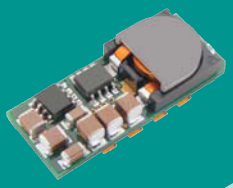
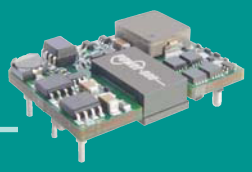
Z-One® Digital Power

Analog POL



Isolated DC-DC



Front Ends

Chassis Mount

PoE

Ruggedized

CompactPCI

Renewable Energy

Network Power Systems

Intelligent Controls

power-one®
Changing the Shape of Power

2008 Product Update

power-one®
Changing the Shape of Power

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Distributed Power & Intermediate Bus Architectures

Point-Of-Load Conversion & Management

Brick Overview
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SMT = Surface Mount
TH = Through Hole

Board Mount Isolated DC-DC

Rack and Chassis-Mount Front Ends

Site Level

Renewable Energy

Additional information is available on the Power-One web site.

Network Power Systems

Additional information is available on the Power-One web site.

Chassis Mount, up to 7000 Watts

Open-Frame Linears

Board-Only, U-Channel, & Enclosed

Configurable Modular

Specialty

CompactPCI & PoE

Railway & Rugged

Railway & Rugged Overview Page 51

DIN-Rail Mount, AC-DC & DC-DC

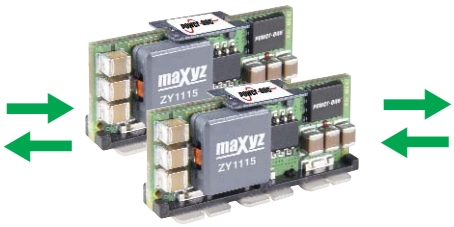
Cassettes & Positive Switching Regulators

No-Bus™ POL Converters

Power-One's No-Bus™ POL converters provide sophisticated power management capabilities without the cost and complexity of third-party controllers and the communication bus interfaces required by analog architectures.

Signals and Protections

- Reporting of output current and temperature via signal pins.
- Thresholds for overvoltage, undervoltage, and Power Good track the output voltage settings.



Coordination and Optimization via Simple Pin Strapping

- Frequency synchronization and phase interleaving reduce EMI.
- Comprehensive sequencing and cascading management.
- Feedback loop compensation and enable logic.
- Frequency synchronization, fault propagation, and current sharing are implemented, without external components, by interconnecting pins on the Z-POLs being coordinated.

Output Voltages and Currents

- Output voltages (0.5 to 5.5 V) and turn-on delays are configured with an external resistor and a capacitor, respectively.
- Up to four No-Bus POLs can current share using a single control trace.
- No-Bus POLs can start up with pre-biased outputs.
- Sink and source current capabilities for active bus termination.

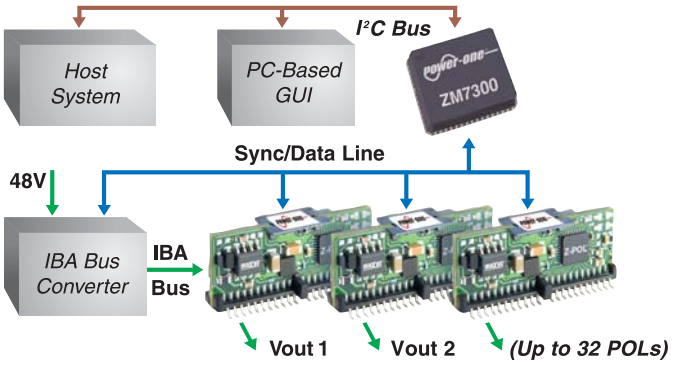
Bus Programmable POL Solutions

Power-One's bus-programmable POL solutions combine many innovative operating concepts to achieve an unprecedented level of power-system integration. A multitude of parameters, such as output voltages, sequencing, tracking, and protection limits are user-programmed via I²C, or GUI, and stored in a Digital Power Manager.

Although Z-One® Digital Power can be programmed via an I²C bus, it does not require users to provide an I²C interface, host processor, or non-volatile memory; Z-One® Digital Power can operate autonomously in any system. Additional features include:

- Open architecture based on industry standard I²C interface.
- Wide input ranges and programmable outputs reduce the number of unique models in inventory.
- Extremely scalable architecture provides up to 32 programmable outputs from 0.5 to 5.5 VDC.
- Significantly reduced component count improves reliability, power density, and cost.
- GUI-driven configuration and simulation simplifies power system development, accelerating time to market.
- Fully-integrated point-of-load solution eliminates component incompatibility issues.
- Manages up to four analog components including VRMs, POLs, fans, and linear regulators.

ZM7300 Digital Power Managers



ZM7300 Series controllers can manage analog components (including VRMs, linear regulators, POLs, and fans) and Z-POL converters for a total of 32 devices. I²C communication with host systems in 100 kbs and 400 kbs modes of operation is supported.

These 9 x 9mm QFN-package controllers can be purchased preprogrammed, or can be user programmed via an IEEE 1149.1 compliant JTAG port or via the Z-Series GUI and the I²C port. Additional features include:

- Ensures data integrity by storing configuration instructions in non-volatile memory.
- Collects I²C compatible POL performance data (output voltage, output current, POL temperature, and protection status).
- Monitors the intermediate bus, accepts interrupts, initiates crowbar protection, and interfaces with dc-dc bus converters and ac-dc front ends.

ZM7300 Series Digital Power Managers

Model Number	Digital POL Management Nodes	Analog Component Management Nodes	Combined Nodes*
ZM7304	4	4	4
ZM7308	8	4	8
ZM7316	16	4	16
ZM7332	32	4	32

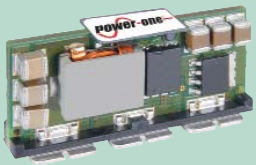
* Combined nodes are the maximum number of analog and digital components that can be concurrently managed.

ZM7300 Digital Power Manager

- Controls up to 32 Bus Programmable POLs and 4 analog components
- Compact 9 x 9 mm package

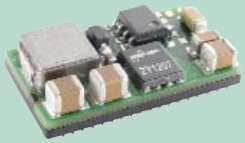
Bus Programmable Digital POLs

Input Voltage	Output Program Range	Max Amps	Efficiency	Model
Latest-Generation High Efficiency Digital POLs				
8 to 14	+0.5 to +5.5	6	92%	ZY8105
8 to 14	+0.5 to +5.5	10	92%	ZY8110
8 to 14	+0.5 to +5.5	20	92%	ZY8120
8 to 14	+0.5 to +3.65	40	94%	ZY8140
8 to 14	+0.5 to +2.75	60	92%	ZY8160
Ultra-Wide Input Digital POLs				
3 to 14	+0.5 to +5.5	7	92%	ZY7007
3 to 13.2	+0.5 to +5.5	10	90%	ZY7010
3 to 13.2	+0.5 to +5.5	15	92%	ZY7015
3 to 13.2	+0.5 to +5.5	15	94%	ZY7115
3 to 13.2	+0.5 to +5.5	20	92%	ZY7120



ZY11XX & ZY71XX

1.25 x 0.55 x 0.31 inch
32 x 14 x 8 mm

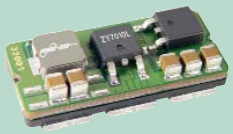


ZY7007 & ZY1207

0.87 x 0.49 x 0.26 inch
22.2 x 12.5 x 6.5 mm

No-Bus Digital POLs

Input Voltage	Output Trim Range	Max Amps	Efficiency	Model
Latest-Generation High Efficiency Digital POLs				
8 to 14	+0.5 to +5.5	5	93%	ZY2105
8 to 14	+0.5 to +5.5	10	92%	ZY2110
8 to 14	+0.5 to +5.5	20	92%	ZY2120
8 to 14	+0.5 to +3.6	40	93%	ZY2140
8 to 14	+0.5 to +2.75	60	93%	ZY2160
Ultra-Wide Input Digital POLs				
3 to 14	+0.5 to +5.5	7	92%	ZY1207
3 to 14	+0.5 to +5.5	15	94%	ZY1015
3 to 14	+0.5 to +5.5	15	94%	ZY1115
3 to 14	+0.5 to +5.5	20	92%	ZY1120



ZY7010, ZY7015, & ZY1015

1.25 x 0.55 x 0.28 inch
32 x 14 x 7.1 mm

ZY2105 & ZY8105

1.2 x 0.26 x 0.84 inch
30.5 x 6.6 x 21.3 mm

ZY2110 & ZY8110

1.2 x 0.26 x 0.84 inch
30.5 x 6.6 x 21.3 mm

ZY2140 & ZY8140

1.8 x 0.55 x 1.1 inch
45.7 x 14 x 27.9 mm

ZY2160 & ZY8160

2.4 x 0.55 x 1.1 inch
61 x 14 x 27.9 mm

YM05S, YM12S, & YNM05S

0.8 x 0.45 x 0.25 inch
20.3 x 11.4 x 6.3 mm

YNC, YNL, & YS

1.30 x 0.53 x 0.31 inch
33 x 13.5 x 8 mm

YPB09S

1.00 x 0.50 x 0.48 inch
25.4 x 12.7 x 12.2 mm

Y-Series (DOSA-Compliant) Surface-Mount POL Converters

Input Voltage	Max Amps	Output Trim Range	Efficiency	Model
Models with 5.5Vin and Lower, Sorted by Max Amps				
3 to 5.5	5	+0.75 to +3.63	94%	YM05S05
3 to 5.5	6	+0.75 to +3.63	93%	YNM05S06
3 to 5.5	10	+0.85 to +0.99	84%	YNL05S10009
3 to 5.5	10	+0.9 to +1.1	86%	YNL05S10010
3 to 5.5	10	+1.1 to +1.3	87%	YNL05S10012
3 to 5.5	10	+1.4 to +1.6	89%	YNL05S10015
3 to 5.5	10	+1.7 to +1.9	91%	YNL05S10018
3 to 5.5	10	+1.8 to +2.2	92%	YNL05S10020
3 to 5.5	10	+2.3 to +2.7	93%	YNL05S10025
3 to 5.5	10	+3 to +3.6	94%	YNL05S10033
3 to 5.5	10	+0.75 to +3.63	94%	YS05S10
3 to 5.5	16	+0.75 to +3.63	93%	YS05S16
4.5 to 5.5	20	+0.75 to +3.63	94%	YNC05S20
Model with 4.5 to 13.5Vin				
4.5 to 13.5	30	+0.8 to +1.8	90%	YPB09S30
Models with 9.6 to 14Vin, Sorted by Max Amps				
9.6 to 14	5	+0.75 to +5.5	92%	YM12S05
9.6 to 14	10	+0.9 to +1.1	86%	YNL12S10010
9.6 to 14	10	+1.1 to +1.3	87%	YNL12S10012
9.6 to 14	10	+1.4 to +1.6	89%	YNL12S10015
9.6 to 14	10	+1.7 to +1.9	90%	YNL12S10018
9.6 to 14	10	+1.8 to +2.2	91%	YNL12S10020
9.6 to 14	10	+0.75 to +5.5	95%	YS12S10
9.6 to 14	10	+2.3 to +2.7	93%	YNL12S10025
9.6 to 14	10	+3 to +3.6	94%	YNL12S10033
9.6 to 14	10	+4.5 to +5.5	95%	YNL12S10050
9.6 to 14	16	+0.75 to +5.5	94%	YS12S16
9.6 to 14	20	+0.75 to +5.5	94%	YNC12S20

3, 6, 10, and 20-Amp YEV-Series POLs Provide Tightly-Regulated 0.59 - 5.1V Trimmable Outputs

YEV-Series POLs combine ultra-high efficiencies with excellent thermal management to provide current-dense footprints, and low profiles that minimize impedance to system airflow; enhancing cooling for both upstream and downstream devices.

- Industry-standard SIP packages.
- Wide input voltage range: 4.5 V–13.8 V.
- 3, 6, and 10-amp models (top picture) utilize compact 0.41 x 0.40 x 0.65 inch (10.4 x 10.2 x 16.5 mm) packages.
- 20-amp model (bottom picture) utilizes a compact 1.45 x 0.34 x 0.61 inch (36.8 x 8.6 x 15.5 mm) package.
- Exceptional thermal performance, even in high temperature environments with minimal airflow.
- Rugged designs provide MTBFs up to 67 million hours.

Y-Series (DOSA-Compliant) Through-Hole POL Converters

Input Voltage	Max Amps	Output Trim Range	Efficiency	Model
Models with 3.3 to 5.5Vin, Sorted by Max Amps				
3 to 5.5	6	+0.75 to +3.63	93%	YNV05T06
3 to 5.5	10	+0.85 to +0.99	85%	YNV05T10009
3 to 5.5	10	+0.9 to +1.1	86%	YNV05T10010
3 to 5.5	10	+1.1 to +1.3	88%	YNV05T10012
3 to 5.5	10	+1.4 to +1.6	90%	YNV05T10015
3 to 5.5	10	+1.7 to +1.9	91%	YNV05T10018
3 to 5.5	10	+1.8 to +2.2	92%	YNV05T10020
3 to 5.5	10	+0.75 to +3.63	95%	YNV05T10
3 to 5.5	10	+2.3 to +2.7	93%	YNV05T10025
3 to 5.5	10	+3 to +3.6	95%	YNV05T10033
3 to 5.5	16	+0.75 to +3.63	93%	YNV05T16
Models with 4.5 to 13.8Vin, Sorted by Max Amps (DOSA does not specify YEV equivalents)				
4.5 to 13.8	3	+0.6 to +5.1	93%	YEV09T03
4.5 to 13.8	6	+0.6 to +5.1	93%	YEV09T06
4.5 to 13.8	10	+0.6 to +5.1	93%	YEV09T10
4.5 to 13.8	20	+0.6 to +5.1	93%	YEV09T20
Models with 5 to 13.8Vin, Sorted by Max Amps				
5 to 13.8	40	+0.6 to +3.63	92%	YH09T40
5 to 13.8	50	+0.6 to +3.63	92%	YV09T50
5 to 13.8	60	+0.6 to +3.63	93%	YV09T60
Models with 9.6 and Higher Vin, Sorted by Max Amps				
9.6 to 14	5	+0.75 to +5.5	90%	YNV12T05
9.6 to 14	10	+0.9 to +1.1	85%	YNV12T10010
9.6 to 14	10	+1.1 to +1.3	87%	YNV12T10012
9.6 to 14	10	+1.4 to +1.6	88%	YNV12T10015
9.6 to 14	90	+1.7 to +1.9	90%	YNV12T10018
9.6 to 14	90	+1.8 to +2.2	90%	YNV12T10020
9.6 to 14	10	+0.75 to +5.5	94%	YNV12T10
9.6 to 14	10	+2.3 to +2.7	92%	YNV12T10025
9.6 to 14	10	+3 to +3.6	93%	YNV12T10033
9.6 to 14	10	+4.5 to +5.5	94%	YNV12T10050
9.6 to 14	16	+0.75 to +5.5	94%	YNV12T16
10 to 14	25	+0.8 to +5.5	94%	YV12T25

Current-Dense YV09T60 POL Delivers a 60 Amp 0.6 V – 3.63 V Programmable Output

2.58 x 0.63 x 1.25 inch
65.5 x 16 x 31.7 mm

The YV09T60 POL converter offers exceptional thermal performance, even in high temperature environments with minimal airflow.

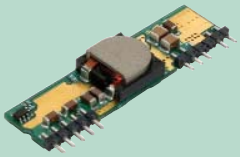
- Industry-standard SIP package
- High-efficiency multiphase synchronous buck topology
- Low-noise fixed-frequency operation
- Overcurrent, output overvoltage, and overtemperature protections with automatic restart
- Wide input voltage range: 5 V–13.8 V
- Extended operating temperature range: 0 to 70 ºC

YH09T40

1.45 x 1.12 x 0.5 inch
36.8 x 28.3 x 12.7 mm

YNV05T06 & YNV12T05

0.90 x 0.40 x 0.21 inch
22.9 x 10.2 x 5.4 mm

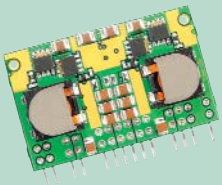


YNV05T10, YNV05T10XXX, YNV05T16, YNV12T10, YNV12T10XXX, & YNV12T16

2.0 x 0.54 x 0.28 inch
50.8 x 13.6 x 7.1 mm

YV09T50

1.45 x 0.73 x 1.12 inch
36.8 x 18.4 x 28.3 mm



YV12T25

2.00 x 1.25 x 0.34 inch
50.8 x 31.8 x 8.5 mm

An Industry-Leading Selection of High-Efficiency DC-DC Bricks

Power-One offers a comprehensive range of DPA bricks and IBA bus converters, in footprints from 1/16 to full. Industry-leading efficiencies, and advanced thermal-management techniques increase current densities, reduce power consumption, and provide more power in elevated-temperature environments.

These flexible products can be used as isolated DC-DC converters, in applications with separate input/output grounds, or used as non-isolated converters in applications with common input/output grounds. DOSA-compliant models are available. Please refer to the product selection tables on the following pages for model-level details.

Cost-Effective Sixteenth-Brick Provides up to 92% Efficiency

The DOSA-compliant SSQE48T20033 20-amp, 3.3 Vout, sixteenth-brick delivers power densities up to 56 watts per square inch. Additional features include:

- Ultra-low profile height: 0.374".
- Full Telco input range: 36-75 VDC.
- Capability to withstand a 100 V input transient for 100 ms.
- On-board input differential LC-filtering.
- SMT and through-hole-mount models are available.

40 and 50 Amp Eighth-Bricks Deliver Best-in-Class Elevated Temperature Performance

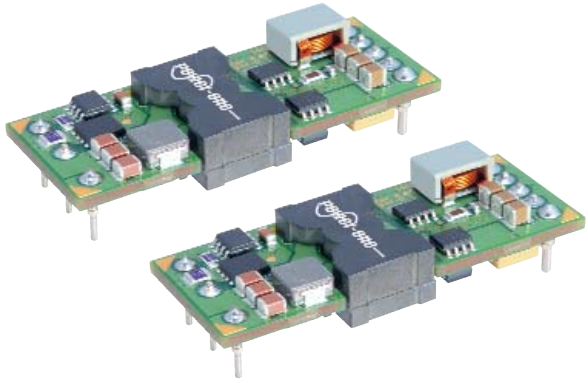
The latest SQE48T Series eighth-bricks provide single-output elevated-temperature performance that exceeds most similar-amperage quarter-bricks. Additional features include:

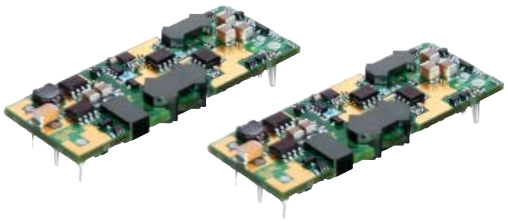
- Wide range 36-75 VDC inputs.
- 2250 VDC input-to-output isolation provides Basic insulation.
- Start-up into highly-capacitive loads.
- Rugged design withstands a 100 V input transient for 100 ms.

18 to 60 VDC Input Eighth-Bricks Provide Full Power at 70 °C with Only 200 LFM Cooling

The EMS Series delivers industry-leading 70 °C performance; as little as 200 LFM cooling is needed for full-power operation, with either 24 or 48 Vin. Additional features include:

- Ultra-wide 18 to 60 VDC input range eliminates the need for multiple host-system circuit-pack designs.
- Efficiencies exceeding 90%.
- 1500 VDC input-to-output isolation; Basic insulation.
- 3.3 and 5 Vout models available.





Eighth-Bricks Designed for Rugged Industrial and Aerospace Applications

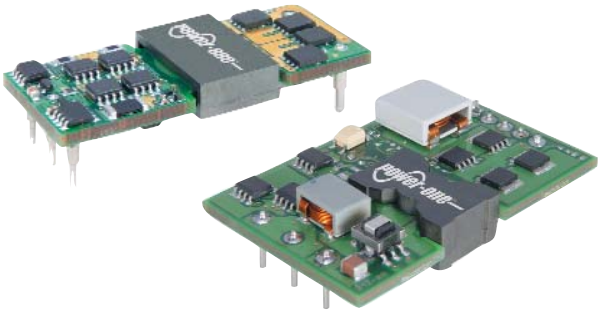
ASQ Series eighth-bricks provide high-reliability operation in harsh thermal and mechanical environments.

- Extended ambient temperature operation: -55 °C to +85 °C.
- Rugged design survives 1000 g mechanical shock.
- Low profile and low weight.
- Available in through-hole and surface-mount packages.

High-Current-Density QME Quarter-Bricks Available with Outputs from 1 to 12 VDC

QME Series products provide up to 40 amps from industry-standard quarter-brick footprints. Additional features include:

- Outstanding thermal performance in high ambient temperature environments.
- No minimum load required.
- Capability to start-up into pre-biased loads.
- Rugged design withstands 100 V input transient for 100 ms.



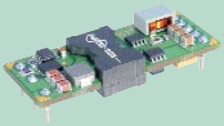
High-Efficiency IBA Bus Converters, Fixed Ratio and Wide-Input Models Available

Bus converter products include models with ultra-high efficiencies (up to 97%). Available features include:

- Fixed ratio (4:1 and 5:1) and wide input models.
- A wide range of output voltages facilitates selecting the most efficient bus voltage for a specific application.
- Extended operating-temperature ranges: -40 to +85 °C.
- High reliability: MTBF = 20 million hours.

Isolated DC-DC > Thru-Hole > Single Output

Unsigned output voltages are isolated and can be used as either + or - polarities.



EMS
2.30 x 0.9 x 0.43 inch
58.4 x 22.9 x 10.8 mm

HDS & HKS
2.40 x 2.28 x 0.50 inch
61.0 x 57.9 x 12.7 mm

HBC48T
2.40 x 2.28 x 0.50 inch
61.0 x 57.9 x 12.7 mm

HHS04 & HHS05
2.40 x 2.28 x 0.42 inch
61.0 x 57.9 x 10.7 mm

QBC
2.28 x 1.45 x 0.43 inch
57.9 x 36.8 x 11 mm

QME48T
2.30 x 1.45 x 0.48 inch
58.4 x 36.8 x 12.2 mm

Thru-Hole > Single-Output > Bus Converters

Max Amps	Brick Size	Factory Set Vout	Output Range	Input Voltage	Vout Regulation	Efficiency	Model
Models with fixed-ratio inputs/outputs							
20	1/8	N/A	8.7 to 13.7	42 to 53	5.1 fixed ratio	96%	SQT48T20120
27	1/8	N/A	6.7 to 11	38 to 55	5.1 fixed ratio	95%	SQT48T27096
38	1/8	N/A	7 to 11	38 to 55	5.1 fixed ratio	95%	SQT48T38096
25	1/4	N/A	10.5 to 13.3	42 to 53	4.1 fixed ratio	96%	QTS48T25120
38	1/4	N/A	7.2 to 11	36 to 55	5.1 fixed ratio	96%	QTS48T38096
46	1/4	N/A	7.2 to 11	36 to 55	5.1 fixed ratio	97%	QTS48T46096
67	1/4	N/A	7.2 to 11.4	38 to 55	5.1 fixed ratio	96%	QTS48T67096
Models with wide-range inputs							
6.7	1/4	12	11 to 13	18 to 60	4% total	92%	QMS07DH
10	1/8	12	9.6 to 13.2	36 to 75	2% total	93%	SQE48T10120
11	1/4	12	9.6 to 13.2	36 to 75	5% total	91%	QBC11ZH
20	1/4	12	9.6 to 13.2	36 to 75	2% total	93%	QME48T20120
25	1/2	12	9.6 to 13.2	36 to 75	2% total	93%	HBC48T25120
30	1/2	12	10.8 to 13.2	36 to 75	3% total	91%	HDS48T30120
32	1/2	12	10.8 to 13.2	35 to 75	4% total	94%	HKS48T30120

Additional single-output products are listed in the through-hole and surface-mount isolated DC-DC sections.

