A Tour Of CES 2026 (Part 2): Power Semiconductors Earn Spots In The Expo Halls

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In the first part of this article,[1] I presented my impressions of this year's CES as it reflects a show that continues to expand in scope from year to year. Then, I offered an overview of the industrial-oriented exhibits I saw in touring the exhibit halls at the Venetian Expo and Las Vegas Convention Center, particularly those for manufacturing, but also a number of exhibits for powering AI data centers. Those included some displays of battery energy storage systems (BESSs).

In this second part, I'll delve further into the power-related exhibits I saw at CES 2026, particularly, the power semiconductors and ICs. While such products are not uncommon at CES, typically they are seen in the meeting rooms and demo suites outside the exhibit halls. Here I'll discuss some of these power devices which were displayed in this year's exhibition.

But first an observation on some other power-related exhibits. In recent years, CES has featured many exhibitors showing batteries and consumer-targeted battery-based power stations across a range of power levels (see reference 2). Some of the power stations are marketed as part of home energy solutions, which may include solar panels and other equipment. Such products were also in evidence this year. As an example, I'll mention one power station product that was featured in the Innovation Awards Showcase.

From **Pila Energy**, the Pila battery is described as a "first-of-a-kind modular, plug-in home and building battery system that combines energy storage, power control, and local intelligence into a unified platform." Its key differentiator is its ease of installation: "Each 1.6-kWh [battery] unit installs in minutes through a standard outlet, eliminating the need for rewiring or professional installation" says the vendor. According to a company representative I met in the showcase, one 1.6-kWh battery can typically power one big appliance such as a refrigerator and a few smaller ones for 24 hours (Fig. 1).

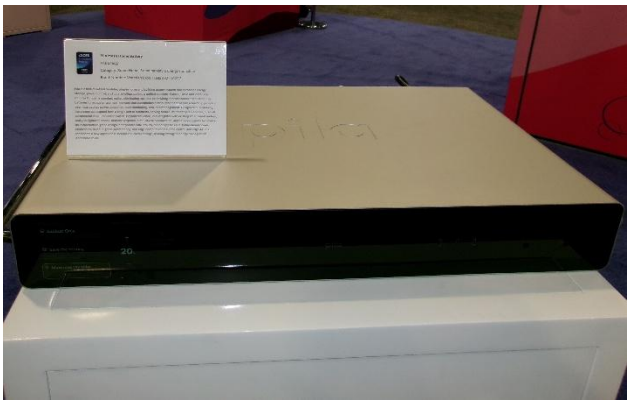

Fig. 1. The Pila battery operates on Pila's proprietary Battery Mesh Network, which connects and coordinates multiple batteries across the home to intelligently store solar or grid power, and optimize it for backup protection, cost savings, and daily energy control."

In addition to the many batteries and battery-based power stations seen again at this year's CES, there continued to be many exhibits showing ac adapters/chargers and some showing power supplies of other types. In past years, GaN IC specialist Navitas had a booth in the expo to showcase their products' applications and many adapter vendors had exhibits highlighting their GaN-based adapters. This year, silicon carbide (SiC) power devices received some special attention on the show floor.

For example, **Bosch** had its usual big booth with appliances (including cooking demos), automotive and manufacturing related displays in the Central hall of the LVCC. For instance, there was a robotic arm from Bosch Manufacturing Solutions; a display on Smart, Virtual and Predictive NVH (noise, vibration and harshness) showing a digital acoustic twin for automotive; and a display on smart, next-level braking technology & motion control, which relates to the company's steer-by-wire technology. Other Bosch displays showcased their offerings for smart battery production, smart fleet solutions and smart product authentication & traceability.

But an unexpected surprise was the exhibit on Bosch's Smart SiC power semiconductor portfolio, which offered an overview of their SiC bare die, packaged discretes and power modules which will be produced in the

company's U.S.-based SiC fab in Roseville, CA (see Fig. 2). (More details on their SiC power product portfolio are available on the company website.) According to Tim Wieland, director of corporate communications in the U.S., the company plans to start production of SiC products in Roseville this year.

