Flex Power Modules

DC/DC Power Modules for Telecom Applications

2024

flex

Power Modules

Table of Contents

Our DC/DC portfolio for Telecom 4

RFPA products 5

Sixteenth brick | PKU-A (60-72W) 5
Sixteenth brick | PKU-C (43-100W) 6
Eighth brick | PKB-C / PKB-D (200-250W) 6
Quarter brick | PKM-D (504W) 6
Half brick | PKJ (700W) 7

Digital RFPA 7
Quarter brick | BMR683 (500W) 7
Quarter brick | BMR684 (700W) 7
Half brick | BMR685 (1300W) 8

Other Telecom Products 9

Digital Isolated DC/DC converters 9
Eighth brick | BMR492 (500W) 9
Quarter brick | BMR458 (600W) 9
Quarter brick | BMR480 (800W) 10

Analog Isolated DC/DC converters 10
Sixteenth brick | PKU-D (110-260W) 10
Eighth brick | PKB-D (132-450W) 11
Quarter brick | PKM-NH (600W) 11

Digital Non-Isolated Point of Load 12

Analog Non-Isolated Point of Load 13
PMU8000 13

Software 14

Our DC/DC portfolio for Telecom

Flex Power Modules' telecom solutions cover traditional applications such as routers, switches, servers, base station equipment, optical networks, session border controllers, gateways and other networking devices.

Additionally, we offer many products for Radio Frequency Power Amplifier (RFPA) and Microwave applications. They are specially designed for the 5G rollout which is accelerating the world over.

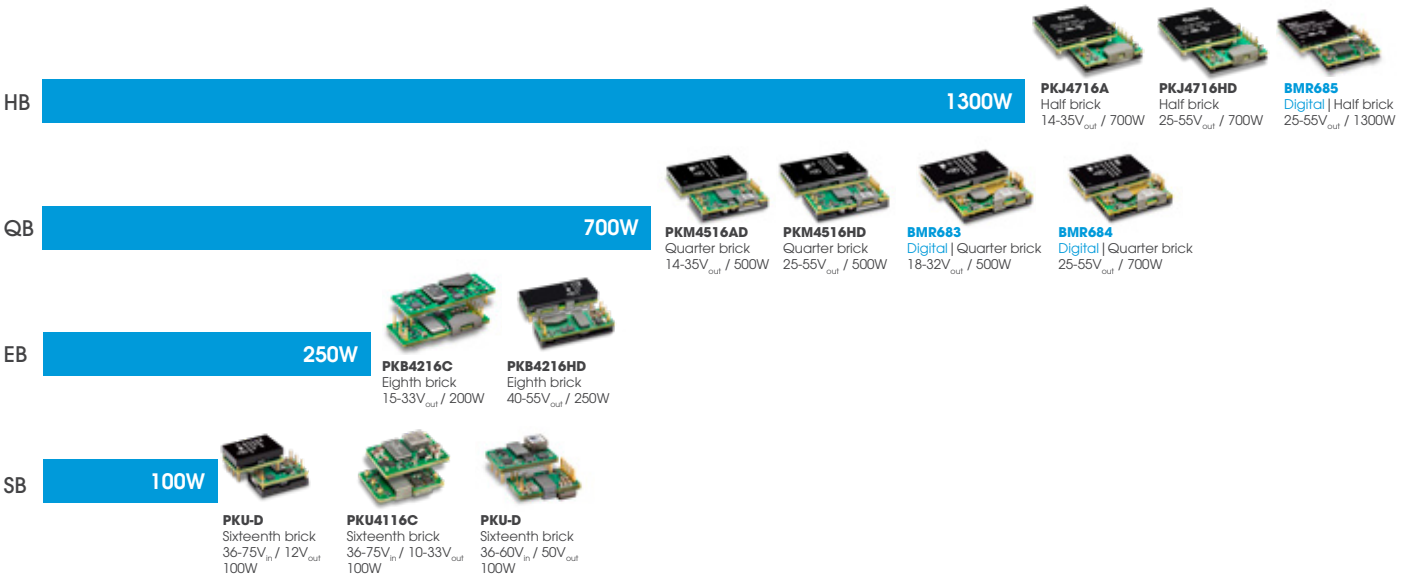
Our telecom solutions offer:

- High efficiency
- High reliability
- High power density
- Typical input ranges of 36-75V

In line with the world's rapidly advancing 5G cellular wireless networks, Flex works closely with O-RAN Alliance – a global community of more than 160 mobile operators, vendors, and research and academic institutions operating in the Radio Access Network (RAN) industry.