Thru-Hole > Single-Output > Power Over Ethernet

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
36 to 75	52.5	50 to 53	3.8	HHS04Z52
36 to 75	53.7	51.2 to 54.2	4.8	HHS05Z55

Thru-Hole > Single-Output > 1/16-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
36 to 75	1.2	1 to 1.3	25	SSQE48T25012
36 to 75	1.5	1.2 to 1.6	25	SSQE48T25015
36 to 75	1.8	1.5 to 1.9	25	SSQE48T25018
36 to 75	2.5	2 to 2.7	25	SSQE48T25025
36 to 75	3.3	2.7 to 3.6	25	SSQE48T25033
36 to 75	3.3	2.7 to 3.6	20	SSQE48T20033
36 to 75	3.3	2.7 to 3.6	15	SSQE48T15033
36 to 75	3.3	2.7 to 3.6	10	SSQE48T10033
36 to 75	5.0	4 to 5.5	13	SSQE48T13050

Thru-Hole > Single-Output > 1/8 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
Models with 18 to 36Vin, Sorted by Factory Set Vout				
18 to 36	1	0.9 to 1.1	15	SQ24T15010*
18 to 36	1.2	1.1 to 1.3	15	SQ24T15012*
18 to 36	1.5	1.2 to 1.6	15	SQ24T15015*
18 to 36	1.8	1.5 to 1.9	15	SQ24T15018*
18 to 36	2	1.6 to 2.2	15	SQ24T15020*
18 to 36	2.5	2 to 2.7	15	SQ24T15025*

Continued on Next Page

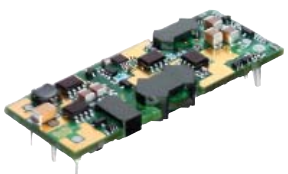
Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Single-Output > 1/8 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
Models with 18 to 36Vin, Sorted by Factory Set Vout (Continued)				
18 to 36	3.3	2.7 to 3.6	15	SQ24T15033*
18 to 36	5	4 to 5.5	10	SQ24T10050*
18 to 36	6	4.8 to 6.6	8	SQ24T08060*
18 to 36	8	6.4 to 8.8	5.3	SQ24T05080
18 to 36	12	9.6 to 13.2	4	SQ24T04120*
18 to 36	15	12 to 16.5	3.3	SQ24T03150
Models with Ultra-Wide Input, Sorted by Factory Set Vout				
18 to 60	3.3	2.5 to 3.6	15	EMS15DE
18 to 60	5	4.5 to 6	10	EMS10DG
Models with Nominal 48Vin, Sorted by Factory Set Vout				
36 to 75	1	0.9 to 1.1	15	SQ48T15010
36 to 75	1.2	1.1 to 1.3	15	SQ48T15012
36 to 75	1.2	1.1 to 1.3	30	SQE48T30012
36 to 75	1.2	1.1 to 1.3	50	SQE48T50012
36 to 75	1.5	1.2 to 1.6	15	SQ48T15015
36 to 75	1.5	1.2 to 1.6	30	SQE48T30015
36 to 75	1.5	1.2 to 1.6	40	SQE48T40015
36 to 75	1.8	1.5 to 1.9	15	SQ48T15018*
36 to 75	1.8	1.5 to 1.9	30	SQE48T30018
36 to 75	1.8	1.5 to 1.9	40	SQE48T40018
36 to 75	2	1.6 to 2.2	15	SQ48T15020
36 to 75	2.5	2 to 2.7	15	SQ48T15025
36 to 75	2.5	2 to 2.7	30	SQE48T30025
36 to 75	2.5	2 to 2.7	40	SQE48T40025
36 to 75	3.3	2.7 to 3.6	15	SQ48T15033*
36 to 75	3.3	2.7 to 3.6	20	SQE48T20033
36 to 75	3.3	2.7 to 3.6	30	SQE48T30033
36 to 75	5	4 to 5.5	10	SQ48T10050
36 to 75	5	4 to 5.5	20	SQE48T20050
36 to 75	6	4.8 to 6.6	8	SQ48T08060
36 to 75	6	4.8 to 6.6	17	SQE48T17060
36 to 75	8	6.4 to 8.8	5.3	SQ48T05080
38 to 55	9.6	6.7 to 11	27	SQT48T27096 **
38 to 55	9.6	7 to 11	38	SQT48T38096 **
36 to 75	12	9.6 to 13.2	4	SQ48T04120
36 to 75	12	9.6 to 13.2	10	SQE48T10120
38 to 55	12	8.7 to 13.7	20	SQT48T20120 **

** Fixed-ratio input-to-output voltage

*ASQ Eighth Bricks Designed for Rugged Industrial and Aerospace Applications



*The ASQ Series provides high-reliability operation in harsh thermal and mechanical environments. Models with single asterisks above are SQ-Series converters with identical voltages and currents to ASQ-Series products (just replace the prefix "SQ" with "ASQ" in the part number).

- Extended ambient temperature operation: -55 °C to +85 °C.
- Rugged design survives 1000 g mechanical shock.
- Low profile and low weight.
- Available in through-hole and surface-mount packages.

Alpha-sorted graphics and dimensions augment model listings from both pages.

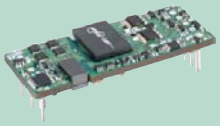
QMS
2.28 x 1.45 x 0.5 inch
57.9 x 36.8 x 12.7 mm

QTS48T25
2.28 x 1.45 x 0.40 inch
57.9 x 36.8 x 10.2 mm

QTS48T38, QTS48T46
2.28 x 1.45 x 0.50 inch
57.9 x 36.8 x 12.7 mm

QTS48T67
2.30 x 1.45 x 0.48 inch
58.4 x 36.8 x 12.2 mm

SQ24T & SQ48T
2.30 x 0.90 x 0.28 inch
58.4 x 22.8 x 7.1 mm



SQE48T
2.30 x 0.90 x 0.41 inch
58.4 x 22.8 x 10.3 mm

SQT48T20
2.30 x 0.9 x 0.39 inch
58.4 x 22.8 x 10 mm

SQT48T27 & SQT48T38
2.30 x 0.90 x 0.48 inch
58.4 x 22.8 x 12.1 mm

SSQE48T
1.3 x 0.9 x 0.37 inch
33 x 22.9 x 9.4 mm

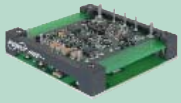
Isolated DC-DC > Thru-Hole > Single Output

Unsigned output voltages are isolated and can be used as either + or - polarities.

HBC48T
2.40 x 2.28 x 0.50 inch
61.0 x 57.9 x 12.7 mm

HDS & HKS
2.40 x 2.28 x 0.50 inch
61.0 x 57.9 x 12.7 mm

HHS04 & HHS05
2.40 x 2.28 x 0.42 inch
61.0 x 57.9 x 10.7 mm



HHS40 & HHS60
2.40 x 2.28 x 0.50 inch
61.0 x 57.9 x 12.7 mm

Q24T & Q48T
2.30 x 1.45 x 0.28 inch
58.4 x 36.8 x 7.1 mm

Thru-Hole > Single-Output > 1/4 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
Models with 18 to 36Vin, Sorted by Factory Set Vout				
18 to 36	1.5	1.2 to 1.6	25	Q24T25015
18 to 36	1.5	1.2 to 1.6	30	Q24T30015
18 to 36	1.8	1.5 to 1.9	25	Q24T25018
18 to 36	1.8	1.5 to 1.9	30	Q24T30018
18 to 36	2	1.6 to 2.2	25	Q24T25020
18 to 36	2	1.6 to 2.2	30	Q24T30020
18 to 36	2.5	2 to 2.7	25	Q24T25025
18 to 36	2.5	2 to 2.7	30	Q24T30025
18 to 36	3.3	2.7 to 3.6	25	Q24T25033
18 to 36	3.3	2.7 to 3.6	30	Q24T30033
18 to 36	5	4 to 5.5	15	Q24T15050
Models with Ultra-Wide Input, Sorted by Factory Set Vout				
18 to 60	3.3	3 to 3.6	25	QMS25DE
18 to 60	5	4.5 to 6	14	QMS14DG
18 to 60	12	11 to 13	6.75	QMS07DH
Models with Nominal 48Vin, Sorted by Factory Set Vout				
36 to 75	1.2	1.1 to 1.3	30	QL48T30012
36 to 75	1.2	1.1 to 1.3	40	QME48T40012
36 to 75	1.2	1.1 to 1.3	45	QM48T45012
36 to 75	1.2	1.1 to 1.3	50	QM48T50012
36 to 75	1.5	1.2 to 1.6	25	Q48T25015
36 to 75	1.5	1.2 to 1.6	30	Q48T30015
36 to 75	1.5	1.2 to 1.6	40	QME48T40015
36 to 75	1.5	1.2 to 1.6	45	QM48T45015
36 to 75	1.5	1.2 to 1.6	50	QM48T50015
36 to 75	1.8	1.5 to 1.9	25	Q48T25018
36 to 75	1.8	1.5 to 1.9	30	Q48T30018
36 to 75	1.8	1.4 to 2	40	QME48T40018
36 to 75	1.8	1.5 to 1.9	45	QM48T45018
36 to 75	1.8	1.5 to 1.9	50	QM48T50018
36 to 75	2	1.6 to 2.2	25	Q48T25020
36 to 75	2	1.6 to 2.2	30	Q48T30020
36 to 75	2	1.8 to 2.2	40	QM48T40020
36 to 75	2	1.6 to 2.2	45	QM48T45020
36 to 75	2.5	2 to 2.7	25	Q48T25025
36 to 75	2.5	2 to 2.7	30	Q48T30025
36 to 75	2.5	2 to 2.7	40	QME48T40025
36 to 75	2.5	2 to 2.7	45	QM48T45025
36 to 75	3.3	2.7 to 3.6	25	Q48T25033
36 to 75	3.3	2.7 to 3.6	30	Q48T30033
36 to 75	3.3	2.7 to 3.6	40	QME48T40033
36 to 75	3.3	2.7 to 3.6	45	QM48T45033
36 to 75	5	4.5 to 5.5	15	Q48T15050
36 to 75	5	4 to 5.5	20	Q48T20050
36 to 75	5	4 to 5.5	25	QM48T25050
36 to 75	5	4 to 5.5	40	QME48T40050
36 to 75	5.7	5.6 to 5.8	30	QME48T30057

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Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Single-Output > 1/4 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
Models with Nominal 48Vin, Sorted by Factory Set Vout (Continued)				
36 to 55	9.6	7.2 to 11	38	QTS48T38096*
36 to 55	9.6	7.2 to 11	46	QTS48T46096*
38 to 55	9.6	7.2 to 11.4	67	QTS48T67096*
36 to 75	12	9.6 to 13.2	8	Q48T08120
36 to 75	12	9.6 to 13.2	11	QBC11ZH
36 to 75	12	9.6 to 13.2	14	QM48T14120
36 to 75	12	9.6 to 13.2	20	QME48T20120
42 to 53	12	10.5 to 13.3	25	QTS48T25120*

Thru-Hole > Single-Output > 1/2 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
Models with Nominal 48Vin, Sorted by Factory Set Vout				
36 to 75	1.8	1.6 to 2	60	HHS60ZB
36 to 75	3.3	3 to 3.6	40	HHS40ZE
36 to 75	3.3	3 to 3.6	60	HHS60ZE
36 to 75	12	10.8 to 13.2	25	HBC48T25120
36 to 75	12	10.8 to 13.2	30	HDS48T30120
36 to 75	12	10.8 to 13.2	32	HKS48T30120
36 to 75	52.5	50 to 53	3.8	HHS04Z52
36 to 75	53.7	51.2 to 54.2	4.8	HHS05Z55

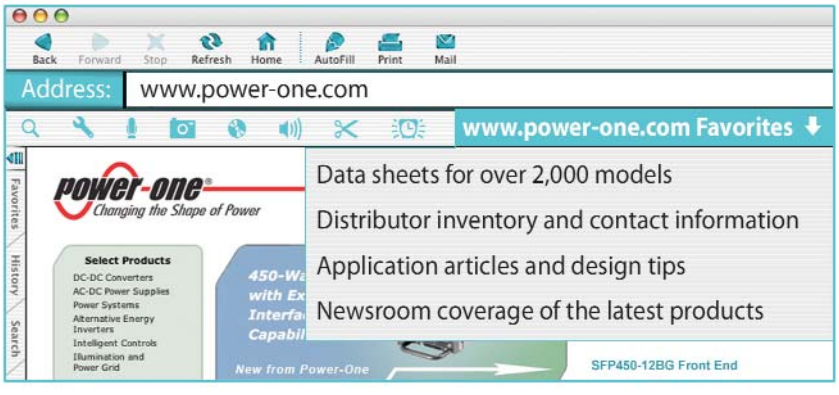
European Union RoHS

Power-One's unique two-tiered EU RoHS strategy provides products in both lead-free solder and lead-solder-exempted versions. Please refer to our data sheets for model-specific compliance options.

RoHS Compliant

RoHS China

Power-One will meet the initial requirements of China RoHS, for selected products, by including product and packaging marking, and disclosure tables. Please visit our web site for further details.



Alpha-sorted graphics and dimensions augment model listings from both pages.

QBC
2.28 x 1.45 x 0.43 inch
57.9 x 36.8 x 11 mm

QL48T
2.30 x 1.45 x 0.28 inch
58.4 x 36.8 x 7.1 mm

QM48T
2.30 x 1.45 x 0.31 inch
58.4 x 36.8 x 7.8 mm

QME48T
2.30 x 1.45 x 0.48 inch
58.4 x 36.8 x 12.2 mm

QMS
2.28 x 1.45 x 0.5 inch
57.9 x 36.8 x 12.7 mm

QTS48T25
2.28 x 1.45 x 0.40 inch
57.9 x 36.8 x 10.2 mm

QTS48T38, QTS48T46
2.28 x 1.45 x 0.50 inch
57.9 x 36.8 x 12.7 mm

QTS48T67
2.30 x 1.45 x 0.48 inch
58.4 x 36.8 x 12.2 mm

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Single-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
Models with 3.3Vout, Sorted by Max Amps				
8.4 to 36	3.3	N/A	0.9	20IMX4-03-8
16.8 to 75	3.3	N/A	0.9	40IMX4-03-8
8.4 to 36	3.3	2.5 to 3.5	1.5	20IMX7-03-8
16.8 to 75	3.3	2.5 to 3.5	1.5	40IMX7-03-8
40 to 121	3.3	2.5 to 3.5	1.5	70IMX7-03-8
8.4 to 36	3.3	2.6 to 3.5	4.5	20IMX15-03-8RG
16.8 to 75	3.3	2.6 to 3.5	4.5	40IMX15-03-8RG
50 to 150	3.3	2.6 to 3.5	4.5	110IMY15-03-8RG
Models with 5 to 5.2Vout, Sorted by Factory Set Vout and Max Amps				
4.5 to 5.5	5	N/A	0.1	DSP1N5S5
4.7 to 5.5	5	N/A	0.3	BRS505
36 to 72	5	N/A	0.5	BWS4805
8.4 to 36	5	N/A	0.7	20IMX4-05-8
16.8 to 75	5	N/A	0.7	40IMX4-05-8
40 to 121	5	N/A	0.7	70IMX4-05-8
9 to 27	5	N/A	1	DFA6U12S5
18 to 36	5	N/A	1	24IMS6-05-9
20 to 60	5	N/A	1	DFA6U48S5
36 to 75	5	N/A	1	48IMS6-05-9
3.5 to 16	5	N/A	1.2	DFC6U5S5
3.5 to 16	5	4.5 to 5.5	2	DGP12U5S5
9 to 18	5	N/A	2	DFC10E12S5
18 to 36	5	N/A	2	DFC10E24S5
34 to 75	5	4.5 to 5.5	2	IAS010ZG
36 to 72	5	N/A	2	DFC10E48S5
50 to 150	5	3.8 to 5.2	2.8	110IMY15-05-05-8
20 to 60	5	4.8 to 5.3	3	DFC15U48S5
18 to 36	5	4.8 to 5.3	4	DFA20E24S5
9 to 18	5	4.8 to 5.3	4	DFA20E12S5
8.4 to 36	5.1	3.8 to 5.4	1.2	20IMX7-05-8
16.8 to 75	5.1	3.8 to 5.4	1.2	40IMX7-05-8
40 to 121	5.1	3.8 to 5.4	1.2	70IMX7-05-8
60 to 150	5.1	3.8 to 5.4	1.2	110IMX7-05-8
8.4 to 36	5.1	4.1 to 5.4	2.3	20IMX15-05-8R
16.8 to 75	5.1	4.1 to 5.4	2.5	40IMX15-05-8R
50 to 150	5.1	4.1 to 5.4	2.5	110IMY15-05-8R
14 to 36	5.1	4.1 to 5.4	2.7	24IMS15-05-9R
36 to 75	5.1	4.1 to 5.4	2.7	48IMS15-05-9R
8.4 to 36	5.1	3.8 to 5.3	3.5	20IMX15-05-8RG
16.8 to 75	5.1	3.8 to 5.3	3.5	40IMX15-05-8RG
50 to 150	5.1	3.8 to 5.3	3.5	110IMY15-05-8RG
3.5 to 16	5.2	N/A	1.2	DFC6U5S5.2

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BRS
1.25 x 0.80 x 0.40 inch
31.8 x 20.3 x 10.2 mm

BWS
1.25 X 0.80 X 0.52 inch
31.8 X 20.3 X 13.2 mm

DFA6
2.12 x 1.08 x 0.48 inch
53.9 x 27.4 x 12.2 mm

DFA20
2.02 x 2.02 x 0.45 inch
51.3 x 51.3 x 11.4 mm

DFC6
2.00 x 1.00 x 0.45 inch
50.8 x 25.4 x 11.4 mm

DFC10
2.02 x 1.02 x 0.41 inch
51.3 x 25.9 x 10.7 mm

DFC15
2.02 x 1.62 x 0.55 inch
51.3 x 41.2 x 13.8 mm

DGP12
2.02 x 2.02 x 0.45 inch
51.3 x 51.3 x 11.4 mm

DSP1
0.77 x 0.40 x 0.27 inch
19.6 x 10.2 x 6.9 mm

EWS
2.00 X 1.00 X 0.40 inch
50.8 X 25.4 X 10.2 mm

Alpha-sorted graphics and dimensions augment model listings from both pages.

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Single-Output > Non Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
Models with 7 to 9Vout, Sorted by Max Amps				
4.5 to 5.5	7	N/A	0.1	DSP1N5S7
4.7 to 5.5	9	N/A	0.2	BRS509
Models with 12Vout, Sorted by Max Amps				
4.5 to 5.5	12	N/A	0.08	DSP1N5S12
8.4 to 36	12	N/A	0.3	20IMX4-12-8
16.8 to 75	12	N/A	0.3	40IMX4-12-8
3.5 to 16	12	N/A	0.5	DFC6U5S12
4.5 to 9	12	N/A	0.5	EWS512
36 to 75	12	N/A	0.5	48IMS6-12-9
9 to 18	12	N/A	0.9	DFC10E12S12
18 to 36	12	N/A	0.9	DFC10E24S12
3.5 to 16	12	10.8 to 13.2	1	DGP12U5S12
20 to 60	12	11.4 to 12.6	1.2	DFC15U48S12
50 to 150	12	9 to 12.6	1.4	110IMY15-12-12-8
9 to 18	12	11.4 to 12.6	1.7	DFA20E12S12
18 to 36	12	11.4 to 12.6	1.7	DFA20E24S12
10 to 20	12	10.8 to 13.2	2.1	OWS1212
Models with 14 to 15Vout, Sorted by Max Amps				
4.5 to 5.5	14	N/A	0.07	DSP1N5S14
4.7 to 5.5	15	N/A	0.07	DSP1N5S15
8.4 to 36	15	N/A	0.3	20IMX4-15-8
16.8 to 75	15	N/A	0.3	40IMX4-15-8
40 to 121	15	N/A	0.3	70IMX4-15-8
3.5 to 16	15	N/A	0.4	DFC6U5S15
9 to 27	15	N/A	0.4	DFA6U12S15
20 to 60	15	N/A	0.4	DFA6U48S15
36 to 75	15	N/A	0.4	48IMS6-15-9
18 to 36	15	N/A	0.7	DFC10E24S15
36 to 72	15	N/A	0.7	DFC10E48S15
18 to 36	15	13.5 to 16.5	0.8	IAS012YJ
50 to 150	15	11.2 to 15.8	1.2	110IMY15-15-15-8
18 to 36	15	14.3 to 15.8	1.4	DFA20E24S15
Model with 17 to 24Vout				
4.5 to 5.5	17	N/A	0.06	DSP1N5S17

IAS
2.00 x 1.00 x 0.42 inch
50.8 x 25.4 x 10.7 mm

IMS6
1.3 x 0.79 x 0.33 inch
33 x 20 x 8.5 mm

IMS15
2.00 x 1.60 x 0.41 inch
50.8 x 40.6 x 10.5 mm

IMX4
1.30 x 0.79 x 0.33 inch
33.0 x 20.1 x 8.5 mm

IMX7
2.00 x 1.00 x 0.42 inch
50.8 x 25.4 x 10.5 mm

IMX15
2.00 x 1.50 x 0.42 inch
50.8 x 38.1 x 10.7 mm

IMY15
2.00 x 1.50 x 0.42 inch
50.8 x 38.1 x 10.7 mm

OWS
2.00 x 2.00 x 0.50 inch
50.8 x 50.8 x 12.7 mm

Isolated DC-DC > Thru-Hole > Dual Output

Unsigned output voltages are isolated and can be used as either + or - polarities.

