

Development Board for Fast Development of Power Conversion Circuits and Systems Using Enhancement Mode Gallium Nitride (eGaN[®]) FETs

EPC9004 facilitates rapid design of high frequency switching power conversion systems based on the 200 V EPC2012 with a ready-made, easy to connect development board and well-documented engineering support materials.

Efficient Power Conversion Corporation (EPC) announced the introduction of the EPC9004 development board to make it easier for users to start designing with EPC's 200 V enhancement-mode gallium nitride (eGaN) field effect transistor (FET) in applications such as solar microinverters, class D audio amplifiers, Power over Ethernet (PoE), and synchronous rectification.

The EPC2012 FET is a 1.6 mm² 200 V_{DS} device with a maximum R_{DS(ON)} of 100 milliohms with 5 V applied to the gate. This eGaN FET provides significant performance advantages over the first-generation EPC1012 eGaN device. The EPC2012 has an increased pulsed current rating of 15 A (compared with 12 A for the EPC1012), is fully enhanced at a lower gate voltage, and has superior dv/dt immunity due to an improved ratio of Q_{GD}/Q_{GS}.

Compared to a state-of-the-art silicon power MOSFET with similar on-resistance, the EPC2012 is much smaller and has many times superior switching performance. Applications that benefit from eGaN FET performance include high-speed DC-DC power supplies, point-of-load converters, class D audio amplifiers, hard-switched and high frequency circuits.

"With the expansion of our family of eGaN FETs, we continue to raise the bar for the performance of gallium nitride FETs. In addition, this new generation of eGaN products are the industry's first gallium nitride FETs to be offered as lead-free and RoHS-compliant," said Alex Lidow, co-founder and CEO.

The EPC9004 development board is a 200 V maximum input voltage, 2 A maximum output current, half bridge with on board gate drives, featuring the EPC2012 200 V eGaN FET. The purpose of this development board is to simplify the evaluation process of the EPC2012 eGaN FET by including all the critical components on a single board that can be easily connected into an existing converter.



The EPC9004 development board is 2" x 1.5" and contains not only two EPC2012 GaN FETs in a half bridge configuration with gate drivers, but also an on board gate drive supply and bypass capacitors. There are also various probe points to facilitate simple waveform measurement and efficiency calculation. A Quick Start Guide, http://epc-co.com/epc/documents/guides/EPC9004_qsg.pdf, is included with the EPC9004 development board for reference and ease of use.

EPC9004 development boards are priced at \$95.00 each. EPC9004, like all EPC products, are available for immediate delivery from Digi-Key at <http://digikey.com/Suppliers/us/Efficient-Power-Conversion.page?lang=en>

Design Information and Support for eGaN FETs:

Download EPC2012 and all EPC eGaN datasheets at <http://epc-co.com/epc/Products/eGaNfets.aspx>
Development boards and other design support available at <http://epc-co.com/epc/Products/DemoBoards.aspx>
View eGaN product training support materials at <http://epc-co.com/epc/DesignSupport/eGaNfetsBasics.aspx>
Application notes for eGaN FETs can be found at <http://epc-co.com/epc/Applications/ApplicationBasics.aspx>

About EPC

EPC is the leader in enhancement mode Gallium Nitride based power management devices. EPC was the first to introduce enhancement-mode Gallium-Nitride-on-Silicon (eGaN) FETs as power MOSFET replacements in applications such as servers, netbooks, notebooks, LED lighting, cell phones, base stations, flat-panel displays, and class-D audio amplifiers with device performance many times greater than the best silicon power MOSFETs.

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