

DISTRIBUTED POWER SUPPLY SYSTEM WITH DIGITAL POWER MANAGER PROVIDING DIGITAL CLOSED-LOOP POWER CONTROL

ABSTRACT OF THE DISCLOSURE

A power supply system includes a digital power manager and multiple power blocks each conveying regulated power to a respective load. The power blocks include the power part of non-isolated DC/DC converters, signal sampling and conversion circuits to provide analog voltage signal representing output voltage, output current, temperature, etc., and driving circuits to receive pulse width modulation (PWM) signals and drive switching devices. Closed-loop voltage control and protection functions for the power blocks are integrated into the digital power. The digital power manager includes a non-volatile memory containing registers, including a digital power manager configuration register, a power block set-up register, and a power block monitor register, as well as a user-definable space. The digital power manager programs and monitors operation of each power block, and may also include a user interface, such as an I2C interface, for receiving programming data from a host user system and send monitoring data thereto.

[Fig.5]