

Design with GaN for High-Performance Motor Drives for High-Voltage Battery Applications

The EPC91200 provides a versatile reference design, with optimized PCB layout, for wide input voltage range motor drive applications

EL SEGUNDO, CA, UNITED STATES, January 14, 2025 /EINPresswire.com/ -- Efficient Power Conversion Corporation (EPC), the world leader in enhancement-mode gallium nitride (eGaN®) power devices introduces the [EPC91200](#), a fully configured motor drive inverter reference design that delivers exceptional performance and flexibility for a variety of industrial and battery-powered applications.



Optimized for Wide Voltage Ranges and Versatility

The EPC91200 is designed for 3-phase brushless DC (BLDC) motor drive applications and features the EPC2305, a 150 V 3.0 mΩ RDS(on) GaN FET. The EPC91200 supports wide voltage ranges from 30 V to 130 V, making it suitable for 80 V and 110 V battery systems commonly used in industrial automation, agricultural machinery, and material handling equipment like forklifts.



With the EPC91200, we provide engineers a versatile, off-the-shelf motor drive solution, showcasing the efficiency, reliability, and adaptability of GaN technology in modern power systems,"

Alex Lidow, CEO and Co-Founder of EPC

Key highlights include:

- **High Current Capacity:** Supports up to 60 Apk (40 ARMS) maximum output current with a switching frequency of up to 150 kHz.
- **Enhanced Efficiency:** Optimized PCB layout and advanced [GaN technology](#) reduce resistance and heat generation for improved performance.
- **Integrated Features:** Includes current sensing, voltage monitoring, overcurrent protection, and temperature sensing for robust operation.

- **Compatibility:** Works with multiple controller boards from leading manufacturers like STMicroelectronics, Texas Instruments, and Microchip.

Design Benefits for Engineers

The EPC91200 streamlines the development process with features tailored for quick deployment and evaluation. Its compact design (130 x 100 mm) includes a pre-configured shaft encoder/Hall sensor interface and supports Field-Oriented Control (FOC) techniques. Engineers can easily measure critical signals and optimize system performance using built-in test points.

“With the EPC91200, we provide engineers a versatile, off-the-shelf motor drive solution, showcasing the efficiency, reliability, and adaptability of GaN technology in modern power systems,” said Alex Lidow, CEO of EPC.

Price and Availability

The EPC91200 reference design boards are priced at \$780.00.

The EPC2305 is priced at \$3.56/ea in 3Ku reels.

Reference design boards and devices are available for immediate delivery from Digi-Key at <https://www.digikey.com/en/supplier-centers/epc>

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