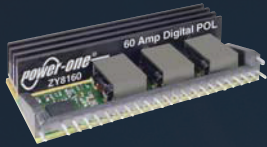
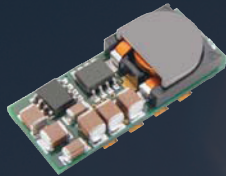


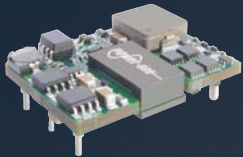
**Z-One<sup>®</sup> Digital Power**



**Analog POL**



**Isolated DC-DC**



**Front Ends**



**Chassis Mount**



**Modular Products**



**2010 ONLINE AC-DC & DC-DC  
POWER SOLUTIONS PRODUCT UPDATE**

**PoE**



**Ruggedized**



**CompactPCI**



Brick  
Overview  
Page 6

SMT = Surface Mount  
TH = Through Hole



**Point-Of-Load Conversion & Management**

Bus Programmable Digital POL Solutions	2
No-Bus™ Digital POL Converters	2
Y-Series Analog POLs	4



**Board Mount  
Isolated DC-DC**

	Non-Brick	1/16 Brick	1/8 Brick	1/4 Brick	1/2 Brick
Bus Converters			7	7	7
Power over Ethernet					7
Single Output - SMT	22		21	21	
Single Output - TH	10	8	8	9	10
Dual Output - SMT	23			22	
Dual Output - TH	13			12	12
Triple Output - TH	16				
Quad Output - TH	18				
Input Filters - SMT	23				
Input Filters - TH	20				



**Rack and Chassis-Mount Front Ends**

Rack-Mount Single Output	25
Rack-Mount Power Shelves	27
Chassis-Mount Single Output	28



NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

**Chassis Mount**

**Open-Frame Linears**

Single Output	34
Dual Output	35
Triple Output	36



**Board-Only, U-Channel, & Enclosed**

AC-DC Single Output	40 to 7000 Watts	28
AC-DC Dual Output	125 to 150 Watts	29
AC-DC Triple Output	37 to 150 Watts	30
AC-DC Quad Output	Under 100 Watts	30
	110 to 125 Watts	31
	130 to 150 Watts	31
	200 to 375 Watts	32

**Specialty**

**Modular AC-DC**

LPM615	33
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**CompactPCI & PoE**

CompactPCI	37
Power Over Ethernet	38



**Railway & Rugged**

Railway & Rugged Overview Page 47

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

LOK Series	40
W Series, Includes EN50155 Models	40
X Series with PFC	41
Battery Chargers	41



**Cassettes & Positive Switching Regulators**



DC-DC Cassettes		K	M	S	P	Q	
		47	44	45	48	46	
AC-DC Cassettes	M	H	S	S/PFC	K	K/PFC	KP/PFC
	50	50	51	51	51	51	51
Cassette Battery Chargers							50
Positive Switching Regulators							42

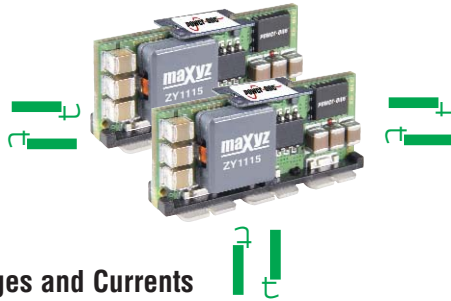
**No-Bus™ POL Converters**



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.



**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.

**Coordination and Optimization via Simple Pin Strapping**

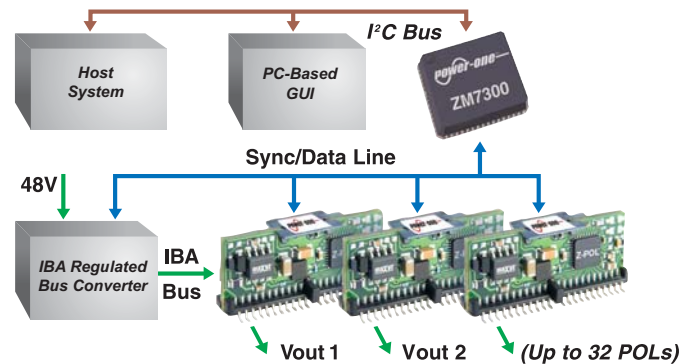
Frequency synchronization and phase interleaving reduce EMI. Comprehensive sequencing and cascading management. Feedback loop compensation and enable logic. Frequency synchronization, fault propagation, and current sharing are implemented, without external components, by interconnecting pins on the Z-POLs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

**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 I<sup>2</sup>C, or GUI, and stored in a Digital Power Manager.

Although Z-One® Digital Power can be programmed via an I<sup>2</sup>C bus, it does not require users to provide an I<sup>2</sup>C 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 I<sup>2</sup>C 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 Series controllers can manage analog components (including VRMs, linear regulators, POLs, and fans) and Z-POL converters for a total of 32 devices. I<sup>2</sup>C 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 I<sup>2</sup>C port. Additional features include:

- Ensures data integrity by storing configuration instructions in non-volatile memory.
- Collects I<sup>2</sup>C 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 Digital Power Managers

# Digital POL Conversion and Management

## 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.

## Bus Programmable Digital POLs

Input Voltage	Output Program Range	Max Amps	Efficiency	Model
<b>Latest-Generation High Efficiency Digital POLs</b>				
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

