



BOARD-MOUNT POWER MODULE SELECTION GUIDE



**LEADING THE ADVANCEMENT
OF POWER CONVERSION**





Your Reliable Partner

NetPower is committed to meeting customer requirements and increasing customer satisfaction through the continual improvement of its products and the quality management system.

- Extensive Experience in High-Reliability Designs
- Leading Efficiencies - up to 97%
- High Power Density - up to 1500W in a Quarter Brick Package
- Millions of Hours of MTBF
- Millions of Products Used Worldwide
- In-Depth Application Support and Flexible Order Fulfillment
- ISO9001, ISO14001, IATF 16949 Certified Facilities

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Isolated DC-DC Converters

Features

- High efficiency
- 8:1, 4:1 and 2:1 input ranges
- Output power from 15W to multi-kilowatts
- Over-voltage, over-current, short-circuit, and over temperature protections
- Adjustable output voltage
- Fixed frequency operation
- Current sharing on selected products
- Wide operating temperature range

Packaging

- Industry standard footprint
 - Full brick: 4.46" x 2.28"
 - Half brick: 2.41" x 2.28"
 - Quarter brick: 2.28" x 1.46"
 - Eighth brick: 2.30" x 0.91"
 - Sixteenth brick: 1.31" x 0.91"
 - Thirty-second brick: 0.93" x 0.76"
- Open frame, baseplate, encapsulated, conformal coating, SMD, DIP

Safety

- UL 62368 recognized
- Basic or reinforced insulation

Industrial and Telecom DC-DC Converters

9-36VDC Input

Brick Converters (15W~300W)



Series	Power	Efficiency	Output Voltage							Isolation	Package
			3.3V	5V	12V	15V	28V	48V	56V		
M(Y)RS1 ^①	15W 28W	Up to 88%	7A	3A 5A	2A		1A			1500VDC	Thirty-second brick
S(Y)RS1 ^①	30W 60W	Up to 92%	10A 15A	8A 12A	3A 5A	2A 4A				1500VDC	Sixteenth brick
E(Y)RS1 ^①	75W 144W	Up to 92%		20A 25A	8A 10A 12A	5A 8A	3A 5A			2250VDC	Eighth brick
Q(Y)PS1 ^①	99W 200W	Up to 93%	30A	40A	12A		5A	3A	2A	2250VDC	Quarter brick
H(Y)PS1 ^①	240W 300W	Up to 91%		50A	20A	20A	10A	6A ^②		2250VDC	Half brick

9-75VDC Input

Brick Converters (26W~156W)

Series	Power	Efficiency	Output Voltage				Isolation	Package
			3.3V	5V	12V	15V		
S(Y)RS5 ^①	26W 36W	Up to 93%	8A	6A	3A		1500VDC	Sixteenth brick
Q(Y)PS5 ^①	84W 156W	Up to 93%			7A 10A 13A	8A	2250VDC	Quarter brick

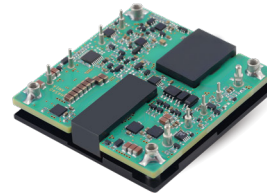
①: Y stands for encapsulated converters

②: To be released

18-36VDC Input

Brick Converters (33W~600W)

Series	Power	Efficiency	Output Voltage						Isolation	Package
			3.3V	5V	12V	15V	28V	48V		
M(Y)RS2 ^①	33W 45W	Up to 88%	10A	8A	3A	3A	1.5A		1500VDC	Thirty-second brick
S(Y)RS2 ^①	70W	Up to 92%					2.5A		1500VDC	Sixteenth brick
E(Y)RS2 ^①	96W 140W	Up to 92.5%					4A 5A	2A	2250VDC	Eighth brick
Q(Y)PS2 ^①	105W 240W	Up to 92%		25A	10A 20A	7A	5A 7A	4A	2250VDC	Quarter brick
Q(Y)BC2 ^①	250W 420W	Up to 92.5%		50A	25A 30A 35A		11A		2250VDC	Quarter brick
H(Y)PS2 ^①	400W 600W	Up to 93%		80A	38A 50A		17A	10.5A	2250VDC	Half brick



18-75VDC Input

Brick Converters (15W~360W)

