

FSCQ1565RT

Green Mode Fairchild Power Switch (FPS™) for Quasi-Resonant Switching Converter

Features

- Optimized for Quasi-Resonant Converter (QRC)
- Advanced Burst-Mode operation for under 1 W standby power consumption
- Pulse by Pulse Current Limit (8A)
- Over load protection (OLP) - Auto restart
- Over voltage protection (OVP) - Auto restart
- Abnormal Over Current Protection (AOCP) - Latch
- Internal Thermal Shutdown (TSD) - Latch
- Under Voltage Lock Out (UVLO) with hysteresis
- Low Startup Current (typical : 25uA)
- Low Operating Current (typical : 7mA)
- Internal High Voltage SenseFET
- Built-in Soft Start (20ms)
- Extended Quasi-resonant Switching for Wide Load Range

Application

- CTV
- DVD Receiver
- Audio Power Supply

Description

In general, Quasi-Resonant Converter (QRC) shows lower EMI and higher power conversion efficiency compared to the conventional hard switched converter with a fixed switching frequency. Therefore, it is well suited for applications that are sensitive to the noise, such as color TV and audio. The FSCQ1565RT is an integrated Pulse Width Modulation (PWM) controller and Sense FET specifically designed for Quasi-resonant off-line Switch Mode Power Supplies (SMPS) with minimal external components. The PWM controller includes integrated fixed frequency oscillator, under voltage lockout, leading edge blanking (LEB), optimized gate driver, internal soft start, temperature compensated precise current sources for a loop compensation and self protection circuitry. Compared with discrete MOSFET and PWM controller solution, it can reduce total cost, component count, size and weight simultaneously increasing efficiency, productivity, and system reliability. This device is a basic platform well suited for cost effective designs of Quasi resonant switching flyback converters.

OUTPUT POWER TABLE		
PRODUCT	230VAC $\pm 15\%$ ⁽²⁾	85-265VAC
	Open Frame ⁽¹⁾	Open Frame ⁽¹⁾
FSCQ0765RT	100 W	85 W
FSCQ1265RT	170 W	140 W
FSCQ1565RT	210 W	170 W

Table 1. Notes: 1. Maximum practical continuous power in an open frame design at 50°C ambient. 2. 230 VAC or 100/115 VAC with doubler.

