

# Silanna Semiconductor Launches First 100W Multi-Port Fast Charger Reference Design

*AnyPort™ design with front-end PFC converter stage combines industry-leading ACF controllers, ultra-high-power-density DC/DC converters & GaN power switch*

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[Semiconductor](https://www.silanna.com), The Power Density Leader, has expanded its family of fast charger reference designs with the company's first 100W multi-port offering. Built around Silanna's CO<sub>2</sub> Smart Power™ advanced AC/DC controllers and high-frequency DC/DC converters, the RD-16 integrates a front-end PFC converter stage and provides a high-power-density, ultra-efficient, production-ready solution for multi-port 100W USB-PD applications delivering currents up to 5A.

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*Ahsan Zaman, Silanna Semiconductor's, Director of Product Marketing*



Silanna's RD-16 is a GaN-based solution that will simplify and speed charger development by providing everything an engineer needs to rapidly prototype and test a fully functional 100W 2C1A multi-port unit. The design is based on the AnyPort™ architecture, which offers the flexibility to complete a charger design for a given power level prior to specifying and configuring the specific number and type of output ports. By allowing a single base charger design to be deployed across a variety of end products with different output configurations, AnyPort can significantly reduce the complexity of fast chargers and adapters with multiple Type-C and/or Type-A output ports.

The RD-16 brings together Silanna's SZ1131 fully-integrated AC/DC active clamp flyback (ACF)

controller and the company's SZDL3105 and SZPL3102S high-voltage, high-efficiency integrated buck converters offering ratings of 100W and 65W respectively. End-to-end peak efficiency exceeds 92% and is relatively flat across the universal input voltage range (90 – 265Vac). Because the reference design exceeds conducted and radiated EMI requirements, it eliminates the need for pre-production validation and certification, speeding up the production cycle.

“Our aim is to provide designers with all the tools and support they need to rapidly develop high-efficiency, small form factor, low component counts fast chargers,” says Ahsan Zaman, Silanna Semiconductor's, Director of Product Marketing. “By combining our CO2 Smart Power family of advanced AC/DC and DC/DC technologies with GaN power switching and our innovative and flexible AnyPort architecture the RD-16 offers the fastest possible route from prototyping to full production for 100W fast chargers with any number or type of output ports.”

The RD-16 is the latest addition to Silanna's comprehensive family of production-ready reference designs that provide everything needed to develop high-density chargers with low operational and no-load/ stand-by power consumption and minimum component count, BOM cost and size. This family includes all-silicon 33W and 45W solutions and silicon- and GaN-based single- and multiple-output 65W USB-PD reference designs. Full availability of PCB Gerber and production files further reduces the time from prototyping to full production.

#### RD-16 Key Features

- 100W 2C1A high-power-density AnyPort™ reference design with Innoscience GaN power transistor
- > 92% peak efficiency
- 14W/inch<sup>3</sup> uncased power density
- Flat efficiency across universal (90 – 265Vac) input voltage and load
- Uses Silanna Semiconductor's newest fully integrated ACF controller (SZ1131)
- SZ1131 integrates ACF controller with UHV active clamp FET, active clamp driver, and start-up regulator
- Up to 146kHz switching frequency operation
- OptiMode™ cycle-by-cycle adaptive digital control
- Self-tuning valley mode switching (VMS)
- Multi-mode operation (burst mode, QR, VMS)
- OTP, OVP, OCP, OPP, and output short circuit protections
- Space-saving 16-pin SOIC package
- Uses Silanna Semiconductor's high-voltage, high-efficiency 100W integrated buck converter (SZDL3105)
- Selectable switching frequency up to 2MHz
- Optimal high efficiencies for 3.3V to 21V VOUT
- Maximum output current of 5A
- Wide input voltage range: 7V to 27V
- Selectable soft start times
- OCP/OVP/OTP protection

- Programmable UVLO
- 4mm x 4mm QFN package
- Uses Silanna Semiconductor's high-voltage, high-efficiency 65W integrated buck converter (SZPL3102)
- Selectable switching frequency up to 2MHz
- Optimal high efficiencies for 3.3V to 21V VOUT
- Maximum output current of 3.25A
- Wide input voltage range: 7V to 27V
- Selectable soft start times
- OCP/OVP/OTP protection
- Programmable UVLO
- 3mm x 3mm QFN package
- CO2 Smart Power by Silanna Semiconductor

Availability: □

Information is available at <https://powerdensity.com/reference-design/> or by contacting sales@silanna.com.

#### About Silanna Semiconductor

The Power Density Leader. Delivering on the ultimate Power Management challenge of best-in-class power density and efficiency performance that delights customers with unprecedented BoM savings. Silanna Semiconductor's AC/DC and DC/DC power converter ICs are driving key innovations in Travel Adapters, Laptop Adapters, Appliance Power, Smart Metering, Computing, Lighting, Industrial Power, and Display Power utilizing the latest digital and analog control and device technologies. In addition to our global engineering sales force, customers are supported by regional design centers and online tools. 'Power Density Hero' is an online design tool where customers input their power needs and instantly receive a complete design, schematic, and 'Bill of Materials' (BOM). The Asian Center of Excellence (ACE) has a dedicated team of power system engineers to support our customers in their application specific design needs.

Silanna Semiconductor, with its family of CO2 Smart Power™ ICs, offers technologies that will benefit the planet and the people on it by delivering best-in-class power density and efficiency.

Silanna Semiconductor, headquartered in San Diego, CA, is a privately-held semiconductor company, and has global facilities supporting customers with design centers and offices in North America, Europe, Asia, and Australia.

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