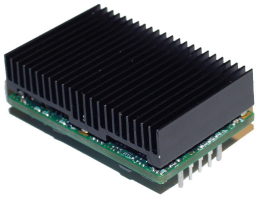
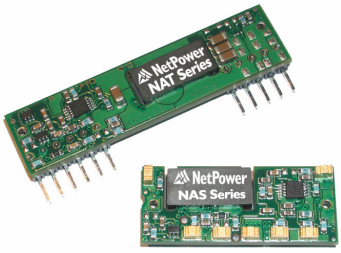
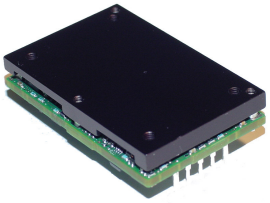
NetPower Technologies

Product Selection Guide







RoHS-5 and RoHS-6 Compliant Product Offering

April 2006

All NetPower products are designed, manufactured, and tested according to strict standards and process controls. Key features of the products include: high efficiency, superior thermal performance, high reliability, and low total ownership cost.

All NetPower products are available as RoHS-5 or RoHS-6 compliant. RoHS-5 compliant parts are free of 5 of the 6 substances banned in the RoHS directive. Only lead (Pb) is contained in our RoHS-5 compliant parts. Our RoHS-6 compliant parts contain none of the six banned substances. Our RoHS-6 compliant parts are lead (Pb) free.

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Isolated DC-DC Converter Bricks

HRS	4	033	N	060	N	1	5	
Series Name:	Nominal Input Voltage:	Nominal Output Voltage:	Enabling Logic:	Rated Output Current:	Pin Length:	Electrical Options:	Mechanical Options: Leaded Parts	Mechanical Options: Lead-free Options (See Note)
ERS EBS QRS QPS QBS HRS HPS	**4**: 48V **2:** 24V **1:** 9-18V	Unit: 0.1V Increments For example: 033 = 3.3V 120 = 12.0V	**P:** Positive **N:** Negative	Measured in Amps For example: 060 = 60A 007 = 7A	**K:** 0.110" **L:** Dual Pin **N**: 0.145" **O:** Dual Pin **R**: 0.180" **S:** SMT	**0:** None **1:** Current Sharing* **2:** Auto Restart **3:** Both	**0:** None **1:** Baseplate **2:** Integrated Heatsink **3:** Baseplate with Case Pin **4:** Integrated Heatsink w/ a Case Pin	**5:** None **6:** Baseplate **7:** Integrated Heatsink **8:** Baseplate with Case Pin **9**: Integrated Heatsink w/ a Case Pin

*** Not available on all products**

Series

ERS = Eighth Brick Regular Series
QBS = Quarter Brick Bus Converter Series
QPS = Quarter Brick High Power Series
EBS = Eighth Brick Bus Converter Series
QRS = Quarter Brick Regular Series
HRS = Half Brick Regular Series
HPS = Half Brick High Power Series

Enabling Logic

P:Positive = On/Off control pin must be pulled up to turn on converter
N:Negative = On/Off control pin must be left open to turn on converter

Pin Length in inches

Dual output pins are available on select high output current bricks.

Electrical Options

Current Sharing: Brick is set up to equalize current between two bricks in parallel.
Auto Restart: Brick will automatically restart itself after a shutdown condition has passed.

Mechanical Options

Baseplate = Thermal conductive plate that will dissipate heat or can be used to attach a heatsink to the brick.
Integrated Heatsink = All-in-one unit that is xx inches lower in height than a baseplate / heatsink combination.
Baseplate (or Integrated Heatsink) with Case Pin = An extra pin is added to the brick to ground the baseplate/integrated heatsink. This is useful with EMI.
Lead Free – All products are available in ROHS-compliant versions. ROHS compliant part numbers can be derived by adding "5" to the last digit of the part number, i.e., ERS4033N020N20 becomes ERS4033N020N25.