Typical Circuit

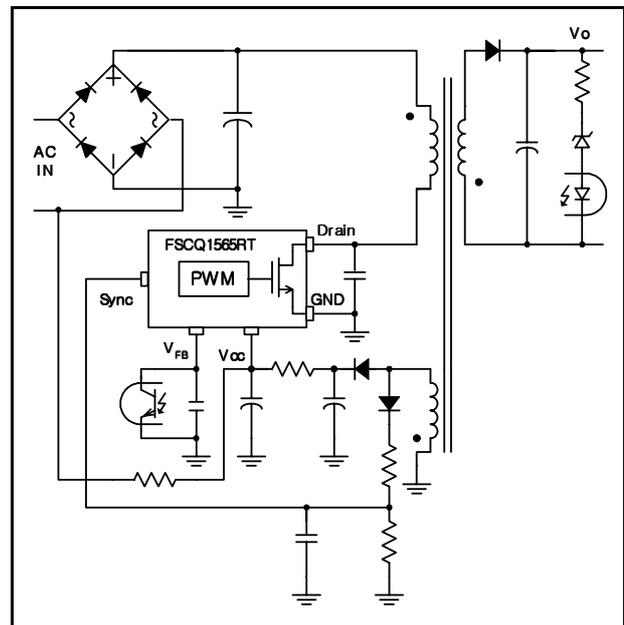


Figure 1. Typical Flyback Application

Internal Block Diagram

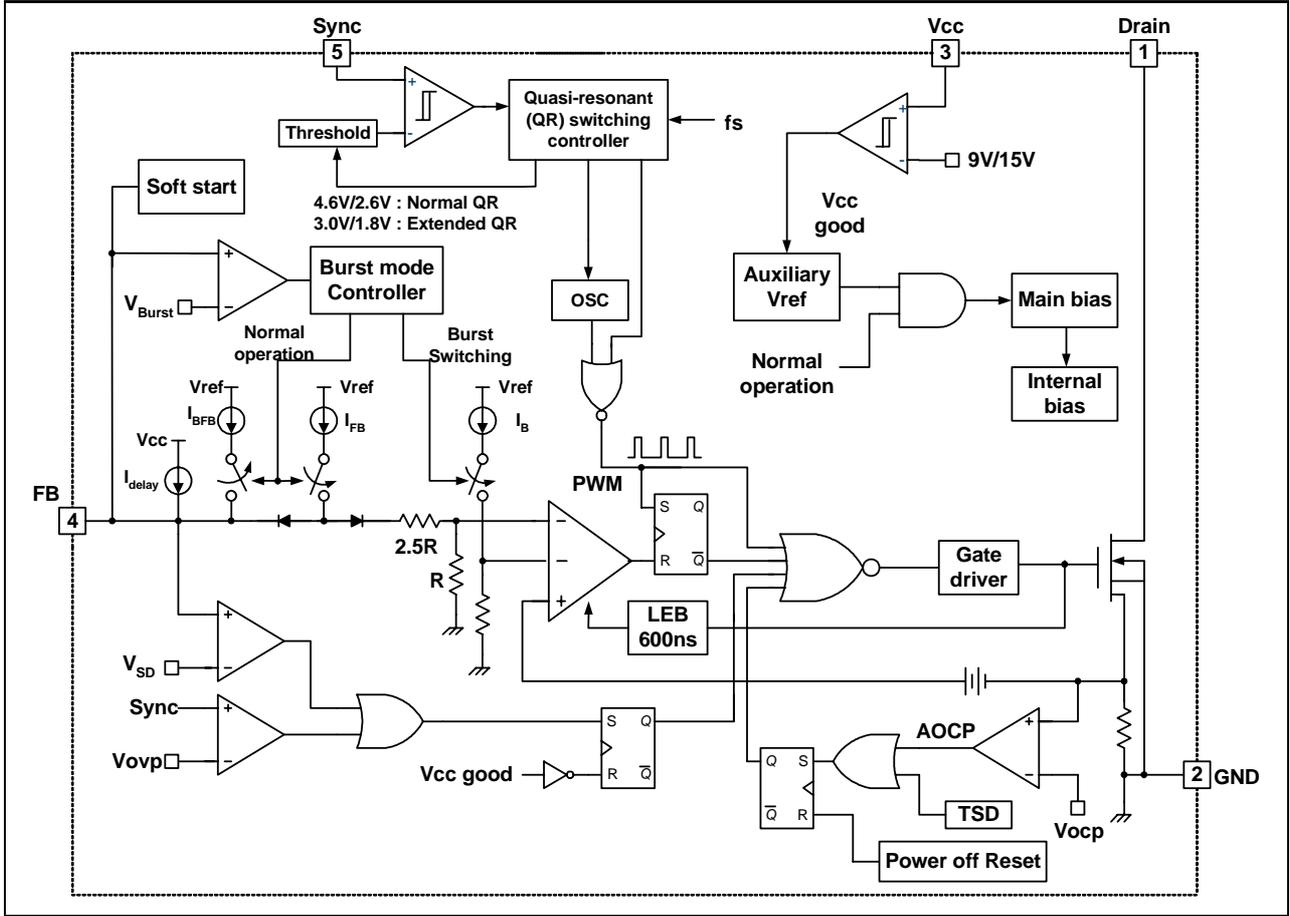


Figure 2. Functional Block Diagram of FSCQ1565RT

Pin Definitions

Pin Number	Pin Name	Pin Function Description
1	Drain	High voltage power SenseFET drain connection.
2	GND	This pin is the control ground and the SenseFET source.
3	Vcc	This pin is the positive supply input. This pin provides internal operating current for both start-up and steady-state operation.
4	Vfb	This pin is internally connected to the inverting input of the PWM comparator. The collector of an opto-coupler is typically tied to this pin. For stable operation, a capacitor should be placed between this pin and GND. If the voltage of this pin reaches 7.5V, the over load protection triggers resulting in shutdown of the FPS.
5	Sync	This pin is internally connected to the sync detect comparator for quasi resonant switching. In normal quasi-resonant operation, the threshold of the sync comparator is 4.6V/2.6V. Meanwhile, the sync threshold is changed to 3.0V/1.8V in extended quasi-resonant operation.

Pin Configuration

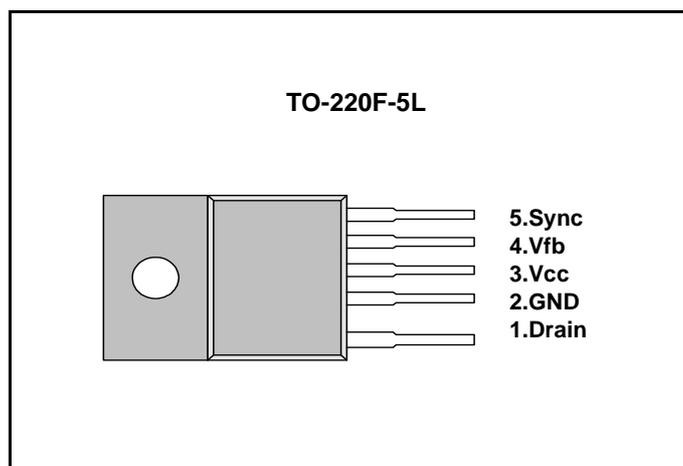


Figure 3. Pin Configuration (Top View)