## No-Bus Digital POLs

Input Voltage	Output Trim Range	Max Amps	Efficiency	Model
<b>Latest-Generation High Efficiency Digital POLs</b>				
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



**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



**ZY2120 & ZY8120**

1.6 x 0.84 x 0.41 inch  
40.6 x 21.3 x 10.4 mm



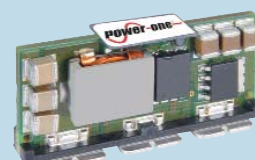
**ZY2140 & ZY8140**

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



**ZM7300 Digital Power Manager**

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



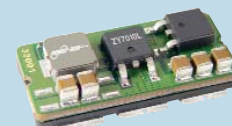
**ZY11XX & ZY71XX**

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



**ZY7010, ZY7015, & ZY1015**

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



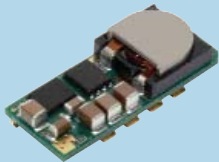
**ZY2160 & ZY8160**

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
<b>Models with 5.5Vin and Lower, Sorted by Max Amps</b>				
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	+1.1 to +1.3	87%	YNL05S10012
3 to 5.5	10	+1.7 to +1.9	91%	YNL05S10018
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
<b>Model with 4.5 to 13.5Vin</b>				
4.5 to 13.5	30	+0.8 to +1.8	90%	YPB09S30
<b>Models with 9.6 to 14Vin, Sorted by Max Amps</b>				
9.6 to 14	5	+0.75 to +5.5	92%	YM12S05
9.6 to 14	10	+1.7 to +1.9	90%	YNL12S10018
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.

# Analog POL Converters

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

Input Voltage	Max Amps	Output Trim Range	Efficiency	Model
<b>Models with 3.3 to 5.5V<sub>in</sub>, Sorted by Max Amps</b>				
3 to 5.5	6	+0.75 to +3.63	93%	YNV05T06
3 to 5.5	10	+0.75 to +3.63	95%	YNV05T10
3 to 5.5	10	+3 to +3.6	95%	YNV05T10033
3 to 5.5	16	+0.75 to +3.63	93%	YNV05T16
<b>Models with 4.5 to 13.8V<sub>in</sub>, Sorted by Max Amps (DOSA does not specify YEV equivalents)</b>				
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
<b>Model with 5 to 13.8V<sub>in</sub>, Sorted by Max Amps</b>				
5 to 13.8	40	+0.6 to +3.63	92%	YH09T40
5 to 13.8	60	+0.6 to +3.63	93%	YV09T60
<b>Models with 9.6 and Higher V<sub>in</sub>, Sorted by Max Amps</b>				
9.6 to 14	5	+0.75 to +5.5	90%	YNV12T05
9.6 to 14	10	+0.75 to +5.5	94%	YNV12T10
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 °C



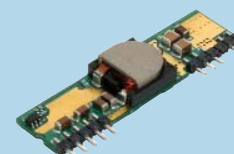
**YH09T40**

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



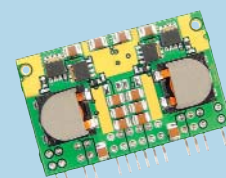
**YEV09T06 & YNV12T05**

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



**YNV05T10, YNV05T10XXX,  
YNV05T16, YNV12T10,  
& YNV12T16**

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



**YV12T25**

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

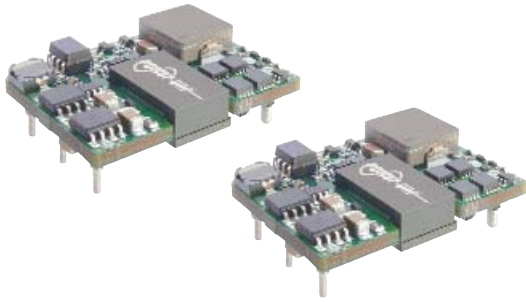
***An Industry-Leading Selection of High-Efficiency DC-DC Bricks***

Power-One offers a comprehensive range of DPA bricks and IBA regulated bus converters, in footprints from 1/16 to 1/2. Industry-leading efficiencies, and advanced thermal-management techniques increase current densities, reduce power consumption, and provide more power in elevated-temperature environments.

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

The DOSA-compliant SSQE48T20033 20-amp, 3.3 V<sub>out</sub>, 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.



***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.



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.

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

The latest SSE48T Series eighth-bricks provide single-output elevated-temperature performance that exceeds most similar-amperage quarter-bricks. Additional features include:

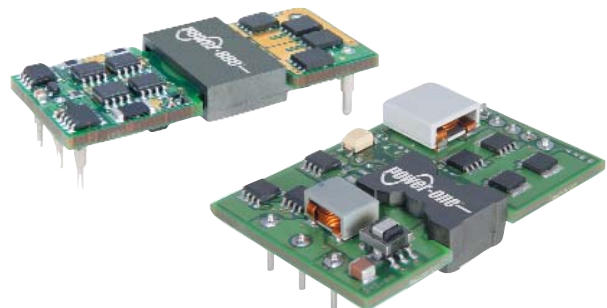
- Wide range 36-75 VDC inputs.
- 2250 VDC input-to-output isolation provides Basic insulation.
- Start-up into highly-capacitive loads.
- Rugged design withstands a 100 V input transient for 100 ms.



