The L5985 is based on a “voltage mode”, constant frequency control. The output voltage $V_{OUT}$ is sensed by the feedback pin (FB) compared to an internal reference (0.6 V) providing an error signal that, compared to a fixed frequency sawtooth, controls the on and off time of the power switch.

The main internal blocks are shown in the block diagram in Figure 3. They are:

- A fully integrated oscillator that provides sawtooth to modulate the duty cycle and the synchronization signal. Its switching frequency can be adjusted by an external resistor. The voltage and frequency feed forward are implemented.
- The soft-start circuitry to limit inrush current during the start up phase.
- The voltage mode error amplifier
- The pulse width modulator and the relative logic circuitry necessary to drive the internal power switch.
- The high-side driver for embedded p-channel power MOSFET switch.
- The peak current limit sensing block, to handle over load and short circuit conditions.
- A voltage regulator and internal reference. It supplies internal circuitry and provides a fixed internal reference.
- A voltage monitor circuitry (UVLO) that checks the input and internal voltages.
- The thermal shutdown block, to prevent thermal run away.

Figure 3. Block diagram