QD48T

2.30 x 1.45 x 0.28 inch
58.4 x 36.8 x 7.2 mm

- Independently-Regulated Outputs
- Minimal Cross-Channel Interference

Thru-Hole > Dual-Output > 1/4 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with Nominal 48Vin, Sorted by Factory Set Vout					
36 to 75	+1.2	1.1 to 1.3	15	41	QD48T012015
	+1.5	1.4 to 1.7	15		
36 to 75	+1.2	1.1 to 1.3	15	45	QD48T012018
	+1.8	1.6 to 2	15		
36 to 75	+1.2	1.1 to 1.3	15	56	QD48T012025
	+2.5	2.3 to 2.8	15		
36 to 75	+1.2	1.1 to 1.3	15	68	QD48T012033
	+3.3	3 to 3.6	15		
36 to 75	+1.5	1.4 to 1.7	15	50	QD48T015018
	+1.8	1.6 to 2	15		
36 to 75	+1.5	1.4 to 1.7	15	60	QD48T015025
	+2.5	2.3 to 2.8	15		
36 to 75	+1.5	1.4 to 1.7	15	72	QD48T015033
	+3.3	3 to 3.6	15		
36 to 75	+1.5	1.4 to 1.7	15	73	QD48T015050
	+5	4.5 to 5.5	10		
36 to 75	+1.8	1.6 to 2	15	65	QD48T018025
	+2.5	2.3 to 2.8	15		
36 to 75	+1.8	1.6 to 2	15	77	QD48T018033
	+3.3	3 to 3.6	15		
36 to 75	+1.8	1.6 to 2	15	77	QD48T018050
	+5	4.5 to 5.5	10		
36 to 75	+2	1.8 to 2.2	15	80	QD48T020033
	+3.3	3 to 3.6	15		
36 to 75	+2.5	2.3 to 2.8	15	87	QD48T025033
	+3.3	3 to 3.6	15		
36 to 75	+3.3	3 to 3.6	15	100	QD48T033050
	+5	4.5 to 5.5	10		

High-Current QD48T Products Can Replace Two Single-Output Quarter-Bricks

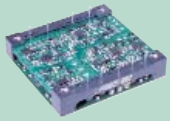
QD48T products provide two independently-regulated high-current outputs and, in many applications, can replace two single output quarter-bricks.

- Low-profile heights, with no heat sink required, minimize airflow shadowing, enhancing cooling for downstream devices.
- Capability to start-up into pre-biased loads.
- Rugged design withstands 100 V input transient for 100 ms.
- Industry-standard footprints, pinouts, and trim equations.
- Meets Basic insulation requirements of EN60950.
- Also available in SMT packages; QD48S Series.

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Dual-Output > 1/2 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with 18 to 36Vin					
18 to 36	3.3	3 to 3.6	12	40	HBD040YGE-A
	5	4.5 to 5.5	8		
18 to 36	3.3	3 to 3.6	15	60	HBD060YGE-A
	5	4.5 to 5.5	12		
Model with 18 to 60Vin					
18 to 60	3.3	3 to 3.6	15	75	HWD075DGE-A
	5	4.5 to 5.5	15		
Models with Nominal 48Vin, Sorted by Factory Set Vout					
36 to 72	1.8	1.6 to 2	15	60	HLD15ZEB
	3.3	3 to 3.6	15		
34 to 75	2.5	2.3 to 2.8	15	40	HBD040ZED-A
	3.3	3 to 3.6	12		
36 to 72	2.5	2.3 to 2.8	20	100	HHD25ZED
	3.3	3 to 3.6	25		
34 to 75	3.3	3 to 3.6	12	40	HBD040ZGE-A
	5	4.5 to 5.5	8		
34 to 75	3.3	3 to 3.6	15	60	HBD060ZGE-A
	5	4.5 to 5.5	12		
36 to 72	3.3	3 to 3.6	15	60	HLD15ZGE
	5	4.5 to 5.5	12		



HBD & HHD
2.40 x 2.28 x 0.50 inch
61.0 x 57.9 x 12.7 mm

HLD
2.40 x 2.28 x 0.50 inch
61.0 x 57.9 x 12.7 mm

HWD
2.40 x 2.28 x 0.50 inch
61.0 x 57.9 x 12.7 mm

HWD075DGE-A Offers Wide Vin Range, Low Profile, and High Output Currents

The HWD075DGE-A provides onboard conversion of standard telecom and datacom input voltages into two isolated low-voltage outputs. This product offers a unique combination of wide input range, low profile, and high current capability.

- Wide input range: 18 V – 60 V.
- Two independent 15-amp outputs provide 3.3 and 5V.
- Low profile 12.7 mm height reduces airflow shadowing.
- Protections include overtemperature, output overvoltage, and output overcurrent.
- 1500V Input/output isolation.

Isolated DC-DC > Thru-Hole > Dual Output

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Dual-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with 3.3V and 5.1V Outputs, Sorted by Watts					
8.4 to 36	+3.3	2.5 to 3.5	1.4	11.3	20IMX15-0503-8R
	+5.1	3.8 to 5.4	1.4		
16.8 to 75	+3.3	2.5 to 3.5	1.5	12.6	40IMX15-0503-8R
	+5.1	3.8 to 5.4	1.5		
50 to 150	+3.3	2.5 to 3.5	1.5	12.6	110IMY15-0503-8R
	+5.1	3.8 to 5.3	1.5		
14 to 36	+3.3	2.5 to 3.5	1.6	13.5	24IMS15-0503-9R
	+5.1	3.8 to 5.4	1.6		
36 to 75	+3.3	2.5 to 3.5	1.6	13.5	48IMS15-0503-9R
	+5.1	3.8 to 5.4	1.6		
32 to 75	+3.3	3 to 3.6	4.2	30	48IMS30-0503-9G
	+5.1	4.6 to 5.6	3.1		
Models with 5V Both Outputs, Sorted by Watts					
4.5 to 5.5	+5	N/A	0.07	0.8	DSP1N5D5
	-5	N/A	0.07		
8.4 to 36	+5	N/A	0.3	3.5	20IMX4-0505-8
	-5	N/A	0.3		
16.8 to 75	+5	N/A	0.3	3.5	40IMX4-0505-8
	-5	N/A	0.3		
40 to 121	+5	N/A	0.3	3.5	70IMX4-0505-8
	-5	N/A	0.3		
18 to 36	+5	N/A	0.5	5	24IMS6-0505-9
	-5	N/A	0.5		
8.4 to 36	5	3.8 to 5.2	0.6	6	20IMX7-05-05-8
	5	3.8 to 5.2	0.6		
16.8 to 75	5	3.8 to 5.2	0.7	7	40IMX7-05-05-8
	5	3.8 to 5.2	0.7		
40 to 121	5	3.8 to 5.2	0.7	7	70IMX7-05-05-8
	5	3.8 to 5.2	0.7		
60 to 150	5	3.8 to 5.2	0.7	7	110IMX7-05-05-8
	5	3.8 to 5.2	0.7		
9 to 36	+5	N/A	0.8	8.5	DFC10U24D5
	-5	N/A	0.8		
3.5 to 16	+5	4.5 to 5.5	1	10	DGP12U5D5
	-5	4.5 to 5.5	1		
8.4 to 36	5	3.8 to 5.3	1.3	13	20IMX15-05-05-8
	5	3.8 to 5.3	1.3		
14 to 36	5	3.8 to 5.3	1.4	14	24IMS15-05-05-9
	5	3.8 to 5.3	1.4		
16.8 to 75	5	3.8 to 5.3	1.4	14	40IMX15-05-05-8
	5	3.8 to 5.3	1.4		
36 to 75	5	3.8 to 5.3	1.4	14	48IMS15-05-05-9
	5	3.8 to 5.3	1.4		
50 to 150	5	3.8 to 5.2	1.4	14	110IMY15-05-05-8
	5	3.8 to 5.2	1.4		
18 to 36	+5	4.8 to 5.3	1.7	17	DFA20E24D5
	-5	4.8 to 5.3	1.7		

DFA20
2.02 x 2.02 x 0.45 inch
51.3 x 51.3 x 11.4 mm

DFC10
1.02 x 2.02 x 0.41 inch
25.9 x 51.3 x 10.7 mm

DGP12
2.02 x 2.02 x 0.45 inch
51.3 x 51.3 x 11.4 mm

DSP1
0.77 x 0.40 x 0.27 inch
19.6 x 10.2 x 6.9 mm

IMS6
1.3 x 0.79 x 0.33 inch
33 x 20 x 8.5 mm

IMS15
2.00 x 1.60 x 0.41 inch
50.8 x 40.6 x 10.5 mm

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Dual-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with 12V Both Outputs, Sorted by Watts					
4.5 to 5.5	+12	N/A	0.04	1	DSP1N5D12
	-12	N/A	0.04		
8.4 to 36	+12	N/A	0.2	4	20IMX4-1212-8
	-12	N/A	0.2		
16.8 to 75	+12	N/A	0.2	4	40IMX4-1212-8
	-12	N/A	0.2		
8.4 to 36	12	9 to 12.6	0.2	6	20IMX7-12-12-8
	12	9 to 12.6	0.2		
18 to 36	+12	N/A	0.2	6	24IMS6-1212-9
	-12	N/A	0.2		
16.8 to 75	12	9 to 12.6	0.3	7	40IMX7-12-12-8
	12	9 to 12.6	0.3		
40 to 121	12	9 to 12.6	0.3	7	70IMX7-12-12-8
	12	9 to 12.6	0.3		
60 to 150	12	9 to 12.6	0.3	7	110IMX7-12-12-8
	12	9 to 12.6	0.3		
9 to 36	+12	N/A	0.4	10	DFC10U24D12
	-12	N/A	0.4		
18 to 72	+12	N/A	0.4	10	DFC10U48D12
	-12	N/A	0.4		
3.5 to 16	+12	10.8 to 13.2	0.5	12	DGP12U5D12
	-12	10.8 to 13.2	0.5		
8.4 to 36	12	9 to 12.6	0.7	15.6	20IMX15-12-12-8
	12	9 to 12.6	0.7		
16.8 to 75	12	9 to 12.6	0.7	16.8	40IMX15-12-12-8
	12	9 to 12.6	0.7		
36 to 75	12	9 to 12.6	0.7	16.8	48IMS15-12-12-9
	12	9 to 12.6	0.7		
50 to 150	12	9 to 12.6	0.7	16.8	110IMY15-12-12-8
	12	9 to 12.6	0.7		
9 to 18	+12	11.4 to 12.6	0.8	20.4	DFA20E12D12
	-12	11.4 to 12.6	0.8		
Model with 14V Both Outputs					
4.5 to 5.5	+14	N/A	0.04	1	DSP1N5D14
	-14	N/A	0.04		
Models with 15V Both Outputs, Sorted by Watts					
4.5 to 5.5	+15	N/A	0.03	1	DSP1N5D15
	-15	N/A	0.03		
8.4 to 36	+15	N/A	0.1	4.2	20IMX4-1515-8
	-15	N/A	0.1		
16.8 to 75	+15	N/A	0.1	4.2	40IMX4-1515-8
	-15	N/A	0.1		

Continued on Next Page

Alpha-sorted graphics and dimensions augment model listings from both pages.

IMS30
2.00 x 2.00 x 0.37 inch
50.8 x 50.8 x 9.4 mm

IMX4
1.30 x 0.79 x 0.33 inch
33.0 x 20.1 x 8.5 mm

IMX7
2.00 x 1.00 x 0.42 inch
50.8 x 25.4 x 10.5 mm

IMX15
2.00 x 1.50 x 0.42 inch
50.8 x 38.1 x 10.7 mm

IMY15
2.00 x 1.50 x 0.42 inch
50.8 x 38.1 x 10.7 mm

Isolated DC-DC > Thru-Hole > Dual Output

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Dual-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with 15V Both Outputs, Sorted by Watts (Continued)					
8.4 to 36	15	11.2 to 15.8	0.2	6	20IMX7-15-15-8
	15	11.2 to 15.8	0.2		
16.8 to 75	15	11.2 to 15.8	0.2	7	40IMX7-15-15-8
	15	11.2 to 15.8	0.2		
40 to 121	15	11.2 to 15.8	0.2	7	70IMX7-15-15-8
	15	11.2 to 15.8	0.2		
60 to 150	15	11.2 to 15.8	0.2	7	110IMX7-15-15-8
	15	11.2 to 15.8	0.2		
9 to 36	+15	N/A	0.3	9.6	DFC10U24D15
	-15	N/A	0.3		
18 to 72	+15	N/A	0.3	9.9	DFC10U48D15
	-15	N/A	0.3		
3.5 to 16	+15	13.5 to 16.5	0.4	12	DGP12U5D15
	-15	13.5 to 16.5	0.4		
8.4 to 36	15	11.3 to 15.8	0.5	15	20IMX15-15-15-8
	15	11.3 to 15.8	0.5		
14 to 36	15	11.3 to 15.8	0.6	16.8	24IMS15-15-15-9
	15	11.3 to 15.8	0.6		
16.8 to 75	15	11.3 to 15.8	0.6	16.8	40IMX15-15-15-8
	15	11.3 to 15.8	0.6		
36 to 75	15	11.3 to 15.8	0.6	16.8	48IMS15-15-15-9
	15	11.3 to 15.8	0.6		
50 to 150	15	11.2 to 15.8	0.6	16.8	110IMY15-15-15-8
	15	11.2 to 15.8	0.6		
18 to 36	+15	14.3 to 15.8	0.7	21	DFA20E24D15
	-15	14.3 to 15.8	0.7		
Model with 17V Both Outputs					
4.5 to 5.5	+17	N/A	0.03	1	DSP1N5D17
	-17	N/A	0.03		

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European Union RoHS
Power-One's unique two-tiered EU RoHS strategy provides products in both lead-free solder and lead-solder-exempted versions. Please refer to our data sheets for model-specific compliance options.

RoHS Compliant

RoHS China
Power-One will meet the initial requirements of China RoHS, for selected products, by including product and packaging marking, and disclosure tables. Please visit our web site for further details.

DFA20
2.02 x 2.02 x 0.45 inch
51.3 x 51.3 x 11.4 mm

DFC10
1.02 x 2.02 x 0.41 inch
25.9 x 51.3 x 10.7 mm

DGP12
2.02 x 2.02 x 0.45 inch
51.3 x 51.3 x 11.4 mm

DSP1
0.77 x 0.40 x 0.27 inch
19.6 x 10.2 x 6.9 mm

IMS15
2.00 x 1.50 x 0.42 inch
51.0 x 40.6 x 10.5 mm

IMX7
2.00 x 1.00 x 0.42 inch
50.8 x 25.4 x 10.5 mm

IMX15
2.00 x 1.50 x 0.42 inch
50.8 x 38.1 x 10.7 mm

IMY15
2.00 x 1.50 x 0.42 inch
50.8 x 38.1 x 10.7 mm

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Dual-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with 24V Both Outputs, Sorted by Watts					
8.4 to 36	+24	N/A	0.08	3.8	20IMX4-2424-8
	-24	N/A	0.08		
16.8 to 75	+24	N/A	0.08	3.8	40IMX4-2424-8
	-24	N/A	0.08		
8.4 to 36	24	18 to 25.2	0.1	6	20IMX7-24-24-8
	24	18 to 25.2	0.1		
16.8 to 75	24	18 to 25.2	0.1	7	40IMX7-24-24-8
	24	18 to 25.2	0.1		
40 to 121	24	18 to 25.2	0.1	7	70IMX7-24-24-8
	24	18 to 25.2	0.1		
60 to 150	24	18 to 25.2	0.1	7	110IMX7-24-24-8
	24	18 to 25.2	0.1		
8.4 to 36	24	18 to 25.2	0.3	15.4	20IMX15-24-24-8
	24	18 to 25.2	0.3		
14 to 36	24	18 to 25.2	0.3	16.8	24IMS15-24-24-9
	24	18 to 25.2	0.3		
16.8 to 75	24	18 to 25.2	0.3	16.8	40IMX15-24-24-8
	24	18 to 25.2	0.3		
36 to 75	24	18 to 25.2	0.3	16.8	48IMS15-24-24-9
	24	18 to 25.2	0.3		
50 to 150	24	18 to 25.2	0.3	16.8	110IMY15-24-24-8
	24	18 to 25.2	0.3		

Thru-Hole > Triple-Output > 1/4-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
36 to 75	+3.3	1.4 to 5	12	80	QNT36ZEDB
	+2.5	1.2 to 3.6	12		
	+1.8	0.9 to 3.6	12		

IMX4
1.25 x 0.8 x 0.33 inch
32 x 20 x 8.5 mm

IMS15
2.00 x 1.50 x 0.42 inch
51.0 x 40.6 x 10.5 mm

IMX7
2.00 x 1.00 x 0.42 inch
50.8 x 25.4 x 10.5 mm

IMX15
2.00 x 1.50 x 0.42 inch
50.8 x 38.1 x 10.7 mm

IMY15
2.00 x 1.50 x 0.42 inch
50.8 x 38.1 x 10.7 mm

QNT
2.30 x 1.45 x 0.38 inch
58.4 x 36.8 x 9.7 mm

- Extremely-Wide Output Voltage Adjustment Range
- Programmable Sequencing and Cascading
- Single-Board Design
- Low Profile; < 9.5 mm height
- 1500 VDC Input-to-Output Isolation

Isolated DC-DC > Thru-Hole > Triple Output

IMX35

3.00 x 2.50 x 0.41 inch
76.2 x 63.5 x 10.4 mm

- 1500 VDC Isolation
- Extremely Wide Input Voltage Ranges

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Triple-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with Three 5V Outputs, Sorted by Input Voltage					
9 to 36	5	4.2 to 5.2	1.4	35	20IMX35D05D05-8
	5	4.2 to 5.2	1.4		
	5	4.2 to 5.2	2.7		
18 to 75	5	4.2 to 5.2	1.4	35	40IMX35D05D05-8
	5	4.2 to 5.2	1.4		
	5	4.2 to 5.2	2.8		
40 to 121	5	4.2 to 5.2	1.4	35	70IMX35D05D05-8
	5	4.2 to 5.2	1.4		
	5	4.2 to 5.2	2.8		
60 to 150	5	4.2 to 5.2	1.4	35	110IMX35D05D05-8
	5	4.2 to 5.2	1.4		
	5	4.2 to 5.2	2.8		
Models with Two 5V and One 12V Output, Sorted by Input Voltage					
9 to 36	5	4.2 to 5.2	1.4	35	20IMX35D05D12-8
	5	4.2 to 5.2	1.4		
	12	10.2 to 12.6	1.3		
18 to 75	5	4.2 to 5.2	1.4	35	40IMX35D05D12-8
	5	4.2 to 5.2	1.4		
	12	10.2 to 12.6	1.4		
40 to 121	5	4.2 to 5.2	1.4	35	70IMX35D05D12-8
	5	4.2 to 5.2	1.4		
	12	10.2 to 12.6	1.4		
60 to 150	5	4.2 to 5.2	1.4	35	110IMX35D05D12-8
	5	4.2 to 5.2	1.4		
	12	10.2 to 12.6	1.4		
Models with Two 5V and One 15V Output, Sorted by Input Voltage					
9 to 36	5	4.2 to 5.2	1.4	35	20IMX35D05D15-8
	5	4.2 to 5.2	1.4		
	15	12.8 to 15.8	1.1		
18 to 75	5	4.2 to 5.2	1.4	35	40IMX35D05D15-8
	5	4.2 to 5.2	1.4		
	15	12.8 to 15.8	1.2		
40 to 121	5	4.2 to 5.2	1.4	35	70IMX35D05D15-8
	5	4.2 to 5.2	1.4		
	15	12.8 to 15.8	1.2		
60 to 150	5	4.2 to 5.2	1.4	35	110IMX35D05D15-8
	5	4.2 to 5.2	1.4		
	15	12.8 to 15.8	1.2		

IMX35 outputs can be paralleled and stacked to provide additional voltage/current combinations. Please download the IMX35 data sheet for further details.

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Triple-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with One 5V and Two 12V Outputs, Sorted by Watts					
18 to 36	+5	N/A	2.5	20	DGP20E24T5/12
	+12	N/A	0.3		
	-12	N/A	0.3		
36 to 72	+5	N/A	2.5	20	DGP20E48T5/12
	+12	N/A	0.3		
	-12	N/A	0.3		
36 to 72	+5	4.5 to 5.5	5	25	DFC25E48T5/12
	+12	N/A	1		
	-12	N/A	1		
9 to 36	5	4.2 to 5.2	2.7	35	20IMX35D05D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
18 to 75	5	4.2 to 5.2	2.8	35	40IMX35D05D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
40 to 121	5	4.2 to 5.2	2.8	35	70IMX35D05D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
60 to 150	5	4.2 to 5.2	2.8	35	110IMX35D05D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
Models with One 5V and Two 15V Outputs, Sorted by Watts					
18 to 36	+5	N/A	2.5	20	DGP20E24T5/15
	+15	N/A	0.2		
	-15	N/A	0.2		
9 to 36	5	4.2 to 5.2	2.7	35	20IMX35D05D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
18 to 75	5	4.2 to 5.2	2.8	35	40IMX35D05D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
40 to 121	5	4.2 to 5.2	2.8	35	70IMX35D05D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
60 to 150	5	4.2 to 5.2	2.8	35	110IMX35D05D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		

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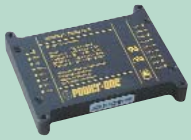
DFC25

3.00 x 2.50 x 0.43 inch
76.2 x 63.5 x 11.0 mm

DGP20

2.02 x 2.02 x 0.45 inch
51.3 x 51.3 x 11.4 mm

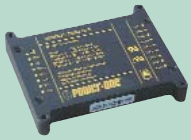


IMX35

3.00 x 2.50 x 0.41 inch
76.2 x 63.5 x 10.4 mm

- 1500 VDC Isolation
- Extremely Wide Input Voltage Ranges
- Triple-output configurations of this quad-output series utilize two outputs in parallel

Isolated DC-DC > Thru-Hole > Triple & Quad Output



IMX35

3.00 x 2.50 x 0.41 inch
76.2 x 63.5 x 10.4 mm

- 1500 VDC Isolation
- Extremely Wide Input Voltage Ranges
- Independent Outputs Can Be Used in Series or Parallel

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Triple-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with Three 12V Outputs, Sorted by Input Voltage					
9 to 36	12	10.2 to 12.6	0.7	35	20IMX35D12D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	1.3		
18 to 75	12	10.2 to 12.6	0.7	35	40IMX35D12D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	1.4		
40 to 121	12	10.2 to 12.6	0.7	35	70IMX35D12D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	1.4		
60 to 150	12	10.2 to 12.6	0.7	35	110IMX35D12D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	1.4		
Models with Three 15V Outputs, Sorted by Input Voltage					
9 to 36	15	12.8 to 15.8	0.6	35	20IMX35D15D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	1.1		
18 to 75	15	12.8 to 15.8	0.6	35	40IMX35D15D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	1.2		
40 to 121	15	12.8 to 15.8	0.6	35	70IMX35D15D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	1.2		
60 to 150	15	12.8 to 15.8	0.6	35	110IMX35D15D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	1.2		

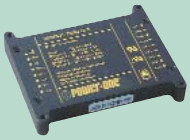
Thru-Hole > Quad-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with Four 5V Outputs, Sorted by Input Voltage					
9 to 36	5	4.2 to 5.2	1.35	27	20IMX35D05D05-8
	5	4.2 to 5.2	1.35		
	5	4.2 to 5.2	1.35		
	5	4.2 to 5.2	1.35		
18 to 75	5	4.2 to 5.2	1.4	28	40IMX35D05D05-8
	5	4.2 to 5.2	1.4		
	5	4.2 to 5.2	1.4		
	5	4.2 to 5.2	1.4		
40 to 121	5	4.2 to 5.2	1.4	28	70IMX35D05D05-8
	5	4.2 to 5.2	1.4		
	5	4.2 to 5.2	1.4		
	5	4.2 to 5.2	1.4		
60 to 150	5	4.2 to 5.2	1.4	28	110IMX35D05D05-8
	5	4.2 to 5.2	1.4		
	5	4.2 to 5.2	1.4		
	5	4.2 to 5.2	1.4		

Unsigned output voltages are isolated and can be used as either + or - polarities.

