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40-V Rad-Hard GaN FETs Deliver High Performance For LEO And GEO Applications

EPC has expanded its family of radiation-hardened (rad-hard) gallium nitride (GaN) products for power conversion solutions with two 40-V devices rated at 62 A and 250 A. The EPC7001 is a 4-mΩ, 250-Apulsed, GaN FET in a 7-mm^2 footprint while the EPC7002 is a 14.5-mΩ, 62-Apulsed, GaN FET in a 1.87-mm^2 footprint. Both devices have a total dose radiation rating greater than 1,000 KRad(Si) and SEE immunity for LET of 83.7 MeV/mg/cm^2 with V_{DS} up to 100% of rated breakdown. These new devices, along with the rest of the rad-hard family, are offered in a chip-scale package (see the figure). Packaged versions are available from EPC Space.

EPC's eGaN FETs and ICs offer a higher performing alternative to conventional rad-hard silicon devices for high reliability and space applications. According to the vendor, EPC's rad-hard devices are significantly smaller, have 40 times better electrical performance, and lower overall cost than rad-hard silicon devices. Moreover, EPC's rad-hard devices exhibit superior resistance to radiation, supporting higher total radiation levels and SEE LET levels compared to traditional silicon solutions, says the company.

Applications benefiting from the performance and fast deployment of these devices include dc-dc converters, motor drives, lidar systems, deep probes and ion thrusters for space applications. They are particularly well-suited for satellites operating in both LEO and GEO orbits, as well as avionics systems.

The EPC7001 and EPC7002 are available for engineering sampling now. For more information, see the EPC7001 and EPC7002 pages.

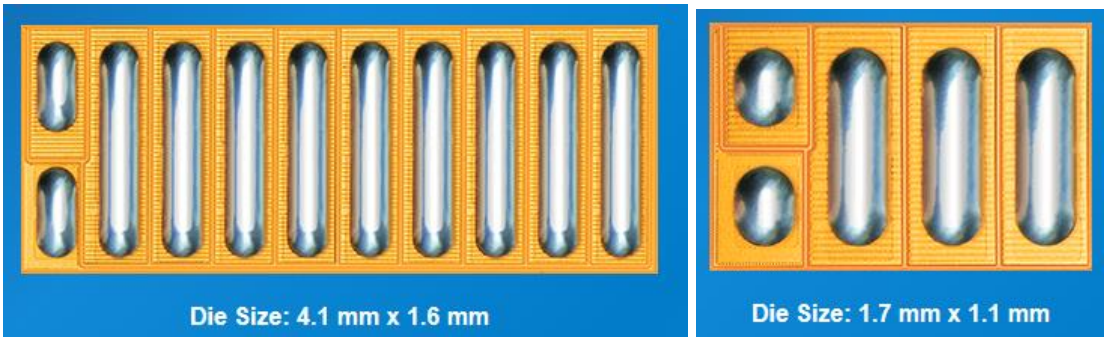

Figure. Providing high efficiency, small size, high radiation immunity and lower cost than silicon MOSFETs, the EPC7001, a 40-V, 4-mΩ rad-hard GaN FET (left), and the EPC7002, a 40-V, 14.5-mΩ, GaN FET (right), target space applications such as dc-dc converters, motor drives, lidar systems and ion thrusters.