

VI Chip®, ChiP™ and VIA™ Packages

BCM® Family

Isolated, Fixed-Ratio DC-DC Converter Modules



For use in three-phase AC industrial power and DC transmission systems for remote unmanned vehicles; high-end computing systems, industrial systems, telecom/datacom systems and 384V_{DC} power distribution architectures; 48V intermediate bus architecture power systems, automated test equipment, communication and transportation

Description

Vicor BCMs are 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 BCM steps down its input voltage by a range of ratios and provides galvanic isolation. BCMs support a broad range of output voltages and power levels. With peak efficiencies of up to 98% and power densities of up to 2,870W/in³. The family is available in a variety of temperature grades. The robust VIA package also provides integrated PMBus communication and EMI filtering. These flexible modules can be easily paralleled into higher power arrays. In addition, the BCM outputs can be connected in series to achieve higher V_{OUT}. Vicor BCM products offer benchmark performance in a small, cost-effective package.

Utilizing Vicor resonant Sine Amplitude Converter™ (SAC) topology, 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. When BCMs operate in reverse, they provide an efficient step-up conversion.

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

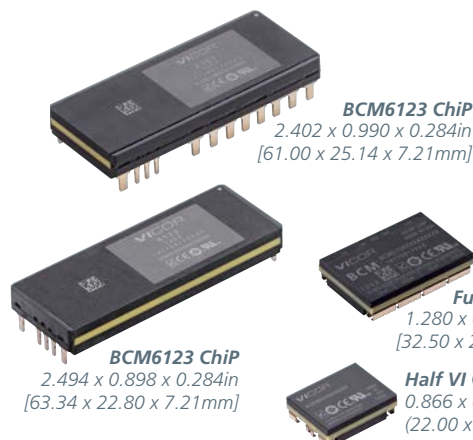
Features & Benefits

- Input range
 - Ultra-high voltage: 400 – 800V input
 - High voltage: 200 – 410V input (meets ETSI requirements)
 - Low voltage: 36 – 60V input
- High efficiency
 - Ultra-high voltage: Up to 97%
 - High voltage: Up to 98%
 - Low voltage: Up to 97.6%
- High power density
 - Ultra-high voltage: Up to 700W/in³
 - High voltage: Up to 2,735W/in³
 - Low voltage: Up to 2,870W/in³
- Parallel inputs and outputs for high-powered arrays
- Connect outputs in series for higher output voltages
- Bidirectional capability
- VIA Package
 - Available in chassis- or PCB-mount form-factor
 - Simplifies thermal design
 - Provides integrated filtering
 - Available with PMBus® Communication
- VI Chip Full and Half
 - SMT or Through-hole form-factor
- ChiP Package
 - Through-hole form-factor
 - PMBus capable (using Digital Isolator/Digital Supervisor)

BCM4414 VIA
4.35 x 1.40 x 0.37in
[110.55 x 35.54 x 9.40mm]



BCM3814 VIA
3.76 x 1.40 x 0.37in
[95.59 x 35.54 x 9.40mm]



BCM6123 ChiP
2.402 x 0.990 x 0.284in
[61.00 x 25.14 x 7.21mm]

BCM6123 ChiP
2.494 x 0.898 x 0.284in
[63.34 x 22.80 x 7.21mm]

Full VI Chip
1.280 x 0.866 x 0.265in
[32.50 x 22.00 x 6.73mm]

