

GaN for Low-cost e-bikes, Drones, and Robotics

The EPC9193 GaN-based inverter reference design enhances motor system performance, range, precision, torque, all while lowering overall system cost.

EL SEGUNDO, CA, UNITED STATES, March 19, 2024 /EINPresswire.com/ -- EPC announces the availability of the [EPC9193](#), a 3-phase BLDC [motor drive](#) inverter using the [EPC2619](#) eGaN® FET. The EPC9193 operates with a wide input DC voltage ranging from 14 V and 65 V and has two configurations – a standard unit and a high current version:

- The EPC9193 standard reference design uses a single FET for each switch position and can deliver up to 30 ARMS maximum output current.
- A high current configuration version of the reference design, the EPC9193HC, uses two paralleled FETs per switch position with the ability to deliver up to 60 Apk (42 ARMS) maximum output current.

Both versions of the EPC9193 contain all the necessary critical function circuits to support a complete motor drive inverter including gate drivers, regulated auxiliary power rails for housekeeping supplies, voltage, and temperature sense, accurate current sense, and protection functions. The EPC9193 boards measure just 130 mm x 100 mm (including connector).

Major benefits of a GaN-based motor drive are exhibited with these reference design boards, including lower distortion for lower acoustic noise, lower current ripple for reduced magnetic loss, and lower torque ripple for improved precision. The extremely small size of this inverter allows integration into the motor housing resulting in the lowest EMI, highest density, and lowest weight.



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EPC provides full demonstration kits, which include interface boards that connect the inverter board to the controller board development tool for fast prototyping that reduce design cycle times.

“GaN-based inverters enhance motor efficiency and lower costs, expensive silicon MOSFET inverters”, said Alex Lidow, CEO of EPC. “This results in smaller, lighter, quieter motors with increased torque, range, and precision.”

Price and Availability

The EPC9193 reference design boards are priced at \$900.00.

The EPC2619 is priced at \$1.69/ea in 2.5Ku reels.

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

About EPC

EPC is the leader in enhancement mode gallium nitride (eGaN®) based power management. eGaN FETs and integrated circuits provide performance many times greater than the best silicon power MOSFETs in applications such as DC-DC converters, remote sensing technology (lidar), motor drives for eMobility, robotics, and drones, and low-cost satellites.

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