Series	Power	Efficiency	Output Voltage						Isolation	Package
			3.3V	5V	12V	15V	28V	48V		
LRS3-W	15W 23W	Up to 87%	7A	4A	1.5A	1A			2250VDC	1x1
S(Y)RS3-W ^①	33W 72W	Up to 92%	10A 15A 20A	8A 10A 12A	3A 5A 6A	3A 4A			1500VDC	Sixteenth brick
E(Y)RS3-W ^①	72W 144W	Up to 92%	30A	20A	6A 10A		4A 5A	3A	2250VDC	Eighth brick
Q(Y)PS3-W ^①	96W 228W	Up to 93.5%		25A 40A	17A 19A	13A	5A	2A	2250VDC	Quarter brick
H(Y)PS3-W ^①	250W 360W	Up to 91%		50A	30A			6A ^②	2250VDC	Half brick

①: Y stands for encapsulated converters

②: To be released

36-75VDC Input

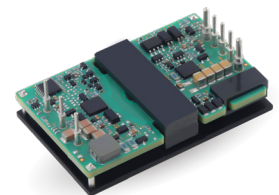
Brick Converters (15W~784W)

Series	Power	Efficiency	Output Voltage						Isolation	Package
			3.3V	5V	12V	15V	28V	48V		
MRS4	15W 40W	Up to 89.2%	10A	3A 5A 8A	3A				1500VDC	Thirty-second brick
SRS4	36W 96W	Up to 92%	15A	12A	3A 5A 8A	6A	2.5A		1500VDC	Sixteenth brick
ERS4	50W 144W	Up to 92.5%	15A 25A 30A	10A 15A	5A 7A	5A	5A	3A	2250VDC	Eighth brick
EBC4	175W 280W	Up to 95%	60A	35A 42A			10A		2250VDC	Eighth brick
EBE4	204W 400W	Up to 95%			17A 22A 30A 33A				2250VDC	Eighth brick
QPS4	120W 228W	Up to 93.5%			19A	13A		2.5A	2250VDC	Quarter brick
QBC4	300W 400W	Up to 95.5%		60A 70A	28A 33A				2250VDC	Quarter brick
QBE4	406W 720W	Up to 95.5%			42A 50A 60A		14.5A 20A ^②	12A	2250VDC	Quarter brick
HPS4	400W 480W	Up to 94%		80A	40A		17A		2250VDC	Half brick
FPS4	700W 784W	Up to 93.5%					25A 28A		2250VDC	Full brick

40-60VDC Input

Brick Converters (480W~1200W)

Series	Power	Efficiency	Output Voltage	Isolation	Package
			12V		
EBE4	480W	Up to 95.2%	40A	2250VDC	Eighth brick
QBE4	800W	Up to 96.8%	67A	2250VDC	Quarter brick
QBH4 ^{①②}	1200W	Up to 97%	100A	700VDC	Quarter brick



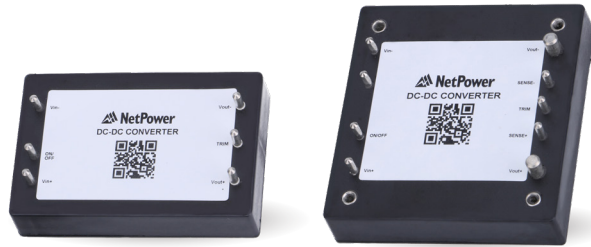
①: 42-56VDC Input

②: To be released

Railway DC-DC Converters (Compliant to EN50155)

Highlights

- ⦿ High efficiency up to 91%
- ⦿ Output power up to 300W
- ⦿ 3000VAC input to output isolation
- ⦿ Wide input ranges: 4:1, 8:1, 12:1
- ⦿ Encapsulated for harsh environments



16-160VDC Input

Series	Power	Efficiency	Output Voltage			Isolation	Package
			5V	12V	24V		
QYR9S	50W	Up to 87%	10A	4.2A	2.1A	3000VAC	Quarter brick

34-160VDC Input

Series	Power	Efficiency	Output Voltage				Isolation	Package
			5V	12V	24V	48V		
QYR6A	60W 153W	Up to 91%	24A	5A 10A	3A 5A	2.5A 3.2A	3000VAC	Quarter brick
HYR6A	250W	Up to 91%	50A	20A	10A		3000VAC	Half brick

