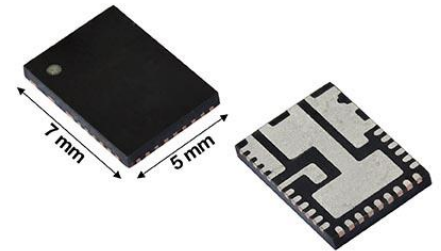




# New microBUCK<sup>®</sup> Regulators Increase Power Density and Transient Response With Output Current Up to 40 A in Compact PowerPAK<sup>®</sup> 5 mm x 7 mm Package, Feature PMBus 1.3 Compliance for Power System Telemetry

## Product Benefits:

- Output currents up to 40 A in the thermally enhanced 5 mm by 7 mm PowerPAK<sup>®</sup> MLP34-57 package
- Versatile
  - Scalable solution: 15 A (SiC453), 25 A (SiC451), 40 A (SiC450)
  - Input voltages from 4.5 V to 20 V
  - Adjustable output voltage down to 0.3 V
- Highly efficient
  - Peak efficiency up to 98 %
  - Low operating current in idle mode
- Internally compensated over the entire  $V_{IN}$  and  $V_{OUT}$  range of operation
- Highly configurable
  - PMBus 1.3 compliance for power system telemetry
  - Programmable switching frequencies from 300 kHz to 1.5 MHz
  - Three operating modes: forced continuous conduction, power save, or ultrasonic
- Robust and reliable
  - Over- and undervoltage protection (OVP / UVP)
  - Overcurrent protection (OCP) in pulse by pulse mode
  - Differential output remote sensing
  - Over temperature protection (OTP) with hysteresis



## Market Applications:

- POL converters in cloud computing, enterprise servers, and industrial computers, in addition to networking, telecom, and storage systems

## The News:

Vishay Intertechnology broadens its offering of microBUCK<sup>®</sup> synchronous buck regulators with a new family of 15 A, 25 A, and 40 A devices featuring input voltages from 4.5 V to 20 V in the thermally enhanced 5 mm by 7 mm PowerPAK MLP34-57 package. Delivering increased power density and transient response compared to previous-generation devices, Vishay Siliconix SiC45x family regulators offer PMBus 1.3 compliance for power system telemetry.

- The regulators' high power density is made possible by co-packaging high performance n-channel trench MOSFETs with a PMW controller in a compact package
- Intended to simplify the design of high performance POL converters, the integrated devices require minimal external components for configuration and loop compensation



- The regulators automatically choose the correct internal compensation values required based on the operating condition during their start-up sequence
- All SiC45x family devices share the same footprint to provide designers with a scalable solution
- At light loads, when the inductor current crosses zero, the control scheme turns off the low side MOSFET to deploy a diode emulation mode with frequency foldback
  - In the ultrasonic mode, the frequency does not go below 25 kHz, keeping the switching frequency above the audible range for noise-sensitive applications
  - The minimum frequency of operation is not limited in the standard power save mode, allowing for the best possible efficiency at light loads
- Constant on-time (COT) architecture delivers ultrafast transient response with minimum output capacitance and tight ripple regulation over a broad load range
  - Enables loop stability regardless of the type of output capacitor used

## The Key Specifications:

Part number	SiC450	SiC451	SiC453
$V_{IN}$ range (V)	4.5 to 20		
$V_{OUT}$ range (V)	0.3 to 12		
$I_{OUT}$ (A)	40	25	15
Switching frequency range (kHz)	300 to 1500		

### Availability:

Samples and production quantities of the SiC45X family are available now, with lead times of 16 weeks.

To access the product datasheet on the Vishay Website, go to <http://www.vishay.com/ppg?77863> (SiC450, SiC451, SiC453)

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