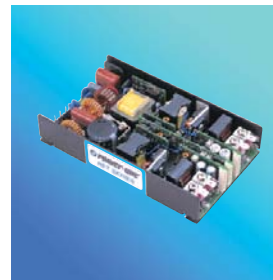
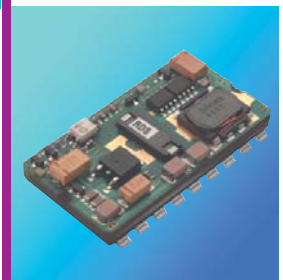
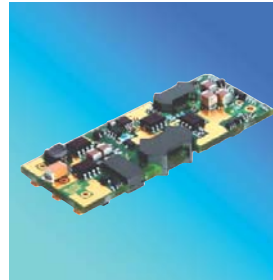




**Product Update  
2002 Edition Two**

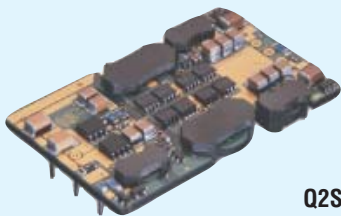
## **DC/DC Converters**



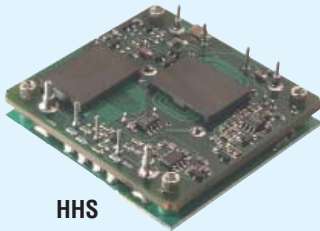
# DC/DC Converters



IMX4



Q2S



HHS



PHD



K-Series

## **Board-Mount Isolated, Under 40 Watts**

|   |    |
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## **CompactPCI®**

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**NUCLEAR AND MEDICAL APPLICATIONS-** Power-One products are not 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 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.

# AC/DC Power Supplies

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## **CompactPCI®**

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Power-One also manufactures complete telecom power plant systems which provide 24 and 48 volt outputs. Please contact your local Power-One sales representative, or visit our web site for further details.



FNP1100

W-Series

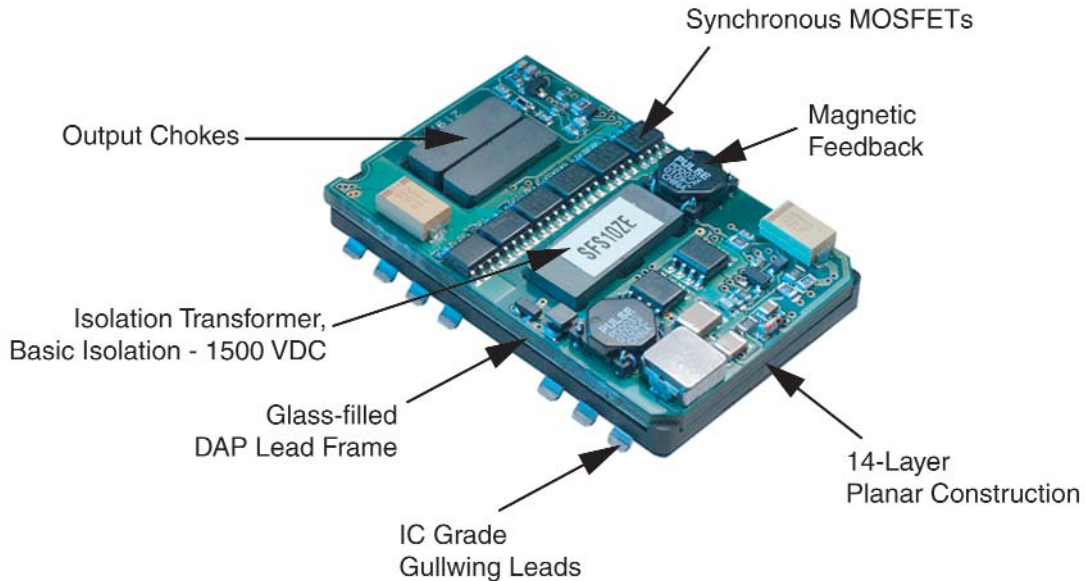
MPB80

Modular High Power

CPA/CPD

## New From Power-One

# One-SMarT™ SMT Mountable DC/DC Converters



**Advanced Designs Provide Ultra-High Current Density  
Construction Shown is Typical and Varies By Model**

## Overview

The One-SMarT™ family of surface mountable DC/DC converters provide low voltage outputs from one to thirty amps. These Distributed Power Architecture (DPA) compatible products are available in a comprehensive range of ultra-low profile form factors, most under 8.5mm. High efficiencies and current densities are achieved through sophisticated design techniques such as highly-integrated single-substrate planar transformers, which also increase reliability by providing very uniform heat dissipation. Additional benefits of this advanced thermal management include 60°C operation at full-rated power with no airflow for selected models. Highly automated manufacturing processes facilitate high quality, including exceptional lead co-planarity. JEDEC trays are available for use in high-volume SMT lines with vacuum pick-ups.

