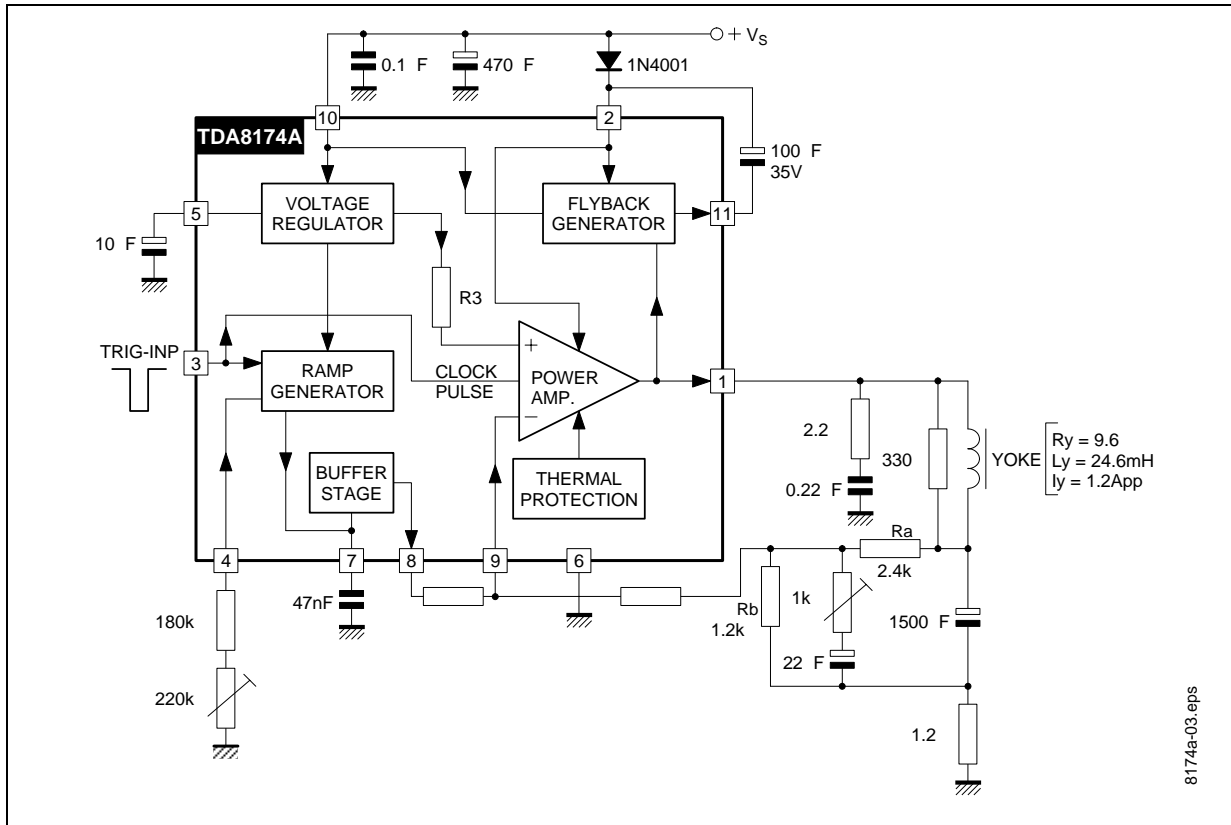
2.  $T_h = \frac{1.2 \cdot T_S}{V_{PP}}$  where:  $T_S$  is the vertical period and  $V_{PP}$  is ramp amplitude at Pin7.

**AC ELECTRICAL CHARACTERISTICS** ( $V_S = 24V$  ;  $T_{amb} = 25^{\circ}C$  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		$^{\circ}C$

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Figure 3. Application Circuit

