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GaN Power Devices Enable Configurable, 1600-W DC-DC Solution For Space

VPT's SGRBX is being introduced as the first-ever configurable box solution featuring state-of-the-art GaN technology. Housing up to four SGRB dc-dc converter slices within its framework, the SGRBX delivers up to 1600 W of output power (Figs. 1 and 2).

Utilizing the SGRB's advanced fixed-frequency, reduced-voltage switching topology, the SGRBX has extremely low input and output noise. In addition, the SGRBX features an integrated EMI filter, guaranteed TID performance to 100 krad(Si) including ELDRS, SEE performance to 85 MeV/mg/cm², and high efficiency up to 96% (Fig. 3). Multiple SGRBX boxes can be paralleled to reach higher power levels depending on program requirements.

Described as a technology-leading solution for space-rated dc-dc power conversion, the SGRB series products, including the SGRBX, have been designed to thrive in the most demanding commercial, scientific, and military space environments. With GaN-based technology, its radiation hardened design ensures long-term reliability, making it well suited for a wide range of space applications that require high efficiency and low noise.

"The SGRBX was developed to give our customers access to the same GaN-based technology found in our award winning SGRB series, but for applications that require significantly higher power levels." VPT's engineering manager, John Evans, said. "Leveraging VPT's extensive space flight heritage and proven performance, the SGRBX ensures high-reliability performance for the most demanding space missions."

"We are pleased to announce the latest addition to our GaN-based SGRB series with the SGRBX. Designed with our customer's needs in mind, this configurable solution allows users to parallel various SGRB units, tailoring output voltages and power levels to meet specific application requirements." VPT's vice president of North American Sales, Paul Andersen stated. "It is the perfect choice for programs where high efficiency and low noise are imperative, such as space payloads, primary spacecraft bus, and space station applications. This marks another step in VPT's ongoing commitment to innovation within the GaN space. There will be more to come."

The SGRBX is available for immediate sale. Sales are subject to all applicable U.S. export license restrictions and regulations. Additional information can be obtained by contacting a local VPT distributor. For more information, see the SGRBX DC-DC Converter Box [page](#).



Fig 1. The SGRBX series is a configurable, rad-hard "box solution" that contains four SGRB series dc-dc converters employing GaN technology. The individual SGRB slices are configured within the box framework to deliver up to 1600 W of output power. Customers may select different SGRB series units to be paralleled inside of the box solution to reach the desired output voltages and power levels required for their specific application. If even higher power levels are needed, multiple SGRBX boxes can be paralleled.

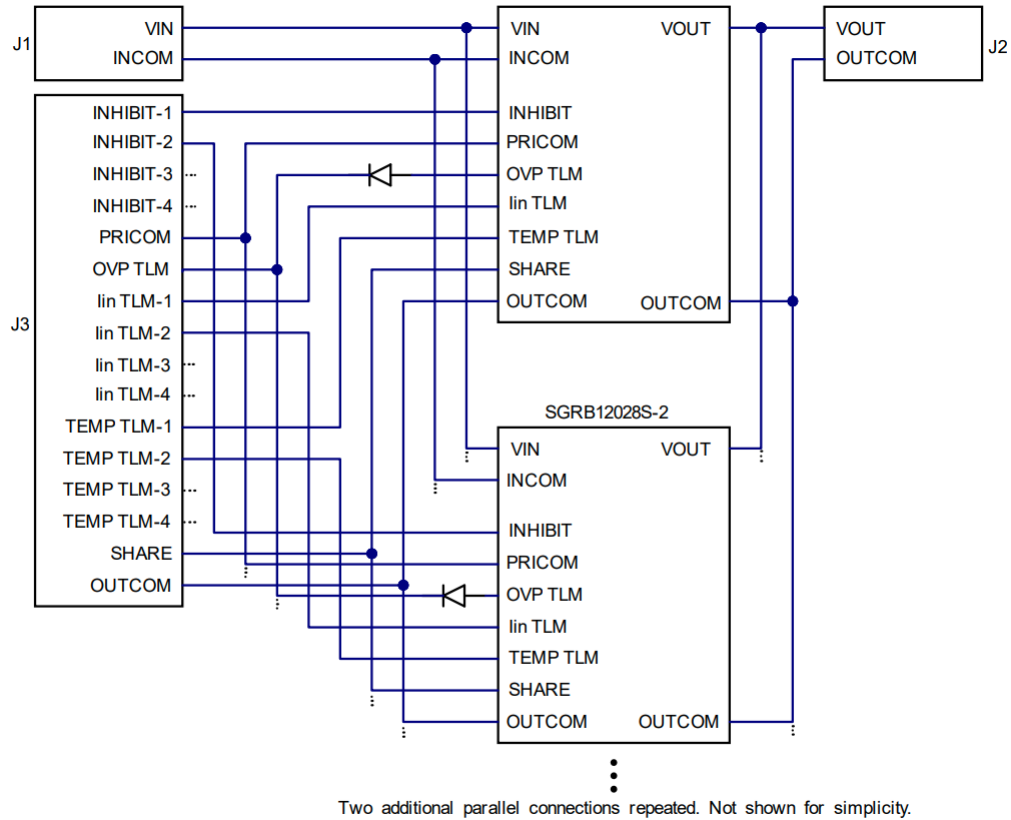


Fig. 2. Diagram showing connection of SGRB series dc-dc converters in an SGRBX box.

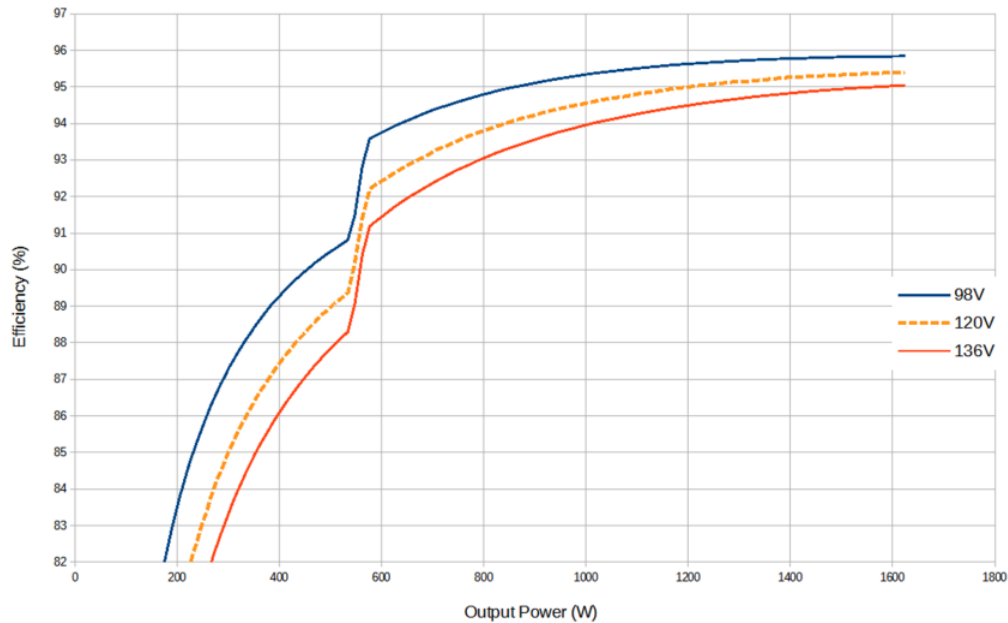


Fig. 3. Efficiency of the SGRBX series dc-dc converter box solution across the load range for different input bus voltages and 28-V output.