## Features

- ▶ Comprehensive selection of power ranges and packages.
- ▶ Compatible with high volume SMT processes.
- ▶ Excellent low-load regulation, stability, and EMC performance.
- ▶ Ultra-low profiles, most under 8.5mm.
- ▶ High efficiencies and current densities.
- ▶ Wide input ranges on selected models.
- ▶ Exceptional lead co-planarity.
- ▶ Competitively priced.

# New From Power-One

## QUICK EVALUATION DELIVERY (QED) PRODUCTS

These latest technology products are readily available at Power-One, or your local distributor, to quickly get power to your prototype system. In addition to fast delivery, Power-One's QED solutions provide industry-leading current and power densities.

### NEW 1/8-BRICK DC/DC CONVERTERS

Eight E2S Series DC/DC converters are available with single outputs from one to five volts. Outputs of 3.3V and lower provide 15 amps, and the 5V output provides 10 amps. These 1/8-brick, 8.5mm high products are 40% smaller than traditional 1/4-brick footprints, and are available in through-hole and One-SMaRT™ configurations. Additional features include 2000 VDC input-to-output isolation, remote on/off, and output voltage trim adjust.

### NEW 2" X 1" SINGLE OUTPUT One-SMaRT™

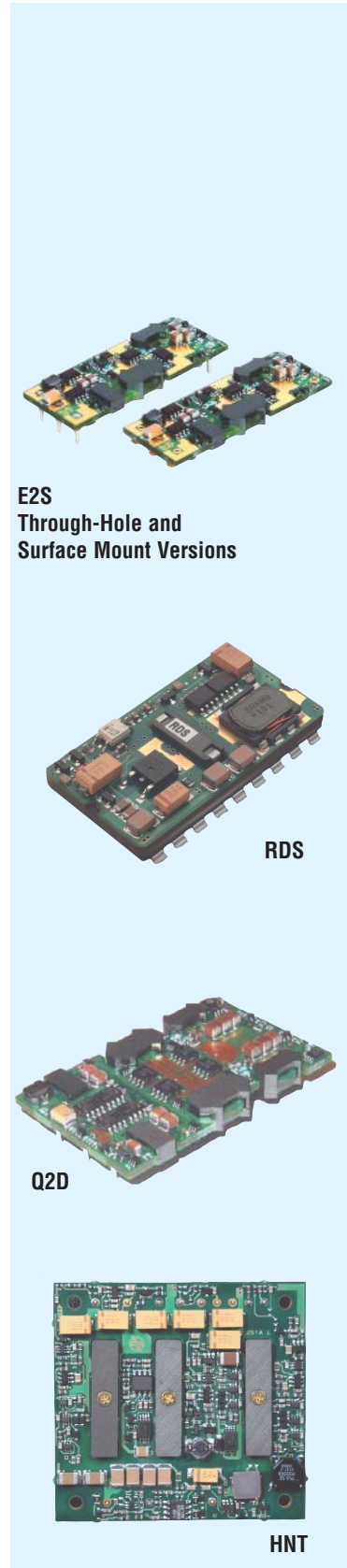
The three models of the new RDS Series convert an input range of 36 to 75 VDC into a single output of 1.8, 3.3, or 5 volts. This low-profile, 8.5mm package can provide up to 15 watts of full-rated power at 60°C without forced-air cooling. Additional features of these high current density products include 1500 VDC input-to-output isolation, lead co-planarity within 0.1mm, remote shutdown, output-voltage trim, and operation to 100°C.

### NEW DUAL OUTPUT 1/4-BRICK

Seven Q2D DC/DC converters are available with dual outputs from 1.2 to 5 volts utilizing an input range of 36 to 75 volts. Outputs of 3.3V and lower provide up to 15 amps. The 5V output provides up to 10 amps. This 8mm tall 1/4-brick is available in through-hole and One-SMaRT™ configurations. The Q2D also features remote on/off, ±10% output trim, and no minimum load operation. Protection features include overvoltage, overcurrent, and overtemperature.

### NEW TRIPLE OUTPUT 1/2-BRICK

The HNT45ZEDB is a triple output, 80 watt DC/DC converter that offers extremely flexible output voltages and power distribution. Providing independent and adjustable outputs (from 0.8V to 5.25V), factory set at 3.3, 2.5, and 1.8V, from an input range of 36 to 75 volts, each output is capable of being driven to 15 amps. This industry standard half-brick features a low 8.5mm height. Other features include 1500 VDC input-to-output isolation, output sequencing at start-up, remote on/off, and operation to 110°C.