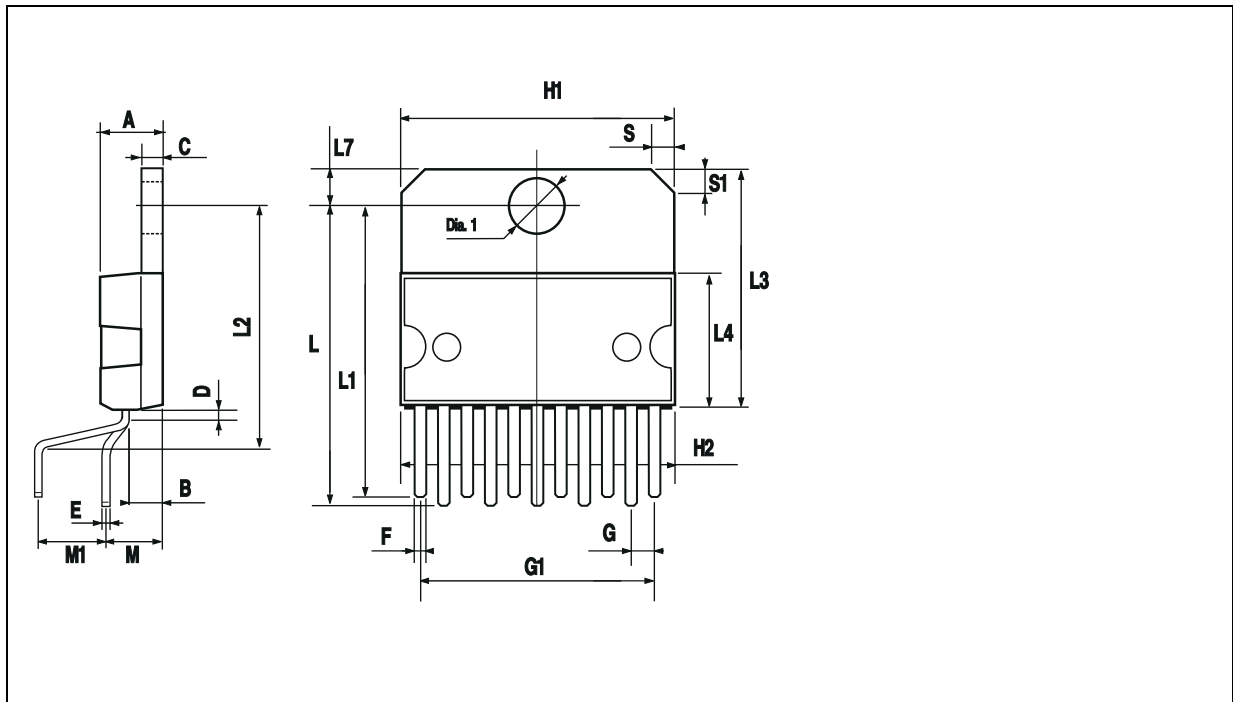


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## PACKAGE MECHANICAL DATA

11 PINS - PLASTIC MULTIWATT

Figure 4. 11-Pin Package

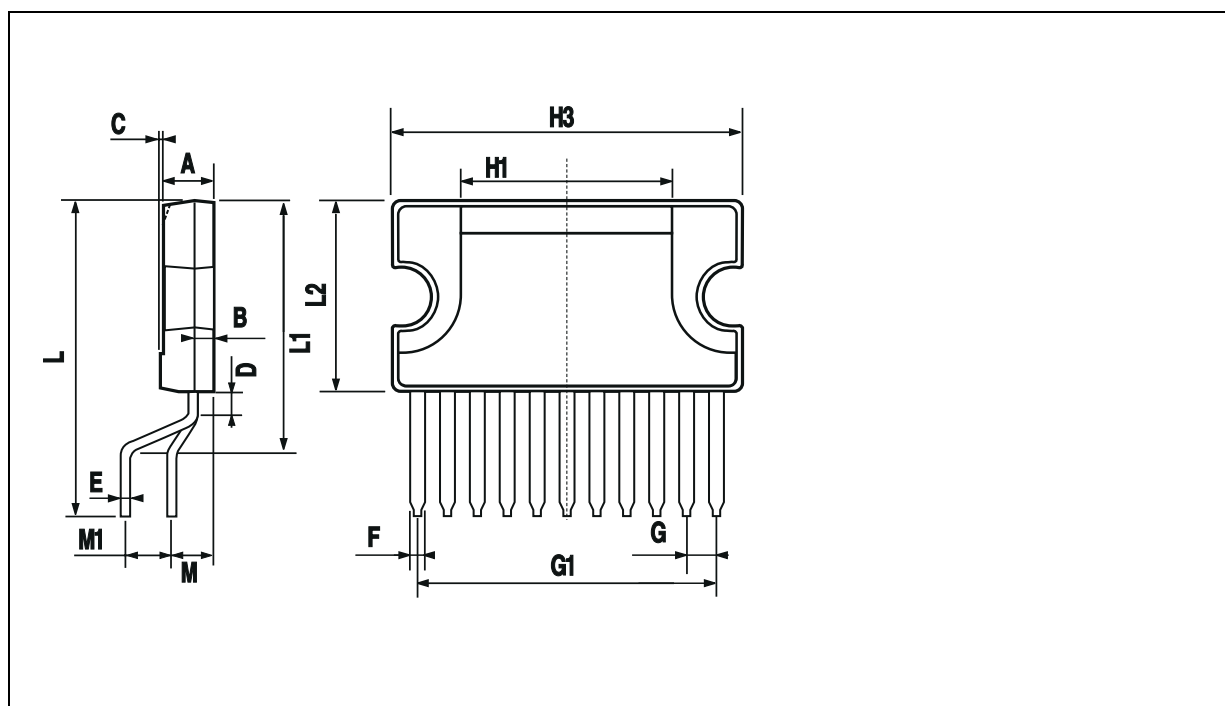


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## PACKAGE MECHANICAL DATA (Cont'd)

11 PINS - PLASTIC CLIPWATT

Figure 5. 11-Pin Package



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