

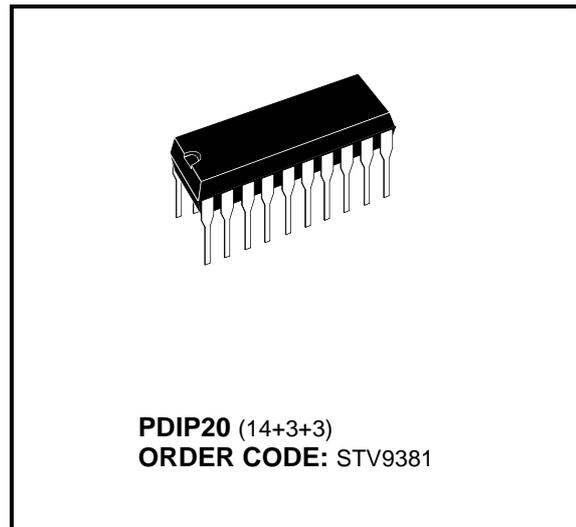


## STV9381

# CLASS-D VERTICAL DEFLECTION AMPLIFIER FOR TV AND MONITOR APPLICATION

### FEATURES

- HIGH EFFICIENCY POWER AMPLIFIER
- NO HEATSINK
- SPLIT SUPPLY
- INTERNAL FLYBACK GENERATOR
- OUTPUT CURRENT UP TO 3 APP
- SUITABLE FOR DC COUPLING APPLICATION
- FEW EXTERNAL COMPONENTS
- PROTECTION AGAINST LOW  $V_{CC}$

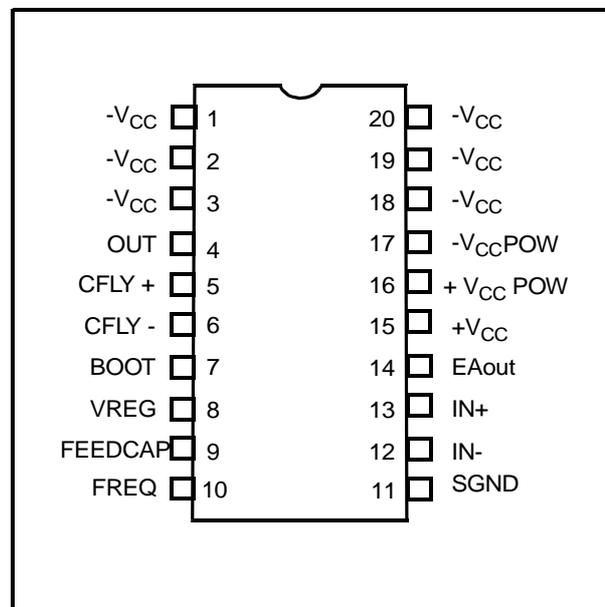


### DESCRIPTION

Designed for monitors and TVs, the STV9381 is a class-D vertical deflection booster assembled in PDIP20 Package.

It operates with supplies up to +/- 18V, provides up to 3 App output current to drive the yoke. The internal flyback generator avoids the need for an extra power supply.

### PIN CONNECTION



Version 3.0

## 1 PIN FUNCTIONS

Pin Number	Name	Function
1	$-V_{CC}$	Negative supply
2	$-V_{CC}$	Negative supply
3	$-V_{CC}$	Negative supply
4	OUT	PWM Output
5	CFLY+	Flyback capacitor
6	CFLY-	Flyback capacitor
7	BOOT	Bootstrap capacitor
8	VREG	Internal voltage regulator
9	FEEDCAP	Feed-back integrating capacitor
10	FREQ	Frequency setting resistor
11	SGND	Signal Ground
12	IN-	Error amplifier inverting input
13	IN+	Error amplifier non-inverting input
14	EA out	Error amplifier output
15	$+V_{CC}$	Positive supply
16	$+V_{CC}^{POW}$	Positive Power supply
17	$-V_{CC}^{POW}$	Negative Power supply
18	$-V_{CC}$	Negative supply
19	$-V_{CC}$	Negative supply
20	$-V_{CC}$	Negative supply

## 2 FUNCTIONAL DESCRIPTION

The STV9381 is a vertical deflection circuit operating in class D. The class D is a modulation method where the output transistors work in switching mode at high frequency. The output signal is restored by filtering the output square wave with an external LC filter. The major interest of this IC is the low power dissipation comparatively to traditional amplifiers operating in class AB, eliminating the need of a heatsink.

Except for the output stage which uses the class D modulation, the circuit operation is similar to the one of a traditional linear vertical amplifier.

A reference signal (sawtooth) has to be applied to the circuit which can accept a differential or single ended signal. This sawtooth is amplified and applied as a current to the deflection yoke. This current is measured by means of a low value resistor. The resulting voltage is used as a feed-back signal to guarantee the conformity of the yoke current with the reference input signal.

The overvoltage necessary for a fast retrace is obtained with a chemical capacitor charged at the power supply voltage of the circuit. At the flyback moment this capacitor is connected in series with the output stage power supply. This method, used for several years with the linear vertical boosters and called "internal flyback" or "flyback generator", avoids the need of an additional power supply, while reducing the flyback duration.

The circuit uses a BCD process that combines Bipolar, CMOS and DMOS devices. DMOS transistors are used in the output stage due to the absence of second breakdown.