As noted in the display, the Roseville fab will "strengthen the international Bosch manufacturing network and [help] minimize supply risks." The company adds that "the upgrading phase of the existing manufacturing site is in full swing, and Bosch plans to manufacture the first generation 2 silicon carbide chips on 200-mm wafers for customer trials in Roseville, CA starting in 2026." This fab will build on the experience gained in the company's Reutlingen SiC wafer fab.

In addition to the SiC products on display for public viewing in their booth, I was permitted to view some demos of application examples using the company's SiC power products. Tim Lawler, senior program manager for Electrified Motion at Bosch Mobility, briefed me on these demos.

As Lawler, explained "We are supporting mainstream OEMs with our SiC power modules-on-cooler." These are being deployed in traction inverters and next-gen products like a 22-kW bidirectional OBC plus dc-dc converter, which represents Gen 5 of the company's design for this application.

The company has roadmaps for development of both the traction inverters and OBC-dc-dc combinations. The inverters are being applied in both pure electric vehicles (battery electric vehicles) as well as hybrids, including plug-in hybrids which are currently more popular in Europe than the U.S.

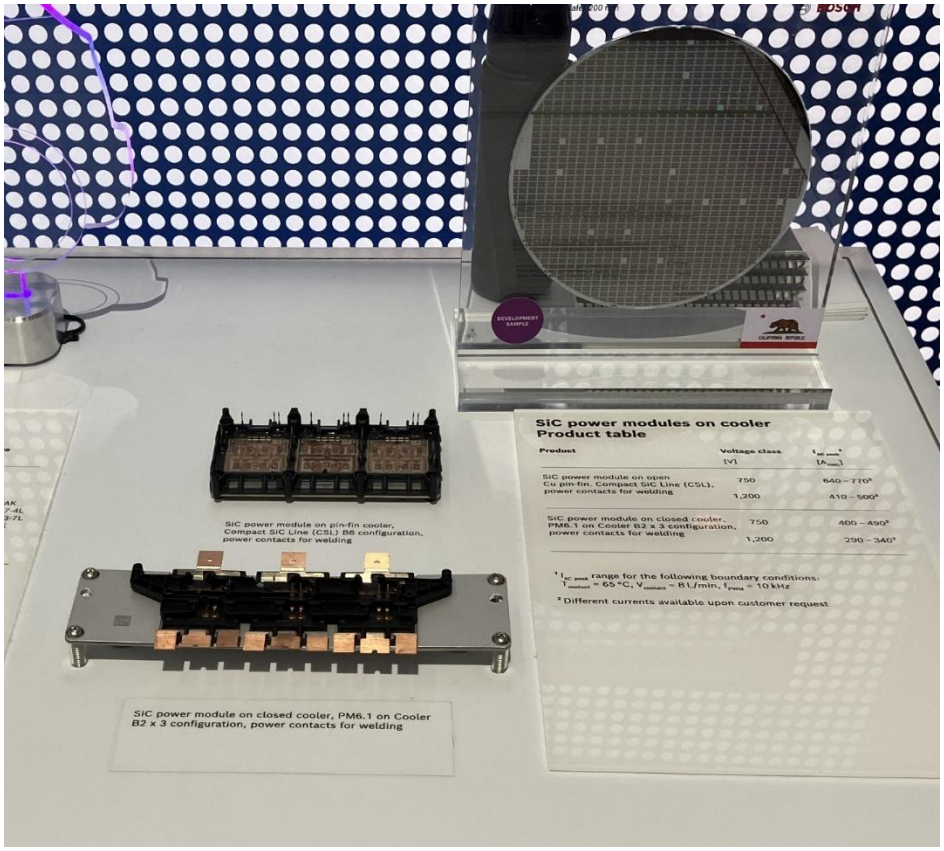

*Fig. 2. Bosch's exhibit on its Smart SiC power semiconductor portfolio displayed Gen 2 of the company's bare die SiC MOSFETs, which feature improved R_{DSON} * Area FOM, short circuit robustness and capacitance; the company's packaged discrete SiC MOSFETs and its SiC power modules-on-cooler products.*