***High-Efficiency 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.

### Thru-Hole > Single-Output > Bus Converters

Max Amps	Brick Size	Factory Set Vout	Output Range	Input Voltage	Vout Regulation	Efficiency	Model
<b>Models with fixed-ratio inputs/outputs</b>							
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
<b>Models with wide-range inputs</b>							
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.**

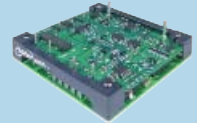
### Thru-Hole > Single-Output > Power Over Ethernet

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



**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



**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



**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



**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

## Isolated DC-DC > Thru-Hole > Single Output

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



### 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

### 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	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
36 to 75	12.0	9.6 to 13.2	7	SSQE48T07120

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

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
<b>Models with 18 to 36Vin, Sorted by Factory Set Vout</b>				
18 to 36	2	1.6 to 2.2	15	SQ24T15020
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	12	9.6 to 13.2	4	SQ24T04120
18 to 36	15	12 to 16.5	3.3	SQ24T03150
<b>Models with Nominal 48Vin, Sorted by Factory Set Vout</b>				
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	2.5	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	5.4 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	10	SQE48T10120
38 to 55	12	8.7 to 13.7	20	SQT48T20120 **

\*\* Fixed-ratio input-to-output voltage

## Isolated DC-DC > Thru-Hole > Single Output

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
<b>Models with 18 to 36Vin, Sorted by Factory Set Vout</b>				
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
<b>Models with Ultra-Wide Input, Sorted by Factory Set Vout</b>				
18 to 60	3.3	2.64 to 3.63	25	QW24T25033
<b>Models with Nominal 48Vin, Sorted by Factory Set Vout</b>				
36 to 75	1.2	1.1 to 1.3	30	QL48T30012
36 to 75	1.2	1.1 to 1.3	50	QM48T50012
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	1.8	1.5 to 1.9	25	Q48T25018
36 to 75	1.8	1.5 to 1.9	30	Q48T30018
36 to 75	1.8	1.5 to 1.9	45	QM48T45018
36 to 75	2	1.6 to 2.2	25	Q48T25020
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	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 55	9.6	7.2 to 11	38	QTS48T38096*
36 to 55	9.6	7.2 to 11	46	QTS48T46096*
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*



**Q24T & Q48T**

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



**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



**QW24T25033**

2.30 x 1.45 x 0.48 inch  
58.4 x 36.8 x 12.2 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

## Isolated DC-DC > Thru-Hole > Single Output

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

### BWS

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

### DFC6

2.00 x 1.00 x 0.45 inch  
50.8 x 25.4 x 11.4 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



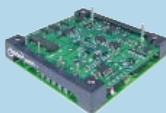
### HBA48T12280

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



### HDS & HKS

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

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

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
<b>Models with Nominal 48Vin, Sorted by Factory Set Vout</b>				
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	28	21.0 to 33.0	12.5	HBA48T12280
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 > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
<b>Models with 3.3Vout, Sorted by Max Amps</b>				
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
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
18 to 36	5	N/A	1	24IMS6-05-9
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
50 to 150	5	3.8 to 5.2	2.8	110IMY15-05-05-8
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
14.4 to 36	5.1	5.07 to 5.13	10	24IMX70-05-0G
25 to 75	5.1	5.07 to 5.13	10	40IMX70-05-0G
50 to 150	5.1	5.07 to 5.13	10	110IMY70-05-0G

## Isolated DC-DC > Thru-Hole > Single Output

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
<b>Models with 7 to 9Vout, Sorted by Max Amps</b>				
4.5 to 5.5	7	N/A	0.1	DSP1N5S7
<b>Models with 12Vout, Sorted by Max Amps</b>				
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
36 to 75	12	N/A	0.5	48IMS6-12-9
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
10 to 20	12	10.8 to 13.2	2.1	OWS1212
14.4 to 36	12	11.94 to 12.06	5.8	24IMX70-12-0G
25 to 75	12	11.94 to 12.06	5.8	40IMX70-12-0G
50 to 150	12	11.94 to 12.06	5.8	110IMY70-12-0G
<b>Models with 14 to 15Vout, Sorted by Max Amps</b>				
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
36 to 75	15	N/A	0.4	48IMS6-15-9
50 to 150	15	11.2 to 15.8	1.2	110IMY15-15-15-8
<b>Model with 17 to 24Vout</b>				
4.5 to 5.5	17	N/A	0.06	DSP1N5S17

#### 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

#### IMX70

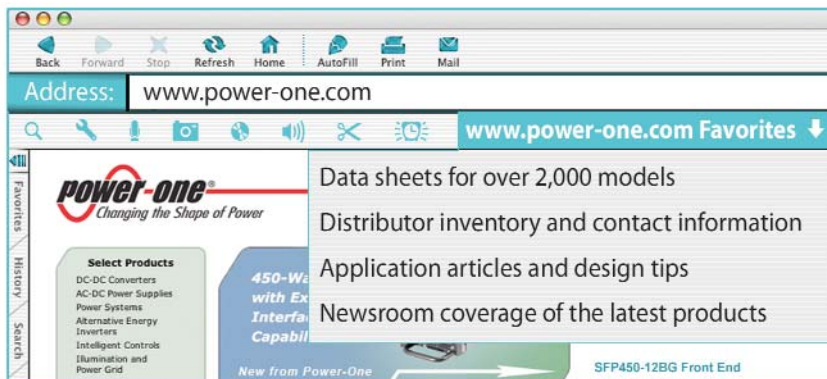
3.00 x 2.50 x 0.50 inch  
76.2 x 63.5 x 12.5 mm