RFPA products

Digital and analog power modules for Radio Frequency Power Applications (RFPA), Microwave and Small Cell Applications, from smallest form factor of a 1/16 brick up to 1/2 brick size.



Sixteenth brick | PKU-A (60-72W)

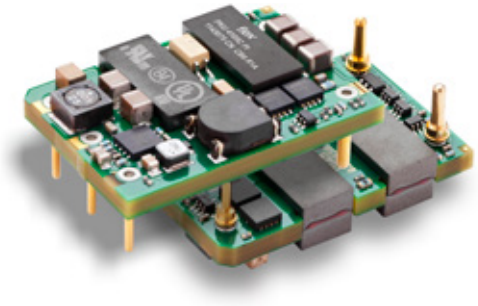
Key Features:

- High efficiency
- Excellent thermal performance
- Cost optimized solution
- Isolation voltage up to 2250V
- MTBF figures up to 17.5 Mhrs

Dimensions: 33 x 22.9 x 8.2 mm (1.3 x 0.9 x 0.32 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
PKU4717YA	36-60	4.5	4.5-5.5	15.8	72	94
PKU4611A	36-60	5	5-6	12	60	94
PKU4716VA	36-60	6	6-7	10	60	94

Sixteenth brick | PKU-C (43-100W)



Key Features:

- Open frame
- High efficiency power module
- Isolation voltage 1500V
- N+1 parallelability
- Optional baseplate
- MTBF figures up to 5.2 Mhrs

Dimensions: 33 x 22.9 x 9.6 mm (1.3 x 0.9 x 0.38 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
PKU4416Z	28-60	24	19.2-26.4	1.8	43	91.7
PKU4116C	36-75	30	10-33	3.3	100	92.9

Eighth brick | PKB-C / PKB-D (200-250W)

Key Features:

- High efficiency with power density
- Wide trim range
- Few components – very space efficient
- Isolation voltage up to 2250V
- MTBF figures up to 10 Mhrs

Dimensions: 58.4 x 22.7 x 13.2 mm (2.3 x 0.9 x 0.52 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
PKB4216C	36-75	30	15-33	6.7	200	95
PKB4216HD	36-60	48/50	40-55	5	250	94.5

Quarter brick | PKM-D (504W)

Key Features:

- Fully regulated DC/DC converter
- Excellent thermal performance
- Excellent power density
- Isolation voltage 2250V
- MTBF figures up to 8 Mhrs

Dimensions: 57.9 x 36.8 x 12.7 mm (2.28 x 1.45 x 0.5 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
PKM4516AD	36-75	28/30	14-35	18	504	96.2
PKM4516HD	36-75	48/50	25-55	10	500	96.2

Half brick | PKJ (700W)

Key Features:

- Excellent thermal performance
- Single stage converter
- Smart design with enhanced reliability
- Isolation voltage 1500V
- MTBF figures up to 7.5 Mhrs

Dimensions: 61 x 57.9 x 12.7 mm (2.4 x 2.3 x 0.5 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
PKJ4716HD	36-75	48/50	25-55	14	700	96.3

DIGITAL RFPA

Quarter brick | BMR683 (500W)

Key Features:

- High efficiency up to 95.5% full load
- Digital functionality with PMBus
- Attractive price/performance ratio
- Streamlined design with few components

Dimensions: 58.4 x 36.8 x 12.7 mm (2.3 x 1.45 x 0.5 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
BMR6830300/200	36 – 60	28/30	18-32	17.9	500	95.5

Quarter brick | BMR684 (700W)

Key Features:

- High efficiency with 96%
- Isolation 1500V
- Standard footprint with digital header
- Pre-bias start-up

Dimensions: 58.4 x 36.8 x 12.7 mm (2.3 x 1.45 x 0.5 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
BMR6841100/001	36-75V	48/50	25-55	14	700	95.5

Half brick | BMR685 (1300W)

Key Features:

- Digital converter with continuous power up to 1300W
- Wide input range
- Excellent dynamic performance
- Isolation 2250V

Dimensions: 61 x 57.9 x 12.7 mm (2.4 x 2.28 x 0.5 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
BMR6853300/001	36-75	48/50	25-55	26	1300	96.5

Other Telecom Products

Latest digital and analog DC/DC converters designed for the Core & Edge part of Telecom Networks, which include applications such as routers, switches, servers, optical networks, session border controllers & gateways.

DIGITAL ISOLATED DC/DC CONVERTERS

Eighth brick | BMR492 (500W)

Key Features:

- Pre-bias start-up
- Isolation 2250V
- Supported by Flex Power Designer
- Halogen-free

Dimensions: 58.4 x 22.7 x 13.2 mm (2.3 x 0.89 x 0.55 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
BMR4920311/011	36-75	12	8-13.2	42	500	96

Quarter brick | BMR458 (600W)

Key Features:

- High efficiency > 96.4%
- Available as open frame and baseplate versions
- Isolation voltage 2250V
- Active current sharing available
- Droop load sharing available

Dimensions: 57.89 x 36.8 x 11.2 mm (2.28 x 1.45 x 0.45 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
BMR4580002/003	36-75	12	8-13.2	50	600	96.4
BMR4580032/003*	36-75	12	8-13.2	50	600	96.4
BMR4580002/014	36-75	12.45	8-13.2	50	600	96.4
BMR4580032/014*	36-75	12.45	8-13.2	50	600	96.4

* Alternative digital pinout, deviation from length dimension

Quarter brick | BMR480 (800W)

Key Features:

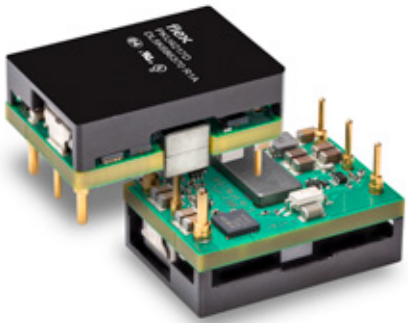
- Excellent thermal performance
- Active current sharing
- Droop load sharing capability
- Over voltage protection
- Output short-circuit protection
- Isolation voltage 1500V
- MTBF up to 6 Mhrs

Dimensions: 58.4 x 36.8 x 14.48 mm (2.3 x 1.45 x 0.57 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
BMR4800113/034	36-60	12	8-13.2	69	800	96.7

ANALOG ISOLATED DC/DC CONVERTERS

Sixteenth brick | PKU-D (110-260W)



Key Features:

- High efficiency up to 95%
- Isolation voltage 2250V
- Pre-bias start up
- Optional baseplate and SMD versions
- MTBF figures up to 12.9 Mhrs

Dimensions: 33 x 22.9 x 11.3 mm (1.3 x 0.9 x 0.44 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
PKU4110D	36-75	3.3	2.6-3.6	30.3	110	93.7
PKU4111D	36-75	5	4-5.5	27	150	93.6
PKU4217D	36-60	10.4	N/A	10	260	96.1
PKU3913D	30-60	12	9.6-13.2	8.3	100	93.5
PKU4913D	36-75	12	9.6-13.2	8.3	100	93
PKU4113D	36-75	12	9.6-13.2	10	120	94.5
PKU4213D	36-75	12	9.6-13.2	17	204	95

Eighth brick | PKB-D (132-450W)

Key Features:

- Efficiency up to 96%
- Isolation up to 2250V
- Optional baseplate & SMD version
- MTBF up to 8.9 Mhrs