Thru-Hole > Quad-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with Two 5V and Two 12V Outputs, Sorted by Input Voltage					
9 to 36	5	4.2 to 5.2	1.35	29	20IMX35D05D12-8
	12	10.2 to 12.6	0.65		
	12	10.2 to 12.6	0.65		
	5	4.2 to 5.2	1.35		
18 to 75	5	4.2 to 5.2	1.4	30	40IMX35D05D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
	5	4.2 to 5.2	1.4		
40 to 121	5	4.2 to 5.2	1.4	30	70IMX35D05D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
	5	4.2 to 5.2	1.4		
60 to 150	5	4.2 to 5.2	1.4	30	110IMX35D05D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
	5	4.2 to 5.2	1.4		
Models with Two 5V and Two 15V Outputs, Sorted by Input Voltage					
9 to 36	5	4.2 to 5.2	1.35	30	20IMX35D05D15-8
	15	12.8 to 15.8	0.55		
	15	12.8 to 15.8	0.55		
	5	4.2 to 5.2	1.35		
18 to 75	5	4.2 to 5.2	1.4	32	40IMX35D05D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
	5	4.2 to 5.2	1.4		
40 to 121	5	4.2 to 5.2	1.4	32	70IMX35D05D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
	5	4.2 to 5.2	1.4		
60 to 150	5	4.2 to 5.2	1.4	32	110IMX35D05D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
	5	4.2 to 5.2	1.4		
Models with Four 12V Outputs, Sorted by Input Voltage					
9 to 36	12	10.2 to 12.6	0.65	31	20IMX35D12D12-8
	12	10.2 to 12.6	0.65		
	12	10.2 to 12.6	0.65		
	12	10.2 to 12.6	0.65		
18 to 75	12	10.2 to 12.6	0.7	34	40IMX35D12D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
40 to 121	12	10.2 to 12.6	0.7	34	70IMX35D12D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
60 to 150	12	10.2 to 12.6	0.7	34	110IMX35D12D12-8
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		
	12	10.2 to 12.6	0.7		



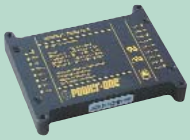
IMX35

3.00 x 2.50 x 0.41 inch
76.2 x 63.5 x 10.4 mm

- 1500 VDC Isolation
- Extremely Wide Input Voltage Ranges
- Independent Outputs Can Be Used in Series or Parallel

Isolated DC-DC > Thru-Hole > Quad Output

Unsigned output voltages are isolated and can be used as either + or - polarities.



IMX35

3.00 x 2.50 x 0.41 inch
76.2 x 63.5 x 10.4 mm

- 1500 VDC Isolation
- Extremely Wide Input Voltage Ranges
- Independent Outputs Can Be Used in Series or Parallel

Thru-Hole > Quad-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with Four 15V Outputs, Sorted by Input Voltage					
9 to 36	15	12.8 to 15.8	0.55	33	20IMX35D15D15-8
	15	12.8 to 15.8	0.55		
	15	12.8 to 15.8	0.55		
	15	12.8 to 15.8	0.55		
18 to 75	15	12.8 to 15.8	0.6	35	40IMX35D15D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
40 to 121	15	12.8 to 15.8	0.6	35	70IMX35D15D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
60 to 150	15	12.8 to 15.8	0.6	35	110IMX35D15D15-8
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		
	15	12.8 to 15.8	0.6		

Thru-Hole > Input Filters

Max Current (Amps)	Max Input Voltage (VDC)	Mounting	Meets Conducted	Part Number
5	100	Through-Hole	FCC Class B	FC100V5A
10	100	Through-Hole	FCC Class B	FC100V10A
20	100	Through-Hole	FCC Class B	FC100V20A

Unsigned output voltages are isolated and can be used as either + or - polarities.

SMT > Single-Output > 1/8 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
Models with Nominal 24Vin, Sorted by Factory Set Vout				
18 to 36	1.0	0.9 to 1.1	15	SQ24S15010*
18 to 36	1.2	1.1 to 1.3	15	SQ24S15012*
18 to 36	1.5	1.2 to 1.6	15	SQ24S15015*
18 to 36	1.8	1.5 to 1.9	15	SQ24S15018*
18 to 36	2	1.6 to 2.2	15	SQ24S15020*
18 to 36	2.5	2 to 2.7	15	SQ24S15025*
18 to 36	3.3	2.7 to 3.6	15	SQ24S15033*
18 to 45	5	N/A	6	ASQ28S06050*
18 to 36	5	4 to 5.5	10	SQ24S10050*
18 to 36	6	4.8 to 6.6	8	SQ24S08060*
18 to 36	8	6.4 to 8.8	5.3	SQ24S05080
18 to 36	12	9.6 to 13.2	4	SQ24S04120*
18 to 45	15	N/A	2	ASQ28S02150*
19 to 36	15	12 to 16.5	3.3	SQ24S03150
Models with Nominal 48Vin, Sorted by Factory Set Vout				
36 to 75	1.2	1.1 to 1.3	15	SQ48S15012
36 to 75	1.2	1.1 to 1.3	25	SQM48S25012
36 to 75	1.5	1.2 to 1.6	15	SQ48S15015
36 to 75	1.5	1.2 to 1.6	20	SQM48S20015
36 to 75	1.5	1.2 to 1.6	25	SQM48S25015
36 to 75	1.8	1.5 to 1.9	15	SQ48S15018*
36 to 75	1.8	1.5 to 1.9	20	SQM48S20018
36 to 75	1.8	1.5 to 1.9	25	SQM48S25018
36 to 75	2	1.6 to 2.2	15	SQ48S15020
36 to 75	2.5	2 to 2.7	15	SQ48S15025
36 to 75	2.5	2 to 2.7	20	SQM48S20025
36 to 75	2.5	2 to 2.7	25	SQM48S25025
36 to 75	3.3	2.7 to 3.6	15	SQ48S15033*
36 to 75	3.3	2.7 to 3.6	20	SQM48S20033
36 to 75	5	4 to 5.5	10	SQ48S10050
36 to 75	6	4.8 to 6.6	8	SQ48S08060
36 to 75	8	8.4 to 8.8	5.3	SQ48S05080
36 to 75	12	9.6 to 13.2	4	SQ48S04120

***ASQ Eighth Bricks Designed for Rugged Industrial and Aerospace Applications**

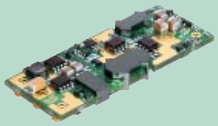
*The ASQ Series provides high-reliability operation in harsh thermal and mechanical environments. In addition to the ASQ Series, models with asterisks above include SQ-Series converters with identical voltages and currents to ASQ-Series products (just replace the prefix "SQ" with "ASQ" in the part number).

- Extended ambient temperature operation: -55 °C to +85 °C.
- Rugged design survives 1000 g mechanical shock.
- Low profile and low weight.
- Available in through-hole and surface-mount packages.

ASQ24S/ASQ28S & SQ24S

2.30 x 0.90 x 0.26 inch
58.4 x 22.8 x 6.6 mm

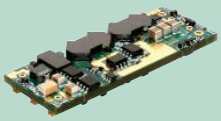
- 15 to 50 Watts (Up to 15 A)
- Industry-Standard Surface Mount, Quarter-Brick Pinout
- Low Profile: 0.26" (6.6 mm)
- High Efficiency (No Heat Sink Required)



ASQ48S/SQ48S

2.30 x 0.90 x 0.26 inch
58.4 x 22.8 x 6.6 mm

- Delivers Up to 15 A (50 W)
- Industry-Standard Surface Mount, Quarter-Brick Pinout
- Low Profile: 0.26" (6.6mm)
- No Minimum Load



SQM48S

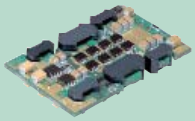
2.30 x 0.90 x 0.28 inch
58.4 x 22.8 x 7.1 mm

- 24 to 66 Watts (Up to 25 A)
- Industry-Standard Surface Mount, Quarter-Brick Pinout
- High Efficiency (No Heat Sink Required)

Isolated DC-DC > SMT > Single-Output

Unsigned output voltages are isolated and can be used as either + or - polarities.

Q24S & Q48S
2.30 x 1.45 x 0.26 inch
58.4 x 36.8 x 6.6 mm



QL48S
2.30 x 1.45 x 0.26 inch
58.4 x 36.8 x 6.6 mm

QM48S
2.30 x 1.45 x 0.28 inch
58.4 x 36.8 x 7.1 mm

SMT > Single-Output > 1/4 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
Models with Nominal 24Vin, Sorted by Factory Set Vout				
18 to 36	1.5	1.2 to 1.6	25	Q24S25015
18 to 36	1.5	1.2 to 1.6	30	Q24S30015
18 to 36	1.8	1.5 to 1.9	25	Q24S25018
18 to 36	1.8	1.5 to 1.9	30	Q24S30018
18 to 36	2.5	2 to 2.7	25	Q24S25025
18 to 36	2.5	2 to 2.7	30	Q24S30025
18 to 36	3.3	2.7 to 3.6	25	Q24S25033
18 to 36	3.3	2.7 to 3.6	30	Q24S30033
18 to 36	5	4 to 5.5	15	Q24S15050
Models with Nominal 48Vin, Sorted by Factory Set Vout				
36 to 75	1.2	1.1 to 1.3	30	QL48S30012
36 to 75	1.5	1.2 to 1.6	25	Q48S25015
36 to 75	1.5	1.2 to 1.6	30	Q48S30015
36 to 75	1.8	1.5 to 1.9	25	Q48S25018
36 to 75	1.8	1.5 to 1.9	30	Q48S30018
36 to 75	1.8	1.5 to 1.9	40	QM48S40018
36 to 75	2	1.6 to 2.2	25	Q48S25020
36 to 75	2	1.6 to 2.2	30	Q48S30020
36 to 75	2.5	2 to 2.7	25	Q48S25025
36 to 75	2.5	2 to 2.7	30	Q48S30025
36 to 75	3.3	2.7 to 3.6	25	Q48S25033
36 to 75	3.3	2.7 to 3.6	30	Q48S30033
36 to 75	3.3	2.7 to 3.6	40	QM48S40033
36 to 75	5	4 to 5.5	15	Q48S15050
36 to 75	5	4 to 5.5	20	Q48S20050
36 to 75	5	4 to 5.5	25	QM48S25050
36 to 75	12	9.6 to 13.2	8	Q48S08120
36 to 75	12	9.6 to 13.2	14	QM48S14120

High-Efficiency Q24 and Q48 Bricks Provide Excellent Thermal Performance

High efficiencies and advanced thermal-management techniques provide Q24 and Q48 Series bricks with ultra-low profiles and higher current capabilities at 70ºC than many quarter-brick and half-brick converters.

- Excellent thermal performance; no heat sink required.
- Capability to start-up into pre-biased loads.
- Meets Basic insulation requirements of EN60950.
- Industry-standard footprints, pinouts, and trim equations.
- All materials meet UL94, V-0 flammability ratings.

Unsigned output voltages are isolated and can be used as either + or - polarities.

SMT > Single-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
Models with 9 to 36Vin, Sorted by Factory Set Vout				
9 to 36	3.3	N/A	0.9	NVS0.9CE-M6
9 to 36	5	N/A	0.7	NVS0.7CG-M6
9 to 36	12	N/A	0.3	NVS0.3CH-M6
9 to 36	15	N/A	0.3	NVS0.3CJ-M6
Models with 18 to 36Vin, Sorted by Factory Set Vout				
18 to 36	5	N/A	1	NVS01YG-M6
18 to 36	12	N/A	0.5	NVS0.5YH-M6
18 to 36	15	N/A	0.4	NVS0.4YJ-M6
Models with Ultra-Wide Input, Sorted by Factory Set Vout				
18 to 75	3.3	N/A	0.9	NVS0.9EE-M6
18 to 72	3.3	2.7 to 3.8	1.5	RNS01EE-M6
18 to 75	5	N/A	0.7	NVS0.7EG-M6
18 to 72	5.1	4.3 to 5.9	1.2	RNS01EG-M6
18 to 72	7	6 to 8	0.9	RNS0.9ET-M6
18 to 75	12	N/A	0.3	NVS0.3EH-M6
18 to 75	15	N/A	0.3	NVS0.3EJ-M6
Models with Nominal 48Vin and 1.5 to 15Vout, Sorted by Factory Set Vout				
36 to 75	1.5	1.4 to 1.6	3	NDS03ZA-M6
36 to 75	1.8	1.7 to 1.9	3	NDS03ZB-M6
36 to 75	2.5	2.3 to 2.7	3	NDS03ZD-M6
36 to 75	2.5	2.3 to 2.7	6	RFS06ZD-M6
36 to 75	3.3	3 to 3.6	3	NDS03ZE-M6
36 to 75	5	N/A	1	NVS01ZG-M6
36 to 75	5	4.5 to 5.5	2	NDS02ZG-M6
36 to 75	12	N/A	0.5	NVS0.5ZH-M6
38 to 75	12	9 to 15	0.6	RNS0.6ZH-M6
36 to 75	15	N/A	0.4	NVS0.4ZJ-M6

NDS
1.30 x 0.91 x 0.33 inch
33 x 23 x 8.5 mm

NVS
1.30 x 0.81 x 0.33 inch
33 x 20.6 x 8.5 mm

RFS
1.87 x 1.00 x 0.37 inch
47.4 x 25.4 x 9.5 mm

RNS
1.87 x 1.00 x 0.34 inch
47.4 x 25.4 x 8.5 mm

Isolated DC-DC > SMT > Dual Output

Unsigned output voltages are isolated and can be used as either + or - polarities.

QD48S
2.30 x 1.45 x 0.26 inch
58.4 x 36.8 x 6.6 mm

SMT > Dual-Output > 1/4 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with Nominal 48Vin, Sorted by Factory Set Vout					
36 to 75	+1.2	1.1 to 1.3,	15	41	QD48S012015
	+1.5	1.4 to 1.7	15		
36 to 75	+1.2	1.1 to 1.3	15	56	QD48S012025
	+2.5	2.3 to 2.8	15		
36 to 75	+1.2	1.1 to 1.3	15	68	QD48S012033
	+3.3	3 to 3.6	15		
36 to 75	+1.5	1.4 to 1.7	15	50	QD48S015018
	+1.8	1.6 to 2	15		
36 to 75	+1.5	1.4 to 1.7	15	60	QD48S015025
	+2.5	2.3 to 2.8	15		
36 to 75	+1.5	1.4 to 1.7	15	72	QD48S015033
	+3.3	3 to 3.6	15		
36 to 75	+1.5	1.4 to 1.7	15	73	QD48S015050
	+5	4.5 to 5.5	10		
36 to 75	+1.8	1.6 to 2	15	65	QD48S018025
	+2.5	2.3 to 2.8	15		
36 to 75	+1.8	1.6 to 2	15	77	QD48S018033
	+3.3	3 to 3.6	15		
36 to 75	+1.8	1.6 to 2	15	77	QD48S018050
	+5	4.5 to 5.5	10		
36 to 75	+2.5	2.3 to 2.8	15	87	QD48S025033
	+3.3	3 to 3.6	15		
36 to 75	+3.3	3 to 3.6	15	100	QD48S033050
	+5	4.5 to 5.5	10		

High-Current QD48S Products Can Replace Two Single-Output Quarter-Bricks

QD48S products provide two independently-regulated high-current outputs and, in many applications, can replace two single-output quarter-bricks.

- Low-profile heights, with no heat sink required, minimize airflow shadowing, enhancing cooling for downstream devices.
- Capability to start-up into pre-biased loads.
- Rugged design withstands 100 V input transient for 100 ms.
- Industry-standard footprints, pinouts, and trim equations.
- Meets Basic insulation requirements of EN60950.
- Also available in through-hole packages; QD48T Series.

Unsigned output voltages are isolated and can be used as either + or - polarities.

SMT > Dual-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
Models with 9 to 36Vin, Sorted by Factory Set Vout					
9 to 36	+5	N/A	0.3	3.5	NVD0.7CGG-M6
	-5	N/A	0.3		
9 to 36	+12	N/A	0.2	4	NVD0.3CHH-M6
	-12	N/A	0.2		
9 to 36	+15	N/A	0.1	4.2	NVD0.3CJJ-M6
	-15	N/A	0.1		
9 to 36	+24	N/A	0.1	3.8	NVD0.2CKK-M6
	-24	N/A	0.1		
Models with 18 to 36Vin, Sorted by Factory Set Vout					
18 to 36	+5	N/A	0.5	5	NVD01YGG-M6
	-5	N/A	0.5		
18 to 36	+12	N/A	0.2	6	NVD0.5YHH-M6
	-12	N/A	0.2		
18 to 36	+15	N/A	0.2	6	NVD0.4YJJ-M6
	-15	N/A	0.2		
Models with Ultra-Wide Input, Sorted by Factory Set Vout					
18 to 75	+5	N/A	0.3	3.5	NVD0.7EGG-M6
	-5	N/A	0.3		
18 to 75	+12	N/A	0.2	4	NVD0.3EHH-M6
	-12	N/A	0.2		
18 to 75	+15	N/A	0.1	4.2	NVD0.3EJJ-M6
	-15	N/A	0.1		
18 to 75	+24	N/A	0.1	3.8	NVD0.2EKK-M6
	-24	N/A	0.1		
Models with Nominal 48Vin, Sorted by Factory Set Vout					
38 to 75	+3.3	2.8 to 3.8	1	8.5	RND02ZGE-M6
	+5.2	4.4 to 5.9	1		
36 to 75	+5	N/A	0.5	5	NVD01ZGG-M6
	-5	N/A	0.5		
38 to 75	+5.1	4 to 7	1	10.2	RND02ZGG-M6
	-5.1	4 to 7	1		
36 to 75	+12	N/A	0.2	6	NVD0.5ZHH-M6
	-12	N/A	0.2		
38 to 75	+12	9 to 15	0.4	10	RND0.8ZHH-M6
	-12	9 to 15	0.4		
36 to 75	+15	N/A	0.2	6	NVD0.4ZJJ-M6
	-15	N/A	0.2		

NVD

1.30 x 0.81 x 0.33 inch
33.0 x 20.6 x 8.5 mm

RND

1.87 x 1.00 x 0.34 inch
47.4 x 25.4 x 8.5 mm

SMT > Input Filters

Max Current (Amps)	Max Input Voltage (VDC)	Mounting	Meets Conducted	Part Number
4	80	SMT	FCC Class B	F4804A
10	50	SMT	FCC Class B	F2410
10	100	SMT	FCC Class B	F4810

Unsigned output voltages are isolated and can be used as either + or - polarities.

Power-One offers a broad array of DPA & IBA hot-swap front ends. Chassis-mount front ends are also available and are listed in the Chassis Mount > Single Output section. Power-One's hot-swap products combine high-efficiency topologies with advanced thermal management techniques to provide industry-leading power densities. Additional features include:

- Extensive I²C interface monitoring & control capabilities
- Active current share with ORing FETs
- Compact, low-profile packages that fit 1U-height constraints

Backplane-Mounted Input Connector - AC-DC

Nominal Vout	Max Amps	Vin Range	Output Trim Range	Standby Vout	Power Supply	Mating Shelves
32V	175	180 to 264 or 342 to 528 VAC	30.5 to 33.5V	12V	FXP6000-32-S	FRH7000 & FRV7000
48V	31	85 to 264 VAC	44.2 to 51.8V	12V	FXP1500-48G	FXR-3-48
	37.5	85 to 264 VAC	44.2 to 51.8V	12V	FXP1800-48G	FXR-3-48
	125	180 to 264 or 342 to 528 VAC	45.6 to 50.4V	12V	FXP6000-48-S	FRH7000 & FRV7000
	145	180 to 264 or 342 to 528 VAC	45.6 to 50.4V	12V	FXP7000-48-S	FRH7000 & FRV7000

FXP1500/1800

12 x 5.6 x 1.6 inch
304.8 x 142.2 x 40.6 mm

- Advanced topologies deliver up to 90% efficiency.
- High density design: up to 14 W/in^3

FXP6000/7000

16.96 x 8 x 5 inch
430.8 x 203.2 x 127 mm

- Current-share for up to 30 units
- Suitable for 3U or 5U height monitoring

Unsigned output voltages are isolated and can be used as either + or - polarities.