ERS Series (48Vin)

20A Eighth Brick Converters

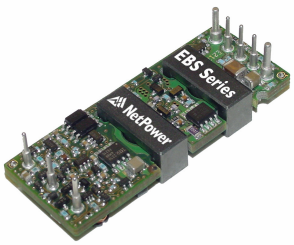
Output up to 20A/60W in standard eighth brick package and footprint. High efficiency and excellent thermal performance. Suitable for low current, tight space applications. Current sharing is not available in this series.

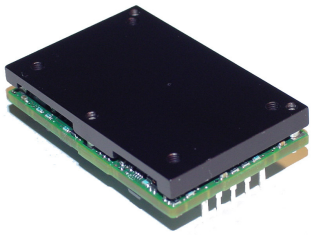
Output Voltage	Output Current	Output Power (W)	Efficiency	Model
12V	5A	60	93%	ERS4120x005xxx
5.0V	10A	50	92%	ERS4050x010xxx
3.3V	15A	50	91%	ERS4033x015xxx
2.5V	20A	50	90%	ERS4025x020xxx
2.0V	20A	40	88%	ERS4020x020xxx
1.8V	20A	36	88%	ERS4018x020xxx
1.5V	20A	30	86%	ERS4015x020xxx
1.2V	20A	24	85%	ERS4012x020xxx
1.0V	20A	20	83%	ERS4010x020xxx

30A Eighth Brick Converters

Output up to 30A/84W in standard eighth brick package and footprint. High efficiency and excellent thermal performance. Suitable for medium current, tight space applications. Current sharing is not available in this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
15V	5A	75	93%	ERS4150x005xxx
12V	7A	84	93%	ERS4120x007xxx
5.0V	15A	75	92%	ERS4050x015xxx
3.3V	20A	66	91%	ERS4033x020xxx
2.5V	25A	63	90%	ERS4025x025xxx
2.0V	30A	60	88%	ERS4020x030xxx
1.8V	30A	54	88%	ERS4018x030xxx
1.5V	30A	45	86%	ERS4015x030xxx
1.2V	30A	36	85%	ERS4012x030xxx
1.0V	30A	30	83%	ERS4010x030xxx





ERS Series (48Vin)

40A Eighth Brick Converters

Output up to 40A/120W in standard eighth brick package and footprint. High efficiency and excellent thermal performance. Suitable for high current, tight space applications. Current sharing is not available in this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
12V	10A	120	93%	ERS4120x010xxx
5.0V	20A	100	92%	ERS4050x020xxx
3.3V	30A	99	91%	ERS4033x030xxx
2.5V	35A	88	90%	ERS4025x035xxx
2.0V	40A	80	88%	ERS4020x040xxx
1.8V	40A	72	88%	ERS4018x040xxx
1.5V	40A	60	86%	ERS4015x040xxx
1.2V	40A	48	85%	ERS4012x040xxx
1.0V	40A	40	83%	ERS4010x040xxx

EBS Bus Converter Series (40A/170W)

Input voltage range 36V – 55V. Output up to 40A/170W in standard eighth brick package and footprint. Suitable for high current, tight space and narrow input voltage applications, or applications with an intermediate bus voltage. Current sharing is not available in this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
12V	14A	168	93%	EBS4120x014xxx
5.0V	30A	150	92%	EBS4050x030xxx
3.3V	40A	132	91%	EBS4033x040xxx

ERS 12Vin Converter Series (40A/170W)

Input voltage range 9V – 18V. Output up to 10A/33W in standard eighth brick package and footprint. Suitable for applications requiring input voltages of 12V nominally. Current sharing is not available in this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
2.5V	10A	25	%	ERS1025x010xxx
3.3V	10A	33	%	ERS1033x010xxx

QRS Series (48Vin)

