

650 V GaN in Conduction Cooled Power Supplies



Aerospace and Defense supplier Marotta Controls sought to upgrade one of its Defense sector power supplies. The company's objectives: to reliably run a system at higher than 100 KHz in a small, mechanically-constrained form factor, using conduction cooling.

Prototypes built using Silicon MOSFETs did not meet challenges with heat dissipation and component temperatures under peak load conditions. This led Marotta to replace the MOSFETs with Transphorm's TPH3208LD PQFN GaN devices.

The power system's topology features hard switching with automatic transformer RESET where transistor voltage stresses are clamped to the input voltage. The GaN devices significantly reduced losses in a simpler thermal design and packaging concept.

Conduction Cooled Rugged PSU



MAROTTA

Transphorm GaN benefits:

- Conduction-cooled [fanless]
- 2x frequency increase
- "Dramatic" power efficiency increase
- Smaller system size