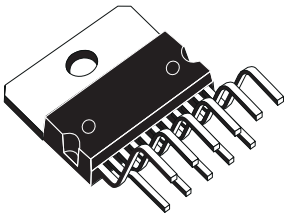
TDA8174A

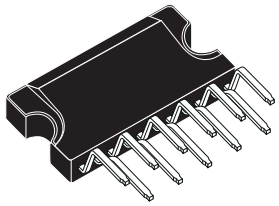
VERTICAL DEFLECTION CIRCUIT

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



MULTIWATT11
(Plastic Package)

ORDER CODE: TDA8174A



CLIPWATT11
(Plastic Package)

ORDER CODE: TDA8174AW

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

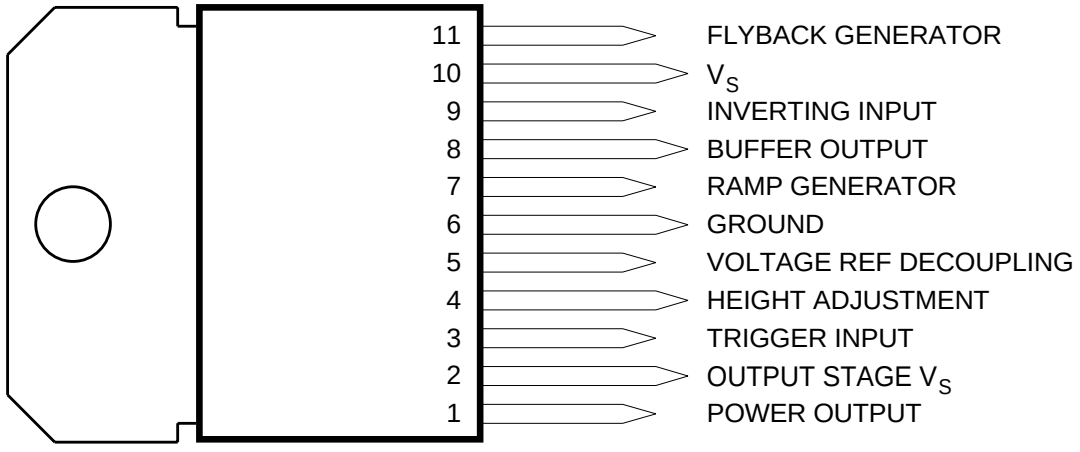
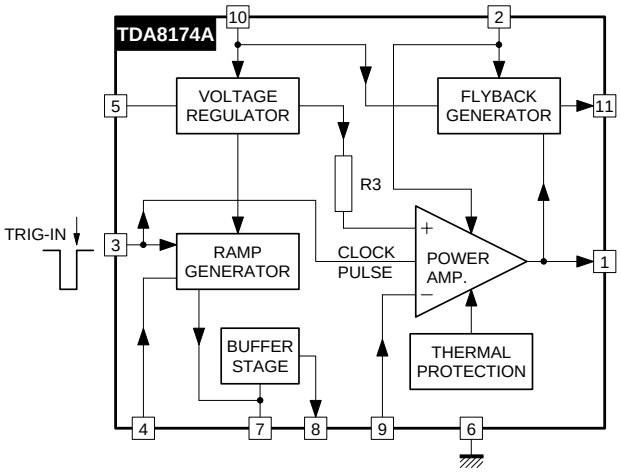


Figure 2. Block Diagram



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 = 2ms)	6	A
I_0	Output Peak-to-peak Current t > 10µs	4	A
I_{11}	Pin 11 DC Current at $V_1 < V_{10}$	100	mA
I_{11}	Pin 11 Peak-to-peak Current @ $t_{fly} < 1.5ms$	3	A
P_{tot}	Total Power Dissipation @ $T_{tab} = 60°C$	30	W
T_{stg}	Storage Temperature	- 40, +150	°C
T_j	Junction Temperature	0, +150	°C
T_{amb}	Ambient Temperature	0, +70	°C

THERMAL DATA

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

DC ELECTRICAL CHARACTERISTICS (V_S = 35V ; T_{amb} = 25^{oC} unless otherwise specified)

