

### Rad Hard 100-V GaN Transistor Boasts Low On-Resistance

From [Efficient Power Conversion](#) (EPC), the EPC7018 is a 100-V, 3.9-m $\Omega$ , 345-A pulsed, rad-hard GaN FET in a small 13.9mm<sup>2</sup> footprint. The EPC7018 has a total dose radiation rating greater than 1 Mrad and SEE immunity for LET of 85 MeV/(mg/cm<sup>2</sup>). The EPC7018, along with the rest of the Rad Hard family, the EPC7014, EPC7007, and EPC7019, are offered in a chip-scale package (see Fig. 1), the same as the commercial eGaN FET and IC family. Packaged versions will be available from EPC Space.

With higher breakdown strength, lower gate charge, lower switching losses, better thermal conductivity, and very low on-resistance (see Fig. 2), power devices based on GaN significantly outperform silicon-based devices and enable higher switching frequencies resulting in higher power densities, higher efficiencies, and more compact and lighter weight circuitry for critical spaceborne missions. GaN devices also support higher total radiation levels and SEE LET levels than silicon solutions.

Applications benefiting from the performance and fast deployment of the EPC7018 include dc-dc power, motor drives, lidar, deep probes, and ion thrusters for space applications, satellites, and avionics.

“The EPC7018 offers designers a high-power, ultra-low on-resistance device enabling a new generation of power conversion and motor drives in space operating at higher frequencies, higher efficiencies, and greater power densities than ever achievable before,” said Alex Lidow, CEO, and co-founder of EPC.

The EPC7018 is available for engineering sampling and will be fully qualified for volume shipments in December 2022. For more information, see the EPC7018 [page](#).

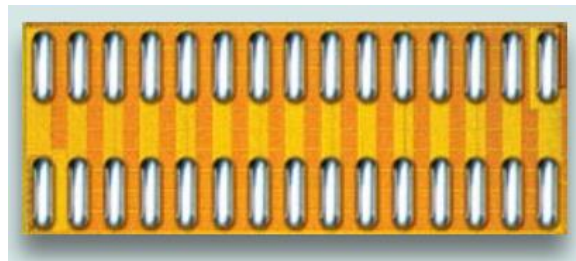


Fig. 1. As with EPC’s other GaN FETs, the EPC7018 eGaN is supplied in passivated die form. This particular device measures 6.05 mm x 2.3 mm.

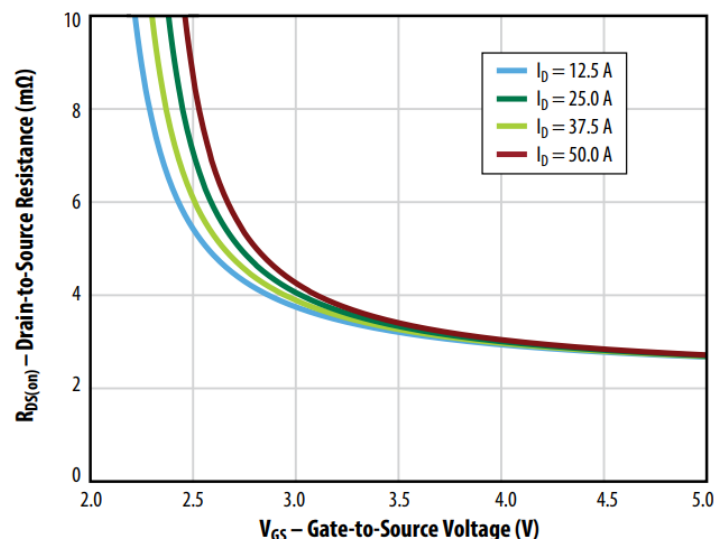


Fig. 2. On-resistance versus gate voltage and drain current. EPC’s new member of its family of rad-hard GaN products for power conversion solutions in critical spaceborne and other high-reliability environments is a 100-V GaN FET that is said to have the lowest on-resistance of any 100-V rad hard transistor currently available on the market. This device also has a total dose radiation rating greater than 1 Mrad and SEE immunity for LET of 85 MeV/(mg/cm<sup>2</sup>).