I encountered another SiC-related exhibit in the Venetian Expo, in the "Busan Is Good" Korean pavilion. Here, **UNIS**, a Korea-based SiC materials and crystal growth company, exhibited its SiC boules along with its 8-inch wafers as pictured in Fig. 3. As noted in the company's literature,"Building upon our proven know-how in 4-6 inch SiC single crystal growth (PVT method), UNIS has developed advanced technologies for large-diameter scaling and has in-house capabilities to design and manufacture high-temperature growth furnaces." The

company also notes its technology for producing highly pure SiC powder and related organic and inorganic raw material synthesis technology.

These capabilities give the company a partially integrated material supply chain for the high-quality materials needed to grow their SiC ingots. In addition, in describing its 8-inch SiC ingot seed crystal, UNIS says it has developed 8-inch seed growth R&D targeting low micropipe density and low BPD (basil plane dislocation). In terms of wafers, the company is advancing the development and pilot-scale production of 8-inch SiC wafers for power devices in EVs and two other applications. These include semi-insulating wafers for communications and development activities related to optical-grade SiC materials for advanced applications.

UNIS is also conducting early-stage development related to larger-diameter SiC wafers, including 12-inch substrates, which remain at an early stage across the industry, according to the vendor.

Fig. 3. UNIS displayed its SiC ingots and wafers.

Another power semiconductor-related surprise was the exhibit for **POWERQUARK** in the Venetian Expo. This Cupertino, California-based power IC startup displayed eval boards employing its bust-boost charge controllers and related devices, and various smart home and mobile devices. Details were provided in the company's CES announcement.

For the smart home, the ICs included the PQ8815A, a buck-boost charger controller that handles battery voltage up to 36 V, seamlessly adapting to fluctuating power inputs; and the PQ58540, which provides comprehensive protection for 2-4 series battery packs. Together, the two chips ensure flexible power conversion and intelligent battery management for systems like robotic vacuums. Also on display was the PQ8808, a synchronous buck-boost charger with a wide input range of 4.5 V to 80 V and with embedded MPPT algorithm. This device is well suited for systems like balcony energy storage (Fig. 4).

Other solutions were shown for smart phones, notebooks and wearables. For smartphones, the PQ6605 integrates a 4-A buck charger, an 8-A charge pump charger, and multi-protocol support into a single chip, enabling rapid charging in a compact design. For notebooks, the PQ8885S buck-boost charger flexibly manages power from various sources, while the PQ6035 PMIC efficiently drives high-brightness AMOLED displays.

For wireless transmitters, the WPC Qi2.2-compliant PQ96019 provides a seamless and highly-efficient wireless charging experience. For wearables, the PQ89620 offers highly integrated switch-mode charging and system power path management for space-constrained Li-ion battery applications.

