

General Description

The AOZ73004CQI is a high performance multiphase buck controller designed in compliance with NVIDIA OpenVReg specifications. It provides one output rail and supports PWMVID interface.

AOS offers a novel AOS Advanced Transient Modulator (A²TM). It combines an advanced variable frequency hysteretic peak current mode control with proprietary phase current sensing scheme for fast transient response and low system cost. The control loop enhances light-load efficiency by seamlessly entering DCM mode of operation. Autonomous Phase Management also assures the optimized efficiency and power loss during light load with single phase DCM mode.

The AOZ73004CQI provides complete protection including UVP, OVP, thermal warning, cycle-by-cycle current limit. AOZ73004CQI also offers real time telemetry information via IMON pin for output currents.

The AOZ73004CQI features an external reference input and PWMVID dynamic output voltage control, in which the output voltage is regulated and tracks the external input reference voltage. The PWMVID duty cycle determines the variable output voltage at REFIN, V_{min} is the zero percent duty cycle voltage value. V_{max} is the one hundred percent duty cycle voltage value.

AOZ73004CQI can be paired and supports multi-sourced industry standard DrMOS. AOZ73004CQI is offered in compact 4 mm x 4 mm 32-pin QFN package.

Features

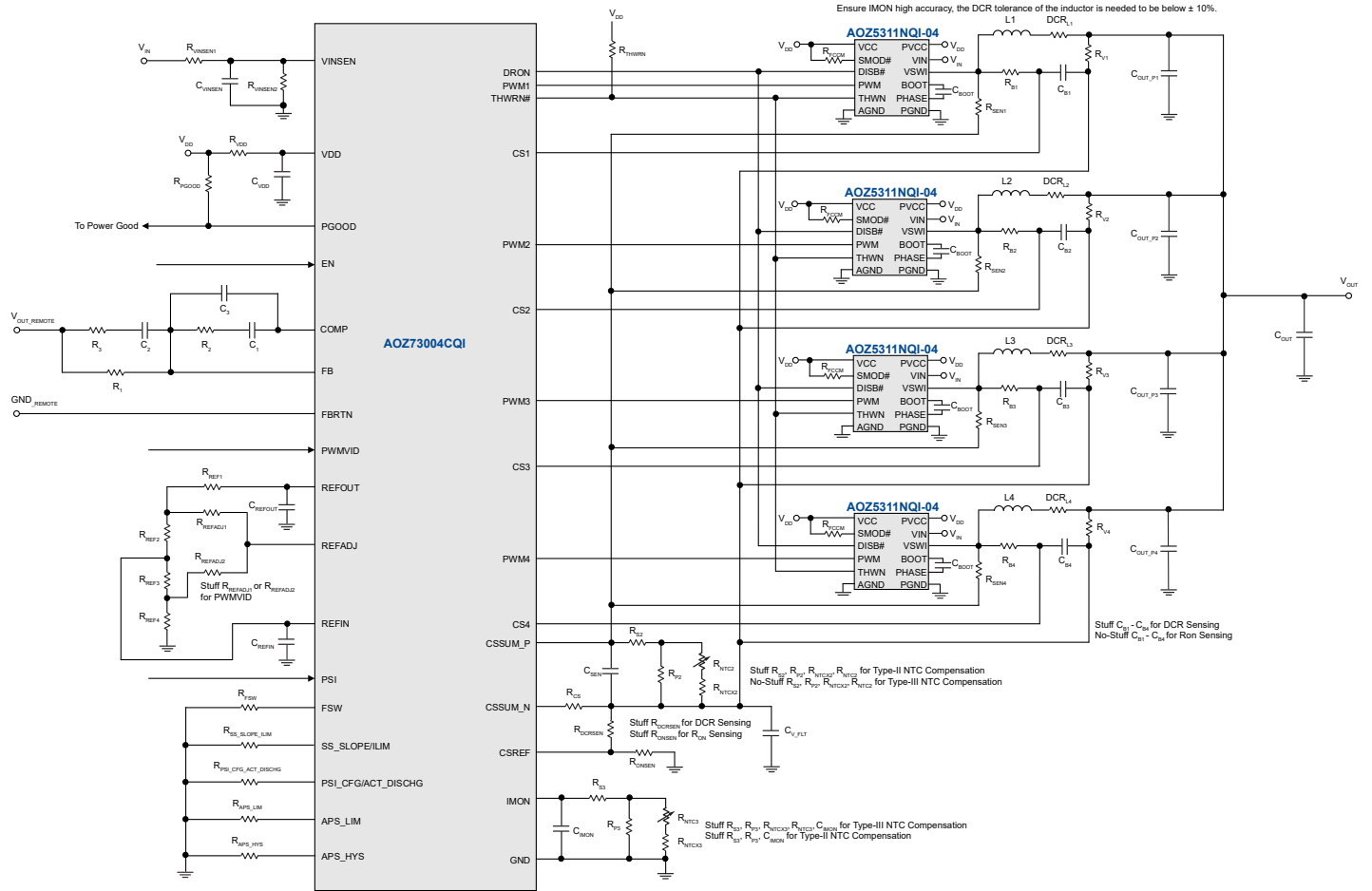
- Compliant with NVIDIA OVR-4-22 specifications
- Supports up to 4 phase
- 2.7V to 20V VIN input supply voltage
- 300kHz to 1MHz programmable switching frequency
- High performance operational error amplifier
- Differential remote sensing to achieve 1% regulated VOUT accuracy
- Supports multi-sourced industry standard DrMOS
- Proprietary, high performance AOS Advanced Transient Modulator (A²TM) control scheme:
 - Variable frequency hysteretic peak current mode control gives fast transient response
 - Dynamic phase-to-phase current balancing
 - Excellent phase current sensing
 - Seamless CCM to DCM control to maximize efficiency
- Supports DCR or R_{ON_LG} sensing current balance
- Automatic Phase Shedding (APS) with user settable thresholds
- Power Saving Interface (PSI)
- Supports Diode Emulation Mode (DEM)
- PWMVID interface
- Output Under-Voltage Protection (UVP)
- Output Over-Voltage Protection (OVP)
- Cycle-by-Cycle current limit
- Thermal Warning (THWRN)