66-160VDC Input

Series	Power	Efficiency	Output Voltage						Isolation	Package
			5V	12V	13.8V	24V	48V	56V		
QYR7A	96.6W 185W	Up to 90%	25A	12A	7A ^①	6A	3A	3.3A	3000VAC	Quarter brick
HYR7A	240W 300W	Up to 91%	50A 60A	20A 25A	22A ^①	10A 12.5A	5A 6.3A		3000VAC	Half brick

①: Input Voltage 43-160V

②: To be released

Battery Charging DC-DC Converters

Highlights

- ⦿ Programmable battery charging current
- ⦿ High efficiency up to 92.5%
- ⦿ Output power up to 800W
- ⦿ Current share available
- ⦿ 4250VDC or 4242VDC input to output isolation
- ⦿ Industry standard footprint
- ⦿ Encapsulated for harsh environments



200-420VDC Input

Series	Power	Efficiency	Output Voltage			Isolation	Package
			14V	28V	56V		
HYUEB	300W	Up to 92.5%	22A ^②			4250VDC	Half brick
FYUEB	800W	Up to 92.5%	54A	28A	14A	4250VDC	Full brick

300-520VDC Input

Series	Power	Efficiency	Output Voltage	Isolation	Package
			14V		
HYVEB	350W	Up to 90%	25A	4242VDC	Half brick

②: To be released

High Input Voltage DC-DC Converters

Highlights

- ⦿ High efficiency up to 94%
- ⦿ Output power up to 1200W
- ⦿ Current share available
- ⦿ 4250VDC or 4242VDC input to output isolation
- ⦿ Industry standard footprint
- ⦿ Encapsulated for harsh environments



180-400VDC Input

Series	Power	Efficiency	Output Voltage						Isolation	Package
			5V	12V	15V	28V	48V	56V		
HYUEA	300W 336W	Up to 92%	60A	25A		11A	7A	6A	4250VDC	Half brick
FYUEA	500W 816W	Up to 94%	100A	67A	54A	28A	17A	14A	4250VDC	Full brick

200-425VDC Input

Series	Power	Efficiency	Output Voltage	Isolation	Package
			12V		
FYUES	1200W	Up to 94%	100A	4242VDC	Full brick

AC-DC PFC Modules

Series	Power	Efficiency	Output Voltage	Package
HPFC ^②	1500W	Up to 96%	390V	Half brick
FPFC ^②	2000W	Up to 96.5%	390V	Full brick

②: To be released



Non-isolated DC-DC Converters

Features

- ⊙ High efficiency up to 97%
- ⊙ Multiple input voltage ranges
- ⊙ Over-voltage, over-current, short-circuit, and over temperature protections
- ⊙ Output voltage tracking on selected codes
- ⊙ High current up to 130A
- ⊙ Load sharing on selected codes

Packaging

- ⊙ Standard footprints
- ⊙ SMT, SIP and BMP packages
- ⊙ Open frame, baseplate and encapsulated

Safety

- ⊙ UL 60950-1 2nd recognized

2.5-18VDC Input

Input Voltage (V)	Series	Output Voltage (V)	Output Current (A)	Efficiency	Package	Size (in)
2.5-5.5	NAS0 NBS0	0.75-3.63 0.75-3.63	12-20 8	Up to 96%	SMT SMT	1.30 x 0.53 x 0.25 1.10 x 0.45 x 0.25
4.5-14	NKS1	0.59-5.5	6-12	Up to 93.3%	SMT	0.48 x 0.48 x 0.35
8.0-16	NCT1	0.8-5.5	45	Up to 93%	SMT, SIP, Horizontal TH	2.00 x 0.68 x 0.39
8.5-16	NBS1	0.75-5.5	8	Up to 91%	SMT	1.10 x 0.45 x 0.25
8.5-18	NAT1 NAS1 NES1	0.75-5.5 0.75-5.5 0.75-5.5	12-20 12-20 16-30	Up to 96%	SIP SMT SMT	2.00 x 0.50 x 0.25 1.30 x 0.53 x 0.25 1.30 x 0.53 x 0.38