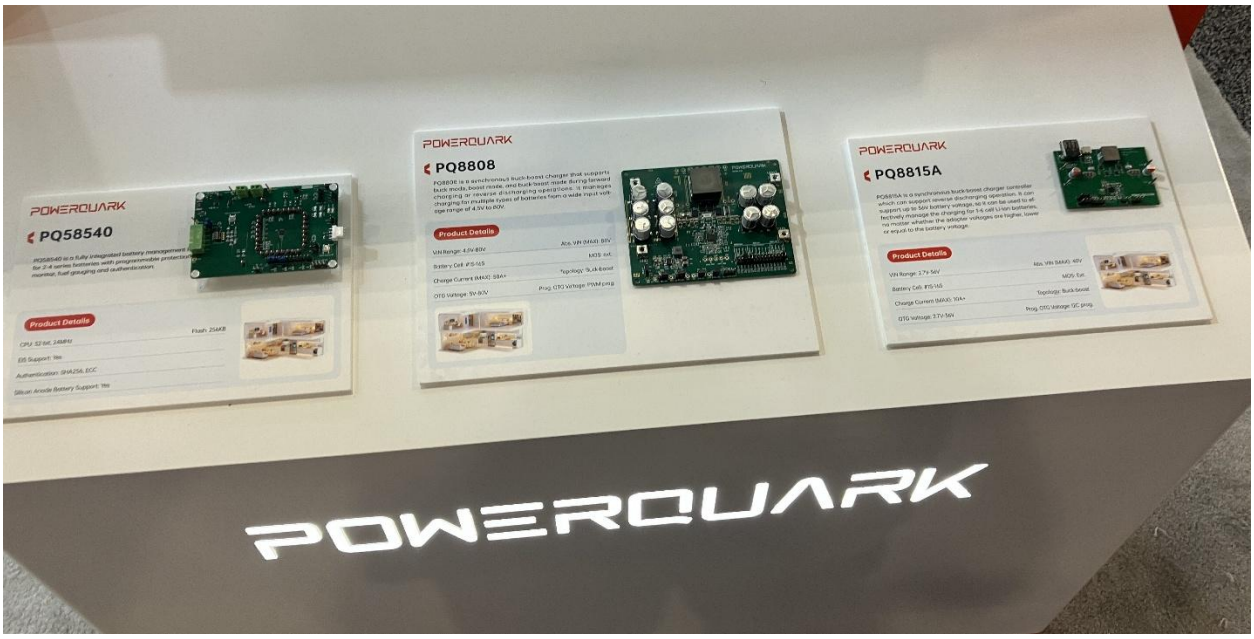

Fig. 4. Power Quark's exhibit included demo boards for its battery protection IC and buck-boost charge controllers.

Another power semiconductor vendor in the Venetian expo was **ePeas**, which introduced its AM15820 energy harvesting PMIC, described as the industry's first PMIC capable of harvesting a full-range of hybrid indoor-outdoor PV cells.

More Power ICs

In addition to these exhibits, as always at CES, there were displays and demos of power ICs off the show floor. For example, in its meeting room in the LVCC, **Texas Instruments** had its usual exhibits with ties to automotive and other applications. Once again they had a demo of a wireless battery management system (BMS) for EVs. According to Brian Burk, systems & applications manager at Texas Instruments, this is still a growing market with perhaps 20% to 30% of the market using wireless BMS as opposed to wired.

However, the more compelling demo was on TI's new EIS, electrochemical impedance spectroscopy technology (Fig. 5). The demo showed individual battery temperature and state-of-charge measurements using EIS algorithms. Such algorithms, which have been embedded in the BQ79826-Q1 automotive 26-S battery monitor and balancer and BQ79881-Q1 automotive battery junction box pack monitor, make it possible to detect a pending thermal runaway and give as much as 30 minutes of advance warning.

Conceptually, EIS operates by exciting battery cells with a current and measuring their voltages. The results correlate with many battery parameters including temperature, making it possible to accurately predict thermal runaway. This satisfies customer requirements, such as in China, where 5 minutes of advance warning is mandated.

The immediate benefit of this early warning is prevention of fires and, as Burk observes, 80% of battery fires happen during charging. Consequently, this capability allows safer fast charging of batteries. In addition, EIS enables more comprehensive monitoring of battery aging, extending the life of battery packs. And finally, by making measurements on the cell level, system requirements for sensing are reduced, which lowers system costs. This technology not only has applications in electric vehicles but in energy storage systems as well.

While EIS techniques have been applied in battery cyclers and other battery test instruments, this would seem to be their first application in commercially available battery monitoring ICs. According to Burk, TI has been developing this technology and the products based on it for five to six years. The BQ79826-Q1 automotive 26-S battery monitor and balancer and BQ79881-Q1 automotive battery junction box pack monitor are in pre-release.

