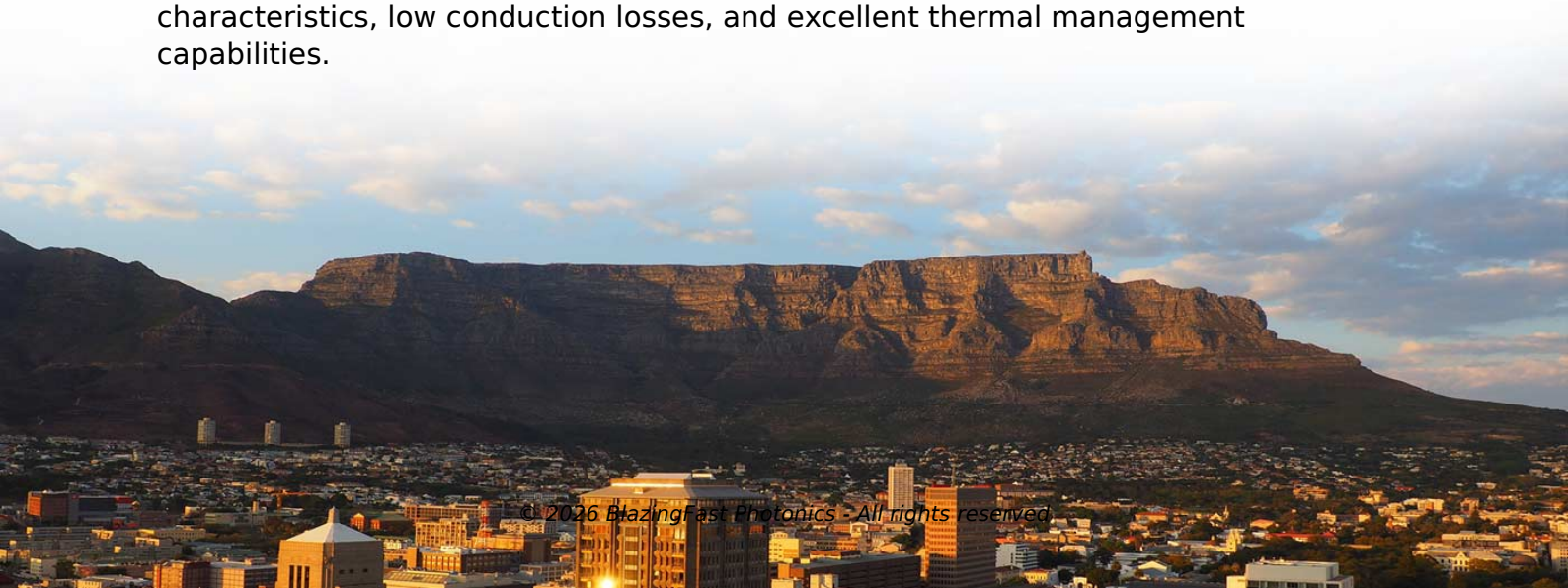
BlazingFast Photonics

AI Server Power Supply Materials

Overview

AI data centers require specialized power solutions to support high-performance servers, networking equipment, and storage systems, with rising energy demands driving the adoption of efficient wide bandgap (WBG) materials like SiC and GaN. 12KW high frequency and high power density PSU for AI data centers and server applications Application note Please read the sections Important notice and Warnings at the end of this document V 1. This AI selector guide simplifies the selection process, helping designers quickly find solutions that achieve high efficiency while meeting crit density, reliability, and performance. Offering 10 % lower on-resistance than competing devices, the SiC3231E. This blog post explores innovations in power devices, gate drivers and advanced controllers with Digital Signal Processing (DSP) capabilities to meet Artifical Intelligence (AI) servers' power and efficiency needs. The guide explores AI data center architecture and power. Infineon Technologies AG is revolutionizing the power architecture required for future AI data centers. In collaboration with NVIDIA, Infineon will develop the next generation of power systems based on a new architecture with centralized power generation through 800V high-voltage direct current. As a third-generation semiconductor material, GaN brings revolutionary improvements to server power supplies through its high-frequency characteristics, low conduction losses, and excellent thermal management capabilities.



Article Content

Infineon: Architecture for power supply in AI servers of

May 20, 2025. Infineon Technologies AG is revolutionizing the power architecture required for future AI data centers. In collaboration with NVIDIA, Infineon will

High-Density Power for the AI Revolution

An AI data center server power supply built using devices such as GaNSafe can achieve significantly better performance and support enhanced system safety and reliability versus a unit that utilizes

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

The growing demand for power in AI applications has created a pressing need for power conversion solutions that are both highly efficient and compact. To support the development of next-generation

Presentation title on multiple lines

Hybrid TCM/CCM control strategy offers a comprehensive approach, combining the strengths of both modes to achieve higher efficiency, performance, and reliability in high-power AI server PSUs.

