

DC/DC Converters for Cloud, Hyperscale Computing, Servers & Storage

Flex Power Modules' solutions for servers, storage, hyperscale and cloud computing are optimized for high efficiency, power density and quality at a low cost of implementation.

Driven by the ever-increasing demand for power, many cloud-based data centers are transitioning from 12V to 48V as the preferred voltage level for rack DC voltage distribution. When large numbers of electronic equipment are tightly packed into a fixed space, power supply efficiency is highly prioritized. However, even the most efficient systems unavoidably produce heat, simultaneously increasing the importance of power density and thermal management.



At Flex Power Modules, our thermal management approach emphasizes the use of top-side heat removal. We redesigned our eighth and quarter brick modules, placing thermal conduction paths from heat dissipating components to the top baseplate for direct heat removal.

The rack-level 48V architecture supports the potential elimination of input-to-output isolation in the first stage of DC/DC conversion, while some applications support an unregulated intermediate bus voltage:

- Eliminating isolation improves efficiency and reaches higher power densities through the expansion of available power conversion topology options
- Removing the need for voltage regulation brings new opportunities, such as the use of fixed ratio topologies to further improve efficiency and significantly improve efficiency and peak power delivery

In traditional two-stage power conversions, an emerging trend for the second stage is to use two-phase power modules as building blocks. Multiple two-phase modules are then paralleled to meet total current requirements. These are then combined with an external multi-phase controller that provides final phase-count control and other communication or performance requirements.



Cloud, Hyperscale Computing, Server & Storage power modules



BMR510/BMR511 – 2-phase Integrated Power Stage (up to 80A/140A_{peak})

- Optimized for top-side (BMR510) or bottom side (BMR511) cooling
- Accepts tri-state PWM signals
- LGA or solder bump mount version

Dimensions: 10 x 9 x 7.6-8 mm /
0.39 x 0.35 x 0.29-0.31 in



BMR350 – Digital quarter brick IBC (600-1700W_{peak})

- Non-isolated & fully regulated output
- Event data recorder
- Parallelable

Dimensions: 58.4 x 36.8 x 12 mm /
2.3 x 1.45 x 0.47 in



BMR320 – 8:1 fixed ratio digital IBC (400W)

- Non-isolated, unregulated converter
- High efficiency of 97.7%
- Parallelable up to 3 units

Dimensions: 27 x 18 x 6.4 mm /
1.06 x 0.71 x 0.25 in



BMR351 – Digital quarter brick IBC (1600W/2320W_{peak})

- Fully regulated output
- Non-isolated
- Excellent thermal performance
- Event data recorder

Dimensions: 58.4 x 36.8 x 14.7 mm /
2.3 x 1.45 x 0.58 in



BMR313 – Ultra-small 4:1 fixed ratio IBC (1000W/3000 W_{peak})

- Compact non-isolated DC/DC converter
- High density IBC up to 14,875 W/in³
- Peak power capabilities up to 3000W
- Optimized thermal design for cold wall mounting

Dimensions: 23.4 x 17.8 x 7.6 mm /
0.92 x 0.7 x 0.29 in



BMR491 – High power quarter brick IBC (up to 2450W_{peak})

- Continuous power up to 1540W
- Hybrid regulated ratio & fixed regulated versions
- High efficiency of 97.7%

Dimensions: 58.4 x 36.8 x 14 mm /
2.3 x 1.45 x 0.57 in



BMR314 – Ultra-small 4:1 fixed ratio IBC (800W/1500 W_{peak})

- Digital PMBus interface
- LGA industry standard footprint and pinout
- Halogen-free

Dimensions: 23.4 x 17.8 x 9.65 mm /
0.92 x 0.7 x 0.38 in



BMR492 – High power eighth brick IBC (up to 1100W_{peak})

- Continuous power up to 800W
- Excellent thermal behavior
- Digital interface available in 7-pin industrial standard

Dimensions: 58.4 x 22.7 x 12.7 mm /
2.3 x 0.9 x 0.52 in

Focus Products

PRODUCT NUMBER	V _{in}	V _{out}	I _{out}	I _{out_peak}	P _{out}	P _{out_peak}	EFFICIENCY
BMR5101034/002	4.5-15V	0.5-1.3V	40A (TDC) per phase 80A (TDC) total	70A per phase 140A total	—	—	92%
BMR511x044/002	5-15V	0.5-1.8V	40A (TDC) per phase 80A (TDC) tota	70A per phase 140A total	—	—	94.5%
BMR3131011/001	38-60V	9.5-15V	80A	240A	1000W	3000W	97.2%
BMR3141011/001	38-60V	9.5-15V	—	—	800W	1500W	97.4%
BMR3504250/531	40-60V	12V	108A	140A	1300W	1700W	97.8%
BMR3512202/002	40-60V	12.2V	136A	200A	1600W	2320W	97.7%
BMR4912408/857	48-60V	12V	128A	205A	1540W	2450W	97.5%
BMR4920300/864	40-60V	12V	67.3A	91.7A	800W	1100W	97.3%

Visit flexpowermodules.com for more product variants and a wide range of non-isolated Point of Load converters.

flex Power Modules

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