#### IMY70

3.00 x 2.50 x 0.50 inch  
76.2 x 63.5 x 12.5 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
<b>Models with Nominal 48Vin, Sorted by Factory Set Vout</b>					
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	+1.8	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	+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

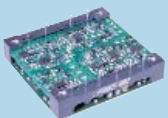


QD48T products provide two independently-regulated high-current outputs and, in many applications, can replace two single output quarter-bricks.

- 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.

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

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
<b>Models with Nominal 48Vin, Sorted by Factory Set Vout</b>					
36 to 72	1.8	1.6 to 2	15	60	HLD15ZEB
	3.3	3 to 3.6	15		
34 to 75	3.3	3 to 3.6	15	60	HBD060ZGE-A
	5	4.5 to 5.5	12		



### HBD

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

## 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
<b>Models with 3.3V and 5.1V Outputs, Sorted by Watts</b>					
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		
<b>Models with 5V Both Outputs, Sorted by Watts</b>					
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		
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		

#### 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

#### 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
<b>Models with 12V Both Outputs, Sorted by Watts</b>					
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		
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		
<b>Model with 14V Both Outputs</b>					
4.5 to 5.5	+14	N/A	0.04	1	DSP1N5D14
	-14	N/A	0.04		
<b>Models with 15V Both Outputs, Sorted by Watts</b>					
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		
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		
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		

**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

**IMX4**  
1.25 x 0.8 x 0.33 inch  
32 x 20 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
<b>Models with 15V Both Outputs, Sorted by Watts (Continued)</b>					
<b>Model with 17V Both Outputs</b>					
4.5 to 5.5	+17	N/A	0.03	1	DSP1N5D17
	-17	N/A	0.03		
<b>Models with 24V Both Outputs, Sorted by Watts</b>					
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		

#### DSP1

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

#### IMS15

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

#### IMX4

1.25 x 0.8 x 0.33 inch  
32 x 20 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

#### 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 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.

## Isolated DC-DC > Thru-Hole > Triple Output

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

### Thru-Hole > Triple-Output > Non-Brick



#### 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

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
<b>Models with Three 5V Outputs, Sorted by Input Voltage</b>					
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		
<b>Models with Two 5V and One 12V Output, Sorted by Input Voltage</b>					
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		
<b>Models with Two 5V and One 15V Output, Sorted by Input Voltage</b>					
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.**

## Isolated DC-DC > Thru-Hole > Triple Output

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

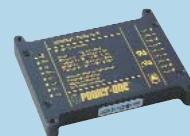
### Thru-Hole > Triple-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
<b>Models with One 5V and Two 12V Outputs, Sorted by Watts</b>					
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		
<b>Models with One 5V and Two 15V Outputs, Sorted by Watts</b>					
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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#### DGP20

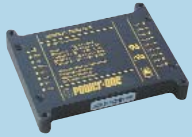
2.02 x 2.02 x 0.45 inch  
51.3 x 51.3 x 11.4 mm



#### 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



**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 > Triple & Quad Output**

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
<b>Models with Three 12V Outputs, Sorted by Input Voltage</b>					
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		
<b>Models with Three 15V Outputs, Sorted by Input Voltage</b>					
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		

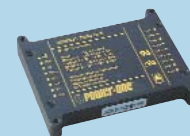
**Thru-Hole > Quad-Output > Non-Brick**

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
<b>Models with Four 5V Outputs, Sorted by Input Voltage</b>					
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		

## Isolated DC-DC > Thru-Hole > Quad Output

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

### Thru-Hole > Quad-Output > Non-Brick



#### 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

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
<b>Models with Two 5V and Two 12V Outputs, Sorted by Input Voltage</b>					
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		
<b>Models with Two 5V and Two 15V Outputs, Sorted by Input Voltage</b>					
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		
<b>Models with Four 12V Outputs, Sorted by Input Voltage</b>					
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		

## 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

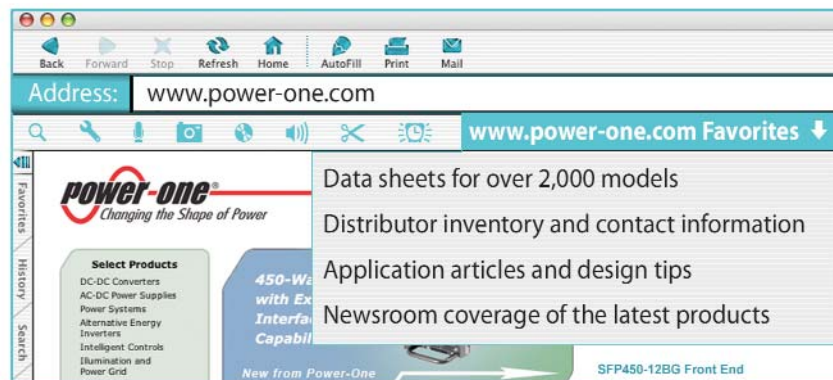
1500 VDC Isolation  
Extremely Wide Input Voltage Ranges  
Independent Outputs Can Be Used in Series or Parallel

