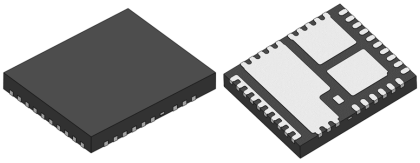
PM7080

Data brief

Smart power stage with current sensing and temperature monitor



Features

- Thermally enhanced QFN 5x6 41L package
- Optimized MOSFET switching performance with integrated Schottky diode in LS MOSFET
- Up to 80 A continuous current
- High frequency operation up to 2 MHz
- Power MOSFETs optimized for 12 V input stage and 10% to 15% duty cycle operation
- 3.3 V PWM logic with tri-state and hold-off
- PWM minimum controllable on-time of 30 ns
- Diode emulation mode at light loads for high efficiency over the full load range using GLCTRL pin
- Low PWM propagation delay (< 20 ns)
- Current sense monitor (I_{MON})
- Temperature monitor (T_{MON})
- Overtemperature alert
- HS MOSFET overcurrent and short alert
- Undervoltage lockout for V_{DRV}
- Material categorization: for definitions of compliance

Product status link
PM7080

Product summary	
Order code	PM7080
Temperature range	-40 to +125
Package	QFN 5x6 41L
Packing	Tape & reel

Application

- Synchronous buck converters
- Multi-phase VRDs for CPU, GPU, and memory
- DC/DC VR modules

Description

The PM7080 is an integrated power stage solution optimized for synchronous buck applications to offer high current, high efficiency, and high power density performance. Packaged in 5x6 mm QFN package, the PM7080 enables voltage regulator design to deliver in excess of 80 A per phase current. The internal power MOSFETs utilize state-of-the-art technology that delivers industry benchmark performance to significantly reduce switching and conduction losses.

The PM7080 incorporates an advanced MOSFET gate driver IC that features high current driving capability, adaptive deadt-time control, and integrated bootstrap switch, a thermal monitor that alerts the system of excessive junction temperature. This driver is compatible with 3.3 V logic PWM with tri-state to manage High Impedance Output. Diode emulation mode can be enabled at light loads through the use of GLCTRL signal.

The device also integrates a current monitor to provide a real-time scale down of inductor current (I_{MON}). A temperature monitor provides the system with an indication of the power stage internal temperature (T_{MON}) and can be used to throttle the system operation down to a safer level if needed.

The device also integrates fault alerts such as HS FET overcurrent, overtemperature and HS MOSFET short failures.

Revision history

Table 1. **Document revision history**

Date	Version	Changes
15-Jun-2021	1	Initial release.