HA17524P/FP

Switching Regulator Controller

HITACHI

ADE-204-058 (Z)
Rev. 0
Dec. 2000

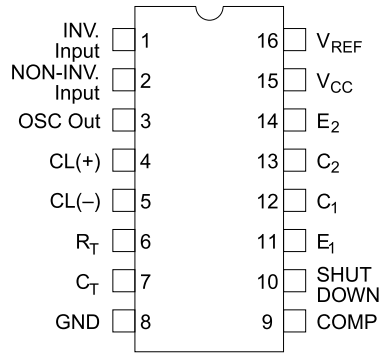
Features

- Pulse width modulation (PWM)
- Wide oscillation frequency range: 450 kHz(typ)
- Low quiescent current: 5 mA typ
- Good line regulation (0.2% typ) and load regulation (0.4% typ)
- Independent output stages for 2 channels
- Wide external circuit applications including single-end and push-pull method
- Reference power source output stage and switching output stage include current limiting protection circuit.

Ordering Information

Type No.	Package
HA17524P	16 pin dual in line plastic(DP-16)
HA17524FP	16 pin flat plastic (FP-16DA)

Pin Arrangement



(Top View)

Hitachi semiconductor

Functional Description

Principals of HA17524 Operation

The HA17524 switching regulator circuit, using pulse width modulation (PWM), is constructed as shown in figure 1.

Timing resistances R_T and timing capacitance C_T control the oscillation frequency. C_T is charged by a constant current generated by R_T. Ramp signals (saw-tooth waves) at the C_T terminal generated by this oscillator is available for reference input signal to comparator which control the pulse width.

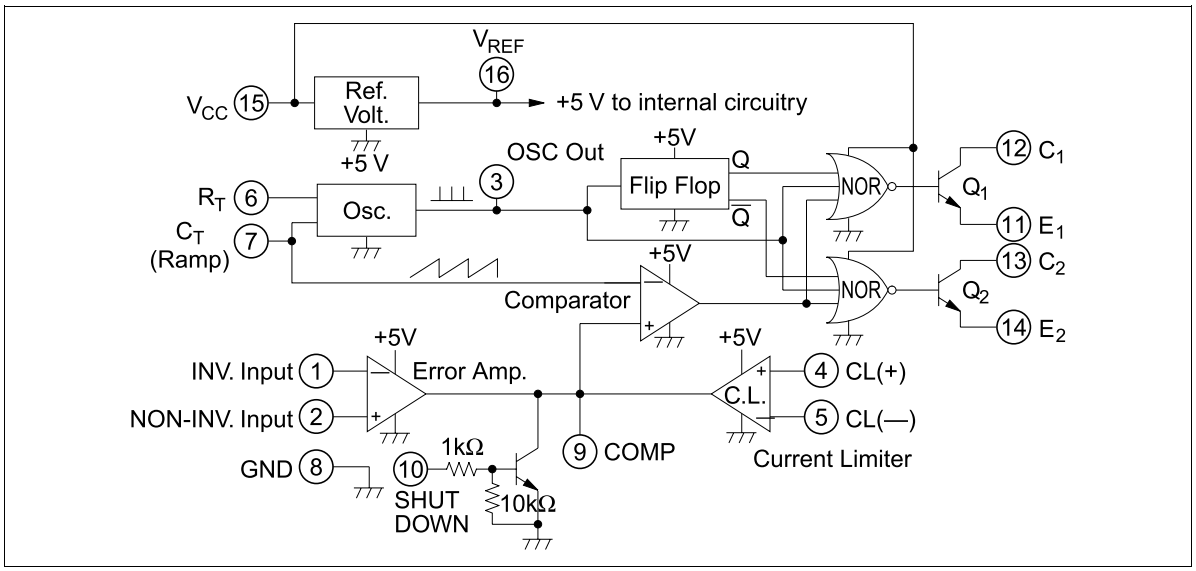


Figure 1 HA17524 Block Diagram

The reference voltage connects to the non-inverted or inverted input terminal of the error amplifier via resistance divider (figure 2).

The output voltage from the error amplifier is compared with the ramp signal capacitance C_T (figure 1). The comparator can provide a signal with modulated pulse width.

This signal, then, controls output transistors Q_1 and Q_2, making an open loop to stabilize output voltage.

Outputs form the error amplifier the current limiter, and the shut-down circuit are connected together at the comparator, so that an input signal from any one of these circuits can break the output stage.