25A Quarter Brick Converters

Output up to 85W in a standard quarter brick package. Full power output at 70º C, 200 LFM environment without a heatsink or baseplate. Primary-side current sharing control is available as an option. Optimized for applications with high ambient temperatures. Current sharing is an available option for this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
12V	7A	84	93%	QRS4120x007xxx
5.0V	17A	85	92%	QRS4050x017xxx
3.3V	25A	83	91%	QRS4033x025xxx
2.5V	25A	63	90%	QRS4025x025xxx
2.0V	25A	50	88%	QRS4020x025xxx
1.8V	25A	45	88%	QRS4018x025xxx
1.5V	25A	38	87%	QRS4015x025xxx
1.2V	25A	30	85%	QRS4012x025xxx
1.0V	25A	25	83%	QRS4010x025xxx

40A Quarter Brick Converters

Output up to 40A/125W in a standard quarter brick package and footprint. Primary-side current sharing control available as an option. Current sharing is an available option for this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
12V	10A	120	93%	QRS4120x010xxx
5.0V	25A	125	92%	QRS4050x025xxx
3.3V	35A	116	91%	QRS4033x035xxx
2.5V	35A	88	90%	QRS4025x035xxx
2.0V	40A	80	88%	QRS4020x040xxx
1.8V	40A	72	88%	QRS4018x040xxx
1.5V	40A	60	86%	QRS4015x040xxx
1.2V	40A	48	85%	QRS4012x040xxx
1.0V	40A	40	83%	QRS4010x040xxx

QPS High Power Series (48Vin)

70A High Power Quarter Brick Converters

Output up to 70A/204W in a standard quarter brick package. Models with 50A or higher output have an option for dual output pins. Current sharing is not available in this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
15V	13A	195	94%	QPS4150x013xxx
12V	17A	204	94%	QPS4120x017xxx
5.0V	40A	200	93%	QPS4050x040xxx
3.3V	55A	182	93%	QPS4033x055xxx
2.5V	60A	150	92%	QPS4025x060xxx
2.0V	65A	130	90%	QPS4020x065xxx
1.8V	65A	117	89%	QPS4018x065xxx
1.5V	65A	98	88%	QPS4015x065xxx
1.2V	70A	84	87%	QPS4012x070xxx
1.0V	70A	70	85%	QPS4010x070xxx
0.8V	70A	56	84%	QPS4008x070xxx

QRS Series (24Vin)

24V Input 25A Quarter-Brick Converters

Output up to 25A/85W in a standard quarter brick package and footprint. Excellent thermal performance. Primary-side current sharing control is available. Optimized for applications with high ambient temperatures. Current sharing is an available option for this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
12V	7A	84	92%	QRS2120x007xxx
5.0V	17A	85	91%	QRS2050x017xxx
3.3V	25A	83	90%	QRS2033x025xxx
3.3V	20A	66	90%	QRS2033x020xxx
2.5V	25A	63	89%	QRS2025x025xxx
2.0V	25A	50	87%	QRS2020x025xxx
1.8V	25A	45	87%	QRS2018x025xxx
1.5V	25A	38	86%	QRS2015x025xxx
1.2V	25A	30	84%	QRS2012x025xxx
1.0V	25A	25	82%	QRS2010x025xxx

24V Input 40A Quarter-Brick Converters

Output up to 40A/125W in a standard quarter brick package and footprint. Primary-side current sharing control available as an option. Suitable for applications requiring high current within a tight space. Current sharing is an available option for this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
12V	10A	120	92%	QRS2120x010xxx
5.0V	25A	125	91%	QRS2050x025xxx
3.3V	35A	116	90%	QRS2033x035xxx
2.5V	35A	88	89%	QRS2025x035xxx
2.0V	40A	80	87%	QRS2020x040xxx
1.8V	40A	72	86%	QRS2018x040xxx
1.5V	40A	60	85%	QRS2015x040xxx
1.2V	40A	48	84%	QRS2012x040xxx
1.0V	40A	40	82%	QRS2010x040xxx

HRS Series (48Vin)

