

General Description

The AOZ5473 is a high efficiency synchronous buck smart power stage module consisting of two asymmetrical MOSFETs and an integrated driver. The MOSFETs are individually optimized for operation in the synchronous buck configuration. The high-side MOSFET is optimized to achieve low capacitance and gate charge for fast switching with low duty cycle operation. The low-side MOSFET has ultra low ON resistance to minimize conduction loss.

Highly accurate current (IMON) and temperature (TMON) monitors are integrated in AOZ5473. AOS digital controllers, when used with AOZ5473, can digitize IMON and TMON to provide fault protection and telemetry via the digital communication bus. A dual functionality TMON/FLT pin reports temperature information during normal operating conditions and also reports OC, OT, HS-short, LS-short faults. When a fault is detected, the TMON/FLT pin is pulled high.

Dual-layer OC Protection includes a fixed 100 A detection level which enable an OC fault flag and a 120 A cycle-by-cycle current limit. This second-level protection turns off the high-side MOSFET, disabling the output. The AOZ5473 protection also includes thermal shutdown.

The bootstrap switch, with auto boot refresh feature, is integrated into the driver. The low-side MOSFET can be driven into diode emulation mode to provide asynchronous operation when required. The pin-out is optimized for low inductance routing of the converter, keeping the parasitic effects to a minimum.

Features

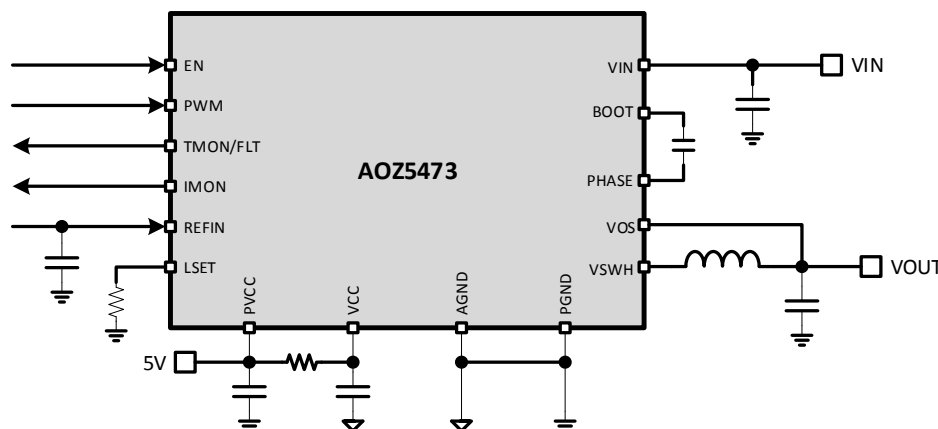
- 4.5 V to 16 V power supply range
- 80 A of current handling capability
- Integrated bootstrap with auto refresh
- Up to 1 MHz switching operation
- 3.3 V Tri-state PWM input compatible
- Fault detection
 - Under-Voltage Lockout (UVLO) on VCC
 - Over Current (OC)
 - Over Temperature (OT)
 - High-side short
- Thermal shutdown
- Cycle-by-cycle over current protection
- Integrated Current Monitor (IMON)
- Integrated Temperature Monitor (TMON)
- Low profile QFN5x6-39L package

Applications

- Server including Processor and Memory Power
- Communication Infrastructure Systems
- High-current rails in server/cloud and storage systems
- Artificial Intelligence and Deep Learning systems
- Single phase and multiphase POL
- GPU and Gaming Systems



Typical Application Circuit



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