

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.

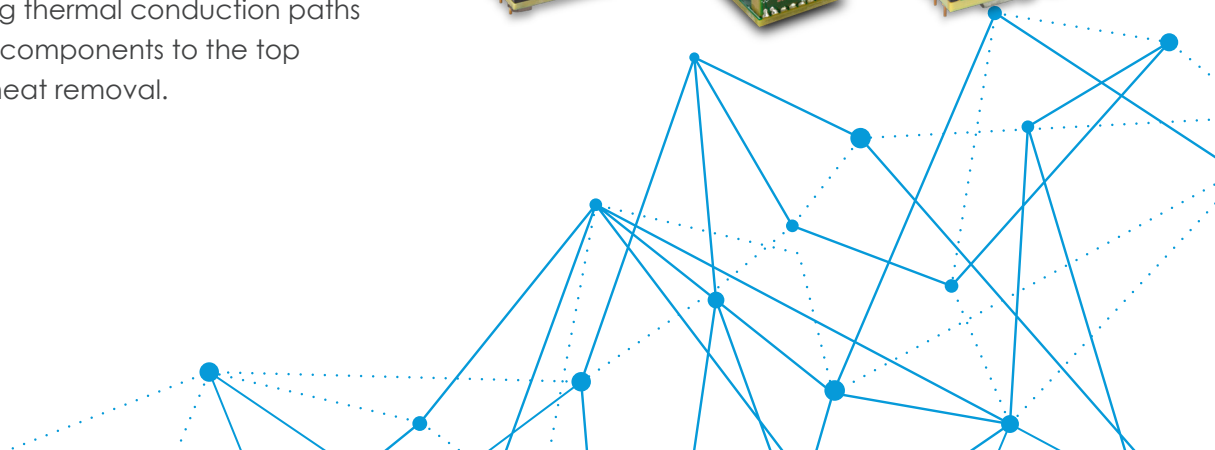


At Flex Power Modules, our thermal management approach emphasizes the use of top-side heat removal. We redesigned our eighth and quarter brick modules, placing thermal conduction paths from heat dissipating components to the top baseplate for direct heat removal.

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 conversion, 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 – 2-phase Integrated Power Stage (up to 80A/160A_{peak})

- Optimized for top-side cooling
- Accepts tri-state PWM signals
- LGA or solder bump mount version

Dimensions:
10 x 9 x 7.6 mm / 0.39 x 0.35 x 0.29 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



BMR321 – 8:1 fixed ratio digital IBC (750W/1500W_{peak})

- Unregulated 8:1 fixed ratio converter
- Non-isolated
- Digital interface compatible with PMBus
- Parallelable
- Following Open Compute Project standard OAM v2.0

Dimensions:
41.47 x 17.67 x 6.9 mm / 1.63 x 0.69 x 0.27 in



BMR352 – Digital quarter brick (2000W/3000W_{peak})

- Fully regulated output
- Peak power capabilities up to 3kW < 0.5 sec
- Non-isolated
- Active current share

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



BMR316 – Ultra-small 4:1 fixed ratio IBC (1000W/2800W_{peak})

- Compact non-isolated DC/DC converter
- High density IBC up to 15 W/in³
- Peak power capabilities up to 2800W
- 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 (1540W/2450W_{peak})

- Hybrid regulated ratio & fully 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/1500W_{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 (800W/1100W_{peak})

- 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	80A per phase 160A total	—	—	92%
BMR511x044/002	5-15V	0.5-1.8V	40A (TDC) per phase 80A (TDC) total	70A per phase 140A total	—	—	94.5%
BMR3141011/001	38-60V	9.5-15V	—	—	800W	1500W	97.5%
BMR3161011/021	38-60V	9.5-15V	—	—	1000W	2800W	97.7%
BMR3201000/001	40-60V	5-7.5V	—	—	400W	—	97.6%
BMR3201001/002	40-60V	5.7.5V	—	—	400W	740W	97.6%
BMR3211000/001	40-60V	5-7.5V	—	—	750W	1500W	98.05%
BMR3504250/531	40-60V	12V	—	—	1300W	1700W	97.8%
BMR3512202/002	40-60V	12.2V	—	—	1600W	2320W	97.8%
BMR3520200/001	40-60V	12.2V	—	—	2000W	3000W	97.7%
BMR4912408/857	48-60V	12V	—	—	1540W	2450W	97.5%
BMR4920300/864	40-60V	12V	—	—	800W	1100W	97.5%

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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