40A Half Brick Converters

Output up to 40A/132W in a standard half brick package and footprint. High efficiency and excellent thermal performance. Primary-side current sharing control is available with this series. Improved performance with cost advantage.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
12V	11A	132	93%	HRS4120x011xxx
5.0V	25A	125	92%	HRS4050x025xxx
3.3V	40A	132	92%	HRS4033x040xxx
2.5V	40A	100	91%	HRS4025x040xxx
2.0V	40A	80	89%	HRS4020x040xxx
1.8V	40A	72	88%	HRS4018x040xxx
1.5V	40A	60	87%	HRS4015x040xxx
1.2V	40A	48	85%	HRS4012x040xxx
1.0V	40A	40	83%	HRS4010x040xxx

48V Input 70A Half Brick Converters

Output up to 70A/204W in a standard half brick package and footprint. High efficiency and good thermal performance. Primary-side current sharing control is available. Current sharing is for this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
12V	17A	204	93%	HRS4120x017xxx
5.0V	40A	200	92%	HRS4050x040xxx
3.3V	60A	198	91%	HRS4033x060xxx
2.5V	65A	163	90%	HRS4025x065xxx
2.0V	65A	130	88%	HRS4020x065xxx
1.8V	65A	117	87%	HRS4018x065xxx
1.5V	70A	105	86%	HRS4015x070xxx
1.2V	70A	84	84%	HRS4012x070xxx
1.0V	70A	70	82%	HRS4010x070xxx

HPS High Power Series (48Vin)

100A Half Brick Converters

Output up to 100A/360W in a standard half brick package and footprint. Models with 50A or higher outputs have an option for dual output pins. Current sharing is not available in this series.

Output Voltage	Output Current	Output Power (W)	Efficiency	Model
15V	20A	300	94%	HPS4150x020xxx
12V	30A	360	94%	HPS4120x030xxx
12V	25A	300	94%	HPS4120x025xxx
5.0V	55A	275	93%	HPS4050x055xxx
3.3V	80A	264	92%	HPS4033x080xxx
2.5V	85A	213	91%	HPS4025x085xxx
2.0V	90A	180	90%	HPS4020x090xxx
1.8V	90A	162	88%	HPS4018x090xxx
1.5V	95A	143	87%	HPS4015x095xxx
1.2V	100A	120	86%	HPS4012x100xxx
1.0V	100A	100	84%	HPS4010x100xxx
0.8V	100A	80	83%	HPS4008x100xxx

NAS/NAT Point-of-Load (POL)
Non-Isolated DC-DC Converters

NAT	0	033	N	20	R	1	1	
Series Name	Input Voltage Range:	Nominal Output Voltage:	Enabling Logic:	Rated Output Current:	Pin Length:	Electrical Options:	Leaded Mechanical Options:	Lead-Free Mechanical Options:
NAT: SIP **NAS:** SMT	**0:** 2.4 –5.5V **1:** 8.5 – 18V **2:** 9.0 – 36V **3**: 18 – 36V	Unit: 0.1V **e.g. 033** = 3.3V **000** = Variable	**P:** Positive **N:** Negative	Unit: A e.g.: **20** = 20A	**R:** 0.180" (NAT) **S:** SMT (NAS)	**0:** None **1:** Voltage tracking **2:** OVP **3:** Both	**0:** None **1:** Baseplate	**5:** None **6:** Baseplate

POL, non-isolated converters with DOSA compatible footprint in SIP or SMT packages. Optional over-voltage protection, voltage tracking and baseplate.

- **Ultra-high efficiency, 95% (5Vin, 3.3Vout@20A)**
- **Wide input voltage ranges: 2.5V - 5.5V, 8.5V – 18V, 9V - 36V or 18V – 36V;**
- **Wide output-voltage range: 0.7V to 75% of Vin;**
- **Remote sense, remote enable control, output trim;**
- **Monotonic start-up into pre-biased load;**
- **Low profile, standard SMT footprint: 1.3”x0.53”x0.25” (NAS);**
- **Small standard SIP footprint: 2”x0.27”x0.5” (NAT);**
- **Optional baseplate for extreme environments;**
- **Optional over-voltage protection and voltage tracking;**
- **All components meet UL 94V0**

