

**OBSOLETE PRODUCT
No Recommended Replacement**

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Abstract

The trend towards distributed power grows and so does the demand for compact, efficient, high frequency, low EMI power supplies(1). This application note addresses this need by showing an example of how an 80W, 1MHz supply can be implemented with a single, current controlled PWM power IC that contains both a DMOS power transistor and a sophisticated control loop that protects both the IC and the load from a variety of load and fault conditions. SEPIC (Single-Ended Primary Inductance Converter) supply topology is shown. This topology has the advantage of AC coupling the load, with the accrued load protection not usually found in typical "buck" types of topologies. Techniques that are required to obtain high efficiency, high frequency power supplies are discussed. Methods of achieving low EMI at 1MHz are also addressed.

Introduction

Power control is expanding and moving with newer approaches that provide the designer with even more challenges. Distributed power is becoming the answer for systems where local faults will not necessarily shut down an entire system. This application note describes a family of ICs

for distributed power. They were jointly designed by IBM and Intersil. IBM chose this advanced system approach for their new series of personal computers. This approach is in contrast to the common practice of using just one central power supply in these types of computers. Economies in terms of cooling requirements with the consequential elimination of large cooling fans and associated noise provided added incentive(2). Figure 1 shows the basic approach to a distributed power system, and Figure 2 shows a schematic diagram of the device in a 5.1V supply application.

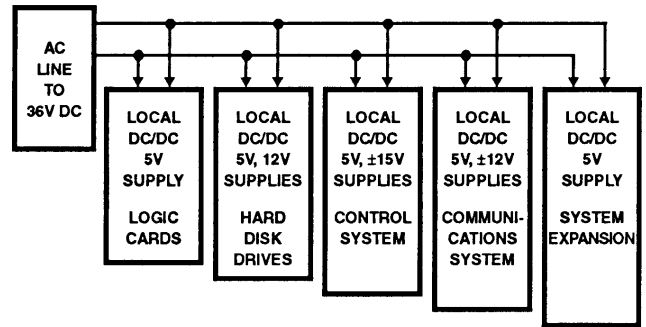


FIGURE 1. AN EXAMPLE OF A DISTRIBUTED POWER SYSTEM

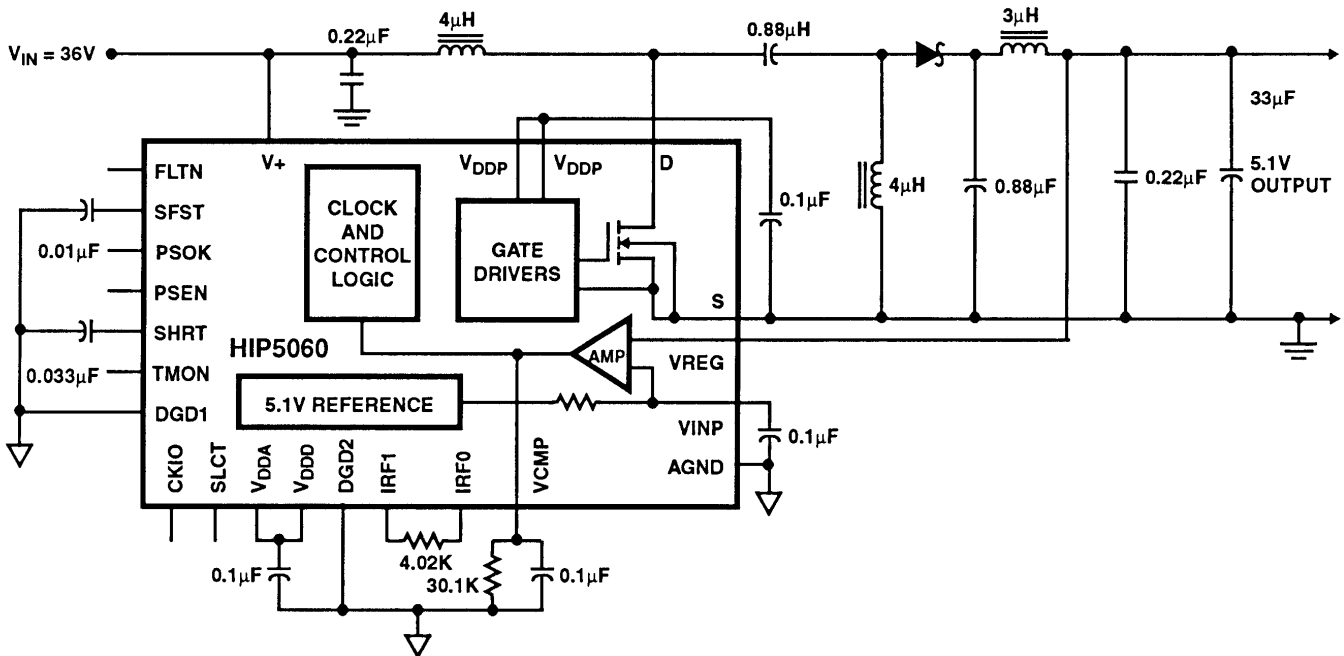


FIGURE 2. SCHEMATIC DIAGRAM OF THE HIP5060 IN A 5.1V SUPPLY