

Product brief

5th generation PWM controller

Quasi-resonant flyback controller and CoolSET™

Rapid start-up with cascode configuration

To achieve fast start-up performance, 5th generation controller utilize the high voltage MOSFET together with an internal current regulator to operate the start-up sequence in a safe and rapid manner, which is commonly known as cascode configuration.

Upsized zero crossing counters for valley detection

With the implementation of 10 zero crossing counters, the ability to detect AC line input level and an intelligent adaptive digital algorithm (patent pending), it enabled the 5th generation controller to minimize the spread of switching frequency under different AC line input conditions. This innovative approach has enabled SMPS designers to design with higher switching frequency to take advantage of smaller magnetics and lowering of system BOM cost.

Run cooler with CoolMOS™ P7 family

In tandem with Infineon's leadership in the area of high voltage superjunction MOSFETs, the latest 700 V and 800 V CoolMOS™ P7 families will be integrated together with the 5th generation controller in a single package. CoolSET™ is available in both through-hole and SMD packages and thereby eliminates the need of heatsink and reduces BOM count with a small footprint.

Comprehensive suite of protection features

In addition to the typical output protection such as output short, overload and overvoltage protection, the 5th generation controller is incorporating additional protections to detect abnormal line input conditions such as overvoltage and undervoltage protection. OTP has been enhanced with hysteresis to improve operational fault handling. To minimize interruption to system operation, all protection modes are implemented with auto resume to enhance user experience.

Key features

- › Integrated 700 V and 800 V superjunction MOSFET with avalanche capability
- › Comprehensive suite of protection which includes input OVP, brown in/out, pin short to GND and OTP with hysteresis
- › Innovative quasi-resonant switching scheme to minimize frequency spread under different line input conditions

Key benefits

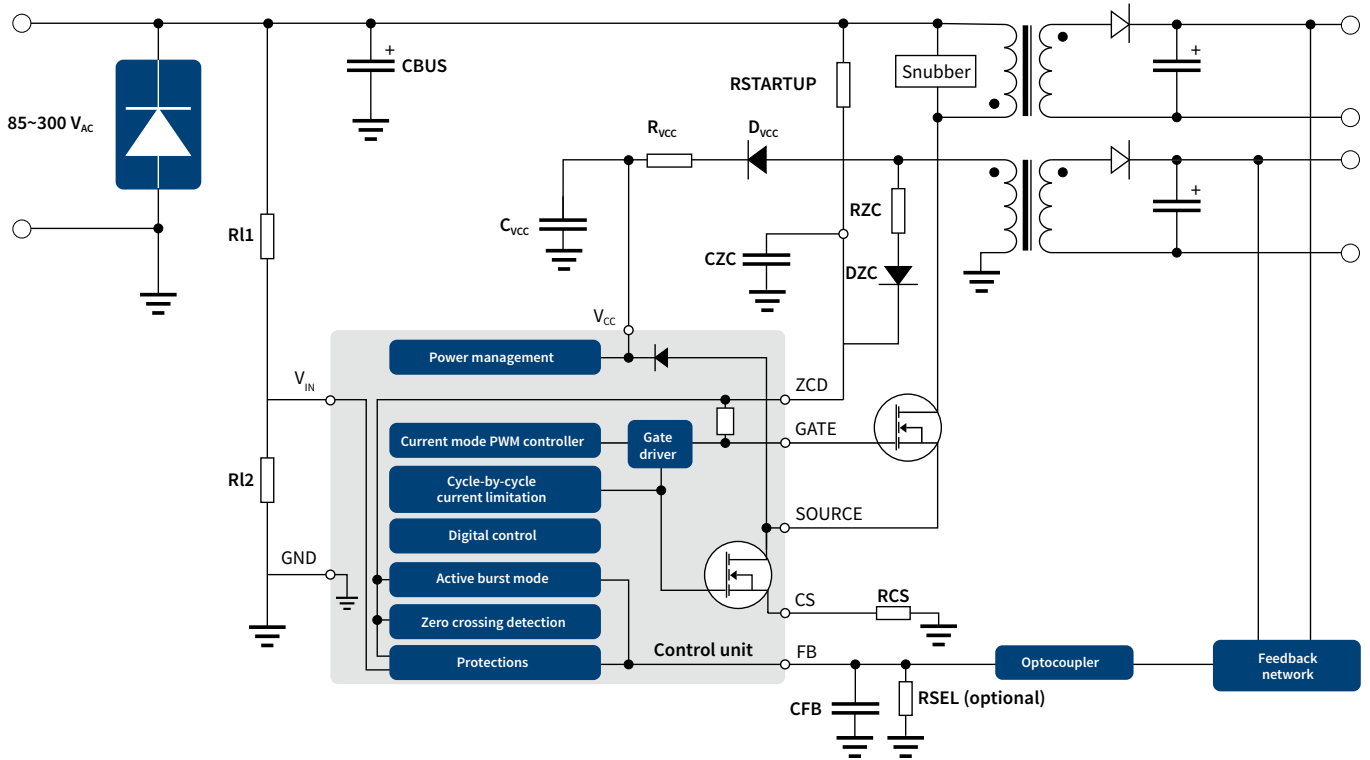
- › High efficiency with the latest CoolMOS™ P7 family and quasi-resonant switching scheme
- › Auto-restart recovery scheme to minimize interruption to system operation
- › Extensive protection coverage to increase system robustness
- › Rapid start-up performance with cascode configuration



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Typical application schematic of a 60 W isolated flyback SMPS



Quick selection guide

Output power 85-300 V _{AC} T _s =50°C	15 W	22 W~26 W	32 W	41 W~42 W	60 W
External MOSFET			ICE5QSAG ICE5QSBG		
700 V	ICE5QR4770AZ ICE5QR4770AG	ICE5QR2270AZ	ICE5QR1070AZ		
800 V	ICE5QR4780AZ ICE5QR4780BG	ICE5QR2280AZ ICE5QR2280BG ICE5QR1680AG ICE5QR1680BG		ICE5QR0680AZ ICE5QR0680AG ICE5QR0680BG	

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