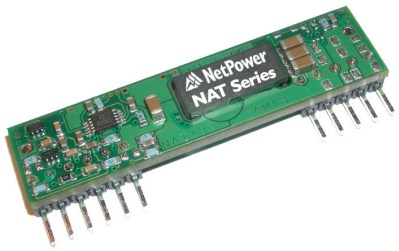
NAT0 (Low Vin)
2.5 - 5.5V Input

12A Output

Output Voltage	Output Current	Model
3.3V	12A	NAT0033x12Rxx
2.5V	12A	NAT0025x12Rxx
2.0V	12A	NAT0020x12Rxx
1.8V	12A	NAT0018x12Rxx
1.5V	12A	NAT0015x12Rxx
1.2V	12A	NAT0012x12Rxx
1.0V	12A	NAT0010x12Rxx
0.8V	12A	NAT0008x12Rxx
Variable	12A	NAT0000x12Rxx

20A Output

Output Voltage	Output Current	Model
3.3V	20A	NAT0033x20Rxx
2.5V	20A	NAT0025x20Rxx
2.0V	20A	NAT0020x20Rxx
1.8V	20A	NAT0018x20Rxx
1.5V	20A	NAT0015x20Rxx
1.2V	20A	NAT0012x20Rxx
1.0V	20A	NAT0010x20Rxx
0.8V	20A	NAT0008x20Rxx
Variable	20A	NAT0000x20Rxx



NAT1 (High Vin)
8.5 - 18Vin

12A Output

Output Voltage	Output Current	Model
8V	12A	NAT1080x12Rxx
5V	12A	NAT1050x12Rxx
3.3V	12A	NAT1033x12Rxx
2.5V	12A	NAT1025x12Rxx
2.0V	12A2	NAT1020x12Rxx
1.8V	12A	NAT1018x12Rxx
1.5V	12A	NAT1015x12Rxx
1.2V	12A	NAT1012x12Rxx
1.0V	12A	NAT1010x12Rxx
0.8V	12A	NAT1008x12Rxx
Variable	12A	NAT1000x12Rxx

20A Output

Output Voltage	Output Current	Model
8V	20A	NAT1080x20Rxx
5V	20A	NAT1050x20Rxx
3.3V	20A	NAT1033x20Rxx
2.5V	20A	NAT1025x20Rxx
2.0V	20A	NAT1020x20Rxx
1.8V	20A	NAT1018x20Rxx
1.5V	20A	NAT1015x20Rxx
1.2V	20A	NAT1012x20Rxx
1.0V	20A	NAT1010x20Rxx
0.8V	20A	NAT1008x20Rxx
Variable	20A	NAT1000x20Rxx

NAS0 (Low Vin) 2.5-5.5Vin

12A Output

Output Voltage	Output Current	Model
3.3V	12A	NAS0033x12Sxx
2.5V	12A	NAS0025x12Sxx
2.0V	12A	NAS0020x12Sxx
1.8V	12A	NAS0018x12Sxx
1.5V	12A	NAS0015x12Sxx
1.2V	12A	NAS0012x12Sxx
1.0V	12A	NAS0010x12Sxx
0.8V	12A	NAS0008x12Sxx
Variable	12A	NAS0000x12Sxx

20A Output

Output Voltage	Output Current	Model
3.3V	20A	NAS0033x20Sxx
2.5V	20A	NAS0025x20Sxx
2.0V	20A	NAS0020x20Sxx
1.8V	20A	NAS0018x20Sxx
1.5V	20A	NAS0015x20Sxx
1.2V	20A	NAS0012x20Sxx
1.0V	20A	NAS0010x20Sxx
0.8V	20A	NAS0008x20Sxx
Variable	20A	NAS0000x20Sxx

NAS1 (High Vin) 8.5-18Vin

12A Output

Output Voltage	Output Current	Model
8V	12A	NAS1080x12Sxx
5V	12A	NAS1050x12Sxx
3.3V	12A	NAS1033x12Sxx
2.5V	12A	NAS1025x12Sxx
2.0V	12A	NAS1020x12Sxx
1.8V	12A	NAS1018x12Sxx
1.5V	12A	NAS1015x12Sxx
1.2V	12A	NAS1012x12Sxx
1.0V	12A	NAS1010x12Sxx
0.8V	12A	NAS1008x12Sxx
Variable	12A	NAS1000x12Sxx

