

# AS1854

## GreenEdge™ IEEE802.3af/802.3at (13-30W) PoE PD Controller with HV Isolation, Quad DC-DC Outputs with I2C based Management & Diagnostics

The AS1854 integrates Akros *GreenEdge*™ Isolation technology with next generation Power-over-Ethernet (PoE) PD and power conversion technology to deliver groundbreaking power integration, and enable a new range of Digital Power PoE PD capabilities and solutions.

A Type 1 (IEEE® 802.3af) and Type 2 (IEEE® 802.3at) compliant PD is integrated with high-voltage isolation and quad-output digital power DC-DC converters – resulting in a complete PoE & Power management solution in a single device with minimal external components for higher power systems requiring upto 30W power capability.

In addition to enabling digital PoE power conversion, Akros *GreenEdge*™ isolation enables direct digital management of isolated Primary GPIO for real time Green Power application capabilities. The device includes a standard I2C based uController interface for advance programmability, monitoring, alarms, diagnostics and management support. The AS1854 is available in a 64-pin 9x9 QFN, Reduction of Hazardous Substance (RoHS)-compliant package.

## Applications

The AS1854 is geared towards use in high-power, low-cost systems that will greatly benefit from the GreenEdge Technology performance, integration, and feature enablement; and can enhance product features and benefits with advanced software programmability, monitoring and diagnostic features.

- Voice-over-IP (VoIP) phones
- Wireless LAN & WiMAX access points (WAP)
- Pan, Tilt, Zoom (PTZ) Cameras, IP cameras
- Thin-client and notebook computers
- Fiber-to-the-home (FTTH) terminals
- Point-of-sale (PoS) terminals, RFID readers

# Features

## Digitally Isolated Programmable Power

### PoE PD Controller

- Type 1 IEEE® 802.3af and Type2 IEEE® 802.3at Compliant PD for 13-30W applications
- Automatic PoE-Plus (Type 2) detection in H/W and I<sup>2</sup>C Modes

### Primary-Side DC-DC Controller

- High-efficiency DC-DC Controller with Digital Optimization
- Primary-Secondary High-voltage integrated Digital Isolation
- Programmable Primary Clock Frequency
- Local-power operation down to 9.5V

### Secondary-Side Power Outputs

- Programmable PWM Frequencies synched to External Clock
- Output #1: Sync Controller with programmable power-FET timing for high efficiency at both light and full load
- Outputs #2 & #3: Fully integrated Buck Regulators w/2A FETs
- Output #4: DC-DC Controller for Buck, Boost, or LED Driver

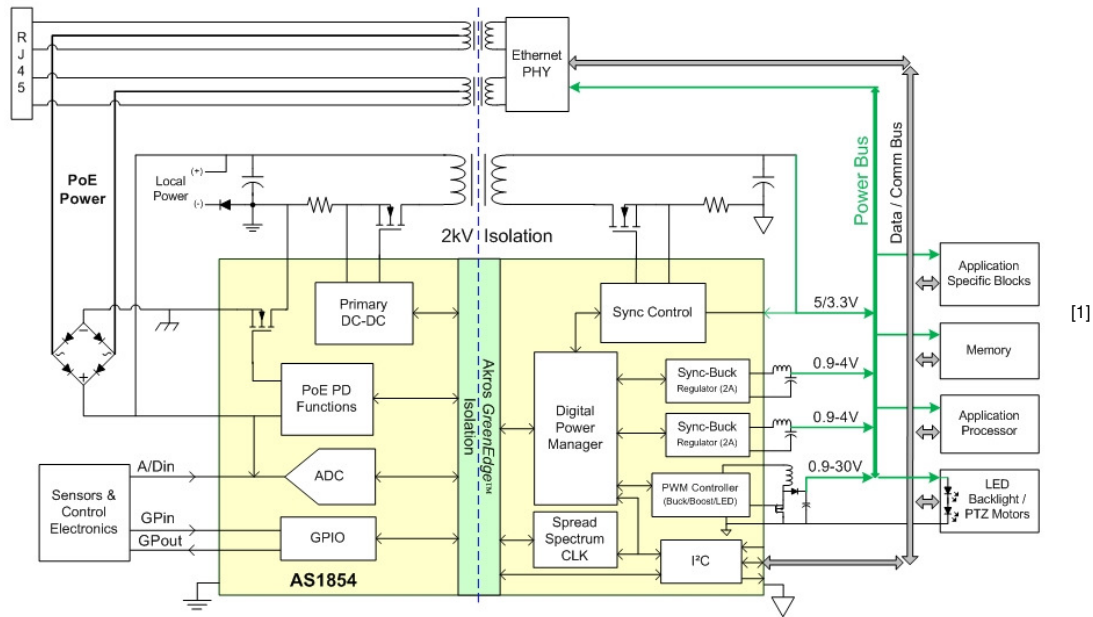
### Power Management

- Hardware programmable start-up power sequencing
- Primary-side power monitoring & control from Secondary side
- Individual output Power-Good management
- Voltage margining for each output
- Primary GPIO/ADC controlled via Secondary GPIO or I<sup>2</sup>C
- 5V  $\mu$ C-compatible with interrupt on alarm services
- Programmable watchdog timer

### EMC Compliance and Protection

- Slew-rate-controlled power drivers
- Multi-phased PWM clocking, with External Sync clock option
- Optional spread-spectrum clocking available for all PWMs
- Over-current, Under/Over-voltage and Short-circuit Protection
- High-temperature warning and shutdown
- Meets IEC 61000-4-2/3/4/5/6, IEC60747, IEC 60950, DIN EN60747-5-2 (VDE0884), & UL1577 requirements for EMC compliance and basic isolation to 1500 VRMS

# Block Diagram



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