Front-Mounted Input Receptacle - AC-DC & DC-DC

Nominal Vout	Max Amps	Vin Range	Output Trim Range	Standby Vout	Power Supply	Mating Shelves
12V	25	85 to 264 VAC	N/A	12V	FNP300-1012	N/A
	25	40.5 to 72 VDC	N/A	N/A	FND300-1012G	N/A
	36.6	90 to 264 VAC	N/A	3.3V	SFP450-12BG	N/A
	45	-40 to -75 VDC	N/A	3.3V	SFD550-12BG	N/A
	50	90 to 264 VAC	7 to 12V	12V	FNP600-12	FNR-5-12
	53.3	90 to 264 VAC	N/A	3.3V	SFP650-12BG	N/A
	73	90 to 264 VAC	7 to 12V	12V	FNP850-12	FNR-5-12
	86.7	90 to 264 VAC	N/A	3.3V	SFP1050-12BG	N/A
	125	85 to 264 VAC	7 to 13V	12V	FNP1500-12G	FNR-3-12
	150	85 to 264 VAC	7 to 12V	12V	FNP1800-12G	FNR-3-12
24V	12.5	85 to 264 VAC	N/A	12V	FNP300-1024	N/A
48V	6.2	85 to 264 VAC	N/A	12V	FNP300-1048	N/A
	12.5	90 to 264 VAC	N/A	12V	FNP600-48	FNR-5-48
	13	85 to 264 VAC	N/A	3.3V	FCP600-48	N/A
	21	90 to 264 VAC	N/A	12V	FNP1000-48	FNR-5-48
	31	85 to 264 VAC	44.2 to 51.8V	12V	FNP1500-48	FNR-3-48G
	37.5	85 to 264 VAC	44.2 to 51.8V	12V	FNP1800-48	FNR-3-48G

FNP600/850/1000

11.74 x 3.3 x 1.6 inch
298.2 x 83.8 x 40.6 mm

- Droop current share with ORing FETs
- Can be used in hot-swap redundant systems
- Control available via GUI-driven I^2C software

SFD550 SFP450/650/1050

12.4 x 3.1 x 1.6 inch
314.5 x 78 x 40 mm

- Common form factor AC and DC input products
- NEBS Level 3 compliant: GR-63, 78, 1089
- Status LEDs: Input OK, Output OK, and Fault

FNP300 & FCP600 FND300

8.5 x 4.0 x 1.65 inch
215.9 x 101.6 x 41.9 mm

- Common form factor AC and DC input products
- Overtemperature, output overvoltage, and output overcurrent protections

FNP1500/1800

11 x 5.6 x 1.6 inch
279.4 x 141.2 x 40.6 mm

- High power densities, up to 18.3 W/in^3
- I^2C voltage and current limit setting
- Analog output voltage setting

Unsigned output voltages are isolated and can be used as either + or - polarities.

AC-DC Power Shelves

- Up to 525 Amps per shelf configuration
- Shelves may be partially populated for reduced currents, or paralleled for higher currents.

Vout Nominal	Max Amps	Input Range	Shelf	Height	Width	Depth	Power Supply	Max # of Supplies
12V	250	85 to 264 VAC	FNR-5-12	1U	19”	13”	FNP600-12	5
	355	85 to 264 VAC	FNR-5-12	1U	19”	13”	FNP850-12	5
	375	85 to 264 VAC	FNR-3-12	1U	19”	13”	FNP1500-12	3
32V	350	180 to 264 or 342 to 528 VAC	FRH7000	3U	17.5”	24”	FXP6000-32-S	2
	525	180 to 264 or 342 to 528 VAC	FRV7000	5U	17.5”	24”	FXP6000-32-S	3
48V	62	85 to 264 VAC	FNR-5-48	1U	19”	13”	FNP600-48	5
	93	85 to 264 VAC	FNR-3-48	1U	19”	13”	FNP1500-48	3
	93	85 to 264 VAC	FXR-3-48	1U	19”	13”	FXP1500-48G	3
	105	85 to 264 VAC	FNR-5-48	1U	19”	13”	FNP1000-48	5
	112	85 to 264 VAC	FNR-3-48	1U	19”	13”	FNP1800-48	3
	112	85 to 264 VAC	FXR-3-48	1U	19”	13”	FXP1800-48G	3
	250	180 to 264 or 342 to 528 VAC	FRH7000	3U	17.5”	24”	FXP6000-48-S	2
	290	180 to 264 or 342 to 528 VAC	FRH7000	3U	17.5”	24”	FXP7000-48-S	2
	375	180 to 264 or 342 to 528 VAC	FRV7000	5U	17.5”	24”	FXP6000-48-S	3
	435	180 to 264 or 342 to 528 VAC	FRV7000	5U	17.5”	24”	FXP7000-48-S	3

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Unsigned output voltages are isolated and can be used as either + or - polarities.

FXC6000/7000
15.17 x 8 x 5 inch
38.5 x 20.3 x 12.7 cm

MAP40
5.00 x 3.00 x 1.16 inch
127.0 x 76.2 x 29.5 mm

MAP55
6.00 x 3.27 x 1.60 inch
152.4 x 83.1 x 40.6 mm

MAP80
7.20 x 4.20 x 1.80 inch
182.9 x 106.7 x 45.7 mm

MAP130
8.50 x 4.50 x 2.00 inch
215.9 x 114.3 x 50.8 mm

AC-DC > Single Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
Models with 3.3 and 5Vout, Sorted by Vout then Max Watts					
3.3	3.1 to 3.5	50	85 to 264	165	PFC250-1003
5	4.7 to 5.5	8	90 to 264	40	MAP40-1005
5	4.5 to 5.6	16	90 to 264	80	MAP80-1005
5	5.0 to 5.5	22	85 to 264	110	MAP110-1005
5	4.8 to 5.5	26	90 to 264	130	MAP130-1005
5	4.5 to 5.5	50	85 to 264	250	PFC250-1005
Models with 12 and 15Vout, Sorted by Vout then Max Watts					
12	11.4 to 15.8	5	90 to 264	55	MAP55-1012
12	11.5 to 15.5	7.5	90 to 264	80	MAP80-1012
12	11.2 to 15.8	10	85 to 264	110	MAP110-1012
12	11.8 to 12.2	10.5	90 to 264	125	MPB125-1012
12	11.4 to 15.8	12	90 to 264	130	MAP130-1012
12	11 to 16	12.5	85 to 264	140	MAP140-1012
12	11.6 to 16	17	85 to 264	200	MPU200-1012
12	10.8 to 13.5	21	85 to 264	250	PFC250-1012
12	10.8 to 13.5	30	85 to 264	375	PFC375-1012
15	13.5 to 18.3	17	85 to 264	250	PFC250-1015
15	12 to 17	25	85 to 264	375	PFC375-1015
Models with 24 and 28Vout, Sorted by Vout then Max Watts					
24	23.5 to 28.5	2.5	90 to 264	55	MAP55-1024
24	23 to 29	3.8	90 to 264	80	MAP80-1024
24	22.8 to 29.2	5	85 to 264	110	MAP110-1024
24	22.5 to 30	6.2	90 to 264	130	MAP130-1024
24	22.8 to 29.2	6.3	85 to 264	140	MAP140-1024
24	22.8 to 29.2	8.3	85 to 264	200	MPU200-1024
24	21.6 to 26.4	10.5	85 to 264	250	PFC250-1024
24	21.6 to 26.4	15	85 to 264	375	PFC375-1024
24	21.6 to 26.4	21	85 to 264	500	PFC500-1024
24	21.6 to 26.4	125	180 to 264	3000	NHC3011-5
28	25.2 to 30.8	13.4	85 to 264	375	PFC375-1028
28	25.2 to 30.8	17.9	85 to 264	500	PFC500-1028
28	25.2 to 30.8	107	180 to 264	3000	NHC3011-6

Additional single-output products are described in the Rack-Mount Front-End and Modular Solutions sections.

Alpha-sorted graphics and dimensions augment model listings from both pages.

Unsigned output voltages are isolated and can be used as either + or - polarities.

AC-DC > Single Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
Models with 48Vout, Sorted by Max Watts					
48	45.8 to 54	3.1	85 to 264	140	MAP140-1048
48	45 to 56	4.2	85 to 264	200	MPU200-1048
48	46 to 56	6	85 to 264	250	PFC250-1048
48	46 to 56	7.8	85 to 264	375	PFC375-1048
48	46 to 56	10.4	85 to 264	500	PFC500-1048
48	43.2 to 52.8	62.5	180 to 264	3000	NHC3021-8
48	45.6 to 50.4	125	180 to 528	6000	FXC6000-48-S
48	45.6 to 50.4	145	180 to 528	7000	FXC7000-48-S

AC-DC > Dual Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
Sorted by Factory Set Vout					
+3.3 +12	N/A N/A	30 0.5	90 to 264	105	MPB125-2003
+5 +12	N/A N/A	25 0.5	90 to 264	125	MPB125-2005
+12 12	N/A N/A	10.5 0.5	90 to 264	125	MPB125-2012
+12 12	N/A N/A	12.5 0.5	90 to 264	150	MPB150-2012G
+15 12	N/A N/A	8.3 0.5	90 to 264	125	MPB125-2015
+24 12	N/A N/A	5.2 0.5	90 to 264	125	MPB125-2024
+24 12	N/A N/A	6 0.5	90 to 264	150	MPB150-2024G
+48 12	N/A N/A	2.6 0.5	90 to 264	125	MPB125-2048
+48 12	N/A N/A	3.1 0.5	90 to 264	150	MPB150-2048G

MPU200

8.00 x 4.20 x 1.50 inch
203 x 107 x 38 mm

NHC3000

12.25 x 5 x 5 inch
31.1 x 12.7 x 12.7 cm

PFC250

8.50 x 4.75 x 2.00 inch
215.9 x 120.7 x 50.8 mm

PFC375/PFC500

9.00 x 5.00 x 2.50 inch
228.6 x 127.0 x 63.5 mm

MAP110/MAP140

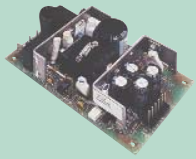
7.00 x 4.30 inch
177.8 x 109.2 mm

- MAP110: 1.97 inch height
- MAP140: 1.80 inch height

MPB125/MPB150

5.00 x 3.00 x 1.25 inch
127.0 x 76.2 x 31.8 mm

Unsigned output voltages are isolated and can be used as either + or - polarities.



MAP40

5.00 x 3.00 x 1.16 inch
127.0 x 76.2 x 29.5 mm

MAP140

7.00 x 4.30 x 1.80 inch
177.8 x 109.2 x 45.7 mm

AC-DC > Triple Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
One 3.3V, One 5V, and One 12V Output					
+3.3	3.1 to 3.8	35	85 to 264	150	MPU150-3300
+5	5 to 5.5	20			
+12	N/A	2			
Model with Two 5V and One 12V Output					
+5	4.7 to 5.8	3	90 to 264	40	MAP40-3105
-5	N/A	0.5			
+12	N/A	2			
Models with One 5V and Two 12V Outputs, Sorted by Max Watts					
+5	4.7 to 5.8	5	90 to 264	40	MAP40-3500
+12	N/A	1			
-12	N/A	0.3			
+5	N/A	16.5	90 to 264	125	MPB125-3000
+12	N/A	5			
-12	N/A	0.5			
+5	4.8 to 5.2	20	85 to 264	140	MAP140-3000P
+12	N/A	4			
-12	N/A	1			
Model with One 5V, One 12V, and One 24V Output; Sorted by Max Watts					
+5	4.8 to 5.2	3	90 to 264	40	MAP40-3101
+24	N/A	1			
-12	N/A	0.3			

Alpha-sorted graphics and dimensions augment model listings from both pages.

Unsigned output voltages are isolated and can be used as either + or - polarities.

AC-DC > Quad Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
Models Under 100 Watts, Sorted by Max Watts					
+5	4.7 to 5.6	6	90 to 264	55	MAP55-4000
+12	N/A	3			
-5	N/A	0.5			
-12	N/A	0.5			
+5	4.7 to 5.6	6	90 to 264	55	MAP55-4002
+12	N/A	3			
-12	N/A	0.5			
+12	N/A	0.5			
+5	4.7 to 5.6	6	90 to 264	55	MAP55-4003
+15	N/A	2.5			
-5	N/A	0.5			
-15	N/A	0.5			
+5	4.7 to 5.6	6	90 to 264	55	MAP55-4001
+24	N/A	1.5			
-12	N/A	0.5			
+12	N/A	0.5			
+5	4.7 to 5.6	6	90 to 264	55	MAP55-4004
+24	N/A	1.5			
-15	N/A	0.5			
+15	N/A	0.5			
+5	4.8 to 5.5	14	90 to 264	80	MAP80-4000
+12	11.5 to 12.5	4			
-5	N/A	1			
-12	N/A	1			
+5	4.8 to 5.5	14	90 to 264	80	MAP80-4010
+12	11.5 to 12.5	4			
-5	N/A	1			
-12	N/A	3			
+5	4.8 to 5.5	14	90 to 264	80	MAP80-4020
+12	11.5 to 12.5	4			
-12	N/A	1			
-5	N/A	3			
+5	4.7 to 5.5	14	90 to 264	80	MAP80-4002
+12	11.5 to 12.5	4			
-12	N/A	1			
+12	N/A	1			
+5	4.8 to 5.5	14	90 to 264	80	MAP80-4003
+15	14.4 to 15.8	3.5			
-5	N/A	1			
-15	N/A	1			
+5	4.8 to 5.5	14	90 to 264	80	MAP80-4001
+24	23 to 25	2			
-12	N/A	1			
+12	N/A	1			
+5	4.8 to 5.5	14	90 to 264	80	MAP80-4004
+24	23 to 25	2			
-15	N/A	1			
+15	N/A	1			

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MPB125

5.00 x 3.00 x 1.25 inch
127.0 x 76.2 x 31.8 mm

MPU150

8.00 x 4.20 x 1.50 inch
203.2 x 106.7 x 38.1 mm

Unsigned output voltages are isolated and can be used as either + or - polarities.

MAP110

7.00 x 4.30 x 1.97 inch
177.8 x 109.2 x 50 mm

- Remote Sense on Main Outputs
- Optional L-Bracket & Cover
- Optional Power Fail and Thermal Shutdown

MPB125

5.00 x 3.00 x 1.25 inch
127.0 x 76.2 x 31.8 mm

- High Power Density in Industry Standard 3" x 5" Footprint
- Power Factor Correction Meets EN61000-3-2
- Main Output Remote Sense
- Input Transient & ESD Compliance to EN61000-4-2/-3/-4

AC-DC > Quad Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
Models from 110 to 125 Watts, Sorted by Max Watts then Factory Set Vout					
+3.3	3.2 to 3.4	15	85 to 264	110	MAP110-4300
+5	N/A	8			
-12	N/A	1			
+12	N/A	1			
+5	4.8 to 5.2	12	85 to 264	110	MAP110-4000
+12	N/A	5			
-12	N/A	1			
-5	N/A	1			
+5	4.8 to 5.2	12	85 to 264	110	MAP110-4002
+12	N/A	5			
-12	N/A	1			
+12	N/A	1			
+5	4.8 to 5.2	12	85 to 264	110	MAP110-4011
+12	N/A	5			
-12	N/A	1			
+24	N/A	1			
+5	4.8 to 5.2	12	85 to 264	110	MAP110-4003
+15	N/A	5			
-15	N/A	1			
-5	N/A	1			
+5	4.8 to 5.2	12	85 to 264	110	MAP110-4001
+24	N/A	3			
-12	N/A	1			
+12	N/A	1			
+5	4.8 to 5.2	12	85 to 264	110	MAP110-4004
+24	N/A	3			
-15	N/A	1			
+15	N/A	1			
+12	11.6 to 12.4	5	85 to 264	110	MAP110-4200
+24	N/A	4			
-12	N/A	1			
+5	N/A	2			
+2.5	N/A	12	90 to 264	125	MPB125-4250
+5	N/A	15			
+12	N/A	5			
-12	N/A	0.5			
+3.3	N/A	10	90 to 264	125	MPB125-4350
+5	N/A	15			
+12	N/A	5			
-12	N/A	0.5			

Unsigned output voltages are isolated and can be used as either + or - polarities.

AC-DC > Quad Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
Models from 130 to 150 Watts, Sorted by Max Watts then Factory Set Vout					
+5	4.8 to 5.5	20	90 to 264	130	MAP130-4000
+12	11.5 to 12.5	5			
-5	N/A	1			
-12	N/A	1			
+5	4.8 to 5.5	20	90 to 264	130	MAP130-4002
+12	11.5 to 12.5	5			
-12	N/A	1			
+12	N/A	1			
+5	4.8 to 5.5	20	90 to 264	130	MAP130-4010
+12	N/A	5			
-5	N/A	1			
-12	N/A	3			
+5	4.8 to 5.5	20	90 to 264	130	MAP130-4020
+12	N/A	5			
-12	N/A	1			
-5	N/A	3			
+5	4.8 to 5.5	20	90 to 264	130	MAP130-4003
+15	14 to 16	4			
-5	N/A	1			
-15	N/A	1			
+5	4.8 to 5.5	20	90 to 264	130	MAP130-4001
+24	23 to 25	3.5			
-12	N/A	1			
+12	N/A	1			
+5	4.8 to 5.5	20	90 to 264	130	MAP130-4004
+24	23 to 25	3.5			
-15	N/A	1			
+15	N/A	1			
+3.3	3.1 to 3.6	30	85 to 264	150	MPU150-4350
+5	5 to 5.5	15			
12	10.8 to 13.2	3			
12	10.8 to 13.2	3			
+5	5 to 5.5	30	85 to 264	150	MPU150-4530
+3.3	3.1 to 3.6	15			
12	10.8 to 13.2	3			
12	10.8 to 13.2	3			
+5	5 to 5.5	30	85 to 264	150	MPU150-4000
+12	10.8 to 13.2	8			
12	10.8 to 13.2	3			
5	5 to 5.5	2			

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MAP130

8.50 x 4.50 x 2.00 inch
215.9 x 114.3 x 50.8 mm

- Metric & SAE Mounting Inserts
- Power Fail Signal
- Dual-Mode Connectors

MPU150

8.00 x 4.20 x 1.50 inch
203 x 107 x 38 mm

- Power Factor Correction Meets EN61000-3-2

Chassis Mount > AC-DC

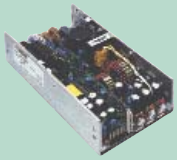
Unsigned output voltages are isolated and can be used as either + or - polarities.

MPU200

8.00 x 4.20 x 1.50 inch
203 x 107 x 38 mm

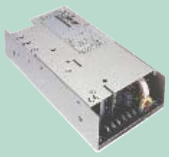
NET1

7.00 x 4.50 x 1.35 inch
177.8 x 114.3 x 34.3 mm



PFC250

8.50 x 4.75 x 2.00 inch
215.9 x 120.7 x 50.8 mm



PFC375

9.00 x 5.00 x 2.50 inch
228.6 x 127.0 x 63.5 mm

NET2

8.25 x 4.50 x 1.59 inch
209.6 x 114.3 x 40.4 mm

AC-DC > Quad Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
Models from 200 to 400 Watts, Sorted by Max Watts					
+5	5 to 5.5	30	85 to 264	200	MPU200-4530
+3.3	3.1 to 3.6	15			
12	10.8 to 13.2	8			
12	10.8 to 13.2	4			
+3.3	3.3 to 3.8	50	85 to 264	240	NET1-4230
+5	N/A	5			
+12	N/A	4			
+2.5	2.5 to 3	50			
+3.3	3.3 to 3.8	50	85 to 264	240	NET1-4350
+12	N/A	4			
+12	N/A	4			
+5	5 to 5.5	30			
+3.3	3.1 to 3.5	40	85 to 264	250	PFC250-4350
+5	5 to 5.5	20			
12	10.8 to 13.2	6			
12	10.8 to 13.2	3			
+5	5 to 5.5	40	85 to 264	250	PFC250-4530
+3.3	3.1 to 3.5	20			
12	10.8 to 13.2	6			
12	10.8 to 13.2	3			
+5	5 to 5.5	40	85 to 264	250	PFC250-4000
+12	10.8 to 13.2	10			
12	10.8 to 13.2	6			
5	5 to 5.5	3			
+5	5 to 5.5	40	85 to 264	250	PFC250-4001
+12	10.8 to 13.2	10			
12	10.8 to 13.2	6			
12	10.8 to 13.2	3			
+5	4.5 to 5.5	40	85 to 264	375	PFC375-4000
+12	11.3 to 12.6	10			
12	11.3 to 12.6	6			
5	N/A	3			
+5	4.5 to 5.5	40	85 to 264	375	PFC375-4002
+12	11.3 to 12.6	10			
12	11.3 to 12.6	6			
24	22 to 28	3			
+24	21.5 to 26.4	10	85 to 264	375	PFC375-4200
+5	4.5 to 5.5	10			
12	11.4 to 12.6	4			
12	11.4 to 12.6	4			
+24	21.5 to 26.4	10	85 to 264	375	PFC375-4201
+5	4.5 to 5.5	10			
15	14.2 to 16	4			
15	13.7 to 16	4			
+3.3	3.2 to 3.4	55	85 to 264	400	NET2-4350
12	11.4 to 12.6	5			
12	11.4 to 12.6	5			
+5	4.9 to 5.2	40			
+5.2*	N/A	2*	* NET2-4350 V5out is a fixed 5.2V standby voltage at 2A.		

Additional quad-output products are listed in the Modular Solutions sections.

Unsigned output voltages are isolated and can be used as either + or - polarities.

DC Input > Single, Triple, & Quad Output

Input VDC	Factory Set Vout	Output Trim Range	Max Amps	Max Watts	Model
Single-Output Models, Sorted by Factory Set Vout					
36 to 75	12	11.6 to 16	17	200	MDU200-1012
36 to 75	24	22.8 to 29.2	8.3	200	MDU200-1024
36 to 75	24	21.6 to 26.4	21	500	PDC500-1024
36 to 75	48	45 to 56	4.2	200	MDU200-1048
Triple-Output Model					
36 to 72	+3.3	3.1 to 3.8	35	150	MDU150-3300
	+5	5 to 5.5	20		
	+12	N/A	2		
Quad-Output Models, Sorted by Factory Set Vout					
36 to 75	+2.5	2.25 to 3.0	30	150	MDU150-4230
	+3.3	3.15 to 3.8	15		
	12	10.8 to 13.2	3		
	5	5 to 5.5	2		
36 to 75	+3.3	3.15 to 3.8	30	150	MDU150-4350
	+5	5 to 5.5	15		
	12	10.8 to 13.2	3		
	12	10.8 to 13.2	3		
36 to 75	+5	5 to 5.5	30	150	MDU150-4530
	+3.3	3.15 to 3.8	15		
	12	10.8 to 13.2	3		
	12	10.8 to 13.2	3		
36 to 75	+5	5 to 5.5	30	150	MDU150-4000
	+12	10.8 to 13.2	8		
	12	10.8 to 13.2	3		
	5	5 to 5.5	2		

MDU150
8.00 x 4.20 x 1.50 inch
203.2 x 106.7 x 38.1 mm

MDU200
8.00 x 4.20 x 1.50 inch
203.2 x 106.7 x 38.1 mm

PDC500
9.00 x 5.00 x 2.50 inch
228.6 x 127.0 x 63.5 mm

ESP4/ESM4

ESP6/ESM6

Description

The ESP4 and ESP6 Series are extremely flexible modular products that are ideal multiple-output power solutions for a wide range of applications. The UL2601-1 and EN60601-1 compliant ESM4 and ESM6 Series combine low leakage currents (under 300 µA) with IEC601-1 isolation and spacing, making them ideal platforms for medical-diagnostic applications such as MRI and CAT scanners, blood analyzers, and DNA sequencers.