20A Output

Output Voltage	Output Current	Model
8V	20A	NAS1080x20Sxx
5V	20A	NAS1050x20Sxx
3.3V	20A	NAS1033x20Sxx
2.5V	20A	NAS1025x20Sxx
2.0V	20A	NAS1020x20Sxx
1.8V	20A	NAS1018x20Sxx
1.5V	20A	NAS1015x20Sxx
1.2V	20A	NAS1012x20Sxx
1.0V	20A	NAS1010x20Sxx
0.8V	20A	NAS1008x20Sxx
Variable	20A	NAS1000x20Sxx

NAT2 (Wide Vin)
9V – 36V Input

Output Voltage	Output Current	Model
3.3V	10A	NAT2033x10Rxx
5V	9A	NAT2050x09Rxx
Variable	10A/45W	NAT2000x10Rxx

NAS2 (Wide Vin)
9V – 36V Input

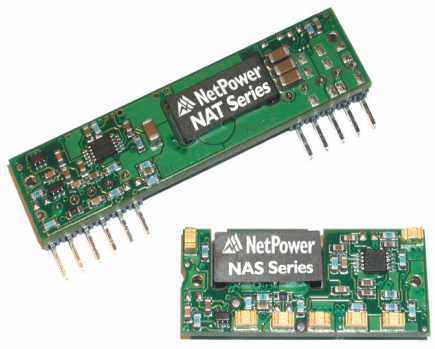
Output Voltage	Output Current	Model
3.3V	10A	NAS2033x10Sxx
5V	9A	NAS2050x09Sxx
Variable	10A/45W	NAS2000x10Sxx

NAT3 (Very High Vin)
18V - 36V Input

Output Voltage	Output Current	Model
5V	9A	NAT3050x09Rxx
8V	7A	NAT3080x07Rxx
12V	5A	NAT3120x05Rxx
15*V	4A	NAT3150x04Rxx
Variable	9A/60W	NAT3000x09Rxx

NAS3 (Very High Vin)
18V - 36V Input

Output Voltage	Output Current	Model
5V	9A	NAS3050x09Sxx
8V	7A	NAS3080x07Sxx
12V	5A	NAS3120x05Sxx
15*V	4A	NAS3150x04Sxx
Variable	9A/60W	NAS3000x09Sxx



NBS Point-of-Load (POL)
Non-Isolated DC-DC Converter

NBS	2	033	N	035	R	1	1	
Series Name	**Input Voltage Range:**	**Nominal Output Voltage:**	**Enabling Logic:**	**Output Current:**	**Pin Length:**	**Electrical Options:**	**Leaded Mechanical Options:**	**Lead-Free Mechanical Options:**
NBS0	**0:** 2.4 –5.5V	Unit: 0.1V	**P:** Positive	Unit: 0.1A	**R:** 0.180" (NAT)	**0:** None	**0:** None	**5:** None
NBS1	**1:** 8.5 – 18V	**e.g. 033** = 3.3V	**N:** Negative	e.g.: **035** = 3.5A	**S:** SMT (NAS)	**1:** Voltage tracking	**(RoHS-5)**	**(RoHS-6)**
NBS2	**2:** 9.0 – 36V	**000** = Variable						
NBS3	**3**: 18 – 36V							

POL, non-isolated converter with DOSA compatible footprint in micro-SMT package

- **Ultra-high efficiency, 94.5% (5Vin, 3.3Vout@6A)**
- **Wide input voltage ranges:**
  - **Low Input Range: 2.5V - 5.5V**
  - **High Input Range: 8.5V – 18V**
  - **Wide Input Range: 9V - 36V**
  - **Very High Input Range: 18V – 36V**
- **Wide output-voltage range: 0.7V to 8.8V;**
- **High output current: 8A**
- **Remote sense, remote enable control, output trim;**
- **Monotonic start-up into pre-biased load;**
- **Low profile, micro-SMT footprint: 1.1’’x0.45’’x0.25;**
- **Optional voltage tracking feature;**
- **All components meet UL 94V0**
- **RoHS Compliant product available**