**E2S**  
Through-Hole and  
Surface Mount Versions

**RDS**

**Q2D**

**HNT**

One-SMaRT and the Power-One logo are trademarks of Power-One, Inc.

# New From Power-One



## Power-One's CompactPCI<sup>®</sup> Power Supply Leads All Others in Current Density

### Overview

The four-output CPA (AC/DC) and CPD (DC/DC) Series provide up to 40 amps of +5V, or +3.3V, in a CompactPCI<sup>®</sup> compatible package by using Power-One's patented Efficient Dual Geometric Edge (EDGE<sup>™</sup>) technology. Two additional outputs provide +12V at 5.5 and -12V at 1.5 amps. These products have many standard features designed for hot-swap redundant applications. Front panel mounted LED's provide visual input and output voltage status. The 3U high x 8HP wide chassis incorporates a 47-pin Positronic connector (per PICMG<sup>®</sup> 2.11). Remote sense and active current share on the +5, +3.3, and +12 volt outputs, along with internal ORing FETs, allow these units to be used in redundant, hot-swap applications. These units meet international safety standards and display the CE Mark for the Low Voltage Directive (LVD).

### EDGE<sup>™</sup> Technology

Patented EDGE<sup>™</sup> (Efficient Dual Geometric Edge) Technology maximizes efficiency, allowing the units to provide the highest current rating while still maintaining a safe guardband below component ratings. This means that the power supplies in your system are running cool, which in turn enhances the system reliability. Reliability is critical in high availability applications such as datacom, telcom, and process control. Unit hot-swap capability makes these products ideal, especially for N+1 redundant applications.

### Features

- ▶ Highest current density in industry-standard packages.
- ▶ CPA Series utilizes 85-264 VAC input with PFC.
- ▶ CPD Series utilizes 36-75 VDC input.
- ▶ Highest output power.
  - 3U x 8HP 250 Watts
  - 6U x 8HP 450 Watts
- ▶ High current on +3.3 and +5 volt outputs.
- ▶ Single-wire current share and remote sense on +5, +3.3, and +12 volt outputs.
- ▶ Overtemperature, overvoltage, and overcurrent protection.
- ▶ Input Good and Power Supply Fault LED indicators.
- ▶ Inhibit and Enable inputs.

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# New From Power-One

## 125 WATT AC/DC IN A 3" X 5" FOOTPRINT

Designed for datacom applications, the MPB125's 1.25" (31.75mm) height is ideal for use in a 1U "pizza box" chassis. Other datacom-oriented features include remote sensing for the 3.3V output, overvoltage protection on V1 and V2, and a power good signal. Power factor correction circuitry complies with European line harmonics standard EN61000-3-2. The MPB125 delivers a power density of 6.6 watts per cubic inch. Onboard EMI filtering simplifies system compliance to EN55022 level B.

## 240 WATT AC/DC LOW VOLTAGES AT HIGH CURRENTS

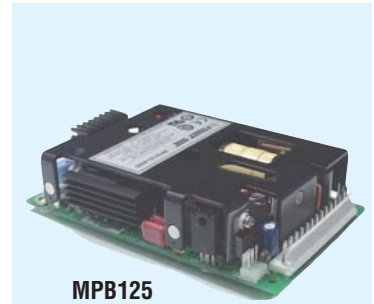
Incorporating Power-One's patented Efficient Dual Geometric Edge (EDGE™) technology, the NET1 Series is capable of providing output current exceeding 100 amps. This quad-output series provides current share and remote sense on all outputs to facilitate redundant and N+1 applications. Overtemperature shutdown, overload, and overvoltage protection are standard along with power fail and global output good signals. This advanced product won an Innovation of the Year award from Electronic Design News magazine.

## 3000 WATT AC/DC WITH PFC

The modular 3000-watt RPF5 can be configured to provide 1 to 15 outputs from 1 to 48 volts. Features include a comprehensive array of interface signals, extensive input transient protection, and parallelable outputs with current sharing. This power-factor-corrected chassis is the most recent addition to Power-One's modular high power product line which provides over 10 million voltage/current combinations from 18 chassis and over 90 output modules. A modular product configurator is available on the AC/DC product selection page of our web site to supplement the chassis and module information presented in this short form.

## RACK MOUNTED DISTRIBUTED POWER FRONT-ENDS

Power-One provides complete 19" and 23" rack-mounted systems that provide up to 375 amps of 48 VDC, or 500 amps of 24 VDC, per each power shelf. Configurations are available that provide hot-swap backplane connections for AC and DC. Other configurations provide backplane connected DC and front-access AC receptacles. Additional features include power factor correction, ORing diodes, active current sharing, remote voltage adjust, and remote current monitoring. Chassis mounted versions are also available.



