

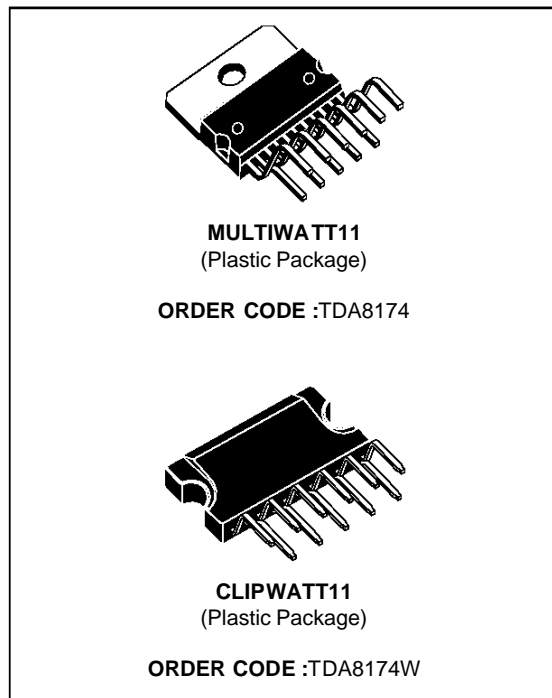
**VERTICAL DEFLECTION CIRCUIT**

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

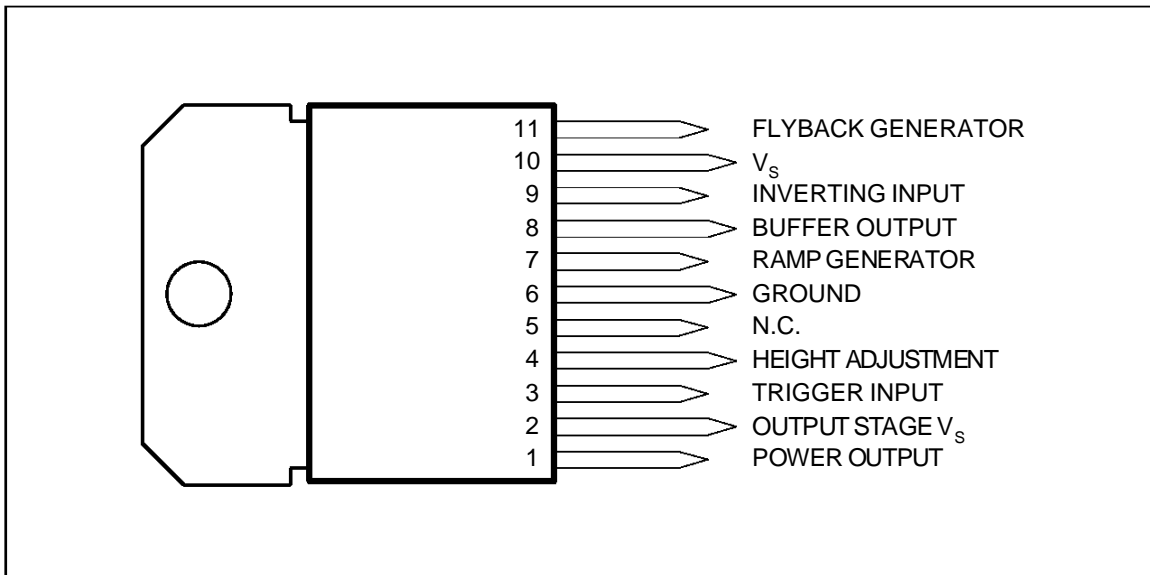
**DESCRIPTION**

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.



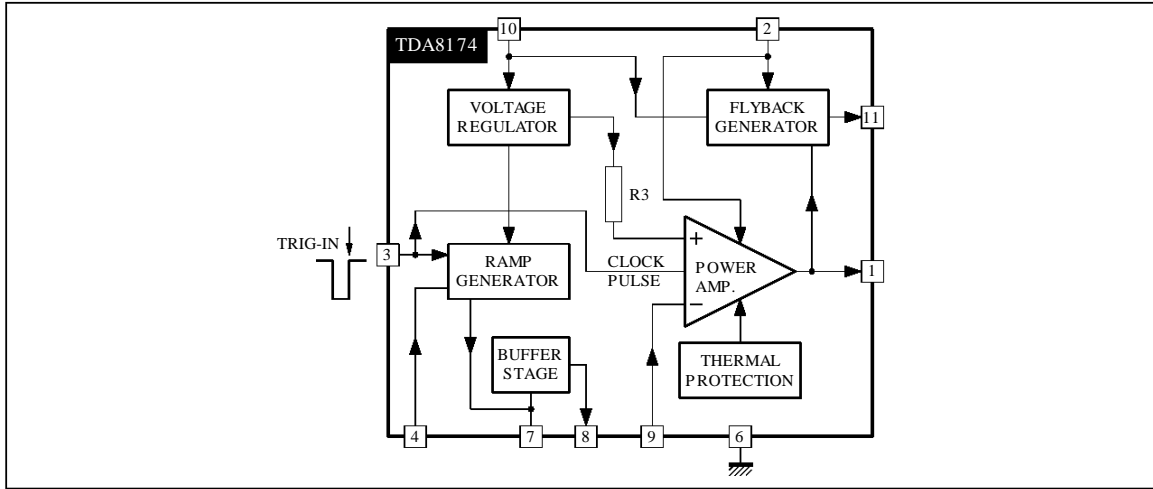
**PIN CONNECTIONS** (top view)



