

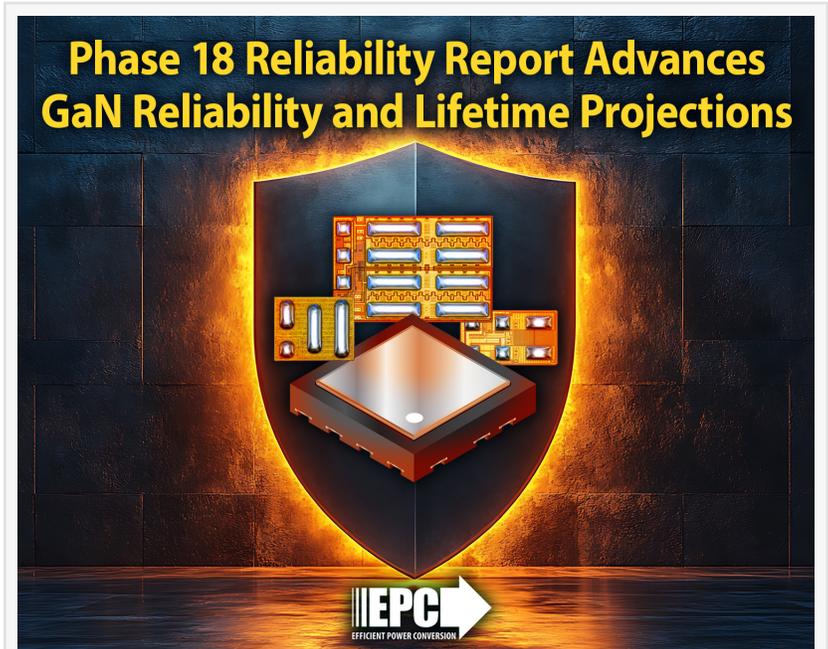
EPC Unveils Phase 18 Reliability Report Advancing eGaN® Reliability and Robustness Understanding

Closing the gap between lab-generated reliability testing and real-world mission profiles

EL SEGUNDO, CA, UNITED STATES, March 19, 2026 /EINPresswire.com/ -- Efficient Power Conversion (EPC), the world leader in enhancement-mode gallium nitride (eGaN®) power devices, today announced the release of its [Phase 18 Reliability Report](#), providing new insights into eGaN device reliability. The report builds on previous work by closing the gap between lab-generated reliability testing and real-world device performance across mission profiles. It introduces new methodologies to better predict device lifetime under application-specific stress conditions, shaped through close collaboration with customers and supported by peer-reviewed research and international conference publications.

The report emphasizes the significance of comprehending the fundamental wear-out mechanisms in GaN HEMTs and presents a quantitative methodology for estimating the overall device lifetime based on the predominant stress conditions experienced during operation. The methodology allows for more accurate lifetime predictions across a wide range of applications by combining different stress factors, like voltage, current, temperature, and duty cycles.

Phase 18 is similar to [earlier reports](#), but it goes much deeper into the main wear-out mechanisms. These include the reliability of gates in pGaN structures, the ability to handle stress and overvoltage (robustness), the maximum current density, and the wear-out of thermomechanical devices in both chip-scale and QFN-packaged formats. The report also looks at reliability in dynamic switching conditions and high-frequency operation, which gives us a better idea of how things work in real life.



The Phase 18 Reliability Report



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Shengke Zhang, VP of Product Reliability

In addition, the report introduces mission-specific reliability evaluations, including motor drive applications characterized by rapid current transients and varying load conditions. A customized testing methodology is presented to emulate these application-specific stress profiles, demonstrating the robustness of EPC’s GaN technology under such conditions.

“Phase 18 represents a significant advancement in understanding how eGaN devices behave under real operating conditions,” said Shengke Zhang, VP of Product Reliability at Efficient Power Conversion. “By identifying intrinsic wear-out mechanisms and linking them to

mission-specific stress conditions, we can more accurately predict device lifetime and support more reliable system design.”

“The Phase 18 Reliability Report reflects not only EPC’s continued innovation in GaN technology, but also the strength of collaboration with our customers,” said Alex Lidow, CEO of EPC. “We sincerely thank all the customers who contributed through constructive discussions and even challenging requirements - this level of engagement is essential to closing the gap between lab testing and real-world performance.”

The Phase 18 Reliability Report will be showcased at APEC, further reinforcing its technical rigor and practical relevance for power electronics designers.

The report is now available for download on [EPC’s website](#).

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