MPB125



NET1



RPF5



NHS3000 with  
NPS4-S Power Shelf

# DC/DC Board Mount — Isolated Under 40 Watts

## One-SMaRT™ SMT Mountable Products

Many Products are Also Available in Through-Hole Mountable Packages

### NV

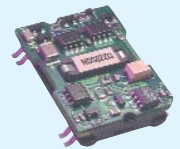
- 4 to 6 Watts
- Single/Dual Outputs
- 1500 VDC Isolation
- Operation from -40 to 85°C
- Wide Input Range



1.3 x 0.8 x 0.33 inch  
33 x 20 x 8.4 mm

### NDS

- 4 to 10 Watts
- Single Outputs, 1.5 to 5 VDC
- 1500 VDC Isolation
- Remote On/Off
- Output Voltage Trim



1.3 x 0.9 x 0.33 inch  
33 x 23 x 8.4 mm

### RN

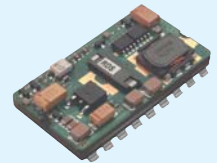
- 5 to 10 Watts
- Single/Dual Outputs
- 1500 VDC Isolation
- Operation to 85°C
- Wide Input Range



2.0 x 1.0 x 0.33 inch  
51 x 25 x 8.4 mm

### RDS

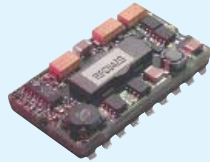
- 9 to 15 Watts
- 1500 VDC Isolation
- Operation to 85°C
- Very High Performance
- Inhibit Option Available



2.0 x 1.0 x 0.37 inch  
51 x 25 x 9.4 mm

### RFS

- 9 to 20 Watts
- Single Outputs, 1.5 to 5 VDC
- 1500 VDC Isolation
- Remote On/Off
- Output Voltage Trim



2.0 x 1.0 x 0.37 inch  
51 x 25 x 9.4 mm

### SFS

- 20 to 40 Watts
- Single Outputs, 1.5 to 5 VDC
- 1500 VDC Isolation
- Remote On/Off
- Output Voltage Trim



2.0 x 1.27 x 0.33 inch  
51 x 32 x 8.4 mm

### E2S

- 15 to 50 Watts
- 2000 VDC Isolation
- 1/8-Brick Footprint
- State-of-the-Art Packaging Techniques



2.3 x 0.90 x 0.26 inch  
58 x 23 x 6.6 mm

# DC/DC Board Mount — Isolated Under 40 Watts

## Through-Hole Mount Packages

Consult Model Listings for Additional Series

### DSP1

- 1 Watt SIP Package
- Single/Dual Outputs from 5 to 17 VDC
- 5V Input
- 700 VDC Isolation
- Operation from -40 to 70°C



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

### IMS25

- 25 Watts
- Single Outputs, 2.5 to 15 VDC
- Operation from -40 to 71°C
- 1500 VDC Isolation
- Remote Inhibit and Trim



1.6 x 2 x 0.32 inch  
40.6 x 50.8 x 8.1 mm

### IMX4

- 3 to 4 Watts
- Single/Dual Outputs
- 2000 VDC Isolation
- Operation from -40 to 85°C
- Four-to-One Input Voltage Range



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

### IMX35

- 35 Watts
- Triple/Quad Outputs
- Operation from -40 to 70°C, optional to 85°C
- 1500 VDC Isolation
- Remote Inhibit and Trim



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

### DFC10

- 10 Watts
- Single/Dual Outputs, 3.3 to 15 VDC
- Operation from -40 to 71°C
- 5-Sided Shielding
- Input Ranges from 9 to 72 VDC



2.02 x 1.02 x 0.41 inch  
51.3 x 25.9 x 10.4 mm

### QLS

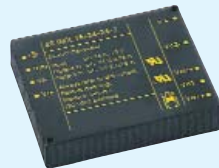
- 36 Watts @ 1.2Vout
- Outputs up to 12 VDC (Listed in Over 40 Watts Section)
- Industry Standard 1/4-Brick
- 1500 VDC Isolation
- No Heatsink Required



2.30 x 1.45 x 0.34 inch  
58.4 x 36.8 x 8.6 mm

### IMX15 and IMY15

- 12 to 17 Watts
- Single/Dual Outputs
- Up to 4000 VDC Isolation
- Operation from -40 to 85°C
- Output Adjusts from 80 to 105% of Nominal



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

### QES

- 36 Watts @ 1.8Vout
- 2.5 and 3.3 Vout (Listed in Over 40 Watts Section)
- Industry Standard 1/4-Brick
- 1500 VDC Isolation
- Optional Trim & Enable



