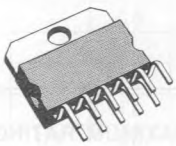
SGS-THOMSON MICROELECTRONICS

TDA8174

VERTICAL DEFLECTION CIRCUIT

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



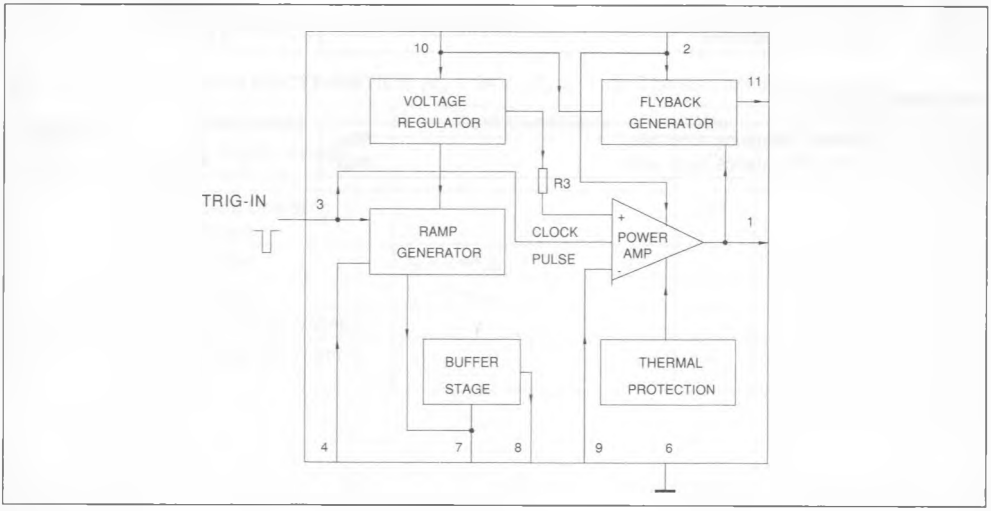
Multiwatt-11
ORDER CODE :TDA8174

DESCRIPTION

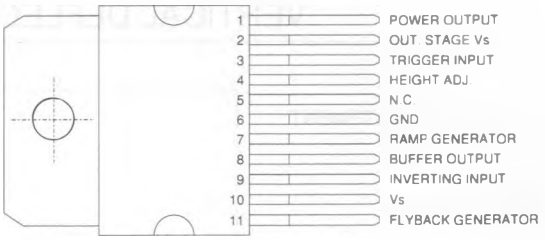
The TDA8174 is a monolithic integrated circuit in MULTIWATT-11 package.

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.

BLOCK DIAGRAM



PIN CONNECTION



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 to 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 @ $t_{fly} < 1.5$ms	3	A
P_{tot}	Total Power Dissipation @ $T_{tab} = 60°C$	30	W
T_s	Storage Temperature	– 40 to 150	°C
T_j	Junction Temperature	0 to 150	°C
T_{AMB}	Ambient Temperature	0 to 70	°C

THERMAL DATA

$R_{TH(j\text{-}tab)}$	Thermal Resistance Junc.-tab	Max	3	°C/W
$R_{TH(j\text{-}amb)}$	Thermal Resistance Junc.-amb	Max	40	°C/W

DC ELECTRICAL CHARACTERISTICS (V_S = 35V ; T_{amb} = 25°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 $-I_4$ = 20µA	18.5	20	21.5	µA
dI_7/I_7	Ramp Gener. Linearity	V_6 = 0 to 15V $-I_4$ = 20µA		0.2	1	%
V_1	Quiescent Output Voltage	R_a = 30k R_b = 10k V_s = 35V	17.0	17.8	18.6	V
		R_a = 6.8k R_b = 10k 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/dI_4	Reference Voltage Drift Versus I_4	I_4 = 10µA to 30µA		1.5	2	mV/µA
V_r	Internal Ref. Voltage		4.26	4.40	4.54	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_{1s}	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

AC ELECTRICAL CHARACTERISTICS (V_s = 24V ; T_{amb} = 25°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		2.5	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

APPLICATION NOTES

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

2. $Th = \frac{1.2 \cdot Ts}{V_{PP}}$ where : Ts is the vertical period
V_{PP} is ramp amplitude at pin 7

APPLICATION CIRCUIT