

DC/DC Converters for Artificial Intelligence (AI) applications

Artificial Intelligence is evolving rapidly and has surpassed human decision making capabilities in several instances. It is already producing some of the most effective and impactful results seen in today's businesses.

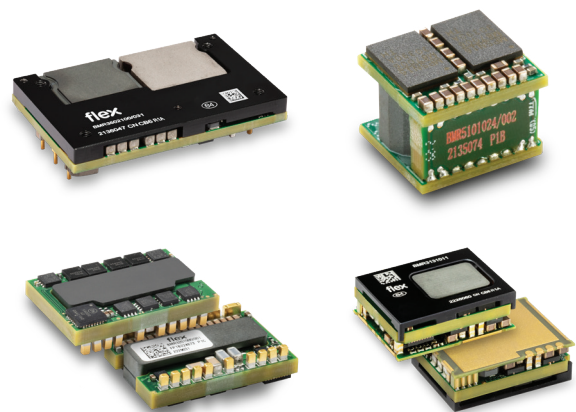
Many new AI-based products and services rely heavily on the cloud. AI can be extremely compute-intensive where local or edge devices struggle to manage everything independently. As such, power delivery and power efficiency have become key concerns in large scale computing systems. The industry is experiencing a dramatic increase in power consumption through processors with ASICs and GPUs that process complex AI functions.

Rack power is also increasing with the deployment of AI applications. In most cases, power delivery is now a limiting factor in computing performance with new CPUs consuming ever increasing currents. Power delivery impacts not only the distribution of power but also the efficiency, size, cost and thermal performance.

There is an increasing demand for power density – rack power levels previously needing less than 10kW now require more than 30kW to power intensive AI applications. There is also an increase in preferred rack voltage from 12V to 48V for improved DC distribution.

Additionally, an emerging trend is to reduce power system loss through eliminating isolation at the board level, which opens the market for non-isolated topologies.

Our innovative products are designed to match all these criteria.



Our innovation is built on experience, curiosity, and the drive to challenge existing standards. We have been developing DC/DC platforms for half a century, and continue to lead the way into the new era of Artificial Intelligence.



Latest AI Power Modules



BMR510 - 2-phase Integrated Power Stage (80A_{TDP}/140A_{peak})

- Optimized for top-side cooling
- Current and temperature sense
- Accepts tri-state PWM signals
- Over-temperature and current limit protection
- LGA mount version
- Halogen-free

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



BMR320 - 8:1 fixed ratio digital Intermediate Bus Converter (400W)

- Unregulated 8:1 fixed ratio converter
- Non-isolated
- Digital interface compatible with PMBus
- Parallelable up to 3 units
- Small form factor 486 mm²

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



BMR350 - Digital quarter brick Intermediate Bus Converter (860W_{TDP}/1200W_{peak})

- Fully regulated output
- Digital interface compatible with 7-pin industry standard
- Non-isolated
- Black box function (event data recorder)
- Parallelable

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

BMR313 - Ultra-small Intermediate Bus Converter (1000W_{TDP}/3000W_{peak})

Under development, planned release in Q4, 2022

- Compact non-isolated DC/DC converter
- High density IBC up to 14.875W/in³ (908W/cm³)
- Digital PMBus interface
- LGA industry standard footprint and pinout
- Halogen-free
- 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

Focus Products

PRODUCT NUMBER	V _{in}	V _{out}	I _{out}	I _{out_peak}	P _{out}	P _{out_peak}	EFFICIENCY
BMR5101024/002	4.5-16V	0.5-1.3V	40A (TDC)* per phase 80A (TDC)* total	70A per phase 140A total	64W at V _{in} 13.5V and V _{out} 0.8V	—	88% at V _{in} 13.5V and V _{out} 0.8V
BMR3502100/031	40-60V	12V	100A	—	860W	1200W	97.7%
BMR3201000/001	40-60V	5-7.5V	60A	—	400W	—	97.6%
BMR3131011/001	40-60V	10-15V	—	—	1000W	3000W	97.3%
BMR3141011/001	40-60V	10-15V	—	—	800W	1500W	TBD

* Thermal Design Current

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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