2.30 x 1.45 x 0.34 inch  
58.4 x 36.8 x 8.6 mm

### LES

- 15 Watts
- Single Outputs, 2.5 to 15 VDC
- 24 and 48V Inputs
- 1500 VDC Isolation
- 6-Sided Shielding



2.00 x 1.00 x 0.42 inch  
50.8 x 25.4 x 10.6 mm

### QBS

- 37 Watts @ 2.5Vout
- Outputs up to 15 VDC
- Industry Standard 1/4-Brick
- 1500 VDC Isolation
- Pos. or Neg. Enable Logic



2.30 x 1.45 x 0.34 inch  
58.4 x 36.8 x 8.6 mm

# DC/DC Board Mount — Isolated Under 40 Watts — Single Output

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

|  |
|--|
| <b>DFA20 &amp; DGP12</b><br>2.02 x 2.02 x 0.45 inch<br>51.3 x 51.3 x 11.4 mm |
| <b>DFC10</b><br>1.02 x 2.02 x 0.41 inch<br>25.9 x 51.3 x 10.7 mm             |
| <b>DFC25</b><br>3.00 x 2.50 x 0.43 inch<br>76.2 x 63.5 x 11.0 mm             |
| <b>E2S</b><br>2.30 x 0.90 x 0.26 inch<br>58 x 23 x 6.6 mm                    |
| <b>HAS30</b><br>2.40 x 2.28 x 0.50 inch<br>61.0 x 57.9 x 12.7 mm             |
| <b>HBS033</b><br>2.40 x 2.30 x 0.50 inch<br>61.0 x 58.4 x 12.7 mm            |
| <b>HES</b><br>2.40 x 2.28 x 0.50 inch<br>61.0 x 57.9 x 12.7 mm               |
| <b>IAS</b><br>2.00 x 1.00 x 0.42 inch<br>50.8 x 25.4 x 10.7 mm               |
| <b>IES</b><br>2.00 x 1.00 x 0.52 inch<br>50.8 x 25.4 x 13.2 mm               |
| <b>IML</b><br>2.00 x 1.00 x 0.41 inch<br>50.8 x 25.4 x 10.4 mm               |
| <b>IMO</b><br>2.00 x 1.00 x 0.47 inch<br>50.8 x 25.4 x 11.9 mm               |
| <b>IMP1 &amp; IMX4</b><br>1.25 x 0.8 x 0.33 inch<br>32 x 20 x 8.5 mm         |
| <b>IMP6 &amp; IMR6</b><br>2.00 x 2.00 x 0.47 inch<br>50.8 x 50.8 x 12 mm     |
| <b>IMP12 &amp; IMR15</b><br>2.00 x 2.00 x 0.47 inch<br>50.8 x 50.8 x 11.9 mm |
| <b>IMR25</b><br>2.75 x 2.75 x 0.90 inch<br>70 x 70 x 23 mm                   |
| <b>IMR40</b><br>2.75 x 2.75 x 0.90 inch<br>70 x 70 x 23 mm                   |