### Thru-Hole > Quad-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
<b>Models with Four 15V Outputs, Sorted by Input Voltage</b>					
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



## Isolated DC-DC > SMT > Single-Output

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
<b>Models with Nominal 24Vin, Sorted by Factory Set Vout</b>				
18 to 36	5	4 to 5.5	10	SQ24S10050
18 to 36	6	4.8 to 6.6	8	SQ24S08060
18 to 36	12	9.6 to 13.2	4	SQ24S04120
19 to 36	15	12 to 16.5	3.3	SQ24S03150
<b>Models with Nominal 48Vin, Sorted by Factory Set Vout</b>				
36 to 75	1.2	1.1 to 1.3	15	SQ48S15012
36 to 75	1.5	1.2 to 1.6	15	SQ48S15015
36 to 75	1.8	1.5 to 1.9	15	SQ48S15018
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	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

### SMT > Single-Output > 1/4 Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
<b>Models with Nominal 24Vin, Sorted by Factory Set Vout</b>				
18 to 36	3.3	2.7 to 3.6	30	Q24S30033
18 to 36	5	4 to 5.5	15	Q24S15050
<b>Models with Nominal 48Vin, Sorted by Factory Set Vout</b>				
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	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	5	4 to 5.5	15	Q48S15050
36 to 75	12	9.6 to 13.2	8	Q48S08120



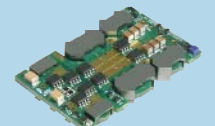
**Q24S & Q48S**

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



**SQ24S**

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



**SQ48S**

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



**SQM48S**

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

## Isolated DC-DC > SMT > Single-Output & Dual Output

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

### SMT > Single-Output > Non-Brick



**NVS**

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

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Model
<b>Models with 9 to 36Vin, Sorted by Factory Set Vout</b>				
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
<b>Models with 18 to 36Vin, Sorted by Factory Set Vout</b>				
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
<b>Models with Ultra-Wide Input, Sorted by Factory Set Vout</b>				
18 to 75	3.3	N/A	0.9	NVS0.9EE-M6
18 to 75	5	N/A	0.7	NVS0.7EG-M6
18 to 75	12	N/A	0.3	NVS0.3EH-M6
18 to 75	15	N/A	0.3	NVS0.3EJ-M6
<b>Models with Nominal 48Vin and 1.5 to 15Vout, Sorted by Factory Set Vout</b>				
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
36 to 75	15	N/A	0.4	NVS0.4ZJ-M6

### SMT > Dual-Output > 1/4 Brick

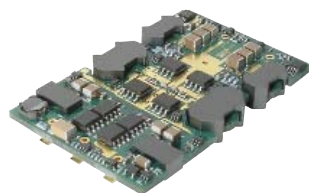


**QD48S**

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

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
<b>Models with Nominal 48Vin, Sorted by Factory Set Vout</b>					
36 to 75	+1.8	1.6 to 2	15	77	QD48S018033
36 to 75	+3.3	3 to 3.6	15		
36 to 75	+1.8	1.6 to 2	15	77	QD48S018050
36 to 75	+5	4.5 to 5.5	10		
36 to 75	+3.3	3 to 3.6	15	100	QD48S033050
36 to 75	+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.



## Isolated DC-DC > SMT > Dual-Output

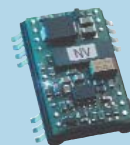
Unsigned output voltages are isolated and can be used as either + or - polarities.

### SMT > Dual-Output > Non-Brick

Input Voltage	Factory Set Vout	Output Trim Range	Max Amps	Watts	Model
<b>Models with 9 to 36Vin, Sorted by Factory Set Vout</b>					
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		
<b>Models with 18 to 36Vin, Sorted by Factory Set Vout</b>					
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		
<b>Models with Ultra-Wide Input, Sorted by Factory Set Vout</b>					
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		
<b>Models with Nominal 48Vin, Sorted by Factory Set Vout</b>					
36 to 75	+5	N/A	0.5	5	NVD01ZGG-M6
	-5	N/A	0.5		
36 to 75	+12	N/A	0.2	6	NVD0.5ZHH-M6
	-12	N/A	0.2		
36 to 75	+15	N/A	0.2	6	NVD0.4ZJJ-M6
	-15	N/A	0.2		

### 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



**NVD**

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

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## Rack-Mount Front Ends > Single Output

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 I<sup>2</sup>C 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
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	NLA*
	145	180 to 264 or 342 to 528 VAC	45.6 to 50.4V	12V	FXP7000-48-S	NLA*

\* Shelves No Longer Available



#### 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<sup>3</sup>



#### 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
	71	36 to 75 VDC	7 to 12V	12V	FND850-12RG	N/A
	71	36 to 75 VDC	7 to 12.3V	12V	FND850-12DRG	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
	93.3	90 to 264 VAC	N/A	3.3V	SGP1200-12G	N/A
	93.3	90 to 264 VAC	N/A	3.3V	SGP1200-12RG	N/A
	99.2	-40 to -75 VDC	N/A	3.35V	SFD1200-12BG	N/A
	125	85 to 264 VAC	7 to 13V	12V	FNP1500-12G	FNR-3-12
	24V	12.5	85 to 264 VAC	N/A	12V	FNP300-1024
48V	6.2	85 to 264 VAC	N/A	12V	FNP300-1048	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	FNP1500-48G	FNR-3-48G
	37.5	85 to 264 VAC	44.2 to 51.8V	12V	FNP1800-48G	FNR-3-48G



