

Upgraded version of high-frequency switching power supply for cloud computing use

Article Overview

Modern high-frequency switching PSUs for cloud computing leverage SiC and GaN technologies to achieve >97% efficiency, high power density, and superior thermal performance for AI and data center workloads.

Key Features of Upgraded PSUs

High Efficiency and Power Density: Advanced PSUs, such as Infineon's 12 kW reference design, achieve over 97% efficiency and power densities exceeding 113 W/in³, enabling compact server power solutions suitable for AI and cloud computing environments . **Two-Stage Conversion Architecture:** These PSUs typically use a front-end AC/DC stage with interleaved or 3-level flying capacitor PFC for power factor correction and bulk voltage regulation, followed by a back-end isolated DC/DC stage (LLC or full-bridge) to provide regulated low-voltage outputs for server components . **Advanced Semiconductor Devices:**

- Silicon Carbide (SiC) MOSFETs and Cascode JFETs offer high blocking voltage, low on-resistance, and fast switching, reducing conduction and switching losses while improving thermal performance .
- Gallium Nitride (GaN) HEMTs, including 1250 V and 1700 V PowiGaN devices, enable higher switching frequencies than SiC, allowing direct 800 V to 12 V conversion in compact topologies with unmatched power density

Article Content

Sep 06, 2025

Infineon Releases 12 kW High-Density Power Supply Unit

Infineon Technologies AG is introducing a 12 kW reference design for high-performance power supply units (PSUs),

Apr 17, 2026

What is High-Frequency Switching Power Supply?

A high-frequency switching-mode power supply (HF-SMPS) converts AC or DC input into tightly regulated DC output

Oct 30, 2025

Integrated Very High Frequency Switch Mode Power Supplies: Design ...

This paper presents a power supply using an increased switching frequency to minimize the size of energy storing

Dec 12, 2025

Comprehensive Guide to Switching Power Supplies

This high-frequency AC is then fed into a transformer that steps the voltage up or down as

Dec 22, 2025

MPS's Fully Integrated Power Modules Boost Cloud Computing

To address the pain points of cloud computing, MPS provides comprehensive power solutions focused on high-current, multi-output

Oct 04, 2025

Power Supply

Our Silicon Carbide diodes use a completely new technology that provides superior switching performance and higher

May 28, 2026

Frequency Selection in Switching Power Supply Designs (Part I)

Part I will discuss calculating for the key variables of switching frequency, as well as the challenges with higher frequencies. Part II

Nov 21, 2025

Our Guide to Data Center Power Supply | What You Must Know

A complete guide to data center power supply. Improve reliability, cut downtime, and future-proof your infrastructure with smart

Feb 08, 2026

Switching Power Supplies

Find the perfect switching power supply for high-efficiency power testing. Get compact, lightweight, and energy-efficient solutions for

Sep 11, 2025

Electronics: High Frequency Switching Power Supplies. Theory and

Electronics: High Frequency Switching Power Supplies. Theory and Design (Chryssis 2nd ed. 1989)

Jan 27, 2026

Introduction to the principle of high-frequency switching

5. Industry: Such as electroplating, welding, and other applications that require high voltage and current. In

Jan 06, 2026

Frequency Selection in Switching Power Supply Designs (Part II)

Frequency Selection in Switching Power Supply Designs (Part II) Introduction This article is the second part of a two-part series

Apr 08, 2026

High-Frequency Design in Switching Power Supplies

High-frequency design refers to the increased switching frequency of power supplies, meaning the switches turn on and off more

Aug 27, 2025

Server Power Supply

Modern server PSUs offer high efficiency, redundancy and digital monitoring, making them ideal for AI, cloud and

Nov 03, 2025

High-Frequency Switching is Heating Up | Peak Blog

The power electronics industry is shifting from inductor-based PFC designs to high

Dec 27, 2025

The Tech Vortex

Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

Feb 16, 2026

Switching Power Supply Design for High Voltage and Current

High Power Systems For high voltage/low current, or for low voltage/high current, there are switching regulator ICs

Sep 08, 2025

12KW high frequency and high power density PSU for AI data centers

Ideal for AI data center and server power racks, it supports machine learning accelerators and compute-intensive applications.

Sep 07, 2025

Why Is It Advantageous for Switching Power Supplies to Operate At High ...

In this article, we explain why switching power supplies operate at such high frequencies and why it's advantageous for them to do so.

Jan 06, 2026

Data-Driven Cloud Networking

Arista Networks was founded to pioneer and deliver software-driven cloud networking solutions for large data center storage and

Feb 28, 2026

Infineon releases 12 kW high-density power supply unit | Infineon ...

Munich, Germany – 10 September 2025 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) is introducing a 12 kW reference

Mar 05, 2026

Understanding Switching Power Supplies: Design, Function, and

Switching power supplies are compact, efficient systems that convert electrical energy using high-frequency switching techniques.

Mar 01, 2026

What is a High Power Switching Power Supply?

Discover the benefits of high power switching power supply with WehoPower. Learn how SMPS works, its advantages,

Apr 03, 2026

Power Solution Options for Data Center Applications

In this white paper, I will compare the different options and their advantages and disadvantages. One major issue to consider when

Jan 26, 2026

High-frequency switching power supplies: Theory and design

This paper reports on the simulation and analysis of a high frequency multi-winding four port power transformer using Finite Element

Feb 17, 2026

Back to Basics: The Importance of Switching Frequency | Vicor

The importance of switching frequency quickly becomes apparent to systems designers bringing regulated power to on-board

Oct 25, 2025

Design of high frequency transformer for switch mode power supply ...

Winding structures of power transformers are also a critical part of transformer design and manufacture, especially for high frequency

Sep 12, 2025

Characteristics of High Frequency Switching Power Supply

High-frequency switching power supplies are widely used in various electronic devices and systems due to their

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Power Cloud Server Solutions

Our Power Shelf Front End Power Supplies are designed for hyperscale data centers. They can be fully customized to deliver the

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High-frequency switching power supply

Therefore, high-frequency switching power supply manufacturers need to continue to innovate to meet changing

Contact Us

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