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                   |
|----------------|-----------------------|---------------|---------------|-------------------------|
| 1.0            | 15                    | 36 to 75      | 15            | E2S15ZW SMT Optional    |
| 1.2            | 15                    | 36 to 75      | 18            | E2S15ZY ★ SMT Optional  |
| 1.2            | 30                    | 36 to 75      | 36            | QLS30ZY ★               |
| 1.5            | 3                     | 36 to 75      | 4.5           | NDS03ZA-M6 SMT Design   |
| 1.5            | 6                     | 36 to 75      | 9             | RFS06ZA-M6 SMT Design   |
| 1.5            | 13                    | 36 to 75      | 19.5          | SFS13ZA-M6 ★ SMT Design |
| 1.5            | 15                    | 36 to 75      | 22.5          | E2S15ZA SMT Optional    |
| 1.8            | 3                     | 36 to 75      | 5.4           | NDS03ZB-M6 SMT Design   |
| 1.8            | 5                     | 36 to 75      | 9             | RDS05ZB-M6 SMT Design   |
| 1.8            | 6                     | 36 to 75      | 10.8          | RFS06ZB-M6 ★ SMT Design |
| 1.8            | 13                    | 36 to 75      | 23.4          | SFS13ZB-M6 ★ SMT Design |
| 1.8            | 15                    | 36 to 75      | 27            | E2S15ZB ★ SMT Optional  |
| 1.8            | 20                    | 36 to 75      | 36            | QES036ZB-A              |
| 2.0            | 15                    | 36 to 75      | 30            | E2S15ZC SMT Optional    |
| 2.1            | 3.3                   | 18 to 36      | 6.9           | SMS007YC                |
| 2.1            | 3.3                   | 36 to 72      | 6.9           | SMS007ZC                |
| 2.1            | 10                    | 36 to 72      | 21            | OES021ZC-A              |
| 2.5            | 3                     | 18 to 36      | 7.5           | LES008YD                |
| 2.5            | 3                     | 36 to 75      | 7.5           | LES008ZD                |
| 2.5            | 3                     | 36 to 75      | 7.5           | NDS03ZD-M6 SMT Design   |
| 2.5            | 3.6                   | 36 to 72      | 9             | SMS009ZD                |
| 2.5            | 6                     | 14 to 36      | 15            | 24IMS25-2.5-9G          |
| 2.5            | 6                     | 32 to 75      | 15            | 48IMS25-2.5-9G          |
| 2.5            | 6                     | 36 to 75      | 15            | RFS06ZD-M6 ★ SMT Design |
| 2.5            | 10                    | 36 to 72      | 25            | OES025ZD-A              |
| 2.5            | 13                    | 36 to 75      | 32.5          | SFS13ZD-M6 ★ SMT Design |
| 2.5            | 15                    | 36 to 72      | 37.5          | HES037ZD-A              |
| 2.5            | 15                    | 36 to 75      | 37.5          | E2S15ZD ★ SMT Optional  |
| 2.5            | 15                    | 18 to 36      | 38            | QBS038YD-A              |
| 2.5            | 15                    | 36 to 75      | 38            | QBS038ZD-A              |
| 2.5            | 15                    | 36 to 75      | 38            | QES038ZD-A              |
| 3.3            | 0.9                   | 8.4 to 36     | 3             | 20IMX4-03-9             |
| 3.3            | 0.9                   | 9 to 36       | 3             | NVS0.9CE-M6 SMT Design  |
| 3.3            | 0.9                   | 16.8 to 75    | 3             | 40IMX4-03-9             |
| 3.3            | 0.9                   | 18 to 75      | 3             | NVS0.9EE-M6 SMT Design  |
| 3.3            | 0.9                   | 40 to 121     | 3             | 70IMX4-03-9             |
| 3.3            | 1.2                   | 14 to 36      | 4             | 24IMS7-03-9             |
| 3.3            | 1.2                   | 36 to 75      | 4             | 48IMS7-03-9             |
| 3.3            | 1.5                   | 4.5 to 5.5    | 5             | 5IMP6-03-7              |
| 3.3            | 1.5                   | 8.4 to 36     | 5             | 20IMX7-03-9             |
| 3.3            | 1.5                   | 9 to 18       | 5             | 12IMR6-03-2             |
| 3.3            | 1.5                   | 10 to 36      | 5             | 24IMO6-03-2             |
| 3.3            | 1.5                   | 10 to 36      | 5             | 24IMP6-03-7             |
| 3.3            | 1.5                   | 16.8 to 75    | 5             | 40IMX7-03-9             |
| 3.3            | 1.5                   | 18 to 36      | 5             | 24IMR6-03-2             |

