

Next-Gen 650-V GaN Transistor Is Automotive Qualified

[GaN Systems'](#) GS-065-060-5-T-A is the first product in a family of 650-V, 60-A transistors for the automotive market. It is designed to meet automotive reliability standards including the AEC-Q101 qualification and GaN Systems' AutoQual+ testing and qualification. AutoQual+ is an enhanced AEC-Q test sequence based on the company's collaboration with automotive partners to prove its transistors' lifetimes exceed market requirements.

The GaN transistor provides a low $R_{DS(ON)}$ of 25 m Ω and features a 60-A I_{DS} rating and GaN Systems' high-performance GaNPX packaging, which enables ultra-low inductance and low thermal resistance in a compact form factor (see the figure). Leveraging these transistors, wide ranging automotive applications from onboard battery chargers, dc-dc converters, EV traction inverters, electronic power steering, and motor drives can benefit from high reliability and reductions in volume, weight, and cost.

GaN Systems' methodology for the qualification of its transistors is based on a collaboration with select customers in the global automotive industry. This joint effort resulted in an enhanced test methodology, AutoQual+, using AEC-Q101 tests as a baseline and then adding additional tests that address GaN-specific wear-out mechanisms.

The additional testing of AutoQual+ ensures GaN Systems' power semiconductors are reliable and robust in the rigors of the automobile environment. As a result, GaN Systems products meet the lifetime requirements the automotive industry requires with demonstrated FIT rates much less than 1, setting new benchmarks in the GaN industry, according to the company.

"GaN Systems transistors have been tried and tested through the AutoQual+ test methods, a testing regimen that stemmed from our many workshops with automotive partners," said Maryam Abouie, director of Reliability Engineering at GaN Systems. "The knowledge these experts provided, including sharing decades of experience of silicon failure mechanisms identified in field-based applications, was critical in the development of our qualification strategy and process."

For more information, download the [datasheet](#) or contact GaN Systems and sales channel partners to purchase the transistors.



Figure. The first product in a family of 650-V, 60-A transistors for the automotive market, the GS-065-060-5-T-A 25-m Ω GaN transistor is designed to meet automotive reliability standards including AEC-Q101 qualification and GaN Systems' AutoQual+ testing and qualification.

AutoQual+ is an enhanced AEC-Q test sequence based on the company's collaboration with automotive partners to prove its transistors' lifetimes exceed market requirements. The new GaN transistor also features the company's high-performance GaNPX packaging, which enables ultra-low inductance and best thermal resistance in a compact form factor.