The ESP4 and ESM4 Series are available in 400 and 600 watt configurations, both providing up to eight outputs from 2.56" x 5" x 10.63" (65 x 127 x 270 mm) chassis. The ESP6 and ESM6 are available in 600 and 1000 watt versions, both providing up to twelve outputs from 2.56" x 7.36" x 10.63" (65 x 187 x 270 mm) chassis. Five single-output and two dual-output modules can be configured in series or parallel to provide outputs from 1.45 to 58 VDC.

Additional features include: wide-range input from 88 to 264 VAC, no minimum-load operation, an internal fan, and fully-isolated outputs. In addition, individual output modules have a Power Good signal, Output Inhibit, and Remote Adjust. Standard options include input Power Fail, Global Enable or Inhibit, and a 5 V @ 50 mA bias supply. Regulatory agency compliances include UL, cUL, EN61000-3-2 (PFC), Class B conducted emissions, and the EMC requirements of EN61000-4-2, -3, -4, -5, -6, and -11.

Features

- 1 to 12 isolated outputs with full user configurability
- 1.45 V to 28 V standard output voltages
- Isolated bias supply voltage of 5 V @ 50 mA
- Class B conducted emissions
- 400, 600 and 1000 Watts of output power
- Series and parallel capability
- Zero-load operation
- EN61000-3-2 compliant
- Universal input
- Fully-floating outputs
- Individual control signals on each module
- Modular construction
- Industry-standard footprint
- Compact packaging,
  ESP4 and ESM4: 2.56 x 5.00 x 10.63 in
  (65 x 127 x 270 mm)
  ESP6 and ESM6: 2.56 x 7.36 x 10.63 in
  (65 x 187 x 270 mm)
- 2-year warranty

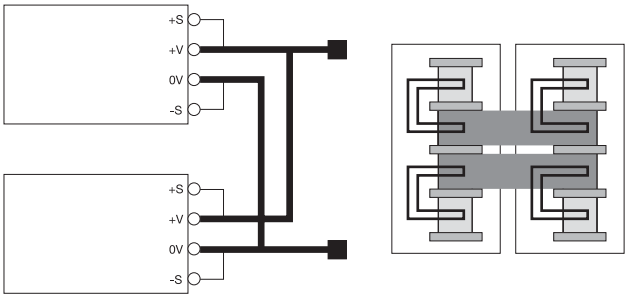
Additional ESM Features

- Medical Approvals
- EN60601-1, UL2601-1, IEC601-1 approved
- 12mm creepage
- Low leakage current <300 µA
- Class B conducted emissions (ESM6)

A user-friendly modular product configurator is available at www.power-one.com

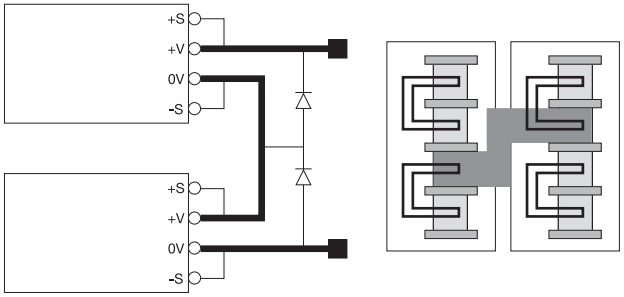
ESP Flexibility

Using Modules in Parallel



Notes:
Maximum current = (I_1 + I_2) x 0.9
Use two parallel links

Using Modules in Series



Notes:
Maximum voltage to chassis is 500 V
Use series link
Reverse bias diodes may be required for certain applications, e.g., large capacitive loads

Single-Output Module Selection

Module	No. of Slots	Nominal Voltage	Range	Imax
Module 1	1	5V	3 to 5.6V	30A
Module 2	1	12V	5 to 13V	20A
Module 3	1	18V	8 to 20V	15A
Module 4	1	24V	12 to 28V	12A
Module 70	2	5V	1.45 to 5.6V	80A

Dual-Output Module Selection

Module	No. of Slots	Nominal Voltage	Range	Imax
Module 5	1	24V 24V	10 to 28V 10 to 28V	3A 3A
Module 6	1 1	5V 24V	3 to 5.6V 10 to 28V	10A 3A

Output Signals

Output control signals are available on all output modules.
(see application note)

Modules 1 to 6
- Power good signal
- Output inhibit signal
- Remote adjust (margin)

Module 70 Additional Features
- Adjustable Current Limit
- Foldback or Straight Line Current Limiting
- Bias Voltage
- Selectable Output Inhibit or Enable

Dual output modules:
Output signals available on first [top] output only.

Production Configuration:

Units are shipped with nominal output voltages unless special configuration is specified. Power-One can configure to your exact requirements through use of appropriate series and parallel busbars, and voltage adjustment to specific set points.

ESP/ESM Standard Options

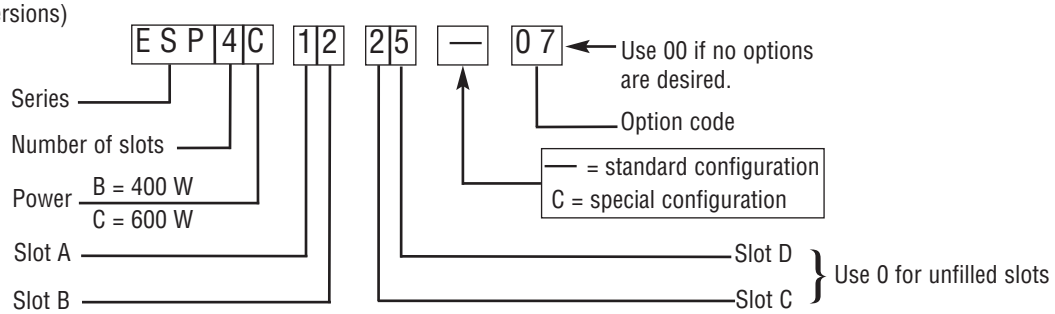
06 Mains Power Fail + Global Enable + Bias Supply Voltage

07 Mains Power Fail + Global Inhibit + Bias Supply Voltage

How to Order ESP4 or ESM4 (ESP4 shown in example)

(Available in 400/600 Watt Versions)

Note: Calculate power requirements by summing output powers calculated at application output voltages.



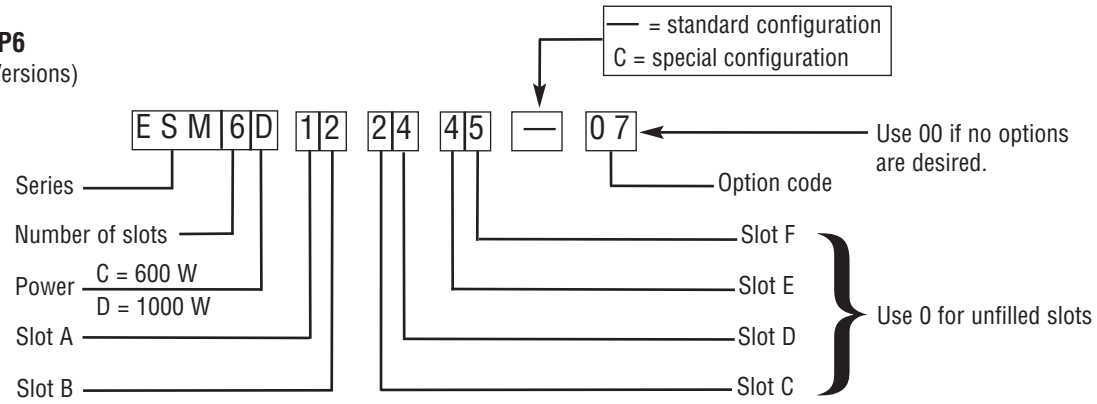
Specifications of ESP4 part number example:
- 4-slot series
- Maximum output power: 600 W
- 5V @ 30A; 12V @ 20A; 24V @ 3A; 24V @ 3A
- Mains Power Fail signal + Logic Inhibit + Bias Supply Voltage

How to Order ESM6 or ESP6

(Available in 600/1000 Watt Versions)

Note: Calculate power requirements by summing output powers calculated at application output voltages.

For ESP/ESM6D:
Limit total power from slots A-C and D-F to 550 W each.



Specifications of ESM6 part number example:
- 6-slot series
- Maximum output power: 1000 W
- 5V @ 30A; 12V @ 20A; 12V @ 20A; 24V @ 12A; 24V @ 12A; 24V @ 3A; 24V @ 3A
- Mains Power Fail signal + Logic Inhibit + Bias Supply Voltage

High-Power Modular Products
Up to 21 Outputs, from 1 to 48 VDC

Power-One's high power modular products can provide up to 21 outputs in over 10 million voltage and current combinations. Eighteen chassis are available from 1000 to 4000 watts; including power factor corrected and three-phase input. Over 90 output modules are available to provide voltages from 1 to 48 VDC.

A user-friendly modular product configurator is available at www.power-one.com

RELIABILITY

- Demonstrated DC output module MTBF of greater than 5 million hours.
- Ruggedized AC input sections incorporate extensive transient protection.
- Vibration tested at 6 GRMS, 3 axis, 10 to 2000 Hz.
- Two-year warranty.

FLEXIBILITY

- Modular construction; over 10 million configurations available.
- Up to 21 outputs per power supply from 1.0 to 48 VDC.
- Parallelable outputs
- System inhibit and individual module output inhibit capability.

PERFORMANCE

- Most outputs fully regulated and isolated.
- Active PFC models meet EN61000-3-2 and EN60555-2.
- EN60950/UL1950 approved. CE Marked to the Low Voltage Directive.
- No minimum loads required on most outputs.

Modular High Power Series Chassis Overview

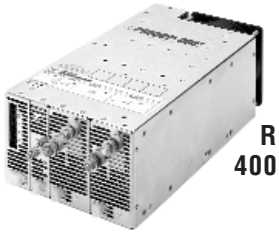
CHASSIS / METRIC MOUNTING STANDARD	SMF3 SPF3	HMF3 HPF3	HMF5 HPF5	SMM3 SPM3	SMM5 SPM5	HMM5 HPM5	RMF5 RPF5	RMM5 RPM5
OUTPUT POWER AND POWER FACTOR								
.99 PFC to meet EN60555	YES	YES	YES	N/A	N/A	N/A	YES	N/A
Max output wattage at high range line input	1350	2000	2000	1000	1500	2000	3000	4000
Max output wattage at low range line input*	1000	1500	1500	1000	1500	N/A	N/A	N/A
INPUT VOLTAGE SPECIFICATIONS								
High range VAC input	160-264	160-264	160-264	175-264	175-264	180-264	160-264	180-264
Low range VAC input	85-159	85-159	85-159	90-132	90-132	N/A	N/A	N/A
VAC input selection	Wide Range	Wide Range	Wide Range	Manual	Manual	N/A	N/A	N/A
VAC input phases	Single	Single	Single	Single	Single	Single	Single	Three
OUTPUT MODULE SPECIFICATIONS								
Max # of outputs	9	9	15	9	15	15	15	15
# of module slots	3	3	5	3	5	5	5	5
MECHANICAL SPECIFICATIONS								
Chassis size H x W x L, inches	5 x 5.5 x 12.5	5 x 5.5 x12.5	5 x 8 x 11	5 x 5.5 x 11	5 x 8 x 11	5 x 8 x 11	5 x 8 x 12.5	5 x 8 x 15
Chassis size H x W, millimeters	127 x 140	127 x 140	127 x 203	127 x 140	127 x 203	127 x 203	127 x 203	127 x 203
Chassis size x L, millimeters	x 318	x 318	x 280	x 280	x 280	x 280	x 318	x 381
INPUT TRANSIENT PROTECTION SPECIFICATIONS								
ESD Immunity EN61000-4-2,	Level 4 15kV/8kV	Level 4 15kV/8kV	Level 4 15kV/8kV	Level 4 15kV/8kV	Level 4 15kV/8kV	Level 4 15kV/8kV	Level 4 15kV/8kV	Level 4 15kV/8kV
RF Susceptibility EN61000-4-3	Level 3 10V/m	Level 3 10V/m	Level 3 10V/m	Level 3 10V/m	Level 3 10V/m	Level 3 10V/m	Level 3 10V/m	Level 3 10V/m
Fast Transient/Burst EN61000-4-4	Level 3 ±2kV	Level 3 ±2kV	Level 3 ±2kV	Level 3 ±2kV	Level 3 ±2kV	Level 3 ±2kV	Level 3 ±2kV	Level 3 ±2kV
Surge Immunity EN61000-4-5 (Line-Line)	Class 4 2kV	Class 4 2kV	Class 4 2kV	Class 4 2kV	Class 4 2kV	Class 4 2kV	Class 4 2kV	Class 4 2kV
Surge Immunity EN61000-4-5 (line-Gnd)	Class 4 4kV	Class 4 4kV	Class 4 4kV	Class 4 4kV	Class 4 4kV	Class 4 4kV	Class 4 4kV	Class 4 4kV

*Maximum wattage above 100 VAC input for SPF/HPF

Five-Million-Hour MTBF Modules
Exceptional Input-Transient Protection

Modular high power chassis provide exceptional input-transient protection, as evidenced by testing to stringent levels of EN61000. These extremely rugged chassis are coupled with output modules having typical demonstrated MTBFs of over five million hours based on a three-year field reliability study of 21 module types used in 19 different configurations.

These output modules are extremely current dense. The following tables list the maximum currents available per module. Lower current modules are also available Modules and power supplies can be paralleled to provide higher currents. Please visit www.power-one.com to configure a modular solution to power your voltage and current requirements.



RPM5
4000 WATTS

Maximum Currents Available for Single-Output Modules														
Vout	1 to 2	2 to 3	3.3	5	6	8	10	12	14 to 15	18	20 to 24	28 to 30	36	48
Max Amps	35 to 640	35 to 830	35 to 830	35 to 800	35 to 500	20 to 320	20 to 320	20 to 320	10 to 250	10 to 132	10 to 165	8 to 145	20 to 115	5 to 89

Maximum Currents Available for Single-Output, Wide-Range Adjustable Modules						
Factory Set Vout	1.0	2.0	3.0	3.3	18	19
Trim Range	0.7 to 2.1	1.5 to 2.8	1.9 to 3	2.5 to 4	14 to 24	14 to 24
Max Amps	320	375	150	375	32	10

Maximum Currents Available for Dual-Output Modules					
Vout1/Vout2	12/12	±12	±15	±20	±24
Max Amps	10/4	10/10	8/8	5/5	5/5

Maximum Currents Available for Triple-Output Modules											
Vout1 Vout2 Vout3	5 1.5 3.3	5 1.5 12	5 2.2 12	5 12 12	5.2 12 12	5 12 24	5 15 15	5 24 24	12 12 12	5 15 12	24 12 12
Max Amps	15 10 10	10 10 10	10 10 10	10 10 10	15 8 8	10 10 5	10 8 8	10 5 5	10 10 10	10 8 10	5 10 10

Please visit www.power-one.com to configure a modular solution to power your voltage and current requirements.

Linear Power Supplies > Single Output

- Worldwide AC Input Capabilities: 100/120/220/230/240 VAC
- ±0.05% Output Regulation
- Low Output Ripple
- UL, CSA, and TÜV Approvals
- Mean Time Before Failure (MTBF) in Excess of 300,000 Hours
- CE Marked to Low Voltage Directive
- 100% Burn-In
- 2-Year Warranty
- Overvoltage Protection (OVP) Standard on 5V Single Outputs; Optional for Outputs Under 48V

Unsigned output voltages are isolated and can be used as either + or - polarities.

Nominal Vout*	Max Amps	Model Input 100 to 264 VAC	Case Type	Additional Features & Notes
Models with 5Vout, Sorted by Max Amps				
5	1.5	HAA5-1.5/OVP-AG	B	A
5	3	HB5-3/OVP-AG	B	A, C
5	6	HC5-6/OVP-AG	C	A, C
5	9	HN5-9/OVP-AG	N	A, C
5	12	HD5-12/OVP-AG	D	A, C
5	18	HE5-18/OVP-AG	E	A, C
5	25	F5-25/OVP-AG	F	A, C, D, H
5	35	G5-35/OVP-AG	F	A, C, D, H
5	50	CP197-AG	F	A, C, D
Models with 12 to 15Vout, Sorted by Vout then Max Amps				
12	0.9	HA15-0.9-AG	B	
12	1.7	HB12-1.7-AG	B	C
12	3.4	HC12-3.4-AG	C	C
12	5.1	HN12-5.1-AG	N	C
12	6.8	HD12-6.8-AG	D	C
12	10.2	HE12-10.2-AG	E	C
12	16	F15-15-AG	F	C, D, H
15*	0.9	HA15-0.9-AG	B	
15	1.5	HB15-1.5-AG	B	C
15	3	HC15-3-AG	C	C
15	4.5	HN15-4.5-AG	N	C
15	6	HD15-6-AG	D	C
15	9	HE15-9-AG	E	C
15*	15	F15-15-AG	F	C, D, H
Models with 24 to 28Vout, Sorted by Vout then Max Amps				
24	0.5	HA24-0.5-AG	B	
24	1.2	HB24-1.2-AG	B	C
24	2.4	HC24-2.4-AG	C	C
24	3.6	HN24-3.6-AG	N	C
24	4.8	HD24-4.8-AG	D	C
24	7.2	HE24-7.2-AG	E	C
24	12	F24-12-AG	F	C, D, H
28*	0.5	HA24-0.5-AG	B	
28	1	HB28-1-AG	B	C
28	2	HC28-2-AG	C	C
28	3	HN28-3-AG	N	C
28	4	HD28-4-AG	D	C
28	6	HE28-6-AG	E	C
28*	10	F24-12-AG	F	C, D, H
Models with 48Vout, Sorted by Max Amps				
48	0.5	HB48-0.5-AG	B	
48	1	HC48-1-AG	C	
48	3	HD48-3-AG	D	C
48	4	HE48-4-AG	E	C

* May require jumpering or potentiometer adjustment.

Unsigned output voltages are isolated and can be used as either + or - polarities.

Nominal Vout*	Max Amps	Model Input 100 to 264 VAC	Case Type	Additional Features & Notes
Models with 5V to 15Vout, Sorted by Nominal Vout then Max Amps				
+5, –5	1.5, 1.5	HAA5-1.5/OVP-AG	AA	A
+5, –5	3, 3	HBB5-3/OVP-AG	BB	A
+5, –5	6, 6	HCC5-6/OVP-AG	CC	A, C
5, 12 to 15	2, 0.5	HAA512-AG	AA	A
5, 12 to 15	3, 1.25	HBB512-AG	BB	A, C
5, 12 to 15	6, 2.5	HCC512-AG	CC	A, C
+12, –5*	1, 0.4	HAA15-0.8-AG	AA	C
+12, –5*	1.7, 0.7	HBB15-1.5-AG	BB	C
+12, –12	0.4, 0.4	HAD12-0.4-AG	B	B
+12, –12	1, 1	HAA15-0.8-AG	AA	C
+12, –12	1.7, 1.7	HBB15-1.5-AG	BB	C
+12, –12	3.4, 3.4	HCC15-3-AG	CC	C
+12, –12*	5, 5	HDD15-5-AG	E	C
+12, –15*	1, 0.8	HAA15-0.8-AG	AA	C
+12, –15*	1.7, 1.5	HBB15-1.5-AG	BB	C
+12, –15*	3.4, 3	HCC15-3-AG	CC	C
+12, –15*	5, 5	HDD15-5-AG	E	C
+15, –5*	0.8, 0.4	HAA15-0.8-AG	AA	C
+15, –5*	1.5, 0.7	HBB15-1.5-AG	BB	C
+15, –12*	0.8, 1	HAA15-0.8-AG	AA	C
+15, –12*	1.5, 1.7	HBB15-1.5-AG	BB	C
+15, –12*	3, 3.4	HCC15-3-AG	CC	C
15, –12*	5, 5	HDD15-5-AG	E	C
Models with 15V to 24Vout, Sorted by Nominal Vout then Max Amps				
+15, –15	0.4, 0.4	HAD15-0.4-AG	B	B
+15, –15	0.8, 0.8	HAA15-0.8-AG	AA	C
+15, –15*	1.5, 1.5	HBB15-1.5-AG	BB	C
+15, –15*	3, 3	HCC15-3-AG	CC	C
+15, –15	5, 5	HDD15-5-AG	E	C
+24, –24	0.6, 0.6	HAA24-0.6-AG	AA	
+24, –24	1.2, 1.2	HBB24-1.2-AG	BB	
+24, –24	2.4, 2.4	HCC24-2.4-AG	CC	C

* May require jumpering or potentiometer adjustment.

Case Type	Dimensions (Inches)
AA	6.50 x 4.00 x 2.10
B	4.87 x 4.00 x 2.10
BAA	10.25 x 4.00 x 2.95
BB	7.00 x 4.87 x 2.95
C	5.62 x 4.87 x 2.95
CBB	11.00 x 4.87 x 3.28
CC	9.38 x 4.87 x 3.28
CP131	11.00 x 4.87 x 3.28
D	9.00 x 4.87 x 3.28
DBB	14.25 x 4.87 x 3.38
DCC	15.00 x 4.88 x 4.55
E	14.00 x 4.87 x 3.53
F	16.75 x 4.88 x 5.00
N	7.00 x 4.87 x 3.28

Case Type	Dimensions (Millimeters)
AA	165.10 x 101.60 x 53.34
B	123.70 x 101.60 x 53.34
BAA	260.35 x 101.60 x 74.93
BB	177.80 x 123.70 x 74.93
C	142.75 x 123.70 x 74.93
CBB	279.40 x 123.70 x 83.31
CC	238.25 x 123.70 x 83.31
CP131	279.40 x 123.70 x 83.31
D	228.60 x 123.70 x 83.31
DBB	361.95 x 123.70 x 85.85
DCC	381.00 x 123.95 x 115.57
E	355.60 x 123.70 x 89.66
F	425.50 x 123.95 x 127.00
N	177.80 x 123.70 x 83.31

A Overvoltage protection, set at 6.2 V ±0.4 V.
B Non-adjustable 3-terminal regulator.
C Remote sense provided.
D With output inhibit and parallel operation master/slave capability.
E With output inhibit.
F Adjustable 3-terminal regulator.
G Can be made into an isolated output by removing jumper W1.
H Model requires 100 LFM forced-air cooling above 75% of rated output power at 50 degrees C.

Linear Power Supplies > Triple Output

Unsigned output voltages are isolated and can be used as either + or - polarities.