8174-01.EPS

# TDA8174 - TDA8174W

## 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 @ $t_{fly} < 1.5\text{ms}$	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	$^\circ\text{C}$

## 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	$^\circ\text{C/W}$

## 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	$\mu\text{A}$
$-I_7$	Ramp Generator Current	$V_7 = 0, -I_4 = 20\mu\text{A}$	18.5	20	21.5	$\mu\text{A}$
$dl_7/l_7$	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

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/ $\mu\text{A}$
$V_r$	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	$\mu\text{A}$
$t_3$	Trigger Input Width	(see note 2)	20	60	Th	$\mu\text{S}$

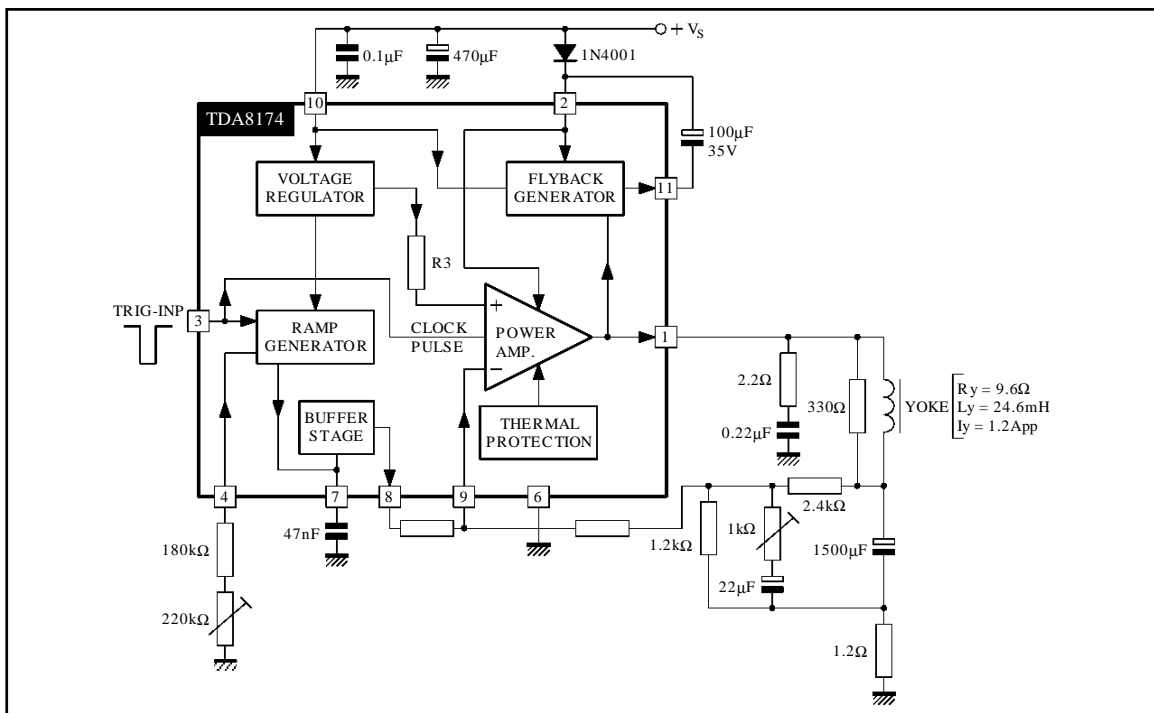
Notes : 1. The trigger input circuit can accept, with a metal option, positive and negative going input pulses.