**FNP600/850/1000**

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



**FND850**

12.4 x 3.38 x 1.6 inch  
315 x 86 x 41 mm



**SFD550**

**SFP450/650/1050**

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

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

Common form factor AC and DC input products  
Status LEDs: Input OK, Output OK, and Fault



**SFD1200-12BG**

11.42 x 3.07 x 1.57 inch  
290 x 78 x 40 mm



**SGP1200-12G**

11.0 x 3.2 x 1.57 inch  
279 x 81 x 40 mm

## Rack-Mount Front Ends > Single Output

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



**FNP300**

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



**FND300**



**FNP1500/1800**

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

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

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

## Rack-Mount Power Shelves

### AC-DC Power Shelves

- Up to 375 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"	FNP1500-12G	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"	FNP1500-48G	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

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



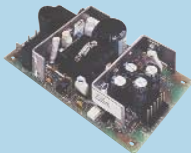
**BLP55**

5.00 x 3.00 x 1.23 inch  
127.0 x 76.2 x 31.2 mm



**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
<b>Models with 3.3 and 5Vout, Sorted by Vout then Max Watts</b>					
5	4.7 to 5.5	8	90 to 264	40	MAP40-1005
5	4.8 to 5.5	11	85 to 264	55	BLP55-1005
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
<b>Models with 12 and 15Vout, Sorted by Vout then Max Watts</b>					
12	11.4 to 13.2	4.5	85 to 264	55	BLP55-1012
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	MPU200-1012G
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
<b>Models with 24 and 28Vout, Sorted by Vout then Max Watts</b>					
24	22.8 to 26.4	2.3	85 to 264	55	BLP55-1024
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	MPU200-1024G
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

**AC-DC > Single Output**

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
<b>Models with 48Vout, Sorted by Max Watts</b>					
48	45 to 56	4.2	85 to 264	200	MPU200-1048G
48	46 to 56	10.4	85 to 264	500	PFC500-1048
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

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

## Chassis Mount > AC-DC

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 > Dual Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
<b>Sorted by Factory Set Vout</b>					
+5	N/A	25	90 to 264	125	MPB125-2005
+12	N/A	0.5			
+12	N/A	10.5	90 to 264	125	MPB125-2012
12	N/A	0.5			
+12	N/A	12.5	90 to 264	150	MPB150-2012G
12	N/A	0.5			
+24	N/A	6	90 to 264	150	MPB150-2024G
12	N/A	0.5			
+48	N/A	2.6	90 to 264	125	MPB125-2048
12	N/A	0.5			
+48	N/A	3.1	90 to 264	150	MPB150-2048G
12	N/A	0.5			



#### 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



#### MPU200

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



#### 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

## Chassis Mount > AC-DC

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

### AC-DC > Triple Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
<b>One 3.3V, One 5V, and One 12V Output</b>					
+3.3	N/A	5	85 to 264	37	BLP55-3300
+5	N/A	2.5			
+12	N/A	0.7			
+3.3	3.1 to 3.8	35	85 to 264	150	MPU150-3300
+5	5 to 5.5	20			
+12	N/A	2			
<b>Model with Two 5V and One 12V Output</b>					
+5	4.7 to 5.8	3	90 to 264	40	MAP40-3105
-5	N/A	0.5			
+12	N/A	2			
<b>Models with One 5V and Two 12V Outputs, Sorted by Max Watts</b>					
+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	5	85 to 264	55	BLP55-3000
+12	N/A	2.5			
-12	N/A	0.7			
+5	N/A	16.5	90 to 264	125	MPB125-3000
+12	N/A	5			
-12	N/A	0.5			
<b>Model with One 5V, One 12V, and One 24V Output; Sorted by Max Watts</b>					
+5	4.8 to 5.2	3	90 to 264	40	MAP40-3101
+24	N/A	1			
-12	N/A	0.3			

### AC-DC > Quad Output

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
<b>Models Under 100 Watts, Sorted by Max Watts</b>					
+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	MAP80-4010
+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	MAP80-4004
+24	23 to 25	2			
-15	N/A	1			
+15	N/A	1			

Continued on Next Page



**BLP55**

5.00 x 3.00 x 1.23 inch  
127.0 x 76.2 x 31.2 mm



**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



**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



## Chassis Mount > AC-DC

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
<b>Models from 110 to 125 Watts, Sorted by Max Watts then Factory Set Vout</b>					
+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	MAP110-4004
+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			
+3.3	N/A	10	90 to 264	125	MPB125-4350
+5	N/A	15			
+12	N/A	5			
-12	N/A	0.5			
<b>Models from 130 to 150 Watts, Sorted by Max Watts then Factory Set Vout</b>					
+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	MAP130-4003
+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			
+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			



#### 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



#### 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



#### 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



#### MPU150

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

Power Factor Correction  
Meets EN61000-3-2

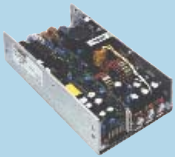
Unsigned output voltages are isolated and can be used as either + or - polarities.

