

Universal DSP-based PFC solution for applications requiring power factor values close to unity



The AMG-PP130 is a universal DSP-based PFC solution to be used in applications requiring power factor values close to unity. Typical applications are high power DC motors and lighting systems. The controller is based on boost topology and is fully software controlled. The PFC algorithm is loaded into the DSP from an on-chip, non-volatile memory after Reset. The parameters of the algorithm can be changed using a two-wire interface (I₂C compatible).

Highlights

- Digitally-controlled PFC
- Power Factors >0.99
- High Efficiency

Example Application Circuit

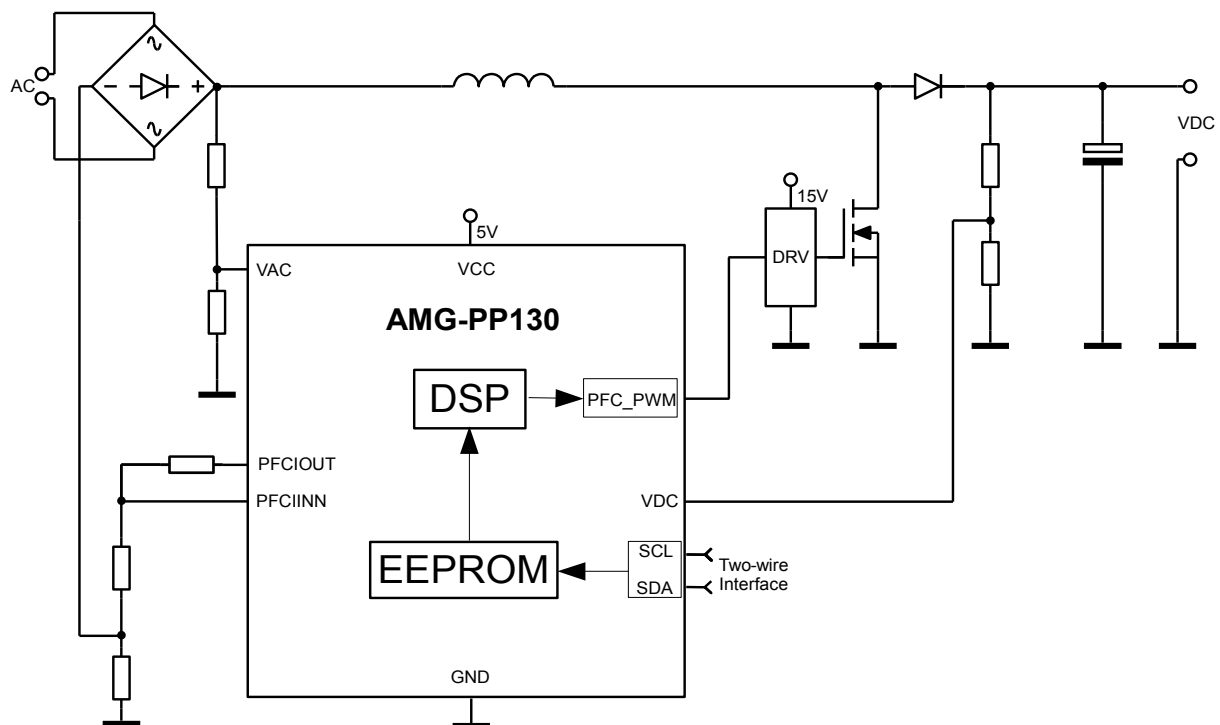


Figure 1: Simplified example application schematic.

Features

- Fully reconfigurable digitally controlled power factor controller in 0.25µmCMOS technology
- On-chip AC phase-locked sinusoidal 45Hz to 65Hz oscillator to improve AC-line noise rejection
- High accuracy through on-chip 10-bit ADC and dedicated RISC processor
- Achievable high efficiency (>95%) and power factor (>0.99)
- Broad range of user selectable PWM frequency (15kHz to 200kHz)
- Low EMC filter requirements due to use of spread-spectrum PWM
- Two-wire interface to load software
- Supports 90V to 275V; 50/60Hz mains standards
- On-chip PLL with 1% RC reference oscillator to generate 64MHz clock signal
- On-chip over-current and short-circuit protection, brown-out control
- Ambient temperature range: -25°C to 85°C
- Package: TQFP64 10x10 (smaller packages in evaluation)

Available options

- On-chip gate driver
- On-chip OTP or EEPROM memory for stand alone operation
- User interface for extended control function

Ordering information

- AMG-PP130-ITQ64T

Development tools

- Application notes: AMG-AN-PP130
- Evaluation Board
- GUI for easy parameter change