Case Type	Dimensions (Inches)
AA	6.50 x 4.00 x 2.10
B	4.87 x 4.00 x 2.10
BAA	10.25 x 4.00 x 2.95
BB	7.00 x 4.87 x 2.95
C	5.62 x 4.87 x 2.95
CBB	11.00 x 4.87 x 3.28
CC	9.38 x 4.87 x 3.28
CP131	11.00 x 4.87 x 3.28
D	9.00 x 4.87 x 3.28
DBB	14.25 x 4.87 x 3.38
DCC	15.00 x 4.88 x 4.55
E	14.00 x 4.87 x 3.53
F	16.75 x 4.88 x 5.00
N	7.00 x 4.87 x 3.28

Case Type	Dimensions (Millimeters)
AA	165.10 x 101.60 x 53.34
B	123.70 x 101.60 x 53.34
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BB	177.80 x 123.70 x 74.93
C	142.75 x 123.70 x 74.93
CBB	279.40 x 123.70 x 83.31
CC	238.25 x 123.70 x 83.31
CP131	279.40 x 123.70 x 83.31
D	228.60 x 123.70 x 83.31
DBB	361.95 x 123.70 x 85.85
DCC	381.00 x 123.95 x 115.57
E	355.60 x 123.70 x 89.66
F	425.50 x 123.95 x 127.00
N	177.80 x 123.70 x 83.31

A Overvoltage protection, set at 6.2 V ±0.4 V.
B Non-adjustable 3-terminal regulator.
C Remote sense provided.
D With output inhibit and parallel operation master/slave capability.
E With output inhibit.
F Adjustable 3-terminal regulator.
G Can be made into an isolated output by removing jumper W1.
H Model requires 100 LFM forced-air cooling above 75% of rated output power at 50 degrees C.

Nominal Vout*	Max Amps	Model Input 100 to 264 VAC	Case Type	Additional Features & Notes
Models with 5V to 15Vout, Sorted by Nominal Vout then Max Amps				
+5, +12, –5*	2, 0.4, 0.4	HTAA-16W-AG	AA	A
5, +12, –5*	3, 1, 0.4	HBAA-40W-AG	BAA	A, C
+5, +12, –5*	6, 1, 0.4	HCAA-60W-AG	D	A, C
5, +12, –5*	6, 1.7, 0.7	HCBB-75W-AG	CBB	C
5, +12, –5*	8, 1.7, 0.7	CP131-AG	CP131	A, C
5, +12, –5*	12, 1.7, 0.7	HDBB-105W-AG	DBB	A, C
5, +12, –12	2, 0.4, 0.4	HTAA-16W-AG	AA	A
5, +12, –12	3, 1, 1	HBAA-40W-AG	BAA	A, C
+5, +12, –12	6, 1, 1	HCAA-60W-AG	D	A, C
5, +12, –12	6, 1.7, 1.7	HCBB-75W-AG	CBB	C
5, +12, –12	8, 1.7, 1.7	CP131-AG	CP131	A, C
5, +12, –12	12, 1.7, 1.7	HDBB-105W-AG	DBB	C
5, +12, –12	12, 3.4, 3.4	HDCC-150W-AG	DCC	A, C
5, +12, –15*	2, 0.4, 0.4	HTAA-16W-AG	AA	A
5, +12, –15*	3, 1, 0.8	HBAA-40W-AG	BAA	A, C
+5, +12, –15*	6, 1, 1	HCAA-60W-AG	D	A, C
5, +12, –15	6, 1.7, 1.5	HCBB-75W-AG	CBB	C
5, +12, –15	8, 1.7, 1.5	CP131-AG	CP131	A, C
5, +12, –15*	12, 1.7, 1.5	HDBB-105W-AG	DBB	C
5, +12, –15	12, 3.4, 3	HDCC-150W-AG	DCC	A, C
5, +15, –5*	2, 0.4, 0.4	HTAA-16W-AG	AA	A
5, +15, –5*	3, 0.8, 0.4	HBAA-40W-AG	BAA	A, C
+5, +15, –5*	6, 1, 0.4	HCAA-60W-AG	D	A, C
5, +15, –5*	6, 1.5, 0.7	HCBB-75W-AG	CBB	C
5, +15, –5*	8, 1.5, 0.7	CP131-AG	CP131	A,
5, +15, –5*	12, 1.5, 0.7	HDBB-105W-AG	DBB	C
5, +15, –12*	2, 0.4, 0.4	HTAA-16W-AG	AA	A
5, +15, –12*	3, 0.8, 1	HBAA-40W-AG	BAA	A, C
+5, +15, –12*	6, 1, 1	HCAA-60W-AG	D	A, C
5, +15, –12	6, 1.5, 1.7	HCBB-75W-AG	CBB	C
5, +15, –12	8, 1.5, 1.7	CP131-AG	CP131	A, C
5, +15, –12*	12, 1.5, 1.7	HDBB-105W-AG	DBB	C
5, +15, –12	12, 3, 3.4	HDCC-150W-AG	DCC	A, C
5, +15, –15*	2, 0.4, 0.4	HTAA-16W-AG	AA	A
5, +15, –15*	3, 0.8, 0.8	HBAA-40W-AG	BAA	A, C
+5, +15, –15*	6, 1, 1	HCAA-60W-AG	D	A, C
5, +15, –15	6, 1.5, 1.5	HCBB-75W-AG	CBB	C
5, +15, –15	8, 1.5, 1.5	CP131-AG	CP131	A, C
5, +15, –15*	12, 1.5, 1.5	HDBB-105W-AG	DBB	C
5, +15, –15	12, 3, 3	HDCC-150W-AG	DCC	A, C

* May require jumpering or potentiometer adjustment.

Unsigned output voltages are isolated and can be used as either + or - polarities.

Model	Watts	Height Profile	Input Voltage	+5V Current	+3.3V Current	+12V Current	-12V Current
DC Input Models							
CPD250-4530	250	3U	36-75 VDC	40 A	40 A	5.5 A	2 A
AC Input Models							
CPA250-4530	250	3U	90-264 VAC	40 A	40 A	5.5 A	2 A
CPA500-4530	500	6U	90-264 VAC	50 A	60 A	12 A	4 A
CPA550-4530	550	6U	90-264 VAC	50 A	60 A	12 A	4 A

CPD250

3U x 8HP (8TE) x 6.3" (160mm)

CPA250

3U x 8HP (8TE) x 6.3" (160mm)

CPA500/CPA550

6U x 8HP (8TE) x 6.3" (160mm)

- Fully Compliant to CompactPCI Per PICMG Specifications
- High Density Design in an Industry-Standard Package
- High Efficiency Topology (>80%)
- Remote Sense and Active Current Share for 3 Outputs
- Built-In ORing FETs for Redundant Applications
- AC-DC Models Have Active Power Factor Correction
- Conformal Coating Option

Power-One's hot-swap CompactPCI power supplies are fully compliant to the PICMG 2.11 Power Interface Specification, and use a standard Positronic 47-pin connector. EDGE technology delivers up to 40 amperes on both the +5 and +3.3 volt outputs at 50 ºC on the 3U models, and 50 and 60 amperes respectively, on the 6U model's +5 and +3.3 volt outputs.

Remote sense and active current share on the +5, +3.3, and +12 volt outputs, along with ORing FETs facilitate use in redundant, hot-swap applications. These feature-rich products meet international safety standards, and display the CE Mark for the Low Voltage Directive (LVD).

European Union RoHS

Power-One's unique two-tiered EU RoHS strategy provides products in both lead-free solder and lead-solder-exempted versions. Please refer to our data sheets for model-specific compliance options.

RoHS Compliant

RoHS China

Power-One will meet the initial requirements of China RoHS, for selected products, by including product and packaging marking, and disclosure tables. Please visit our web site for further details.

Power Over Ethernet

Unsigned output voltages are isolated and can be used as either + or - polarities.

PALS400/PALS600
10.40 x 4.00 x 1.59 inch
264.2 x 101.6 x 40.4 mm

Power Over Ethernet > AC-DC

Factory Set Vout	Output Trim Range	Max Amps	VAC Input	Max Watts	Model
48	N/A	8	85 to 264	400	PALS400-2482
12	N/A	16			
48	N/A	9	85 to 264	600	PALS600-2482
12	N/A	16			

- Provides full compliance to IEEE 802.3AF
- Extremely low noise and ripple
- 48 VDC output has 2250 VDC isolation from the 12 VDC outputs and I²C interface
- 85 to 264 VAC input range with IEC61000-3-2 compliant 98% efficient PFC
- Full power operation to 50 °C with power-derated operation to 70 °C
- Internal diode isolation for redundant operation of up to 30 PAL's

The 10.4" x 4" x 1.6" package is designed for 1U high applications and features a front panel that includes alarm and monitor LED's, AC input connector, on/off switch, integral handle, and a fan inlet. The hot-swap SSI type rear connector provides output power and access to I²C, power fail, active current share, remote sense, output good, power-supply present, and remote enable interface signals.

Protection features include overload and short circuit, brownout, overtemperature/fan fail warning and shutdown, output overvoltage, and MOV input-transient. Agency approvals include UL1950, CSA 950, and EN60950 (TUV).

HHS04 & HHS05
2.40 x 2.28 x 0.42 inch
61.0 x 57.9 x 10.7 mm

Power Over Ethernet > DC-DC

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
36 to 75	52.5	50 to 53	3.8	HHS04Z52
36 to 75	53.7	51.2 to 54.2	4.8	HHS05Z55

- Standard half-brick footprint and pinout
- Fully regulated output
- High efficiency
- Input-to-output isolation: 2,250 VDC

A Proven Track Record

Extremely robust electrical and mechanical designs have enabled Power-One's broad range of railway and rugged products to establish a proven track record of industry-leading reliability, in a diverse array of transportation, communications, and industrial infrastructure applications.

Isolated Cassette Style AC-DC and DC-DC

A broad range of extremely flexible cassettes are available, providing from one to four outputs.

- Features include high efficiencies, low noise outputs, power factor correction, excellent line/load response, wide-range inputs, and extensive interface capabilities.
- Chassis, rack, and DIN-Rail mounting.
- Rack power solutions can be configured from readily available front panels and rack frames.

DIN-Rail Mount, Including EN 50155 Compliant Models

Single and dual output converters and battery chargers are ideal power sources for demanding applications such as building control systems, factory automation, industrial controls, instrumentation, electromagnetic drives, fans, and other DC loads.

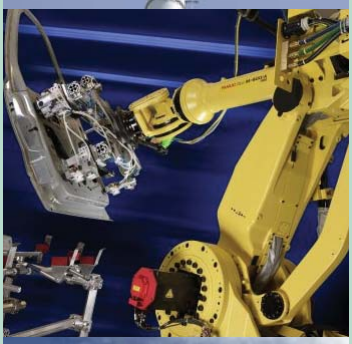
DC-DC Positive Switching Regulators

These non-isolated buck-converter topology converters feature no power derating over the entire operating temperature range, no minimum load operation, wide output adjustment ranges, and -40 to 71 °C extended-temperature-range options.

Rolling Stock Custom Power Capabilities

Power-One has field-proven design and manufacturing capabilities for a wide range of rolling-stock power applications. Custom-product capabilities range from low-wattage solutions, such as power systems for onboard lighting and water circulation, to train-wide 55 kW auxiliary power converters.

Please contact your local Power-One representative to discuss your railway power-conversion requirements.



DIN-Rail Mount

Unsigned output voltages are isolated and can be used as either + or - polarities.

W Series with PFC

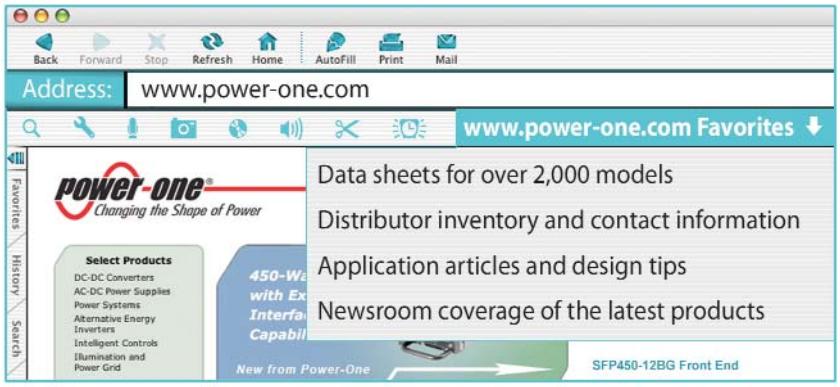
5.43 x 4.49 x 4.05 inch
138 x 114 x 103 mm

- Class I equipment
- DC input 90 to 350 VDC
- Compact 35 mm DIN-rail snap-fit design or wall mounting
- Ambient temperature range -6: –40 to +60 °C
- UL 508 listed
- Battery charger models with temperature sensor available

W Series (125 to 250 Watts)

Vout 1, 2	Amps 1,2	VAC Input	Max Watts	Model
Output Voltage Adjusts 50-110% By Specifying "R" Option				
12.35	7.5	85 to 264	93	LWR1301-6E
12.35	14	85 to 264	173	LWN1301-6E
24.7	5	85 to 264	125	LWR1601-6E
24.7	10	85 to 264	250	LWN1601-6E
37	3.3	85 to 264	125	LWR1701-6E
37	6.6	85 to 264	250	LWN1701-6E
49.4	2.5	85 to 264	125	LWR1801-6E
49.4	5	85 to 264	250	LWN1801-6E
12.35, 12.35	7, 7	85 to 264	173	LWN2320-6E
24.7, 24.7	5, 5	85 to 264	250	LWN2660-6E
37, 37	3.3, 3.3	85 to 264	250	LWN2770-6E
49.4, 49.4	2.5, 2.5	85 to 264	250	LWN2880-6E

All ratings at 60 °C



DIN-Rail Mount

Unsigned output voltages are isolated and can be used as either + or - polarities.

W Series > EN 50155 Compliant

Vout 1, 2	Amps 1,2	VDC Input	Max Watts	Model
24.7	5	66 to 150	120	EWR1601-0
24.7, 24.7	5, 5	66 to 150	240	EWN2660-0

All ratings at 70 °C

X Series (375 to 496 Watts)

Vout 1, 2	Amps 1, 2	VAC Input	Watts	Model
	Output Voltage Adjusts 60-110% By Specifying "R" Option			
24.7	15	85 to 264	371	LXR1601-6
24.7	20	85 to 264	494	LXN1601-6
37	10	85 to 264	370	LXR1701-6
37	13.4	85 to 264	496	LXN1701-6
49.4	7.5	85 to 264	371	LXR1801-6
49.4	10	85 to 264	494	LXN1801-6
24.7, 24.7	10, 10	85 to 264	494	LXN2660-6
37, 37	6.7, 6.7	85 to 264	496	LXN2770-6
49.4, 49.4	5, 5	85 to 264	494	LXN2880-6

DIN-Rail Mount > Battery Chargers

Model	Battery Voltage	Watts	Nominal Output Voltage	Nominal Output Amps
LWN1140-6EM1	12	140	13.8	10
LWR1240-6EM1	24	115	27.3	4.2
LWN1240-6EM1	24	230	27.3	8.45
LXR1240-6M1	24	344	27.3	12.6
LXN1240-6M1	24	458	27.3	16.8
LXR1840-6M1	36	343	40.9	8.4
LXN1840-6M1	36	458	40.9	11.2
LWR1740-6EM1	48	115	54.5	2.1
LWN1740-6EM1	48	230	54.5	4.2
LXR1740-6M1	48	343	54.5	6.3
LXN1740-6M1	48	458	54.5	8.4

Please refer to data sheets for availability of EMI options, temperature sensor options, and safety agency certifications.
Other battery chargers are available in Cassette packages; refer to the AC-DC Cassette Section. Contact factory for availability.

Alpha-sorted graphics and dimensions augment model listings from both pages.

W Series for Railway Applications

- Class I equipment
- DC input 66 to 150 VDC
- Safety according to IEC/EN 60950, EN 50155 compliant
- Ambient temp. range –40 to +71 °C

X Series with PFC

5.43 x 4.47 x 7.64 inch
138 x 114 x 194 mm

- Class I equipment
- DC input 90 to 350 VDC
- Safety: Class I equipment according to IEC/EN60950, UL 60950, EN 61010-1
- Compact 35 mm DIN-rail snap-fit design or wall mounting
- Ambient temperature range -6: –40 to 60 °C
- Battery charger models with temperature sensor available

power-one®
Changing the Shape of Power

Non-Isolated Positive Switching Regulators

PSA, PSR
2.76 x 2.00 x 1.00 inch
70.1 x 50.8 x 25.4 mm

PSB
4.17 x 2.72 x 1.27 inch
106 x 69 x 32.2 mm

PSC
5.94 x 3.46 x 1.27 inch
151 x 88 x 32.2 mm

Output Voltage Adjusts 0-110% in PSS Models with "R" Suffix;
Output Voltage Adjusts 0-108% in All Other Models with "R" Suffix.

PSR > Chassis Mount

Factory Set Vout	Amps	VDC Input	Watts	Efficiency	Model
+3.3	12	6 to 40	39.6	77	PSC3E12-2
+5	2	8 to 80	10	74	PSR52-7
+5	3	8 to 80	15	79	PSR53-7
+5	4	7 to 40	20	83	PSR54-7
+5	5	7 to 35	25	83	PSA55-7
+5.1	2	8 to 40	10.2	75	PSA5A2-2
+5.1	5	15 to 144	25.5	80	PSB5A4-7iR
+5.1	5	7 to 35	25.5	83	PSA5A5-2
+5.1	6	8 to 80	30.6	81	PSB5A6-7iR
+5.1	7	7 to 40	35.7	84	PSB5A7-7iR
+5.1	8	7 to 40	40.8	81	PSB5A8-2
+5.1	10	8 to 80	51	79	PSC5A10-7iR
+5.1	11	8 to 40	56.1	79	PSC5A11-2
+5.1	12	7 to 40	61.2	83	PSC5A12-7iR
+12	1.5	18 to 144	18	87	PSA121.5-7iR
+12	2.5	15 to 80	30	87	PSR122.5-7
+12	3	15 to 40	36	89	PSA123-2
+12	4	18 to 144	48	89	PSB123-7iR
+12	5	15 to 80	60	90	PSB125-7iR
+12	6	15 to 40	72	90	PSB126-2
+12	6	18 to 144	72	89	PSC126-7iR
+12	8	15 to 80	96	90	PSC128-7iR
+12	9	15 to 40	108	90	PSC129-2
+15	1.5	22 to 144	22.5	89	PSA151.5-7iR
+15	2.5	19 to 80	37.5	89	PSR152.5-7
+15	3	19 to 40	45	90	PSA153-2
+15	4	22 to 144	60	90	PSB153-7iR
+15	5	19 to 80	75	92	PSB155-7iR
+15	6	19 to 40	90	92	PSB156-2
+15	6	22 to 144	90	90	PSC156-7iR
+15	8	19 to 80	120	91	PSC158-7iR
+15	9	19 to 40	135	91	PSC159-2
+24	1.5	31 to 144	36	93	PSA241.5-7iR
+24	2	29 to 80	48	92	PSR242-7
+24	2.5	29 to 60	60	93	PSA242.5-2
+24	4	31 to 144	96	94	PSB243-7iR
+24	5	29 to 80	120	95	PSB245-7iR
+24	6	29 to 60	144	95	PSB246-2
+24	6	31 to 144	144	94	PSC246-7iR
+24	8	29 to 80	192	94	PSC248-7iR
+24	9	29 to 60	216	94	PSC249-2
+36	1.2	44 to 144	43.2	95	PSA361-7iR
+36	2	42 to 80	72	94	PSR362-7
+36	4	44 to 144	144	95	PSB363-7iR
+36	5	42 to 80	180	96	PSB365-7iR
+36	6	44 to 144	216	95	PSC366-7iR
+36	8	42 to 80	288	96	PSC368-7iR
+48	1	58 to 144	48	95	PSA481-7iR
+48	4	58 to 144	192	96	PSB483-7iR
+48	6	58 to 144	288	97	PSC486-7iR

Non-Isolated Positive Switching Regulators

Alpha-sorted graphics and dimensions augment model listings from both pages.

Output Voltage Adjusts 0-110% in PSS Models with "R" Suffix;
Output Voltage Adjusts 0-108% in All Other Models with "R" Suffix.

PSR > Cassette Style

Factory Set Vout	Amps	VDC Input	Watts	Efficiency	Model
+5.1	10	8 to 80	51	79	PSL5A10-7R
+5.1	11	8 to 40	56.1	79	PSL5A11-2R
+5.1	12	7 to 40	61.2	83	PSL5A12-7R
+5.1	12	8 to 80	61.2	79	PSS5A12-7
+5.1	14	8 to 40	71.4	83	PSS5A14-2
+5.1	16	8 to 80	81.6	79	PSK5A16-7
+5.1	18	8 to 40	91.8	82	PSK5A18-2
+5.1	20	8 to 80	102	79	PSK5A20-7
+5.1	25	8 to 40	127.5	82	PSK5A25-7
+12	6	18 to 144	72	89	PSL126-7R
+12	8	15 to 80	96	90	PSL128-7R
+12	9	15 to 40	108	90	PSL129-2R
+12	9	18 to 144	108	91	PSS129-7
+12	12	15 to 80	144	91	PSS1212-7
+12	12	18 to 144	144	91	PSK1212-7
+12	14	16 to 40	168	90	PSS1214-2
+12	16	15 to 80	192	90	PSK1216-7
+12	18	16 to 40	216	90	PSK1218-2
+12	20	15 to 80	240	90	PSK1220-7
+15	6	22 to 144	90	90	PSL156-7R
+15	8	19 to 80	120	91	PSL158-7R
+15	9	19 to 40	135	91	PSL159-2R
+24	6	31 to 144	144	94	PSL246-7R
+24	8	29 to 80	192	94	PSL248-7R
+24	9	29 to 60	216	94	PSL249-2R
+24	9	31 to 144	216	94	PSS249-7
+24	12	29 to 80	288	94	PSS2412-7
+24	12	31 to 144	288	94	PSK2412-7
+24	14	29 to 60	336	94	PSS2414-2
+24	16	29 to 80	384	94	PSK2416-7
+24	18	29 to 60	432	94	PSK2418-2
+24	20	29 to 80	480	94	PSK2420-7
+36	6	44 to 144	216	96	PSL366-7R
+36	8	42 to 80	288	96	PSL368-7R
+36	9	44 to 144	324	96	PSS369-7
+36	12	42 to 80	432	96	PSS3612-7
+36	12	44 to 144	432	96	PSK3612-7
+36	16	42 to 80	576	95	PSK3616-7
+36	20	42 to 80	720	95	PSK3620-7
+48	6	58 to 144	288	97	PSL486-7R
+48	9	58 to 144	432	97	PSS489-7
+48	12	58 to 144	576	97	PSK4812-7

PSK
6.77 x 4.37 x 3.15 inch
171.9 x 111 (3U) x 80 (16TE) mm

PSL
6.83 x 4.21 x 1.44 inch
173.7 x 107 x 36.5 mm

PSS
6.77 x 4.37 x 2.36 inch
171.9 x 111 (3U) x 60 (12TE) mm

Cassette > DC-DC

Unsigned output voltages are isolated and can be used as either + or - polarities.

