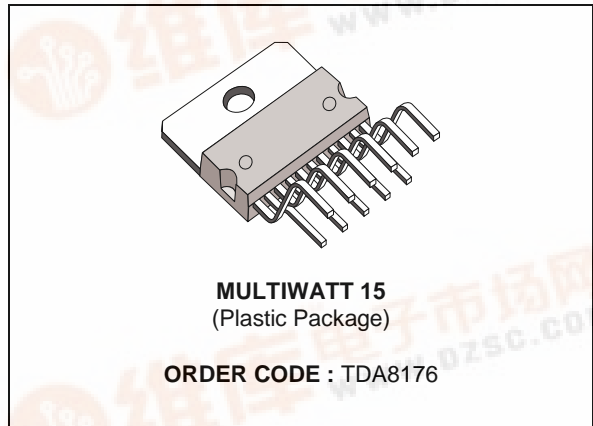




TDA8176

TV VERTICAL DEFLECTION SYSTEM FOR TV AND MONITORS

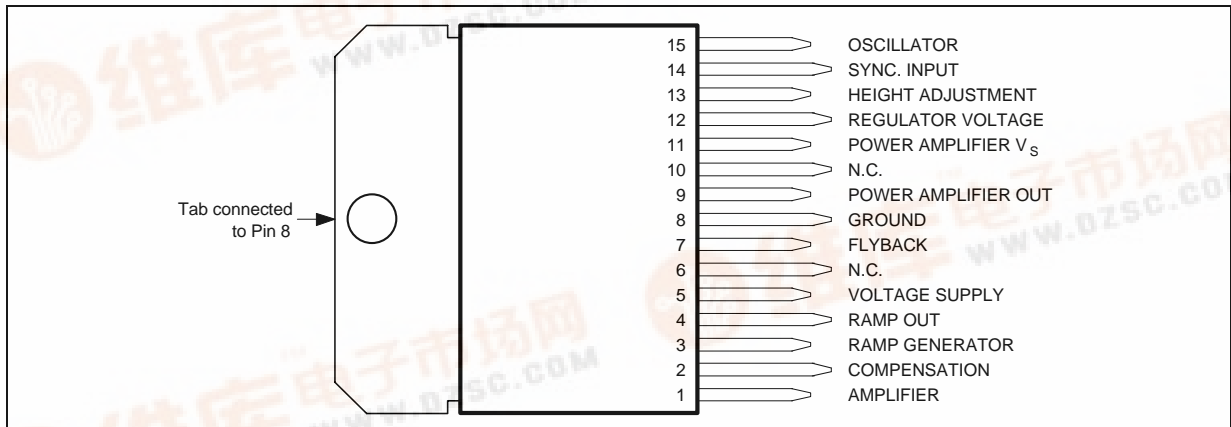
- SYNCHRONIZATION CIRCUIT
- OSCILLATOR AND RAMP GENERATOR
- HIGH POWER GAIN AMPLIFIER
- FLYBACK GENERATOR
- VOLTAGE REGULATOR