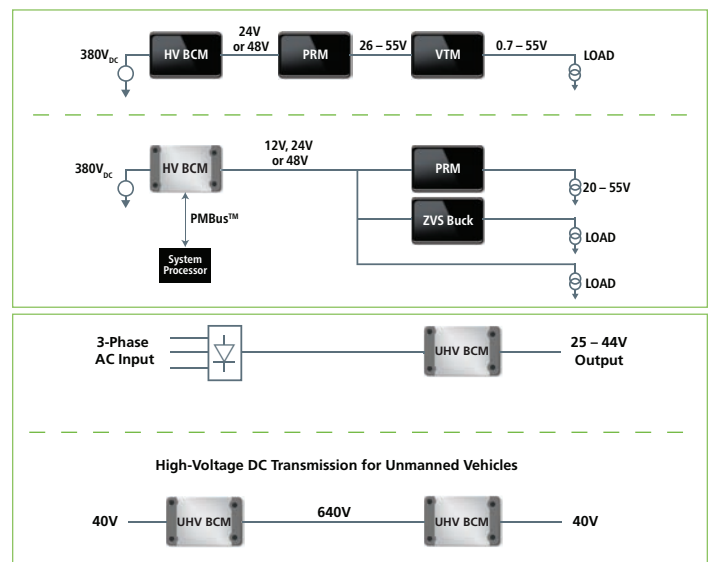
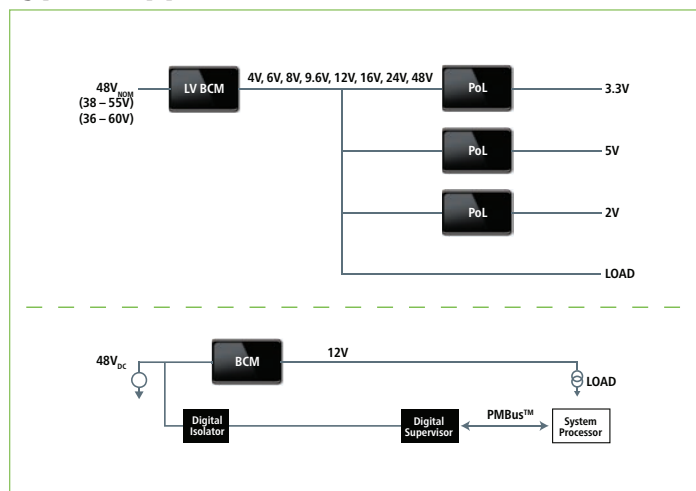
Half VI Chip
0.866 x 0.650 x 0.265in
[22.00 x 16.50 x 6.73mm]

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		
BCM6123TD0G5030yzz ^[a]	270V (200 – 400V)	33.8V (25 – 50V)	1000W	30.0A	ChiP	Digital / Analog
BCM6123TD1E5117yzz ^[a]	384V (260 – 410V)	48V (32.5 – 51.3V)	800W	16.9A		
BCM6123TD1E5126yzz ^[a]			1200W	25.7A		
BCM6123TD1E5135yzz ^[a]			1750W	35.0A		
BCM6123TD1E2663yzz ^[a]		24V (16.3 – 25.6V)	1500W	62.5A		
BCM6123TD1E1368yzz ^[a]		12V (8.1 – 12.8V)	800W	68.0A		
BCM6123TD1E13A3yzz ^[a]			1500W	125.0A		
BCM4414xD1E5135yzz		48V (32.5 – 51.3V)	1750W	35.0A	VIA	Digital
BCM4414xD1E2663yzz	352V (330 – 365V)	24V (16.3 – 25.6V)	1500W	62.5A		
BCM4414xD1E13A3yzz		12V (8.1 – 12.8V)	1500W	125.0A		
BCM352T440y330A00	352V (330 – 365V)	44V (41.25 – 45.63V)	325W	7.7A	Full VI Chip	Analog
BCM352T125y300A00		12.5V (11.79 – 13.04V)	300W	26.0A		
BCM352T110y300B00		11V (10.3 – 11.4V)	300W	28.5A		
BCM384x480y325Bzz	384V (360 – 400V)	48V (45 – 50V)	325W	7.1A		
BCM384x120y300Azz		12V (11.3 – 12.5V)	300W	27.3A	ChiP	Digital / Analog
BCM6123x60E10A5yzz	36 – 60V	6 – 10V	1500W	150A		
BCM6123x60E15A3yzz		9 – 15V	1950W	130A		
BCM3814x60E10A5yzz		6 – 10V	1500W	150A	VIA	Digital
BCM3814x60E15A3yzz		9 – 15V	1950W	130A		
BCM48Bx030x210A00	38 – 55V	2.4 – 3.4V	210W	70A	Full VI Chip	Analog
BCM48Bx040y200B00		3.2 – 4.6V	200W	50A		
BCM48Bx060y240A00		4.75 – 6.87V	240W	40A		
BCM48Bx080y240A00		6.34 – 9.16V		30A		
BCM48Bx096y240A00		7.6 – 11.0V		25A		
BCM48Bx120y300A00		9.5 – 13.8V	300W	25A		
BCM48Bx160y240A00		12.7 – 18.3V	240W	15A		
BCM48Bx240y300A00		19 – 27.5V	300W	12A		
BCM48Bx320y300A00		25.3 – 36.7V		9A		
BCM48Bx480y300A00		38.0 – 55V		6A		
BCM48Bx120y120B00		9.5 – 13.75V	120W	11.3A	Half VI Chip	

^[a] Bidirectional capability.

Typical Applications



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