M Series

6.6 x 4.4(3U) x 1.54(8 TE) inch
168 x 111 x 39 mm

Output Adjustment Ranges

The following adjustment ranges apply to all single-output models.

Vout	Low	High
5.1	0	5.6
12	0	13.2
15	0	16.5
24	0	26.4
48	0	52.8

M Series (40 to 50 Watts)

Vout 1, 2, 3	Amps 1, 2, 3	Model Input 8 to 35 VDC	Model Input 14 to 70 VDC	Model Input 20 to 100 VDC
5.1	8	AM1001-7R	BM1001-7R	FM1001-7R
12	4	AM1301-7R	BM1301-7R	FM1301-7R
15	3.4	AM1501-7R	BM1501-7R	FM1501-7R
24	2	AM1601-7R	BM1601-7R	FM1601-7R
48	1	AM1901-7R	BM1901-7R	FM1901-7R
12, 12	2, 2	AM2320-7	BM2320-7	FM2320-7
15, 15	1.7, 1.7	AM2540-7	BM2540-7	FM2540-7
5.1, 12, 12	5, 0.7, 0.7	AM3020-7	BM3020-7	FM3020-7
5.1, 15, 15	5, 0.6, 0.6	AM3040-7	BM3040-7	FM3040-7

Vout 1, 2, 3	Amps 1, 2, 3	Model Input 28 to 140 VDC	Model Input 44 to 220 VDC	Model Input 88 to 372 VDC
5.1	8	CM1001-7R	DM1001-7R	LM1001-7R
12	4	CM1301-7R	DM1301-7R	LM1301-7R
15	3.4	CM1501-7R	DM1501-7R	LM1501-7R
24	2	CM1601-7R	DM1601-7R	LM1601-7R
48	1	CM1901-7R	DM1901-7R	LM1901-7R
12, 12	2, 2	CM2320-7	DM2320-7	LM2320-7
15, 15	1.7, 1.7	CM2540-7	DM2540-7	LM2540-7
5.1, 12, 12	5, 0.7, 0.7	CM3020-7	DM3020-7	LM3020-7
5.1, 15, 15	5, 0.6, 0.6	CM3040-7	DM3040-7	LM3040-7

- Safety: Class I equipment according to IEC/EN 60950, UL 60950.
- Extremely wide input voltage range
- Input over- and undervoltage lockout
- Output voltage control (R) and inhibit
- Surge and transient suppression circuitry
- Fully isolated outputs
- Outputs open- and short-circuit proof
- Ambient temperature range
  -7: –25 to 71 °C
- No derating over temperature

Unsigned output voltages are isolated and can be used as either + or - polarities.

S Series (80 to 96 Watts)

Vout 1, 2	Amps 1, 2	Model Input 8 to 35 VDC	Model Input 14 to 70 VDC	Model Input 20 to 100 VDC
5.1	16	AS1001-7R	BS1001-7R	FS1001-7R
12	8	AS1301-7R	BS1301-7R	FS1301-7R
15	6.5	AS1501-7R	BS1501-7R	FS1501-7R
24	4.2	AS1601-7R	BS1601-7R	FS1601-7R
12, 12	4, 4	AS2320-7R	BS2320-7R	FS2320-7R
15, 15	3.2, 3.2	AS2540-7R	BS2540-7R	FS2540-7R
24, 24	2, 2	AS2660-7R	BS2660-7R	FS2660-7R

Vout 1, 2	Amps 1, 2	Model Input 28 to 140 VDC	Model Input 44 to 220 VDC	Model Input 67 to 385 VDC
5.1	16	CS1001-7R	DS1001-7R	ES1001-7R
12	8	CS1301-7R	DS1301-7R	ES1301-7R
15	6.5	CS1501-7R	DS1501-7R	ES1501-7R
24	4.2	CS1601-7R	DS1601-7R	ES1601-7R
12, 12	4, 4	CS2320-7R	DS2320-7R	ES2320-7R
15, 15	3.2, 3.2	CS2540-7R	DS2540-7R	ES2540-7R
24, 24	2, 2	CS2660-7R	DS2660-7R	ES2660-7R

- Safety: Class I equipment according to IEC/EN 60950, UL 60950; BS, CS, DS, ES, FS comply with EN 50155
- Extremely wide input voltage range
- Input over- and undervoltage lockout
- Output voltage control (R) and inhibit
- Surge and transient suppression circuitry
- Fully isolated outputs
- Outputs open- and short-circuit proof
- Ambient temperature range -7: –25 to 71 °C
- No derating over temperature

S Series

6.7 x 4.4(3U) x 2.4(12 TE) inch
168 x 111 x 60 mm

Output Adjustment Ranges

The following adjustment ranges apply to all models.

Vout	Low	High
5.1	0	5.6
12	0	13.2
15	0	16.5
24	0	26.4
48	0	52.8

Please see the AC-DC S-Series data sheets for AC input LS models.

Q Series

6.5 x 4.4(3U) x 0.8(4 TE) inch
164 x 111 x 20 mm

Output Adjustment Ranges

The following adjustment ranges apply to V1 and V2 outputs.

Vout	Low	High
3.3	3.3	3.3
5.1	4.1	5.6
12	7.2	13.2
15	9.0	16.5
24	14.4	26.4
48	28.8	52.8

Unsigned output voltages are isolated and can be used as either + or - polarities.

Q Series (66 to 132 Watts)

Vout 1, 2	Amps 1, 2	Amps T_A = 50°C	Model Input 14.4 to 36 VDC	Model Input 21.6 to 54 VDC	Model Input 33.6 to 75 VDC
3.3	20	25	BQ1101-9	GQ1101-9	CQ1101-9
5.1	16	20	BQ1001-9R	GQ1001-9R	CQ1001-9R
5.1, 5.1	7.5, 7.5	9.5, 9.5	BQ2001-9R	GQ2001-9R	CQ2001-9R
12, 12	4, 4	5, 5	BQ2320-9R	GQ2320-9R	CQ2320-9R
15, 15	3.3, 3.3	4, 4	BQ2540-9R	GQ2540-9R	CQ2540-9R
24, 24	2.2, 2.2	2.75, 2.75	BQ2660-9R	GQ2660-9R	CQ2660-9R

Vout 1, 2	Amps 1, 2	Amps T_A = 50°C	Model Input 43 to 108 VDC	Model Input 65 to 150 VDC	Model Input 38.4 to 75 VDC
3.3	20	25	DQ1101-9	EQ1101-9	
5.1	16	20	DQ1001-9R	EQ1001-9R	48Q1001-2R
5.1, 5.1	7.5, 7.5	9.5, 9.5	DQ2001-9R	EQ2001-9R	
12, 12	4, 4	5, 5	DQ2320-9R	EQ2320-9R	48Q2320-2R
15, 15	3.3, 3.3	4, 4	DQ2540-9R	EQ2540-9R	48Q2540-2R
24, 24	2.2, 2.2	2.75, 2.75	DQ2660-9R	EQ2660-9R	48Q2660-2R

- Safety: Class I equipment according to IEC/EN 60950, UL 60950, compliant to EN 50155; 48Q Series compliant to ETS 300 132-2
- Extremely slim case (4TE wide), fully enclosed
- Outputs, units parallel or series configurable
- Flexible load distribution
- Very high efficiency up to 90%
- Ambient temperature ranges:
  -9: –40 to 71 °C
  -2: –10 to 50 °C
- Output voltage control (R) and inhibit
- Output OK monitor
- Redundant operation and current sharing
- Extremely low inrush current, hot plug-in
- Extremely slim case (4 TE) fully enclosed

European Union RoHS

Power-One's unique two-tiered EU RoHS strategy provides products in both lead-free solder and lead-solder-exempted versions. Please refer to our data sheets for model-specific compliance options.

RoHS Compliant

RoHS China

Power-One will meet the initial requirements of China RoHS, for selected products, by including product and packaging marking, and disclosure tables. Please visit our web site for further details.

Unsigned output voltages are isolated and can be used as either + or - polarities.

K Series (102 to 150 Watts)

Vout 1, 2	Amps 1, 2	Model	VDC Input
5.1	20	AK1001-7R	8 to 35
12	10	AK1301-7R	8 to 35
15	8	AK1501-7R	8 to 35
24	5	AK1601-7R	8 to 35
12, 12	5, 5	AK2320-7R	8 to 35
15, 15	4, 4	AK2540-7R	8 to 35
24, 24	2.5, 2.5	AK2660-7R	8 to 35

Vout 1, 2	Amps 1, 2	Model Input 14 to 70 VDC	Model Input 20 to 100 VDC
5.1	25	BK1001-7R	FK1001-7R
12	12	BK1301-7R	FK1301-7R
15	10	BK1501-7R	FK1501-7R
24	6	BK1601-7R	FK1601-7R
12, 12	6, 6	BK2320-7R	FK2320-7R
15, 15	5, 5	BK2540-7R	FK2540-7R
24, 24	3, 3	BK2660-7R	FK2660-7R

Vout 1, 2	Amps 1, 2	Model Input 28 to 140 VDC	Model Input 44 to 220 VDC	Model Input 67 to 385 VDC	Model Input 88 to 372 VDC
5.1	25	CK1001-7R	DK1001-7R		LK1001-7R
12	12	CK1301-7R	DK1301-7R	EK1301-7R	LK1301-7R
15	10	CK1501-7R	DK1501-7R	EK1501-7R	LK1501-7R
24	6	CK1601-7R	DK1601-7R	EK1601-7R	LK1601-7R
12, 12	6, 6	CK2320-7R	DK2320-7R	EK2320-7R	LK2320-7R
15, 15	5, 5	CK2540-7R	DK2540-7R	EK2540-7R	LK2540-7R
24, 24	3, 3	CK2660-7R	DK2660-7R	EK2660-7R	LK2660-7R

- Safety: Class I equipment according to IEC/EN 60950, UL 60950; BK, CK, DK, EK, FK comply with EN 50155.
- Extremely wide input voltage range
- Input over- and undervoltage lockout
- Output voltage control (R) and inhibit
- Surge and transient suppression circuitry
- Fully isolated outputs
- Outputs open- and short-circuit proof
- Ambient temperature range
  -7: –25 to 71 °C
- No derating over temperature

K Series

6.6 x 4.4(3U) x 3.2(16 TE) inch
168 x 111 x 80 mm

Output Adjustment Ranges

The following adjustment ranges apply to all models.

Vout	Low	High
5.1	0	5.6
12	0	13.2
15	0	16.5
24	0	26.4

Please see the AC-DC K-Series data sheets for AC input LK models.

Unsigned output voltages are isolated and can be used as either + or - polarities.

P Series

6.5 x 4.4(3U) x 0.8(4 TE) inch
164 x 111 x 20 mm

Output Adjustment Ranges

The following adjustment ranges apply to single-output models and V1 of multi-output models.

Vout	Low	High
3.3	1.8	3.6
5.1	2.75	5.6
12	6.5	13.2
15	8.1	16.5
24	13.0	26.4

P Series (90 to 194 Watts)

Vout 1, 4	Vout 2, 3	Max. Watts	Nom. Watts	Model Input 16 to 36 VDC	Model Input 33.6 to 75 VDC
3.3		132	100	BP1101-9R	CP1101-9R
5.1		183	122	BP1001-9R	CP1001-9R
12		192	120	BP1301-9R	CP1301-9R
15		194	120	BP1501-9R	CP1501-9R
24		192	120	BP1601-9R	CP1601-9R
3.3	5.1	157	111	BP2101-9R	CP2101-9R
5.1	5.1	182	122	BP2001-9R	CP2001-9R
5.1	12	187	121	BP2020-9R	CP2020-9R
12	12	192	120	BP2320-9R	CP2320-9R
15	15	194	120	BP2540-9R	CP2540-9R
24	24	192	120	BP2660-9R	CP2660-9R
5.1	12, 12	187	121	BP3020-9R	CP3020-9R
5.1	15, 15	187	121	BP3040-9R	CP3040-9R
5.1	24, 24	187	121	BP3060-9R	CP3060-9R
5.1, 3.3	12, 12	146	90	BP4720-9R	CP4720-9R
12, 12	12, 12	192	120	BP4320-9R	CP4320-9R
15, 15	15, 15	192	120	BP4540-9R	CP4540-9R
24, 24	24, 24	192	120	BP4660-9R	CP4660-9R

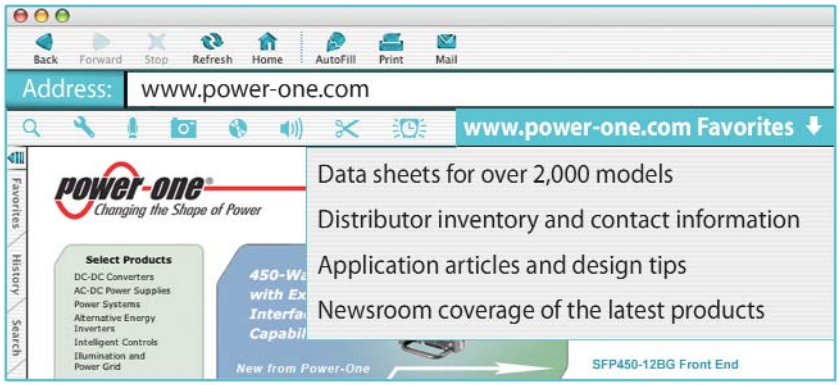
Vout 1, 4	Vout 2, 3	Max. Watts	Nom. Watts	Model Input 40 to 101 VDC	Model Input 66 to 150 VDC
3.3		132	100	DP1101-9R	EP1101-9R
5.1		183	122	DP1001-9R	EP1001-9R
12		192	120	DP1301-9R	EP1301-9R
15		194	120	DP1501-9R	EP1501-9R
24		192	120	DP1601-9R	EP1601-9R
3.3	5.1	157	111	DP2101-9R	EP2101-9R
5.1	5.1	182	122	DP2001-9R	EP2001-9R
5.1	12	187	121	DP2020-9R	EP2020-9R
12	12	192	120	DP2320-9R	EP2320-9R
15	15	194	120	DP2540-9R	EP2540-9R
24	24	192	120	DP2660-9R	EP2660-9R
5.1	12, 12	187	121	DP3020-9R	EP3020-9R
5.1	15, 15	187	121	DP3040-9R	EP3040-9R
5.1	24, 24	187	121	DP3060-9R	EP3060-9R
5.1, 3.3	12, 12	146	90	DP4720-9R	EP4720-9R
12, 12	12, 12	192	120	DP4320-9R	EP4320-9R
15, 15	15, 15	192	120	DP4540-9R	EP4540-9R
24, 24	24, 24	192	120	DP4660-9R	EP4660-9R

Unsigned output voltages are isolated and can be used as either + or - polarities.

P Series (90 to 194 Watts) [Continued]

Vout 1, 4	Vout 2, 3	Max. Watts	Nom. Watts	Model Input 21.6 to 50.4 VDC
3.3		132	100	GP1101-9R
5.1		183	122	GP1001-9R
12		192	120	GP1301-9R
15		194	120	GP1501-9R
24		192	120	GP1601-9R
3.3	5.1	157	111	GP2101-9R
5.1	5.1	182	122	GP2001-9R
5.1	12	187	121	GP2020-9R
12	12	192	120	GP2320-9R
15	15	194	120	GP2540-9R
24	24	192	120	GP2660-9R
5.1	12, 12	187	121	GP3020-9R
5.1	15, 15	187	121	GP3040-9R
5.1	24, 24	187	121	GP3060-9R
5.1, 3.3	12, 12	146	90	GP4720-9R
12, 12	12, 12	192	120	GP4320-9R
15, 15	15, 15	192	120	GP4540-9R
24, 24	24, 24	192	120	GP4660-9R

- Safety: Class I equipment according to IEC/EN 60950, UL 60950, EN 50155 compliant
- Flexible load distribution
- Excellent surge and transient protection
- Very high efficiency up to 92%
- Ambient temperature range -9: –40 to 71 °C
- Parallelability
- Extremely low inrush current, hot plug-in
- Inhibit on primary side
- Extremely slim case (4TE wide) fully enclosed



P Series

6.5 x 4.4(3U) x 0.8(4 TE) inch
164 x 111 x 20 mm

Output Adjustment Ranges

The following adjustment ranges apply to single-output models and V1 of multi-output models.

Vout	Low	High
3.3	1.8	3.6
5.1	2.75	5.6
12	6.5	13.2
15	8.1	16.5
24	13.0	26.4

Cassette > AC-DC

Unsigned output voltages are isolated and can be used as either + or - polarities.

M Series

6.6 x 4.4(3U) x 1.54(8 TE) inch
168 x 111 x 39 mm

Output Adjustment Ranges

The following adjustment ranges apply to all single-output models.

Vout	Low	High
5.1	0	5.5
12	0	13.2
15	0	16.5
24	0	26.4
48	0	52.8

H Series

6.6 x 4.4(3U) x 1.54(8 TE) inch
168 x 111 x 39 mm

Output Adjustment Ranges

The following adjustment ranges apply to single-output models.

Vout	Low	High
5.1	0	5.6
12	0	13.2
15	0	16.5
24	0	26.4
48	0	52.8

Cassette > Battery Chargers

Model	Battery Voltage	Watts	Nominal Output Voltage	Nominal Output Amps
LM1781-7RD5	12	50	12.84	3.6
LH1781-2R	12	70	12.84	5
LK4740-7R	12	150	12.84	10
LM1782-7R	24	50	25.68	1.8
LH1782-2R	24	70	25.68	2.5
LK5740-7R	24	150	25.68	2.7
LKP5740-6R	24	250	25.68	4.5
LM1783-7R	36	50	38.52	1.2
LH1783-2R	36	70	38.52	1.67
LM1784-7R	48	50	51.36	0.9
LH1784-2R	48	70	51.36	1.25
LK5740-7R	48	150	2 x 25.68	2 x 2.7
LKP5740-6R	48	250	2 x 25.68	2 x 4.5
LM1785-7R	60	50	64.2	60.72
LH1785-2R	60	70	64.2	1

M Series (40 to 50 Watts)

Vout 1, 2, 3	Amps 1, 2, 3	VAC Input	Model
5.1	8	85 to 264	LM1001-7R
12	4	85 to 264	LM1301-7R
15	3.4	85 to 264	LM1501-7R
24	2	85 to 264	LM1601-7R
48	1	85 to 264	LM1901-7R
12, 12	2, 2	85 to 264	LM2320-7
15, 15	1.7, 1.7	85 to 264	LM2540-7
5.1, 12, 12	5, 0.7, 0.7	85 to 264	LM3020-7
5.1, 15, 15	5, 0.6, 0.6	85 to 264	LM3040-7

H Series (42 to 72 Watts)

Output 1, 2, 3	Amps 1, 2, 3	Max Watts	Model Input 85 to 255 VAC
5.1	11	56	LH1001-2R
12	6	72	LH1301-2R
15	4.5	67	LH1501-2R
24	3	72	LH1601-2R
48	1.5	72	LH1901-2R
12, 12	2, 2	48	LH2320-2
15, 15	1.7, 1.7	51	LH2540-2
5.1, 12, 12	5, 0.7, 0.7	42	LH3020-2
5.1, 15, 15	5, 0.6, 0.6	43	LH3040-2

M and H Series Features

- Safety: Class I equipment according to IEC/EN60950, UL1950
- Universal input voltage range
- Output voltage control (R)
- Surge and transient suppression circuitry
- Outputs individually isolated and fully protected against overload.

Unsigned output voltages are isolated and can be used as either + or - polarities.

S Series (81 to 100 Watts)

Vout 1, 2	Amps 1, 2	VAC Input	Model	PFC
5.1	16	85 to 264	LS1001-7R	no
5.1	16	85 to 264	LS4001-7R	yes
12	8	85 to 264	LS1301-7R	no
12	8	85 to 264	LS4301-7R	yes
15	6.5	85 to 264	LS1501-7R	no
15	6.5	85 to 264	LS4501-7R	yes
24	4.2	85 to 264	LS1601-7R	no
24	4.2	85 to 264	LS4601-7R	yes
12, 12	4, 4	85 to 264	LS2320-7R	no
12, 12	4, 4	85 to 264	LS5320-7R	yes
15, 15	3.2, 3.2	85 to 264	LS2540-7R	no
15, 15	3.2, 3.2	85 to 264	LS5540-7R	yes
24, 24	2, 2	85 to 264	LS2660-7R	no
24, 24	2, 2	85 to 264	LS5660-7R	yes

- Safety: Class I equipment according to IEC/EN 60950, UL 60950
- LS 1000/2000 no PFC, f_{in} 47 to 440 Hz
- Output voltage control (R) and inhibit
- Outputs open- and short-circuit proof
- Ambient temperature range -7: –25 to 71 °C
- No derating over temperature

S Series

6.6 x 4.4(3U) x 2.4(12 TE) inch
168 x 111 x 60 mm

Output Adjustment Ranges

The following adjustment ranges apply to all models.

Vout	Low	High
5.1	0	5.6
12	0	13.2
15	0	16.5
24	0	26.4
48	0	52.8

K & KP Series (127 to 278 Watts)

Vout 1, 2	Amps 1, 2	VAC Input	Model	PFC
5.1	25	85 to 264	LK1001-7R	no
5.1	25	85 to 264	LK4003-6R	yes
12	12	85 to 264	LK1301-7R	no
12	12	85 to 264	LK4301-7R	yes
15	10	85 to 264	LK1501-7R	no
15	10	85 to 264	LK4501-7R	yes
24	6	85 to 264	LK1601-7R	no
24	6	85 to 264	LK4601-7R	yes
12, 12	6, 6	85 to 264	LK2320-7R	no
12, 12	6, 6	85 to 264	LK5320-7R	yes
12, 12	10, 10	187 to 255	LKP5320-6R	yes
15, 15	5, 5	85 to 264	LK2540-7R	no
15, 15	5, 5	85 to 264	LK5540-7R	yes
24, 24	3, 3	85 to 264	LK2660-7R	no
24, 24	3, 3	85 to 264	LK5660-7R	yes
24, 24	4.8, 4.8	187 to 255	LKP5662-7R	yes
24, 24	5.2, 5.2	187 to 255	LKP5660-7R	yes
24, 24	5.8, 5.8	187 to 255	LKP5661-5R	yes

- Safety: Class I equipment according to IEC/EN 60950, UL 1950
- Universal wide input voltage range (LK models)
- Efficient input filter
- LK 1000/2000 no PFC, f_{in} 47 to 440 Hz
- Output voltage control (R) and inhibit
- Input over- and undervoltage lockout

K Series

6.6 x 4.4(3U) x 3.2(16 TE) inch
168 x 111 x 80 mm

Output Adjustment Ranges

The following adjustment ranges apply to all models.

Vout	Low	High
5.1	0	5.6
12	0	13.2
15	0	16.5
24	0	26.4