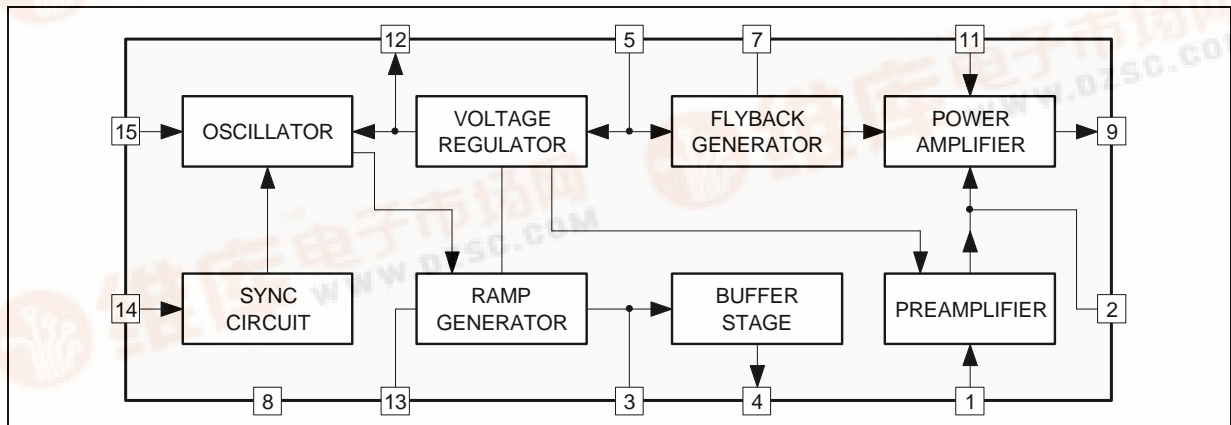
DESCRIPTION

The TDA8176 is a monolithic integrated circuit in Multiwatt 15 package. It is intended for use in color TV sets and monitors.

PIN CONNECTIONS



BLOCK DIAGRAM



TDA8176

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V ₅	Supply Voltage at Pin 2	35	V
V ₄ , V ₅	Flyback Peak Voltage	60	V
V ₁₀	Power Amplifier Input Voltage	+ 10 - 0.5	V V
I _o	Output Peak Current (non repetitive) at t = 2 ms	2	A
I _o	Output Peak Current at f = 50 Hz t ≤ 10 μs	2.5	A
I _o	Output Peak Current at f = 50 Hz t > 10 μs	1.5	A
I ₃	Pin 3 DC Current at V ₄ < V ₂	100	mA
I ₃	Pin 3 Peak to Peak Flyback Current for f = 50 Hz, t _{fly} ≤ 1.5 ms	1.8	A
I ₈	Pin 8 Current	± 20	mA
P _{tot}	Power Dissipation at T _{tab} = 90 °C at T _{amb} = 80 °C	20 1.4	W W
T _{stg} , T _j	Storage and Junction Temperature	- 40, + 150	°C

8176-01.TBL

THERMAL DATA

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Thermal Resistance Junction-case	Max. 3	°C/W
R _{th(j-a)}	Thermal Resistance Junction-ambient	Max. 50	°C/W

8176-02.TBL

AC ELECTRICAL CHARACTERISTICS

(refer to the test circuit, V_S = 25V ; f = 50Hz ; T_{amb} = 25°C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _s	Supply Current	I _y = 1 App		140		mA
I ₁₄	Sync. Input Current (positive or negative)		500			μA
V ₉	Flyback Voltage	I _y = 1 App		51		V
V ₁₅	Peak to peak Oscillator Sawtooth Voltage			2.4		V
t _{fly}	Flyback Time	I _y = 1 App		0.7		ms
f _o	Free Running Frequency	(P ₁ + R ₁) = 300kΩ C ₂ = 100 nF		44		Hz
		(P ₁ + R ₁) = 260kΩ C ₂ = 100 nF		52		Hz
Δf	Synchronization Range	I ₈ = 0.5 mA	14			Hz
$\frac{\Delta f}{\Delta V_S}$	Frequency Drift with Supply Voltage	V _S = 10 to 35 V		0.005		Hz/V
$\frac{\Delta f}{\Delta T_{tab}}$	Frequency Drift with Tab Temperature	T _{tab} = 40 to 120 °C		0.01		Hz/°C