Dimensions: 33.02 x 22.86 x 9.4 mm (1.3 x 0.9 x 0.37 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
PKB4110D	36-75	3.3	2.6-3.6	40	132	95.4
PKB4210DA	36-75	3.3	2.6-3.6	62	205	95.4
PKB4111D	36-75	5	4-5.5	30	150	95.5
PKB4211D	36-75	5	4-5.5	40	200	95.3
PKB4211DA	36-75	5	4-5.5	52	260	95.5
PKB4217ND	36-75	10	N/A	25	250	95.7
PKB4213D	36-75	12	N/A	22	264	95.4
PKB4313D	36-75	12	N/A	25	300	96.2
PKB4313DA	36-75	12	N/A	32	390	95.6
PKB4413DA*	36-75	12	N/A	34	408	96.2
PKB4413D*	36-60	12	N/A	37.5	450	96.2

* Hybrid regulated ratio (HRR)

Quarter brick | PKM-NH (600W)

Key Features:

- High efficiency up to 96.2%
- Isolation voltage 2250V
- Fully regulated output voltage
- Optional baseplate
- MTBF figures up to 3.34 Mhrs

Dimensions: 57.9 x 36.8 x 11.4 mm (2.28 x 1.45 x 0.45 in)

SERIES NAME	V_{IN} (V)	V_{OUT} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
PKM4613ANH	36-75	11.6	N/A	50	580	96
PKM4613NH	36-75	12	N/A	50	600	96.2

DIGITAL NON-ISOLATED POINT OF LOAD

BMR4690000

BMR4696001

BMR466

BMR464

BMR463

BMR461

BMR474

BMR473 SMD

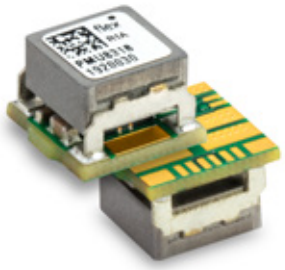
BMR473 SIP

SERIES NAME	V_{IN} (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	η (%)
BMR461	4.5-14	0.6-5.0	6/12/15/18	60	Up to 96
BMR463	4.5-14	0.6-3.3	25	83	97.1
BMR464	4.5-14	0.6-3.3	50	132/165	97.2
BMR466	4.5-14	0.6-1.8	60	108	93.6
BMR474	6-14.4	0.6-3.3	60-80*	198	90.8
BMR4731x01/001 (SIP)	6-15	0.6-5	40	100	96.2
BMR4732x01/001 (Horizontal mount SMD)	6-15	0.6-5	40	100	95.6
BMR4696001**	7.5-14	0.6-5.0	2 x 25A	100	94.3
BMR4690000***	7.5-14	0.6-5.0	2 x 40A	200	92.6

* 80A for output voltage < 1.8V and 60A for output voltage > 1.8-3.3V
** Configurable as single 50A output
*** Configurable as single 80A output

ANALOG NON-ISOLATED POINT OF LOAD

PMU8000



The PMU8000 series is our ultra-miniature Point of Load converter.

Key Features:

- Small package size and low weight (0.92 g)
- Loop Optimization feature
- Configurable soft start and tracking feature
- Bottom side mounting
- MTBF figures up to 172 Mhrs

Dimensions: 7.5 x 7.5 x 5.4 mm (0.29 x 0.29 x 0.21 in)

SERIES NAME	V_{IN} RANGE (V)	V_{OUT} ADJUST (V)	I_{OUT} (A)	P_{OUT} (W)	EFFICIENCY (%)
PMU8218	4.5-17	0.6-5.5	4	22	93.1
PMU8318	4.5-17	0.6-5.5	6	33	92.7
PMU8418	4.5-17	0.6-5.5	8	44	91.9

Software

Flex Power Designer Software is used to sketch and simulate future power systems as well as to configure and monitor your existing digital power system. Flex Power Designer also allows for easy import of .xpe and .pdm files generated in Xilinx Power Estimator and Xilinx Power Design Manager to support easy power supply optimization for Xilinx FPGAs including Virtex/Kintex Ultrascale/Ultrascale+ and Versal ACAPs.

The software is available as a free download from our homepage flexpowerdesigner.com

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