# DC/DC Board Mount — Isolated Under 40 Watts — Single Output

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

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                   |
|----------------|-----------------------|---------------|---------------|-------------------------|
| 3.3            | 1.5                   | 18 to 72      | 5             | 48IMO6-03-2             |
| 3.3            | 1.5                   | 18 to 72      | 5             | 48IMP6-03-7             |
| 3.3            | 1.5                   | 18 to 75      | 5             | RNS01EE-M6 SMT Design   |
| 3.3            | 1.5                   | 36 to 72      | 5             | 48IMR6-03-2             |
| 3.3            | 1.5                   | 40 to 121     | 5             | 70IMX7-03-9             |
| 3.3            | 1.5                   | 60 to 150     | 5             | 110IMX7-03-9            |
| 3.3            | 2                     | 9 to 18       | 6.6           | DFC10E12S3.3            |
| 3.3            | 2                     | 18 to 36      | 6.6           | DFC10E24S3.3            |
| 3.3            | 2                     | 18 to 36      | 6.6           | 24IML10-03-3            |
| 3.3            | 2                     | 34 to 75      | 6.6           | IAS006ZE                |
| 3.3            | 2                     | 36 to 72      | 6.6           | DFC10E48S3.3            |
| 3.3            | 3                     | 9 to 18       | 10            | 12IMR15-03-2            |
| 3.3            | 3                     | 10 to 36      | 10            | 24IMP12-03-7            |
| 3.3            | 3                     | 18 to 72      | 10            | 48IMP12-03-7            |
| 3.3            | 3                     | 18 to 36      | 10            | 24IMR15-03-2            |
| 3.3            | 3                     | 18 to 36      | 10            | LES010YE                |
| 3.3            | 3                     | 36 to 72      | 10            | 48IMR15-03-2            |
| 3.3            | 3                     | 36 to 75      | 10            | LES010ZE                |
| 3.3            | 3                     | 36 to 75      | 10            | NDS03ZE-M6 ★ SMT Design |
| 3.3            | 3                     | 38 to 75      | 10            | RNS03ZE-M6 ★ SMT Design |
| 3.3            | 3.6                   | 18 to 36      | 11.8          | SMS012YE                |
| 3.3            | 3.6                   | 36 to 72      | 11.8          | SMS012ZE                |
| 3.3            | 4                     | 9 to 18       | 13.2          | DFA20E12S3.3            |
| 3.3            | 4                     | 18 to 36      | 13.2          | DFA20E24S3.3            |
| 3.3            | 4                     | 36 to 72      | 13.2          | DFA20E48S3.3            |
| 3.3            | 4                     | 36 to 72      | 13.2          | IES013ZE-A              |
| 3.3            | 4                     | 36 to 75      | 13.2          | RDS04ZE-M6 SMT Design   |
| 3.3            | 4.5                   | 8.4 to 36     | 14.9          | 20IMX15-03-9RG          |
| 3.3            | 4.5                   | 16.8 to 75    | 14.9          | 40IMX15-03-9RG          |
| 3.3            | 4.5                   | 50 to 150     | 14.9          | 110IMY15-03-9RG         |
| 3.3            | 5                     | 34 to 75      | 17            | OBS017ZE                |
| 3.3            | 6                     | 14 to 36      | 19.8          | 24IMS25-03-9G           |
| 3.3            | 6                     | 32 to 75      | 19.8          | 48IMS25-03-9G           |
| 3.3            | 6                     | 36 to 75      | 19.8          | HAS030ZE-AT             |
| 3.3            | 6                     | 36 to 75      | 19.8          | RFS06ZE-M6 ★ SMT Design |

## One-SMaT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a “-M6” suffix to the listed part number for an SMT-mountable version.

## ★ QUICK EVALUATION DELIVERY (QED) PRODUCTS

These latest technology products are readily available at Power-One, or your local distributor, to quickly get power to your prototype system. In addition to fast delivery, Power-One's QED solutions provide industry-leading current and power densities.