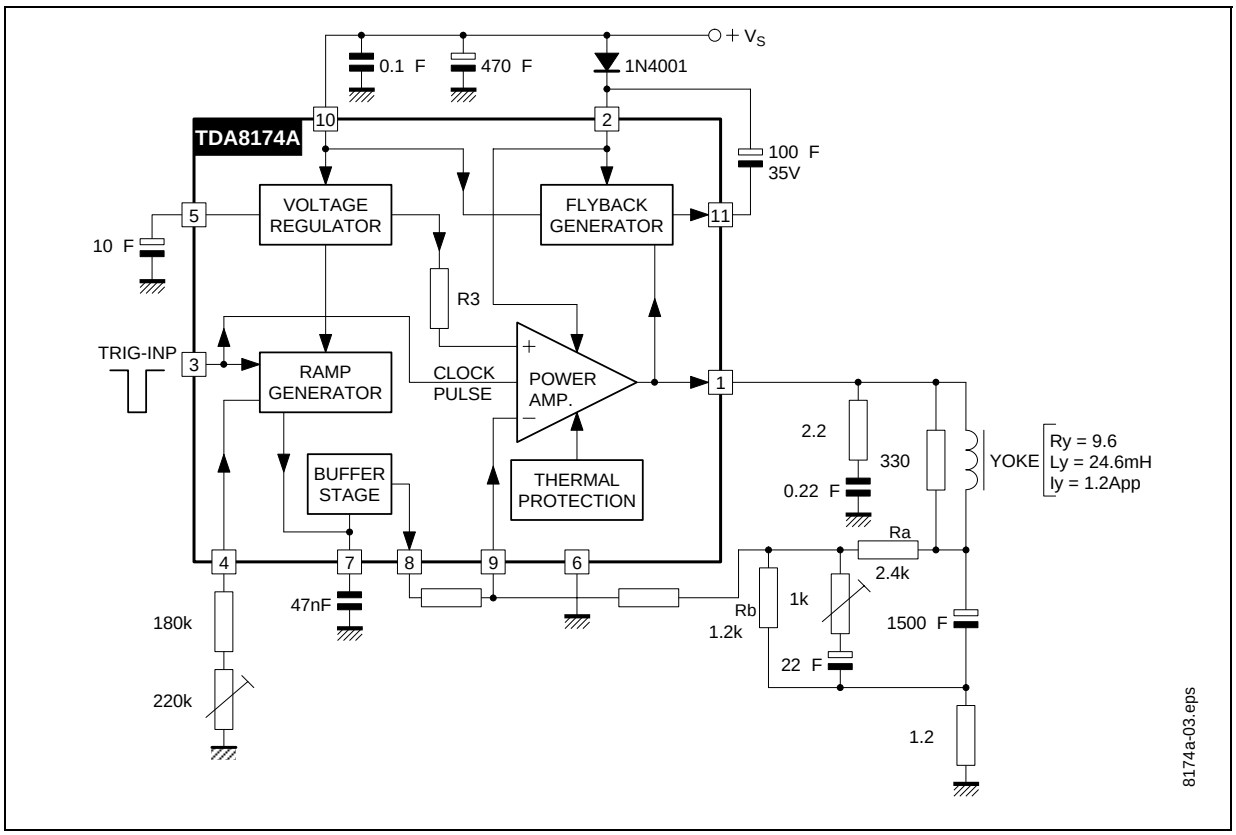
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_2	Pin 2 Quiescent Current	I_1 = 0, I_{11} = 0		16	36	mA
I_{10}	Pin 10 Quiescent Current	I_1 = 0, I_{11} = 0		15	30	mA
$-I_7$	Ramp Generator Bias Current	V_7 = 0			0.5	µA
$-I_7$	Ramp Generator Current	V_7 = 0, $-I_4$ = 20µA	18.5	20	21.5	µA
dI_7/I_7	Ramp Generator Linearity	V_6 = 0 to 15V, $-I_4$ = 20µA		0.2	1	%
V_1	Quiescent Output Voltage	R_a = 30kΩ, R_b = 10kΩ, V_s = 35V	17.0	17.8	18.6	V
		R_a = 6.8kΩ, R_b = 10kΩ, 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	$-I_4$ = 20µA	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/d_{I4}	Reference Voltage Drift Versus I_4	I_4 = 10µA to 30µA		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:
1. The trigger input circuit can accept, with a metal option, positive and negative going input pulses.
2. $Th = \frac{1.2 \cdot T_S}{V_{PP}}$ where: T_S is the vertical period and V_{PP} is ramp amplitude at Pin7.

AC ELECTRICAL CHARACTERISTICS (V_S = 24V ; T_{amb} = 25^{oC} 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		°C

