

Micropower Voltage Mode PWM

FEATURES

- Low Startup Current (85 μ A)
- Low Operating Current (400 μ A)
- Automatically Disabled Startup Preregulator
- Programmable Minimum Duty Cycle with Cycle Skipping
- Programmable Maximum Duty Cycle
- Programmable Soft Start
- Edge Triggered Oscillator Synchronization Input
- Undervoltage Lockout with Hysteresis

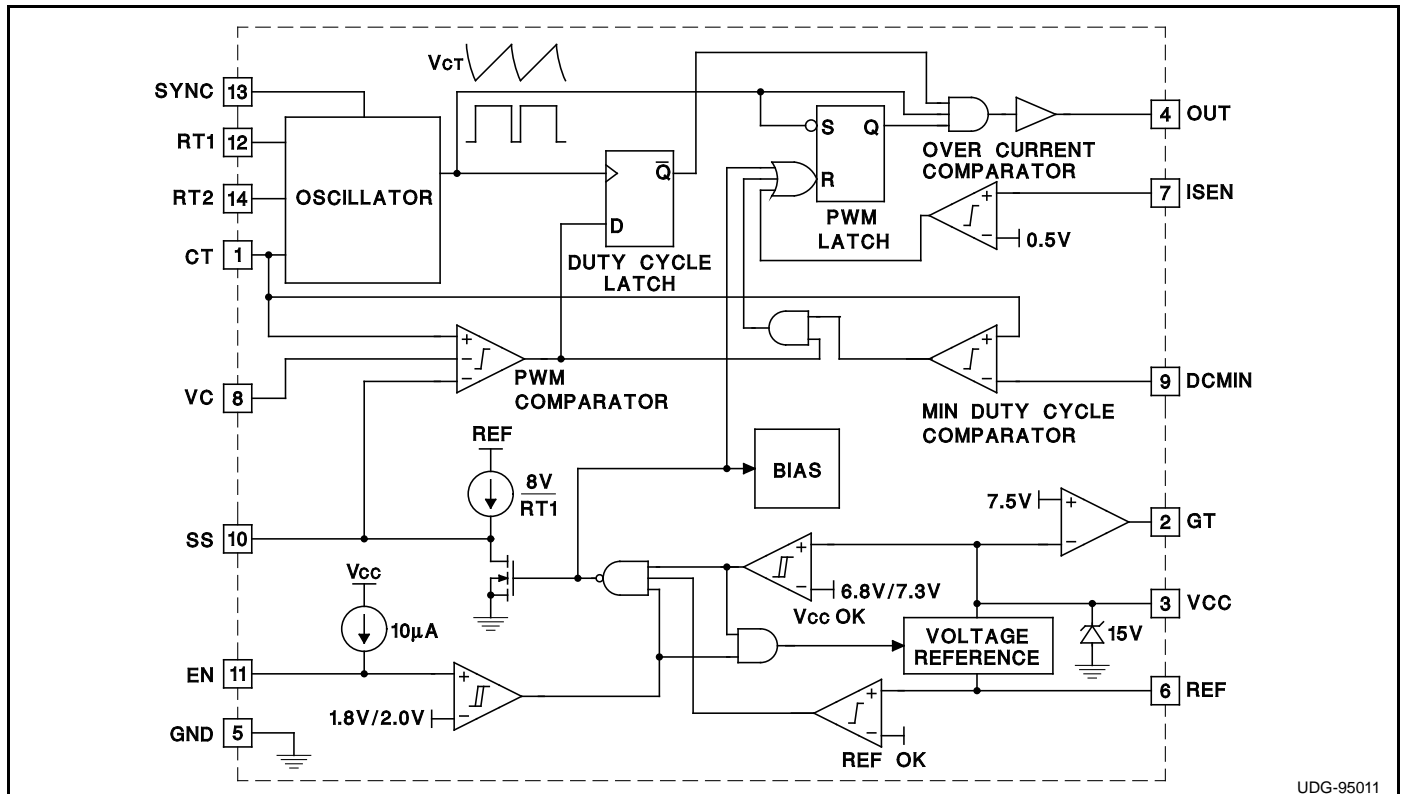
DESCRIPTION

The UCC3581 voltage mode pulse width modulator is intended to control low power isolated DC/DC converters in applications such as Subscriber Line Power (ISDN I.430). Designed primarily for single switch forward and flyback converters, the UCC3581 features BiCMOS circuitry for low startup and operating current, while maintaining the ability to drive power MOSFETs at frequencies up to 100kHz. The UCC3581 oscillator allows the flexibility to program both the frequency and the maximum duty cycle with two resistors and a capacitor. A TTL level input is also provided to allow synchronization to an external frequency source.

The UCC3581 provides functions to maximize light load efficiency that are not normally found in PWM controllers. A linear preregulator driver in conjunction with an external depletion mode FET provides initial controller power. Once the bootstrap supply is functional, the preregulator is shut down to conserve power. During light load, power is saved by providing a programmable minimum duty cycle clamp. When a duty cycle below the minimum is required, the modulator skips cycles to provide the correct average duty cycle required for output regulation. This effectively reduces the switching frequency, saving significant gate drive and power stage losses.

The UCC3581 family is available in 14-pin plastic and ceramic dual-in-line packages, in a 14-pin narrow body small outline IC package (SOIC), and in 20-pin plastic and ceramic leadless chip carriers (PLCC and LCC). The UCC1581 is specified for operation from -55°C to $+125^{\circ}\text{C}$, the UCC2581 is specified for operation from -40°C to $+85^{\circ}\text{C}$, and the UCC3581 is specified for operation from 0°C to $+70^{\circ}\text{C}$.

BLOCK DIAGRAM



UDG-95011