

ISSUE: [July 2026](#)

Vendor Simulation Tool Matches SiC MOSFETs And Gate Drivers

[onsemi's](#) Elite Pairing Studio is an online design environment that simplifies pairing SiC MOSFETs and gate drivers for demanding power electronics applications, including AI data centers, electric vehicles, and industrial systems. By providing visibility into device-level behavior and pairing tradeoffs, the Studio enables earlier, better-informed engineering decisions and helps reduce design iterations. It also serves as the front door to onsemi's broader suite of design tools, enabling system-level evaluation of performance, efficiency, and thermal behavior.

The Elite Pairing Studio helps engineers by analyzing device combinations and recommending well-matched SiC MOSFET and gate driver pairings based on their system requirements. The tool accelerates development by enabling evaluation of device-level switching behavior, losses, and tradeoffs early in the design process, reducing iteration before advancing to full system-level analysis. Traditionally, this process requires time-consuming manual evaluation and simulation via extensive datasheet comparisons, spreadsheet analysis, and empirical testing.

Its interactive, personalized simulation environment gives engineers visibility into timing, waveform behavior, and tradeoffs behind each recommended pairing. Through the Elite Pairing Studio, engineers can examine key figures of merit for each pairing, including:

- Switching timings
- Gate voltage and current (V/I) waveforms
- Voltage overshoot margins relative to device ratings
- Switching energy losses, such as turn-on and turn-off energy

These insights allow engineers to compare pairing tradeoffs relevant to their application and gain early visibility into factors that influence electromagnetic interference behavior and reliability margins. Results are visualized through an interactive waveform viewer, enabling more informed pairing decisions before designs are advanced into full system-level simulation. Additional onsemi technologies will be added to the Elite Pairing Studio in the future.

The cloud-based environment gives engineers access to a private and secure workspace on [onsemi.com](#) where they can use an intuitive workflow to explore device combinations based on their inputs. The tool evaluates a wide range of gate driver combinations with the selected SiC MOSFET, using transparent methods based on established industry equations and real-world performance calculations. The evaluation logic is clear and inspectable for users.

By providing well-matched pairings of SiC MOSFETs and gate drivers tailored to application needs, the onsemi Elite Pairing Studio enables earlier design decisions with a clearer understanding of switching behavior and tradeoffs. Those pairing insights can then be carried forward using Studio-generated PLECS system-level simulation models and evaluated in the onsemi Elite Power Simulator to fine-tune efficiency, thermal, and loss performance.

Together, this seamless development path helps designers translate early pairing insights into improved system-level efficiency and performance for demanding applications including AI data centers, electric vehicles, industrial systems, and electrification infrastructure.

The onsemi Elite Pairing Studio is available now through the onsemi website. For more information, see the onsemi Elite Pairing Studio [landing page](#).