8176-03.TBL

DC ELECTRICAL CHARACTERISTICS ($V_S = 35V$, $T_{amb} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_5	Pin 5 Quiescent Current	$I_7 = 0$		7	14	mA
I_{11}	Pin 11 Quiescent Current	$I_9 = 0$		8	17	mA
$-I_{15}$	Oscillator Bias Current	$V_{15} = 1 V$		0.1	1	μA
$-I_1$	Amplifier Input Bias Current	$V_1 = 1 V$		0.1	10	μA
$-I_3$	Ramp Generator Bias Current	$V_3 = 0$		0.02	0.3	μA
$-I_3$	Ramp Generator Current	$I_{13} = 20 \mu A$, $V_3 = 0$	18.5	20	21.5	μA
$\frac{\Delta I_3}{I_3}$	Ramp Generator Non-linearity	$\Delta V_{12} = 0$ to $12 V$ $I_{13} = 20 \mu A$		0.2	1	%
V_S	Supply Voltage Range		10		35	V
V_4	Pin 4 Saturation Voltage to Ground	$I_4 = 1 mA$		1	1.4	V
V_7	Pin 7 Saturation Voltage to Ground	$I_7 = 10 mA$		300	450	mV
V_9	Quiescent Output Voltage	$V_S = 10 V$ $R_1 = 10 k\Omega$ $R_2 = 10 k\Omega$	4.1	4.4	4.75	V
		$V_S = 35 V$ $R_1 = 30 k\Omega$ $R_2 = 10 k\Omega$	8.3	8.8	9.45	V
V_{9L}	Output Saturation Voltage to Ground	$-I_9 = 0.1 A$		0.9	1.2	V
		$-I_9 = 0.8 A$		1.9	2.3	V
V_{9H}	Output Saturation Voltage to Supply	$I_9 = 0.1 A$		1.4	2.1	V
		$I_9 = 0.8 A$		2.8	3.2	V
V_{12}	Regulated Voltage at Pin 12		6.1	6.5	6.9	V
V_{13}	Regulated Voltage at Pin 13	$I_{13} = 10 \mu A$	6.2	6.6	7	V
$\frac{\Delta V_{12}}{\Delta V_S}, \frac{\Delta V_{13}}{\Delta V_S}$	Regulated Voltage Drift with Supply Voltage	$\Delta V_S = 10$ to $35 V$		1		mV/V
V_1	Amplifier Input Reference Voltage		2.07	2.2	2.3	V
R_{14}	Pin 8 Input Resistance	$V_{14} \leq 0.4 V$	1			M Ω

8176-04.TBL

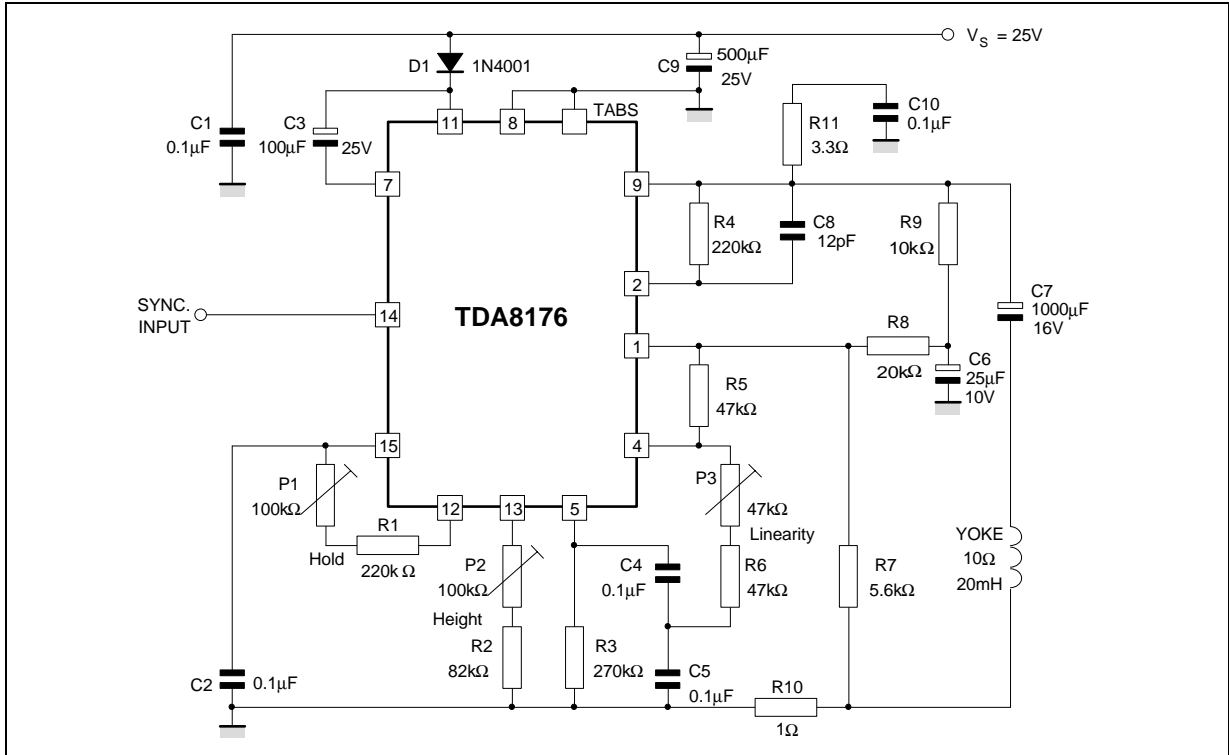
TYPICAL PERFORMANCE OF THE CIRCUIT OF FIG.1

