

Integrated Power Supply Modular Design



Overview

Integrated power modules combine DC-DC conversion, advanced thermal management, and comprehensive protection in one package. Ideal for space-constrained and noise-sensitive designs, these modules simplify power system integration and boost reliability. Consider the MPM3864, a 6A power supply in an ECLGA-19 (3mmx3mmx1. The paper includes comparison with existing discrete/co-package solutions and a new methodology that has been developed in how integrated devices are being designed, specified, tested and. Integrated trans-inductor voltage regulator (TLVR) options available for improved transient performance. Advanced integration and increased power density. d MeshConnect™ technology, achieving increased thermal dissipation, higher reliability, and lower parasitics as the bootstrap (BST) capacitor, VCC decoupling capacitor, input decoupling capacitor, and feedback resistive divider. This allows engineers to focus on higher-level aspects of the system. Power modules with integrated inductors and innovative packaging technology, like those that utilize our new MagPack™ package, are designed to enable a small solution size, high power density and efficiency and meet EMI standards through its construction and the option to place them close to the. Microchip offers a comprehensive set of Intelligent Power Supply solutions enabling you to meet these challenges. What is an Intelligent Power Supply?

Traditional power supply designs use analog ICs with fixed functionality to provide regulated power.

Article Content

Mar 17, 2026

Modular vs. Custom Solutions by Alexander Electric | AEPS Group

Our offerings encompass both custom and configurable power supply solutions, addressing power challenges with

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Design Modular DC-DC Systems, Pt 1: Four Stages of Design | Vicor

This series examines the modular DC-DC system design process with an example set of system loads and the process to supply

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Integrated Power Designs AC-DC & DC-DC Power Supplies

Click here to read more AVAILABLE NOW! is the NXT-700 – 700 Watt AC-DC Multi Output Power Supply! Click here to read

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Cost-Effective Modular Design for Grid-Integrated Power Converters

Modular design is commonly used for industrial power electronics converters such as uninterrupted power supply (UPS), static var

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The Rise of Modular Power Systems for Smarter OEM Design

Discover why OEMs are switching to modular power systems for flexibility, speed, and sustainability in modern

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Power modules (integrated inductor) | TI

In this training series, we discuss the high level of integration of our power modules and the significant implications that this has on

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Editorial: Modular power converters for renewable energy integration

Introduction Modular design approach has drawn great attention lately in power electronics as the design of a single

Jan 31, 2026

Understanding Modular UPS: System Architecture, N+X ...

A modular uninterruptible power supply integrates multiple independent power modules—each with its own rectifier,

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Isolated DC-DC Power Supplies: Module or Discrete Design?

When is a fully integrated module the better option, and when does a discrete design offer the greater advantage?

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Modular Power vs Customized Designs: The Ideal Power Supply

Many industries have unique power supply requirements, requiring a specific approach like modular and customized designs.

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Optimal design of the Integrated Modular Power Electronics Cabinet

This paper deals with a new concept of electrical power distribution system called IMPEC for Integrated Modular Power

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Intelligent Power Modules (IPMs): Concepts, Features, and Applications

Intelligent Power Modules (IPMs): Concepts, Features, and Applications This article provides essential information on

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DC/DC Power Supply: Module vs Discrete Design | RECOM

This technical article analyzes the available technological options and serves as a structured decision guide for

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Understanding Power Modules: Design Principles, Specifications ...

In this article, we will explore the design principles, specifications, and applications of the power module, and conclude

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Isolated power modules (integrated transformer) | TI

Our portfolio of isolated power modules combines high-density integrated field-effect transistor and integrated transformer technology

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Revolutionizing Power Supplies: The Advantages of Integrated Power ...

MPS power modules integrate passive components such as the bootstrap (BST) capacitor, VCC decoupling capacitor, input

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Design and Simulation of a Highly Reliable Modular High-Power

Currently, modularization, low complexity, and high performance are the three directions that high-power power

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Modular Power Electronics | Springer Nature Link

In this chapter, the basics of modular power electronics such as power electronics building block (PEBB) and integrated

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An overview to integrated power module design for high power ...

The advantages and disadvantages of such an approach will be discussed in reference to the current industry

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An overview to integrated power module design for high power ...

This paper discusses the concept of Integrated Power Modules (IPMs), in which the electronic control circuitry and the

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Intelligent Power Supply Design Solutions

The board has an LCD display for voltage, current, temperature and fault conditions, and an integrated programmer/debugger, all

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INTEGRATED POWER DEVICES SIMPLIFY AN EMBEDDED DC-DC POWER SUPPLY

Abstract A new class of integrated power devices has been developed to simplify embedded dc-dc power supply designs. The paper

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DC/DC power modules

Exploring the value of power modules In this training series, we discuss the high level of integration of our power modules and the

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DC-DC Integrated Switching Power Modules

Our highly integrated power modules contain a controller, power switches and the necessary passive components—all of which are

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Chapter 3: Enabling Modernization of the Electric Power System ...

Introduction Society's growing dependence on the electric infrastructure, along with rapid changes in generation-side and demand

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INTEGRATED POWER DEVICES SIMPLIFY AN EMBEDDED DC

The paper also details how treating integrated devices as power supply modules instead of co-packaged components significantly

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Ch3. Integrated Power Electronics Modules for FEDCDC

With planar magnetic, passive integration technique could be realized with high power density, low profile and better thermal

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Modular Power Supply | Configurable Multi-Output PSU's

Modular Power Supply A modular power supply lets you configure multiple independent output rails in a single chassis, rather than

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Power Modules | MPS | Monolithic Power Systems

Modules from Monolithic Power Solutions (MPS) can further add to the competitive advantages of power

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Revolutionizing Power Supplies: The Advantages of Integrated Power

With MeshConnect™ technology, MPS power modules can deliver high currents in very compact packages. Consider the

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Integrating Modular Design Concepts for Enhanced Efficiency in

Figure 1 illustrates the introduction of the key concepts identified in the literature review on modular design, which are

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Revolutionizing Power Supplies: The Advantages of Integrated Power ...

The integration of essential power components marks an important development for achieving more efficient and compact power

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Modular and Configurable Power Supplies Streamline Design

Modular and configurable power supplies offer a compelling solution for engineers looking to balance the demands of

Contact Us

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