Applications

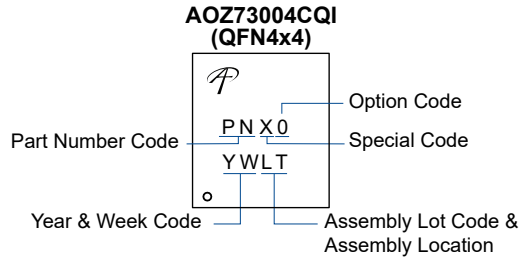
- GPU and CPU power
- Graphic cards
- Desktop and notebook applications



Typical Application



Part Marking



Part Number	Description	Code
AOZ73004CQI	Green Product	ENC0

LEGAL DISCLAIMER

Applications or uses as critical components in life support devices or systems are not authorized. Alpha and Omega Semiconductor does not assume any liability arising out of such applications or uses of its products. AOS reserves the right to make changes to product specifications without notice. It is the responsibility of the customer to evaluate suitability of the product for their intended application. Customer shall comply with applicable legal requirements, including all applicable export control rules, regulations and limitations.

AOS's products are provided subject to AOS's terms and conditions of sale which are set forth at:
http://www.aosmd.com/terms_and_conditions_of_sale

LIFE SUPPORT POLICY

ALPHA AND OMEGA SEMICONDUCTOR PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS.

As used herein:

- Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or
- A critical component in any component of a life support, (b) support or sustain life, and (c) whose failure to perform device, or system whose failure to perform can be when properly used in accordance with instructions for use reasonably expected to cause the failure of the life support provided in the labeling, can be reasonably expected to device or system, or to affect its safety or effectiveness. result in a significant injury of the user.