

Editorial
Contact:

Bob Decker
Redpines

Telephone: 1 415 409 0233
Email: bob.decker@redpinesgroup.com

For Immediate Release

Vishay Intertechnology Increases Power Density for POL Converters With the Industry's Smallest 6 A, 20 A, and 25 A Buck Regulator Modules

Offered in 10.6 mm by 6.5 mm by 3 mm Package, microBRICK® Devices Are Up to 69 % Smaller Than Competing Solutions and Feature Wide Input Voltage Ranges From 4.5 V to 60 V

MALVERN, Pa. — Sept. 13, 2023 — Vishay Intertechnology, Inc. (NYSE: VSH) today announced new 6 A, 20 A, and 25 A microBRICK® synchronous buck regulator modules designed to deliver increased power density and efficiency for point of load (POL) converters. Offered in a 10.6 mm by 6.5 mm by 3 mm package, the Vishay Siliconix [SiC931](#), [SiC951](#), and [SiC967](#) are the smallest such devices on the market — with the lowest height — and feature wide input voltage ranges from 4.5 V to 60 V.

Up to 69 % smaller than other solutions, the regulator modules released today each offer two high performance MOSFETs, an inductor, and a controller, with only minimal external components needed for configuration and loop compensation. The devices' compact size dramatically increases power density, while their high level of integration reduces design complexity and time to market. The regulators' controllers consume minimum quiescent current, enabling peak efficiencies of up to 97 %. In data centers, the telecom infrastructure, and industrial applications, microBRICK regulators help reduce energy consumption by more efficiently delivering power to FPGAs, ASICs, and SoC core power supplies.

Highly configurable, the regulators combine their wide input voltage ranges with adjustable output voltages down to 0.3 V. In addition, the SiC931 features four programmable switching frequencies at 600 kHz, 1 MHz, 1.5 MHz, and 2 MHz, while the SiC967 and SiC951 offer adjustable switching ranges from 100 kHz to 2 MHz and 300 kHz to 1.5 MHz, respectively. All three devices offer an adjustable current limit, while the SiC931 features an adjustable soft start and the PMBus 1.3 compliant SiC951 supports sequential, tracking, and simultaneous operation.

The regulator modules provide versatile solutions for a wide range of applications, including POL converters in servers, cloud computing, high performance computing, and desktop computers; industrial automation, motor drives, and tools; surveillance systems; consumer electronics; and 5G telecom equipment. For these applications, the SiC951 and SiC967 offer three operating modes: forced continuous conduction, ultrasonic, and power save. The SiC931 provides forced continuous conduction and power save modes. In power-saving mode, when the inductor current crosses zero, the control scheme turns off the low side MOSFET to deploy a diode emulation mode. The switching frequency decreases in proportion to load conditions. There is no minimum switching frequency limitation, allowing for the best possible efficiency at light loads.

The devices' constant on-time (COT) architecture delivers ultrafast transient response with minimum output capacitance and tight ripple regulation at very light loads. It also enables loop stability regardless of the type of output capacitor used, including low ESR ceramic capacitors. The regulators feature a robust protection feature set for reliable operation, output overvoltage (OVP) and undervoltage protection (UVP), cycle by cycle overcurrent protection (OCP), short circuit protection (SCP) with auto retry, over temperature protection (OTP), and a power good flag.

Device Specification Table:

Part #	V _{IN} range	V _{OUT}	Current	Package
SiC931	4.5 V to 18 V	0.6 V to 5.5 V	20 A	PowerPAK MLP60-A6C
SiC951	4.5 V to 20 V	0.3 V to 5.5 V	25 A	PowerPAK MLP59-A6C
SiC967	4.5 V to 60 V	0.8 V to 15 V	6 A	PowerPAK MLP54-A6C

Samples and production quantities of the new regulator modules are available now, with lead times of 20 weeks.

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Vishay manufactures one of the world's largest portfolios of discrete semiconductors and passive electronic components that are essential to innovative designs in the automotive, industrial, computing, consumer, telecommunications, military, aerospace, and medical markets. Serving customers worldwide, Vishay is **The DNA of tech.**® Vishay Intertechnology, Inc. is a Fortune 1,000 Company listed on the NYSE (VSH). More on Vishay at www.Vishay.com.

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