

# Ultra-High Voltage BCM<sup>®</sup> Bus Converter Module

Isolated, Fixed Ratio Bus Converter Family



For use in three-phase AC Industrial power and DC transmission systems for remote unmanned vehicles

## Description

Ultra-High Voltage Bus Converter Modules (UHV BCMs) are 400 – 800V<sub>IN</sub> power components that provide voltage transformation, current multiplication and isolation for designs that require high power density, high efficiency, small size and low weight. Essentially a very small high-frequency DC-DC transformer, the UHV BCM steps down its input voltage by a ratio of 1:16 and provides 4300V of galvanic isolation. Buck or Buck-Boost regulators can then be connected to the UHV BCM output to provide the necessary regulated voltage for specific system loads. Available in the thermally adept 4414 VIA package, UHV BCMs are offered in either a chassis-mount or board-mount form-factor that measures 111 x 36 x 9.4mm. The family is available in either T-grade (–40 to 100°C) or M-grade (–55 to 100°C) temperature grades. The robust VIA package also provides integrated PMBus<sup>™</sup> [a] communication and EMI filtering. These flexible modules can be easily paralleled into higher power arrays. In addition, the UHV BCM outputs can be connected in series to achieve higher V<sub>OUT</sub>.

Utilizing Vicor resonant Sine Amplitude Converter<sup>™</sup> (SAC) topology, UHV BCMs leverage high-frequency Zero-Voltage Switching (ZVS) and Zero-Current Switching (ZCS) to deliver unmatched efficiency and power density with low noise and fast transient response. In addition, the BCM's low AC impedance, beyond the bandwidth of most downstream regulators, enables bulk capacitance, normally located at the input of a regulator, to be placed at the high-voltage input to the BCM. This reduces bulk capacitance requirement and offers saving of board area and system cost.

Offered in a range of package options and power levels, UHV BCMs provide unmatched performance to meet the demanding requirements of modern power system designs.

## Features & Benefits

- 400 – 700V or 500 – 800V input
- High peak efficiency: Up to 97%
- High power density: Up to 700W/in<sup>3</sup>
- Parallel inputs and outputs for high-powered arrays
- Connect outputs in series for higher output voltages
- VIA Package
  - Available in chassis- or PCB-mount form-factor
  - Simplifies thermal design
  - Provides integrated filtering
  - Available with PMBus<sup>®</sup> Communication
- Bidirectional capability



## Part Numbers

Model Number	Input Voltage	Output Voltage	Output Power	Output Current	Package	Control Interface
BCM4414xG0F4440yzz	544V (400 – 700V)	34V (25 – 43.75V)	1600W	40.0A	VIA	Digital
BCM4414xH0E5035yzz	650V (500 – 800V)	40.6V (31.3 – 50V)		35.0A		

## Typical Applications

