

SolarGrid Energy Solutions

Portable product power supply design



Overview

What is USB PD?

It is a power conversion solution with low quiescent power. The new USB power protocols require precise two-way communication between the device being powered and the power source. USB PD enables the load and power supply to set multiple power delivery and voltage levels with power.

What is the difference between USB PD and PPS?

Between the device being powered and the power source. USB PD enables the load and power supply to set multiple power delivery and voltage levels with power up to 100 W (even higher power is now being proposed). PPS is targeted primarily at faster charging for batteries and goes one step further, enabling the load to set the power.

What is a DC source?

Note that a DC source is used to represent the voltage at the peak of an AC waveform. The adapter's output capacitor will be charged to this peak value prior to hot plugging into the charger circuit. C1 will stay charged to its full value during this time of interest (80 μ s). a. Schematic. b.

What are the different types of power dissipation in a MOSFET?

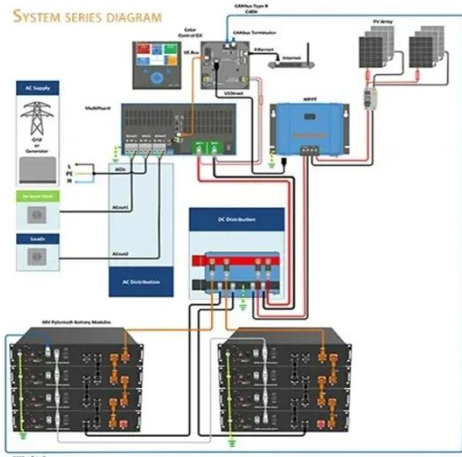
A MOSFET has three main types of power dissipation: The dissipation to drive the capacitances of the FET (switch FET on and off), the dissipation during the transition times from off to on and on to off (linear region of the FET), and the dissipation due to the switch current during its on time. Fig. 3. Buck switcher waveforms.

How should power stage components be placed in a layout?

The power stage components should be placed in sequence in the layout as the current flows from input to output. The routing should be heavy etch or mini-complex planes that connect the components, with the return path

being routed on an adjacent layer underneath the path on the top layer.

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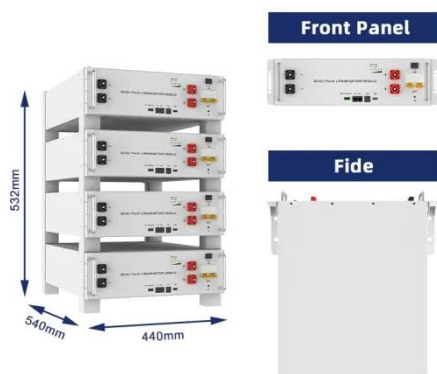
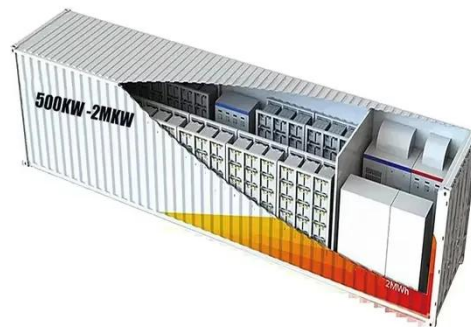
Portable power supply design with 100 Watt ...

Jan 1, 2021 · Portable power supply design with 100 Watt capacity Azriyenni Azhari Zakri 1,*, Almasdi Sya hza 2, Dirman Hanafi 3, Hanggun Syahadat 1

Switchers Deliver Power To Portable Products

Oct 1, 2002 · Spanning an output power range of 12W to 32W, the PW128 universal switch-mode power supplies are effective for use in broadband wireless devices, small PABX residential

...

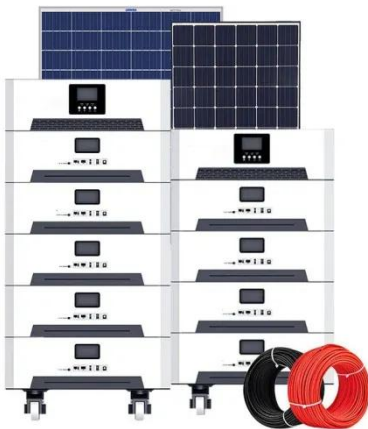


25-W, HV, Programmable Power Supply for Ultrasound ...

Feb 23, 2018 · This reference design provides a solution for digitally programmable non-isolated power supply for powering ultrasound transmit circuit. It uses fly-back power supply topology ...

Power Supply Design Seminar

Nov 20, 2024 · IMPORTANT NOTICE AND DISCLAIMER TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), DESIGN RESOURCES (INCLUDING ...



Power Supply Design Seminar 2020 Agenda and ...

Nov 8, 2019 · Power Supply Design Seminar -- Topic Abstracts Topic 1: Power-Conversion Techniques for Complying with Automotive Emissions Requirements Comité International ...

Power Supplies -- Fractal Design

Aug 6, 2025 · Spanning across various models, Fractal Design power offers clean power with 80 PLUS certification ranging from Bronze to Platinum, while ...



(PDF) POWER SUPPLY

Dec 25, 2020 · Abstract The power supply is a common used electronic device in the world. Most of the power supplies are in the from of laptop chargers, cell ...



Power Supplies , Products , ABB

ABB's Power Electronics Products encompass a range of solutions designed for the efficient management and conversion of electrical power. Products aim to ...



Portable Power Supply PCBA Manufacturing: Process and ...

Mar 22, 2025 · At the heart of Portable electronic devices is the Portable Power Supply PCBA (Printed Circuit Board Assembly), responsible for managing power distribution efficiently and ...

How to Design for Portability: 6 Key

...