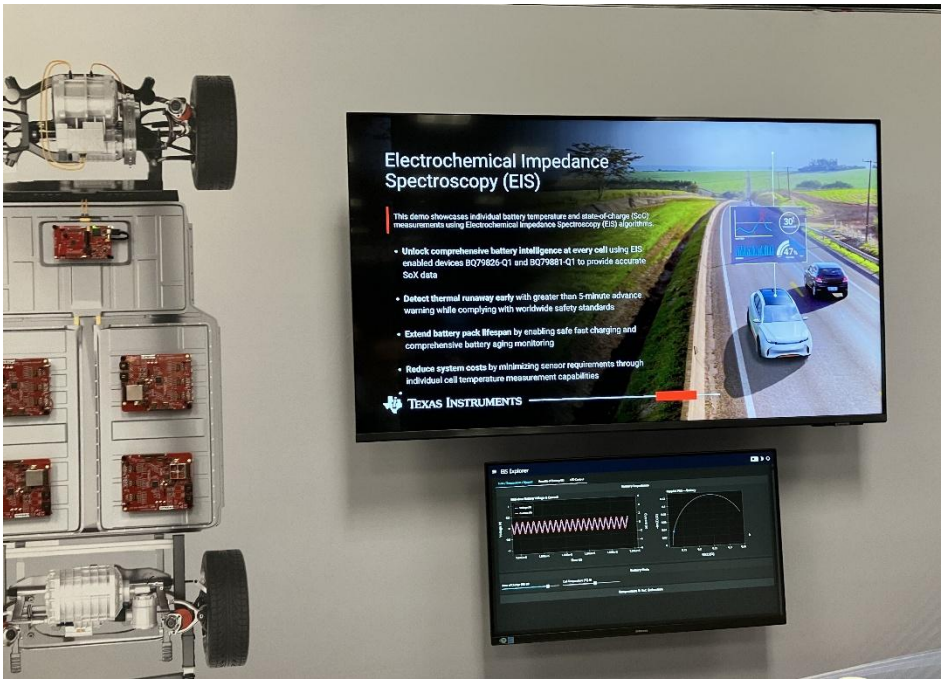

Fig. 5. TI's demos included a wireless BMS (pictured on the left) and EIS-based battery measurements (pictured on the right). By monitoring battery conditions at the cell level, EIS measurements and algorithms enable early detection of pending thermal runaway events, and more comprehensive monitor of battery aging. This capability prevents fires, enabling faster charging and extending operating life of battery packs in EVs and energy storage systems.

Meanwhile, in its suite at the Venetian conference center, **Microchip's** demos included reference designs for sustainability and connectivity applications, including high-efficiency solar microinverters, advanced maximum power point tracking (MPPT) battery chargers, Matter-enabled smart lighting, intelligent thermostats and energy storage solutions for maximum safety and renewable integration.

The company also showcased demos for liquid detection and heat pumps powered by silicon carbide, as well as agricultural IoT monitoring for driving smarter, greener living and industrial innovation. For automotive and e-mobility, Microchip's demos included the Electric Two-Wheeler (E2W) ecosystem, which addresses key challenges in e-scooter and e-bike applications and provides a flexible, scalable platform that can be tailored to different power levels and feature requirements.

For more about these and the company's other demos, see Microchip's CES 2026 page.

Another power semiconductor vendor at CES 2026 was **Infineon Technologies**. This company in collaboration with Flex launched a Zone Controller Development Kit—a modular design for Zone Control Units (ZCUs) engineered to fast track the development of SDV (software defined vehicle)-ready E/E architectures. The development kit follows a scalable approach and is based on reusable assets, combining approximately 30 unique building blocks. This allows developers to configure different ZCU implementations flexibly in short development cycles and offers a clear path from concept to series implementation.

Power distribution and power protection functions are among those enabled by Infineon and Flex's Zone Controller Development Kit including I^2t, overcurrent protection, overvoltage protection, capacitive load switching, and reverse-polarity protection. The pre-validated hardware combines automotive semiconductor components from Infineon, including AURIX microcontrollers, OPTIREG power supply, PROFET and SPOC smart power switches, MOTIX motor control solutions and other products with Flex's design, integration, and industrialization expertise. For more see the company's CES announcement.

References

1. "A Tour Of CES 2026 (Part 1): Robots And More For Manufacturing Plus Power For Data Centers" by David G. Morrison, How2Power.com, March 2026
2. "Battery-Based Generators, Equipment And E-Mobility Products Were Abundant At CES 2024" by David G. Morrison, How2Power Today, February 2024.