NBS0 (SMT)
2.5 – 5.5V Input

Output Voltage	Output Current	Model
3.3V	8A	NBS0033x080Sxx
2.5V	8A	NBS0025x080Sxx
2.0V	8A	NBS0020x080Sxx
1.8V	8A	NBS0018x080Sxx
1.5V	8A	NBS0015x080Sxx
1.2V	8A	NBS0012x080Sxx
1.0V	8A	NBS0010x080Sxx
0.8V	8A	NBS0008x080Sxx
Variable	8A	NBS0000x080Sxx

NBS1 (SMT)
8.5 – 16V Input

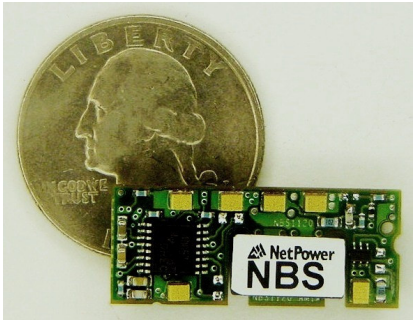
Output Voltage	Output Current	Model
5V	8A	NBS1050x080Sxx
3.3V	8A	NBS1033x080Sxx
2.5V	8A	NBS1025x080Sxx
2.0V	8A	NBS1020x080Sxx
1.8V	8A	NBS1018x080Sxx
1.5V	8A	NBS1015x080Sxx
1.2V	8A	NBS1012x080Sxx
1.0V	8A	NBS1010x080Sxx
0.8V	8A	NBS1008x080Sxx
Variable	8A	NBS1000x080Sxx

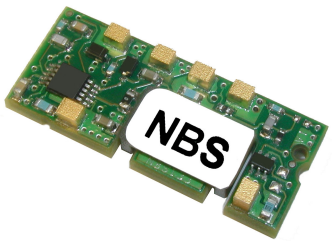
NBS2 (Wide Vin)
9 - 36V Input

Output Voltage	Output Current	Model
3.3 V	3.5A	NBS2033x035Sxx
5 V	3.5A	NBS2050x035Sxx
3 – 6 V	3.5A/18W	NBS2000x035Sxx

NBS3 (High Vin)
18 - 36Vin

Output Voltage	Output Current	Model
5V	3.5A	NBS3050x035Sxx
8 V	3A	NBS3080x030Sxx
12 V	2A	NBS3120x020Sxx
15 V	1.6A	NBS3150x016Sxx
5 – 15.5V	3.5A/24W	NBS3000x035Sxx





Custom and Semi-Custom DC/DC Converters

In addition to our standard product offering, NetPower can also provide modified-standard and custom solutions for customers.

Semi-Custom Products

In addition to our standard output voltages and currents, we can adjust output voltages and currents to meet your needs. Depending on your requirements, these adjustments may be easy to accomplish, and therefore very cost effective. Semi-custom products are available in standard brick and point-of-load packages.

For more complex voltage/current outputs, we can provide solutions not found elsewhere, typically for a lower cost than most competitors. If time is the key, NetPower's superior engineering team can satisfy your needs in record time. Always with quality first and foremost.

Custom Products

NetPower's experienced engineering team provides custom dc/dc converters with many different output values, multiple outputs, and in a package to fit your needs. Our engineers also provide key consultation on the design and operation of these highly complex analog circuits.

We have designed and produced custom products with up to six output voltages, from 20W to 800W. Our custom products have been designed as board products and as stand alone products that utilize connecters to interface into the end product.

Because NetPower is smaller and more nimble, we can develop custom designs faster than our competitors. Our volume requirements are typically lower than others, as well. Each custom opportunity is different however, so call us to discuss your needs.