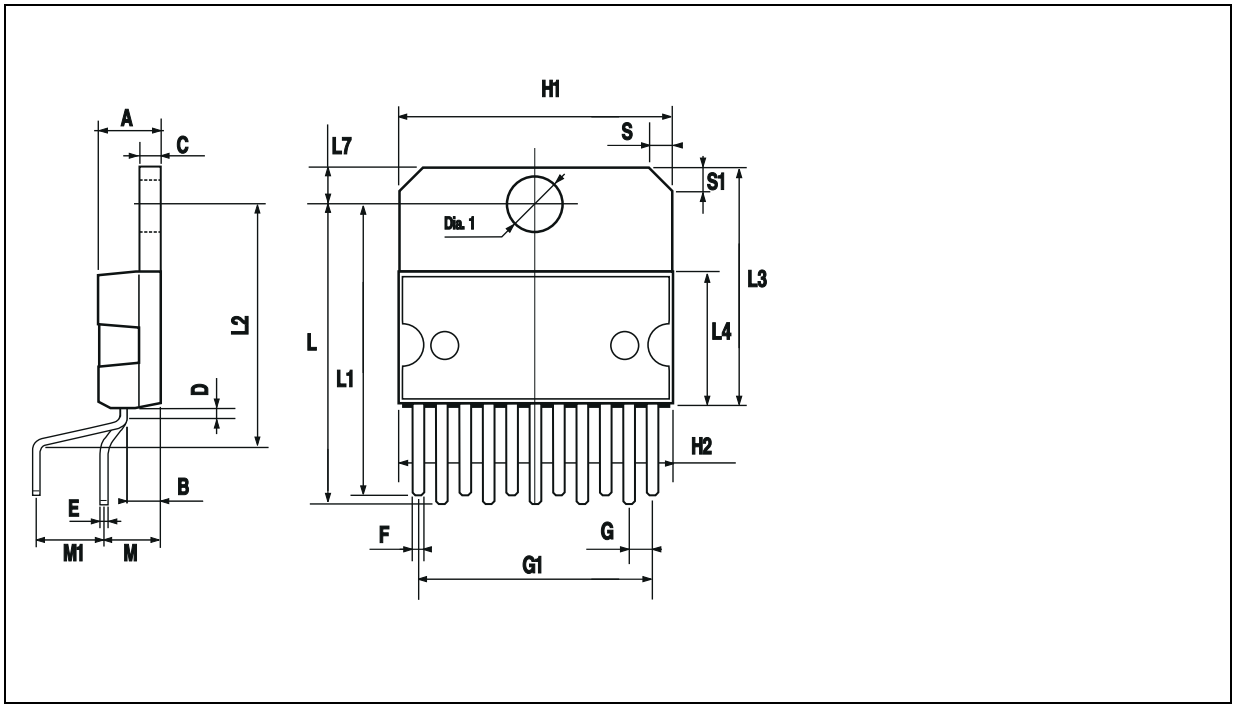
Figure 3. Application Circuit



PACKAGE MECHANICAL DATA

11 PINS - PLASTIC MULTIWATT

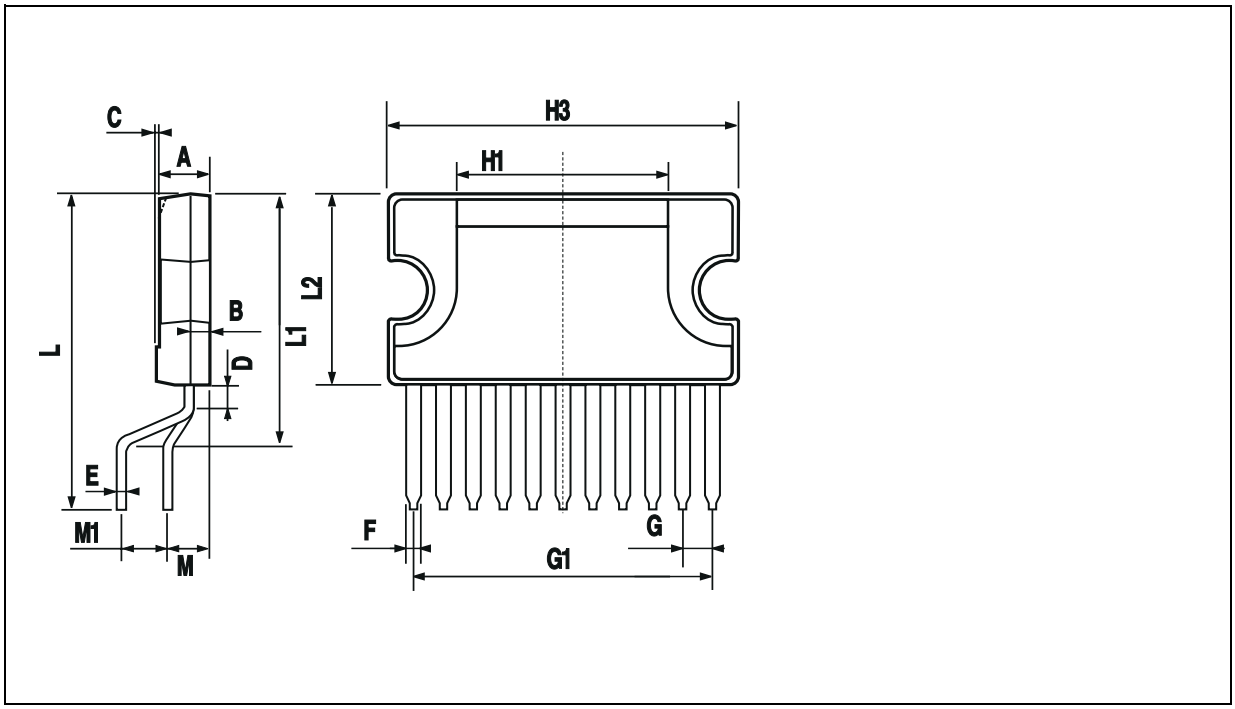
Figure 4. 11-Pin Package



PACKAGE MECHANICAL DATA (Cont'd)

11 PINS - PLASTIC CLIPWATT

Figure 5. 11-Pin Package



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