Symbol	Parameter	Value	Unit
V_S	Operating Supply Voltage	25	V
I_S	Supply Current	175	mA
t_{fly}	Flyback Time	1	ms
P_{tot}	Power Dissipation	3.25	W
i_y	Maximum Scanning Current (peak-to-peak)	1.4	A

8176-05.TBL

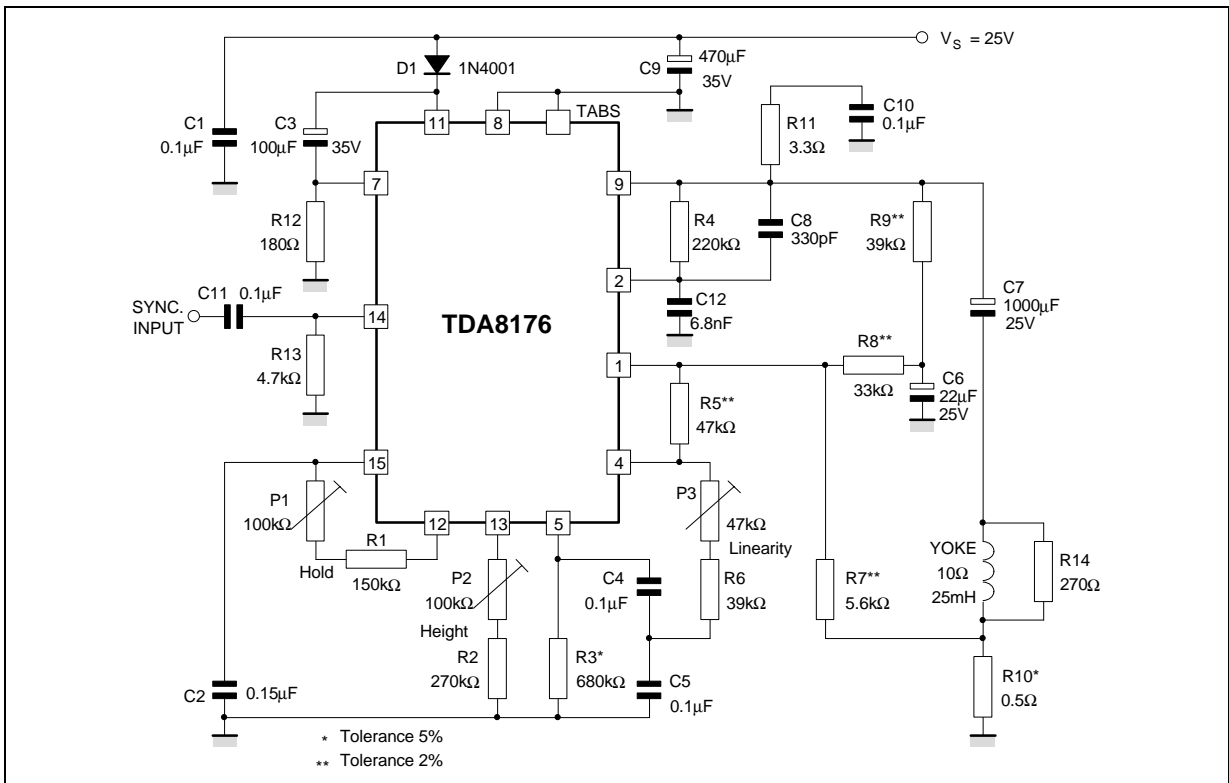
TDA8176

AC TEST CIRCUITS



8176-03.EPS

Figure 1 : Typical Application Circuit for large Screen 110° PIL TVC Set ($R_y = 10 \Omega$; $L_y = 25 \text{ mH}$; $I_y = 1.25 \text{ App}$).



8176-04.EPS