**AC-DC > Quad Output**



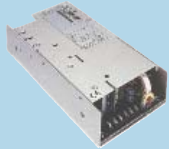
**MPU200**

8.00 x 4.20 x 1.50 inch  
203 x 107 x 38 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

Factory Set Vout	Output Trim Range	Max Amps	Input VAC	Max Watts	Model
<b>Models from 200 to 400 Watts, Sorted by Max Watts</b>					
+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			
+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	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			

**COMING SOON...**



- Standard output voltages of 2 to 54 VDC
- Efficiencies up to 88% typical
- Extra-Low 1U profile: 40.64 mm
- Leading power density of 17 Watts/cubic inch
- 1 to 6 isolated outputs with full user configurability
- Power Factor Correction (PFC) IEC 61000-3-2 compliant
- 1200 or 1500 Watts of total output power
- Zero-load operation
- Single-wire current sharing
- Universal input
- Individual control signals on each module
- Two-year warranty

## Linear Power Supplies > Single Output

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



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

Nominal Vout*	Max Amps	Model Input 100 to 264 VAC	Case Type	Additional Features & Notes
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### Models with 5Vout, Sorted by Max Amps

5	1.5	HA5-1.5/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

### 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

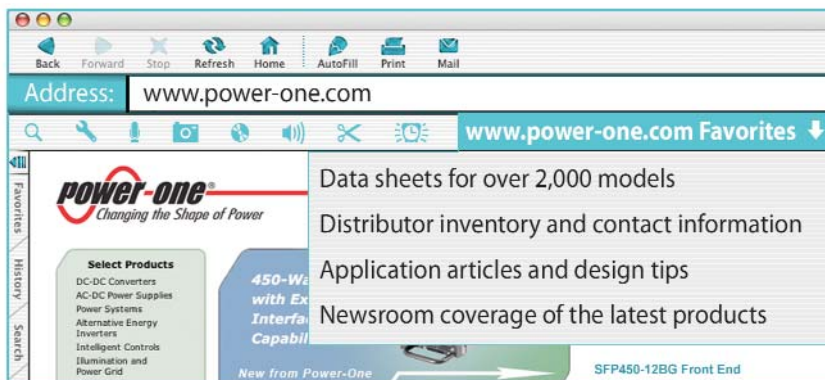
\* May require jumpering or potentiometer adjustment.

## Linear Power Supplies > Dual Output

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
<b>Models with 5V to 15Vout, Sorted by Nominal Vout then Max Amps</b>				
+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
<b>Models with 15V to 24Vout, Sorted by Nominal Vout then Max Amps</b>				
+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.

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
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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

Nominal Vout*	Max Amps	Model Input 100 to 264 VAC	Case Type	Additional Features & Notes
<b>Models with 5V to 15Vout, Sorted by Nominal Vout then Max Amps</b>				
+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

- 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.

\* May require jumpering or potentiometer adjustment.

## CompactPCI > AC-DC & DC Input

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
<b>DC Input Models</b>							
CPD250-4530	250	3U	36-75 VDC	40 A	40 A	5.5 A	2 A
CPD500-4530G	500	6U	36-75 VDC	50 A	60 A	12 A	4 A
<b>AC Input Models</b>							
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

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 °C 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 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.



**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)



**CPD500**

6U x 8HP (8TE) x 6.4" (163mm)



**PALS400/PALS600**

10.40 x 4.00 x 1.59 inch  
264.2 x 101.6 x 40.4 mm



**HHS04 & HHS05**

2.40 x 2.28 x 0.42 inch  
61.0 x 57.9 x 10.7 mm

**Power Over Ethernet**

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

**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 I<sup>2</sup>C 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

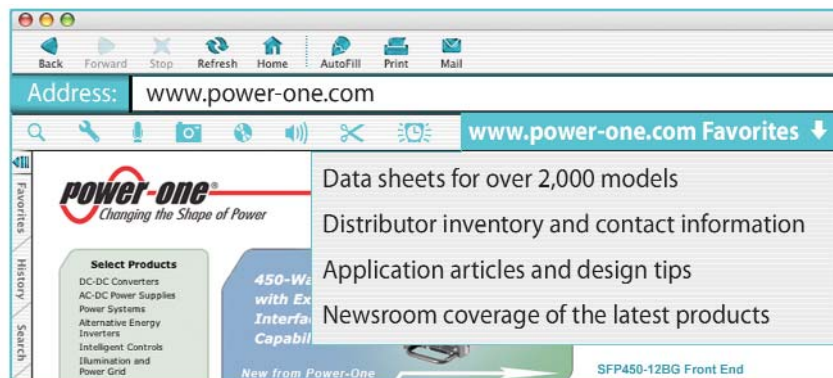
The 10.4" x 4" x 1.6" package is designed for 1U high applications and features a front panel that includes alarm and monitor LED's, AC input connector, on/off switch, integral handle, and a fan inlet. The hot-swap SSI type rear connector provides output power and access to I<sup>2</sup>C, power fail, 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).