POWER ICs FOR AI SERVERS Selector Guide

ited for AI server power architectures. Models such as the SiC461, SiC431, and SiC450 offer wide input voltage ranges, high current capabilities, and peak efficiencies up to 98 %, enabling optimized power

Scaling AI Data Center Power Delivery with Si, SiC, and GaN

These PSU reference designs represent a clear upgrade path from 3 kW and 3.3 kW to next-generation 8- and 12-kW designs, supporting both greenfield deployments and the replacement of legacy AI

Comparative Analysis of Power Devices in Power Supply Units for AI ...

Each server rack within the data center necessitates a Power Supply Unit (PSU) to facilitate power delivery. The PSU is designed as a combination of a Power Factor Correction (PFC) converter and a

System Solution Guide: AI Data Center

AI data centers require specialized power solutions to support high-performance servers, networking equipment, and storage systems, with rising

Meeting AI Demands With SiC and GaN Power Supplies

Meeting AI Demands With SiC and GaN Power Supplies New architectures and AC-DC distribution configurations are increasing demand for

Infineon: Architecture for power supply in AI servers of

Infineon''s expertise in power conversion solutions from grid to core, based on all relevant semiconductor materials silicon (Si), silicon carbide (SiC) and gallium

A New Generation of GaN Devices to Meet AI Server

Conclusion Fulfilling the power demands of massive AI workloads, complying with the established CRPS form factor, and meeting 80 PLUS Titanium

The great data center delay: Why your AI chips are stuck in 2026

The great data center delay: Why your AI chips are stuck in 2026 Bruce Bateman, a chief analyst at Omdia, outlines why semiconductor supplies are being affected by a perfect storm of

POWER ICs FOR AI SERVERS Selector Guide

MAXIMIZING POWER EFFICIENCY FOR AI SERVERS As AI servers take center stage in modern technology, they place greater demands on their power supplies than ever before. With increasing

Powering AI data centers: the role of power supply

Discover how AI features like "Hey Siri" rely on powerful data centers. Learn about the technology behind smart factories and the importance of stable

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Gain strategic business insights on cross-functional topics, and learn how to apply them to your function and role to drive stronger performance and innovation.

Meeting the Demanding Energy Needs of AI Servers with Advanced ...

Utilizing high-efficiency MOSFETs, sophisticated gate drivers and dsPIC DSCs equipped with high-performance and advanced peripherals enables the development of power supplies

Meeting the Demanding Energy Needs of AI Servers

This blog post explores innovations in power devices, gate drivers and advanced controllers with Digital Signal Processing (DSP) capabilities to meet

How to Choose an AI Server Power Supply Unit (PSU)?

Explore the differences between general servers and FSP AI server power supply solutions. Learn how these advanced power solutions optimize

AI now gobbling up power and management chips for servers

TrendForce says demand for general-purpose servers remains steady, however, lead times for some of these key components are stretching to nearly a year. Now, says the analyst, lead

Corning''s shift into AI server components could reshape data-center ...

Corning marks its 175th anniversary in 2026, celebrating a long history of materials innovation that began with contributions to Thomas Edison''s light bulb and later the optical fiber

Meeting AI Demands With SiC and GaN Power Supplies

The AI trend mandates a power evolution for the PSU, as shown in Figure 2 (left). Let''s walk through each of these PSU generations with an example

A New Generation of GaN Devices to Meet AI Server Power Demands

As server power demand is set to increase 2x-3x, designers now face an even tougher challenge to satisfy the demands for greater power delivery and significantly higher efficiency within the CRPS

Server Power Supply-Innoscience

Target applications include data center power supplies, telecommunications power systems, and LED lighting equipment power supplies - serving as a key solution for energy-intensive systems requiring

Powering AI Hardware

Powering AI Hardware Powering the GPUs & Accelerators used in the most advanced LLMs & AI Models Solutions for Every AI Socket for Todays Generation

Micron Q4 FY 2025 Earnings Top Estimates on DRAM

Micron Q4 FY 2025 earnings highlight strong AI-driven data center demand, HBM growth, and margin expansion, with higher guidance.

Scaling AI Data Center Power Delivery with Si, SiC, and GaN

Large language models (LLMs) and other neural networks draw substantial power when processing complex artificial-intelligence (AI) and machine-learning (ML) workloads. Designed for traditional

How to Choose an AI Server Power Supply Unit (PSU)?

AI Server Power Supply Solutions With the rapid development and widespread adoption of AI technology, the server market has undergone significant changes in recent years. The launch of

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