9-36VDC Input

Input Voltage (V)	Series	Output Voltage (V)	Output Current (A)	Efficiency	Package	Size (in)
9-36	NAT2 NAS2 NBS2	3-6 3-6 3-6	10 10 3.5	Up to 88%	SIP SMT SMT	2.00 x 0.50 x 0.25 1.30 x 0.53 x 0.25 1.10 x 0.45 x 0.25
18-36	NAT3 NAS3 NBS3	5-15.5 5-15.5 5-15.5	9 9 3.5	Up to 94%	SIP SMT SMT	2.00 x 0.50 x 0.25 1.30 x 0.53 x 0.25 1.10 x 0.45 x 0.25
18-36	NPS3	0.9-3.3	15	Up to 80%	SMT	1.10 x 0.72 x 0.37

9-60VDC Input

Input Voltage (V)	Series	Output Voltage (V)	Output Current (A)	Efficiency	Package	Size
9-53	N(Y)XS	3.3-36	12, 20, 26	Up to 97%	BMP	Sixteenth brick
9-60	NYWQ5	0-60	25	Up to 97%	BMP	Quarter brick
9-60	NYWH5	0-60	40	Up to 97%	BMP	Half brick
40-60	NWQ ^②	12	130	Up to 97%	BMP	Quarter brick

②: To be released



EMI Filters

The PFT series EMI filters are designed to attenuate both differential-mode and common-mode conducted noises generated by DC-DC converters. These filters are optimized to provide high insertion loss over the entire frequency range regulated by FCC and CISPR for conducted emissions. These EMI filter modules support up to 80V operating voltages.

Highlights

- ⦿ 80V maximum input voltage
- ⦿ Compatible to most industry standard DC-DC converters
- ⦿ Industry standard package
- ⦿ Wide operating temperature range: -40°C to +100°C

Part Number	Description	Input	Output	Size (in)
PFT0H007J8	Filter	80V/7A	80V/7A	1.04 x 1.04 x 0.50
PFT0H010J8	Filter	80V/10A	80V/10A	2.04 x 1.04 x 0.50
PFT0H020J8	Filter	80V/20A	80V/20A	2.04 x 1.69 x 0.50
PFT0H030J8	Filter	80V/30A	80V/30A	2.42 x 1.02 x 0.50

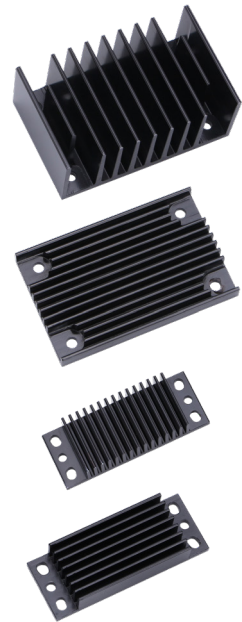


Heatsinks

Standard Brick Size Heatsinks

NetPower heatsinks are suitable for industry standard DC-DC power modules and are available in various sizes and fin orientations. These heatsinks improve thermal performance of power modules in convection cooling.

Part Number	Size	Height Options (in)	Orientation
HSxxxLSA	1/16 Brick	0.24 / 0.45 / 0.90	Lengthwise
HSxxxCSA	1/16 Brick	0.24 / 0.45 / 0.90	Crosswise
HSxxxLEx	1/8 Brick	0.24 / 0.45 / 0.90	Lengthwise
HSxxxCEx	1/8 Brick	0.24 / 0.45 / 0.90	Crosswise
HSxxxLQA	1/4 Brick	0.24 / 0.45 / 0.90	Lengthwise
HSxxxCQA	1/4 Brick	0.24 / 0.45 / 0.90	Crosswise
HSxxxLHA [Ⓢ]	1/2 Brick	0.24 / 0.45 / 0.90	Lengthwise
HSxxxCHA	1/2 Brick	0.24 / 0.45 / 0.90	Crosswise
HSxxxLFA	Full Brick	0.24 / 0.45 / 0.90	Lengthwise
HSxxxCFA [Ⓢ]	Full Brick	0.24 / 0.45 / 0.90	Crosswise



Ⓢ: To be released



For more information, please contact sales@netpowercorp.com
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