**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





# Railway & Rugged Solutions Overview

## *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*

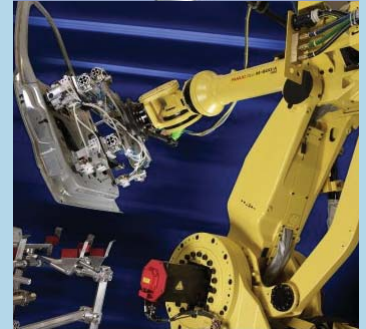


These non-isolated buck-converter topology converters feature no power derating over the entire operating temperature range, no minimum load operation, wide output adjustment ranges, and -40 to 71 °C extended-temperature-range options.

### *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.



### LOK Series

4.49 x 3.54 x 1.5 inch  
114 x 90 x 38 mm

Class I equipment  
DC input 90 to 250 VDC  
Short circuit protection  
Adjustable output for models with R suffix  
Battery charger models with temperature sensor available



### 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

### LOK Series (26 to 48 Watts)

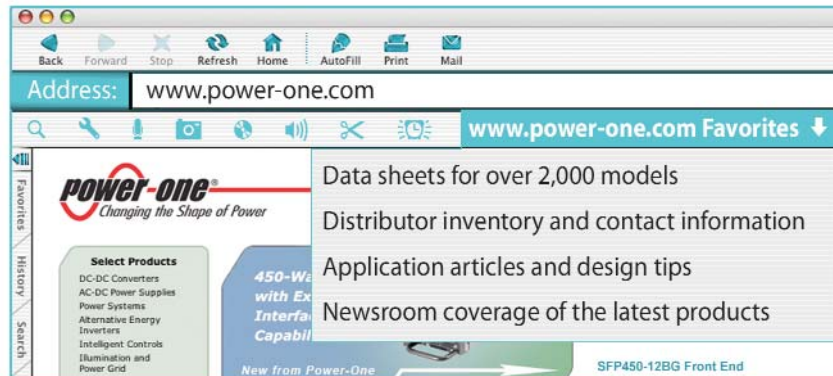
Vout	Amps	VAC Input	Max Watts	Model
5.1	5.2	85 to 264	26	LOK4001-2RLD
12	4	85 to 264	48	LOK4301-2R
24	2	85 to 264	48	LOK4601-2R
48	1	85 to 264	48	LOK4801-2R

All ratings at 50 °C

### 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
LOK4140-2RLD	12	49	12.8	3.6
LWN1140-6EM1	12	140	13.8	10
LOK4240-2RLD	24	49	25.7	1.8
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
LOK4740-2RLD	48	49	51.4	0.9
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

## Non-Isolated Positive Switching Regulators

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



**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

### 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



### 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

## Cassette > DC-DC

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

### 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

## Cassette > DC-DC

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

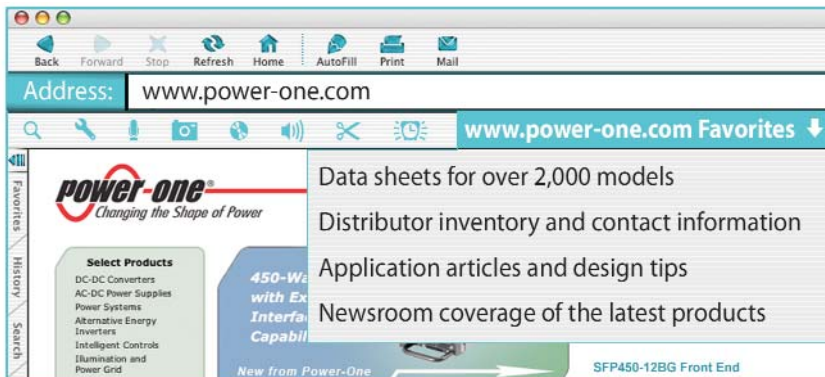
6.7 x 4.4(3U) x 2.4(12 TE) inch  
 168 x 111 x 60 mm

### 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.



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

**Q Series (66 to 132 Watts)**



**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

Vout 1, 2	Amps 1, 2	Amps T <sub>A</sub> = 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 <sub>A</sub> = 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 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.



## Cassette > DC-DC

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
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
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

## Cassette > DC-DC

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
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



### P Series

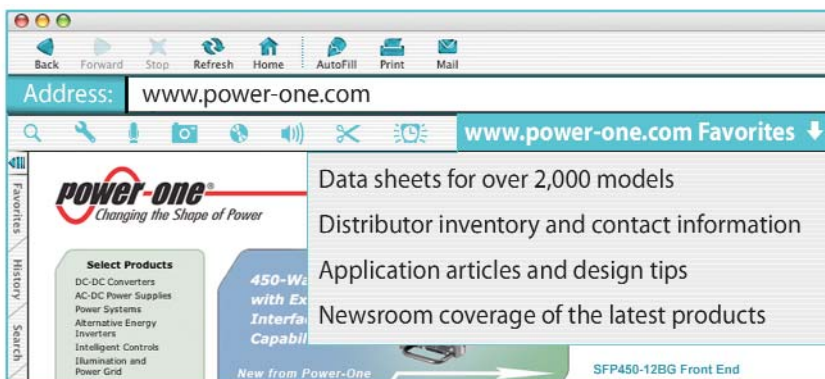
6.5 x 4.4(3U) x 0.8(4 TE) inch  
164 x 111 x 20 mm

### 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

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



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.

## Cassette > AC-DC

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

### 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



#### 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 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



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