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

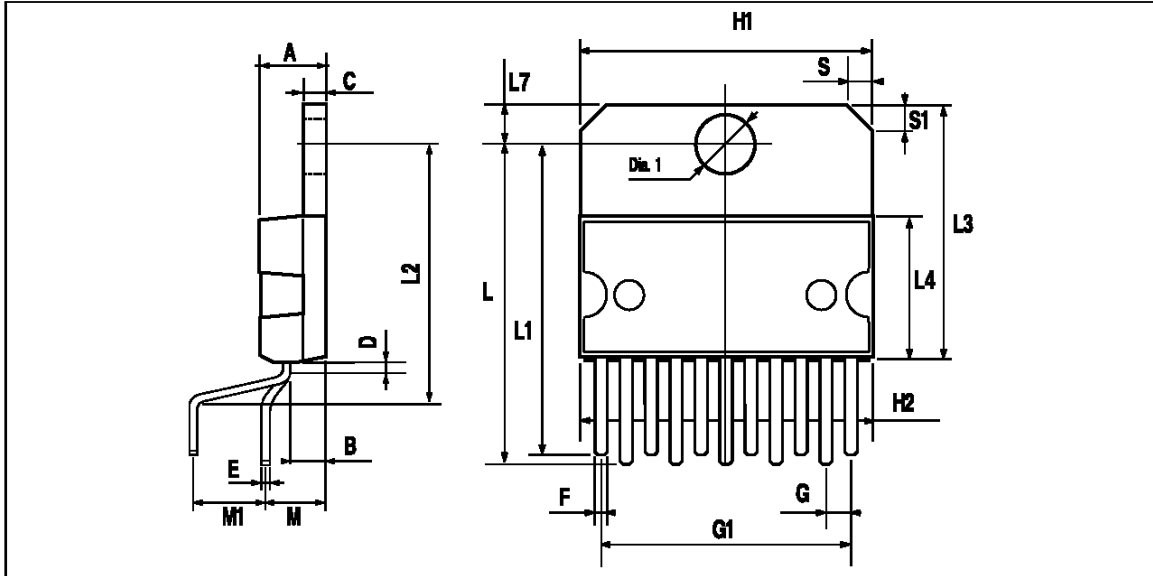
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_s$	Operating Supply Voltage Range		10		30	V
$I_1$	Peak-to-peak Operating Current Range		0.4			A
$I_s$	Supply Current	$I_y = 2.4\text{A}_{pp}$		315		mA
$V_1$	Flyback Voltage	$I_y = 2.4\text{A}_{pp}$		51		V
$V_8$	Sawtooth Pedestal Voltage			1.85	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

APPLICATION CIRCUIT



# TDA8174 - TDA8174W

## PACKAGE MECHANICAL DATA 11 PINS - PLASTIC MULTIWATT

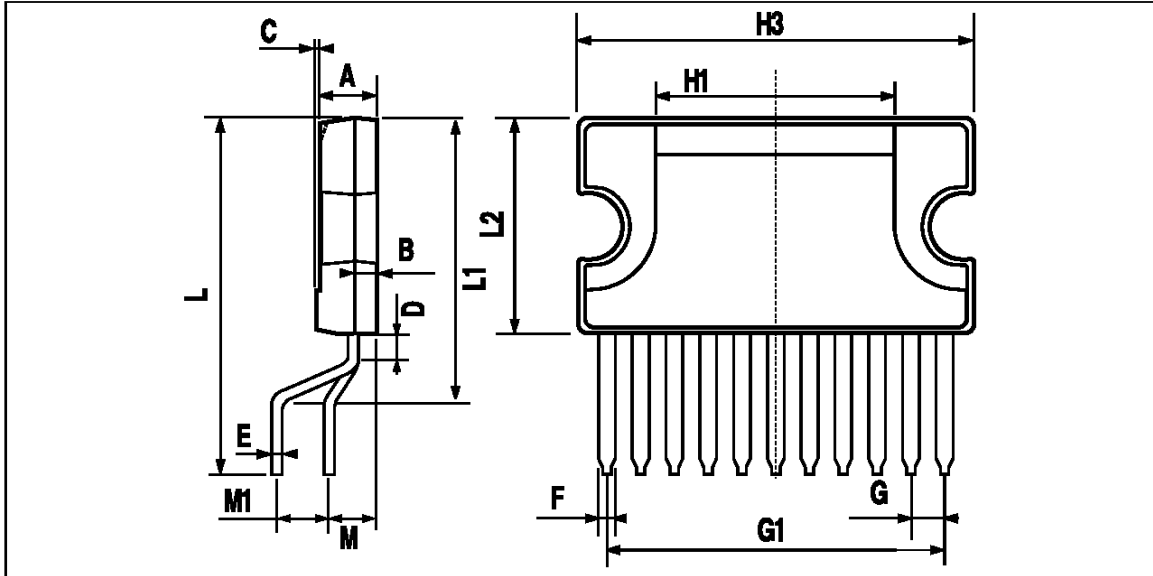


PM-MW11V.EPS

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-CW11.EPS

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

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