6 days ago · Learn how to design products that are easy to carry, store, and transport, while also being durable, reliable, functional, usable, aesthetic,

and ...



Portable power station design resources , TI

Our integrated circuits and reference designs help you create safe and more efficient portable power stations. Whether with bidirectional AC/DC or standalone charger products, we have ...

Design Considerations and Advances in Portable Power ...

Aug 6, 2011 · I. INTRODUCTION Providing power to a system is often regarded as a last-minute task, delegated to a systems person or an engineer with little power-supply design experience. ...



Packing power: Designing portable products

Nov 23, 2009 · Custom designed battery packs might be the solution for your portable product. Power supplies have long been regarded as one of those

design areas which can be ignored ...



Modular and Configurable Power Supplies ...

Aug 21, 2024 · In many applications, design engineers require multiple-output AC-DC solutions for their end equipment. Depending on the number of ...



Design of Portable Multiple Outputs Adjustable DC Power Supply

Nov 10, 2024 · This paper presents the design of a portable, multiple-output, adjustable DC power supply based on synchronous Buck and Buck-Boost converter topologies. Powered by a Li-ion ...



Power management , TI

Aug 19, 2025 · Pushing power furtherAs your partner in power management, we are in constant pursuit of pushing the limits of power: developing new process,

packaging and circuit-design ...



6 Best Portable Power Supply Models (Spring ...

Aug 20, 2023 · We explored the best portable power supply models and pored through plenty of customer and expert reviews to bring you our top 6. Check ...

Design principles for power supplies for portable products

Mar 21, 2020 · For battery-powered portable devices, in addition to breaking through the limitations of processing power, the performance of portable system power supplies also ...



How to Design Efficient Power for Portable Devices

Apr 28, 2020 · Among the many challenges of designing accurate, high-performance, essential analog circuits is designing their power supplies to ...



Low-power portable product design with FPGAs

Flash-based FPGAs featuring sophisticated low-power operating modes allow designers to quickly develop products that maximize battery life.

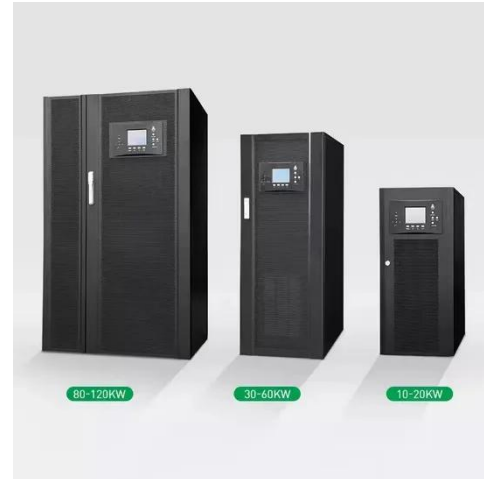


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Jul 20, 2024 · This product consists of high voltage power supply, small signal processing and high voltage monitoring modules. The utility model adopts 3.7 5 V DC power input, tiny size, ...

Programmable Power Supply

Find the perfect programmable power supply for automated testing and precision control. Get accurate, repeatable power for R& D, production, and validation. ...

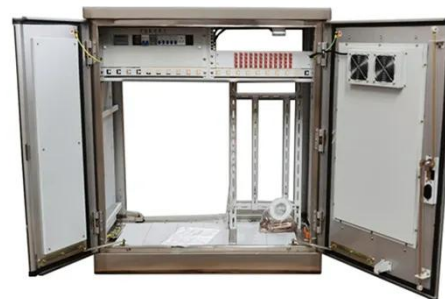


How to Design Small USB-C PD and PPS Adapters

Feb 19, 2022 · The pressure on the designer is relentless - develop ever-smaller chargers and adapters that deliver full USB-C Power Delivery (PD), Programmable Power Supply (PPS) ...

Power Management Guide 2018 (Rev. R)

Jun 26, 2018 · Texas Instruments (TI) offers complete power solutions with a full line of high-performance products. These products, which range from standard linear regulators to highly ...



Follow guidelines to develop an efficient portable power ...

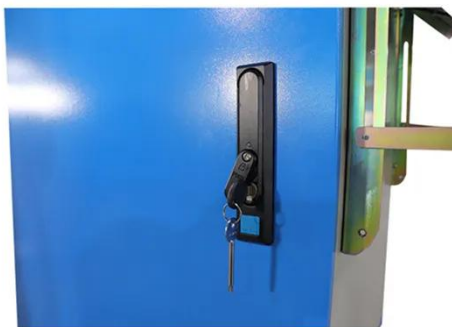
This article presents a generic power supply design for an embedded system and examines the function of each module in the design. It also provides

guidelines for selection of topologies ...



Design of Portable Power Supply System

Jun 13, 2019 · The maximum power point tracking and battery charging curves are controlled to extend the life of the product and improve the performance of the product. Bluetooth can be ...



DEVELOPMENT OF PORTABILITY DESIGN HEURISTICS

Despite the wide use of portable products and their apparent benefits however,, little research has been conducted concerning the design products. To the authorsof portable' best knowledge, ...

How to Design Small USB-C PD and PPS Adapters

Feb 19, 2022 · t power conversion solution with low quiescent power. The new USB power protocols require precise

two-way communication between the device being powered and the ...



Standard 20ft containers



Standard 40ft containers

Designing Portable Products

Aug 16, 2024 · The demand for portable, multifunctional products is higher than ever, so we're taking a closer look at the challenges and innovations.

Red Dot Design Award: PMT Portable Power Series

The PMT Portable Power series offers secure mobile power supply solutions for outdoor use and is equipped with lithium iron phosphate batteries that ...



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