NetPower understands our customers' apprehension to limit their supply base for any particular products. For that reason, we are always very cost conscious during our design. Of course, we will never sacrifice quality or reliability as we strive to deliver a very cost effective solution to you.

RoHS Certificate of Compliance

NetPower Technologies, Inc. certifies the following product offering to be RoHS compliant. The bricks series and the POL series shown below, when ordered with the suffixes 5 through 9 shown below, are fully compliant with the RoHS directive, including lead (Pb) free. When ordered with suffixes 0 through 4, there is lead (Pb) in the solder used in the product.

Series:

ERS – 20A, 30A, & 40A Series of Eighth Bricks
QPS – 70A Series of High Power Quarter Bricks
QRS – 25A & 40A Series of Quarter Bricks
QRS – 24Vin, 25Ao and 40Ao Series of Quarter Bricks
HRS – 40A and 70A Series of Half Bricks
HPS – 100A Series of High Power Half Bricks
NAS – 12A and 20A Series of SMT POLs
NAT – 12A and 20A Series of SIP POLs
NBS – 8A Series of SMT POLs

RoHS Product Offering

Isolated DC-DC Converter Bricks

HRS	4	033	N	060	N	1	5	
Series Name:	**Nominal Input Voltage:**	**Nominal Output Voltage:**	**Enabling Logic:**	**Rated Output Current:**	**Pin Length:**	**Electrical Options:**	**Mechanical Options**	
							With Leaded Solder	**Lead-free Options (See Above)**
ERS EBS	**4**: 48V **2:** 24V **1:** 9-18V	Unit: 0.1V Increments For example: 033 = 3.3V 120 = 12.0V	**P:** Positive **N**: Negative	Measured in Amps For example: 060 = 60A 007 = 7A	**K:** 0.110" **L:** Dual Pin **N**: 0.145" **O:** Dual Pin **R**: 0.180" **S:** SMT	**0:** None **1:** Current Sharing* **2:** Auto Restart **3:** Both	**0:** None **1:** Baseplate **2:** Integrated Heatsink **3:** Baseplate with Case Pin **4:** Integrated Heatsink w/ a Case Pin	**5:** None **6:** Baseplate **7:** Integrated Heatsink **8:** Baseplate with Case Pin **9**: Integrated Heatsink w/ a Case Pin
QRS QPS QBS								
HRS HPS								

With this certificate, I hereby certify NetPower's compliance with the RoHS directive.

Signature: *Yimin Jiang* Effective Date: ***January 1, 2006***

Customer Service & Order Entry

Order Minimums and Multiples

Product	Small Package Min	Small Package Multiple	Large Package Min	Large Package Multiple
Eighth Bricks	**54**	**18**	**96**	**48**
Quarter Bricks	**36**	**12**	**56**	**28**
Half Bricks	**27**	**9**	**48**	**24**
POL Converters				
NAT (SIP)	**72**	**36**	**N/A**	
NAS (SMT)	**96**	**48**	**N/A**	

* All products are packaged using anti-static foam trays.

Note: NetPower currently accepts orders for non-standard package quantities for certain orders. Handling charges may apply for non-standard package quantities.

Order Rescheduling and Cancellation

Product may be rescheduled with thirty (30) days notice, in writing or by electronic means acceptable to NetPower, prior to the scheduled ship date.

Product may be cancelled with 30 days notice, in writing or by electronic means acceptable to NetPower prior to the scheduled ship date.

Payment Terms

Satisfactory payment in full of Seller's invoice must be made within thirty (30) days from the date of the invoice.

Warranty

NetPower warrants our products to conform to the product specifications, and that any value-added work performed by us shall conform to the customer's specifications relating to such work for a period of two (2) years. We make no other warranty, express or implied, with respect to the Products. **IN PARTICULAR, WE MAKE NO WARRANTY RESPECTING THE MERCHANTABILITY OF THE PRODUCTS OR THEIR SUITABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR USE OR RESPECTING INFRINGEMENT.**

EXW:

Richardson Texas 75081 USA