**IMS7**  
2.00 x 1.00 x 0.42 inch  
50.8 x 25.4 x 10.5 mm

**IMS25**  
1.6 x 2 x 0.32 inch  
40.6 x 50.8 x 8.1 mm

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

**IMX15 & IMY15**  
2.00 x 1.50 x 0.42 inch  
50.8 x 38.1 x 10.7 mm

**LES**  
2.00 x 1.00 x 0.42 inch  
50.8 x 25.4 x 10.7 mm

**NDS**  
1.3 x 0.9 x 0.33 inch  
33 x 23 x 8.5 mm

**NV**  
1.3 x 0.8 x 0.33 inch  
33 x 20 x 8.5 mm

**OBS**  
2.00 x 2.00 x 0.42 inch  
50.8 x 50.8 x 10.7 mm

**QES**  
2.00 x 2.00 x 0.42 inch  
50.8 x 50.8 x 10.7 mm

**OBS, QES, QLS**  
2.30 x 1.45 x 0.34 inch  
58.42 x 36.8 x 8.53 mm

**RDS**  
2.0 x 1.0 x 0.37 inch  
51 x 25 x 9.4 mm

**RFS**  
2 x 1 x 0.37 inch  
50.8 x 25.4 x 9.5 mm

**RN**  
2 x 1 x 0.33 inch  
50.8 x 25.4 x 8.5 mm

**SFS**  
2.0 x 1.27 x 0.33 inch  
51 x 33 x 8.5 mm

**SMS**  
SMT Mounting  
2.00 x 1.00 x 0.35 inch  
50.8 x 25.4 x 8.9 mm

# DC/DC Board Mount — Isolated Under 40 Watts — Single Output

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

## BRS & BUS

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

## BWS

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

## DFA20 & DGP12

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

## DFC10

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

## DFC15 & DGP30

1.62 x 2.02 x 0.55 inch  
41.5 x 51.3 x 14.0 mm

## DSP1

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

## EWS & IWS

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

## HBS, HES, & HHS

Industry Standard  
1/2-Bricks  
2.40 x 2.28 x 0.50 inch  
61.0 x 57.9 x 12.7 mm

## IAS

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

## IES

2.00 x 1.00 x 0.52 inch  
50.8 x 25.4 x 13.2 mm

## IML

2.00 x 1.00 x 0.41 inch  
50.8 x 25.4 x 10.4 mm

## IMO

2.00 x 1.00 x 0.47 inch  
50.8 x 25.4 x 11.9 mm

## IMP1

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

## IMP3 & IMR3

1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

## IMP6 & IMR6

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 12 mm

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                  |
|----------------|-----------------------|---------------|---------------|------------------------|
| 3.3            | 6.5                   | 9 to 18       | 21.5          | 12IMR25-03-2           |
| 3.3            | 6.5                   | 18 to 36      | 21.5          | 24IMR25-03-2           |
| 3.3            | 6.5                   | 36 to 72      | 21.5          | 48IMR25-03-2           |
| 3.3            | 7.5                   | 9 to 18       | 25            | DFC25E12S3.3           |
| 3.3            | 10                    | 9 to 18       | 33            | 12IMR40-03-2           |
| 3.3            | 10                    | 18 to 36      | 33            | HBS033YE-A             |
| 3.3            | 10                    | 18 to 36      | 33            | 24IMR40-03-2           |
| 3.3            | 10                    | 34 to 75      | 33            | HBS033ZE-A             |
| 3.3            | 10                    | 36 to 72      | 33            | HES033ZE-A             |
| 3.3            | 10                    | 36 to 72      | 33            | 48IMR40-03-2           |
| 3.3            | 10                    | 36 to 72      | 33            | OES033ZE-A             |
| 5              | 0.15                  | 4.5 to 5.5    | 0.75          | DSP1N5S5               |
| 5              | 0.2                   | 4.5 to 5.5    | 1             | 5IMP1-05-7             |
| 5              | 0.3                   | 4.65 to 5.5   | 1.5           | BRS505                 |
| 5              | 0.4                   | 9 to 18       | 2             | 12IMR3-05-2            |
| 5              | 0.5                   | 4.5 to 9      | 2.5           | BWS505                 |
| 5              | 0.5                   | 9 to 18       | 2.5           | BWS1205                |
| 5              | 0.5                   | 9 to 36       | 2.5           | 24IXP3-05-7S           |
| 5              | 0.5                   | 10 to 36      | 2.5           | 24IMP3-05-7S           |
| 5              | 0.5                   | 18 to 36      | 2.5           | 24IMR3-05-2            |
| 5              | 0.5                   | 18 to 72      | 2.5           | 48IMP3-05-7S           |
| 5              | 0.5                   | 18 to 72      | 2.5           | 48IXP3-05-7S           |
| 5              | 0.5                   | 36 to 72      | 2.5           | BWS4805                |
| 5              | 0.5                   | 36 to 72      | 2.5           | 48IMR3-05-2            |
| 5              | 0.6                   | 4.65 to 5.5   | 3             | BUS505                 |
| 5              | 0.7                   | 4.7 to 16.8   | 3.5           | 5IMX4-05-9             |
| 5              | 0.7                   | 8.4 to 36     | 3.5           | 20IMX4-05-9            |
| 5              | 0.7                   | 9 to 36       | 3.5           | NVS0.7CG-M6 SMT Design |
| 5              | 0.7                   | 16.8 to 75    | 3.5           | 40IMX4-05-9            |
| 5              | 0.7                   | 18 to 75      | 3.5           | NVS0.7EG-M6 SMT Design |
| 5              | 0.7                   | 40 to 121     | 3.5           | 70IMX4-05-9            |
| 5              | 1                     | 4.5 to 5.5    | 5             | 5IMP6-05-7             |
| 5              | 1                     | 4.5 to 9      | 5             | EWS505                 |
| 5              | 1                     | 9 to 18       | 5             | EWS1205                |
| 5              | 1                     | 9 to 18       | 5             | 12IMR6-05-2            |
| 5              | 1                     | 10 to 36      | 5             | 24IMO6-05-2            |
| 5              | 1                     | 10 to 36      | 5             | 24IMP6-05-7            |
| 5              | 1                     | 18 to 36      | 5             | 24IMR6-05-2            |
| 5              | 1                     | 18 to 36      | 5             | 24IMS6-05-9            |
| 5              | 1                     | 18 to 36      | 5             | NVS01YG-M6 SMT Design  |
| 5              | 1                     | 18 to 72      | 5             | 48IMO6-05-2            |
| 5              | 1                     | 18 to 72      | 5             | 48IMP6-05-7            |
| 5              | 1                     | 36 to 72      | 5             | 48IMR6-05-2            |
| 5              | 1                     | 36 to 75      | 5             | 48IMS6-05-9            |
| 5              | 1                     | 36 to 75      | 5             | NVS01ZG-M6 SMT Design  |
| 5              | 1.2                   | 18 to 75      | 6             | RNS01EG-M6 SMT Design  |

# DC/DC Board Mount — Isolated Under 40 Watts — Single Output

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

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                   |
|----------------|-----------------------|---------------|---------------|-------------------------|
| 5              | 1.9                   | 18 to 36      | 9.5           | 24IML10-05-3            |
| 5              | 2                     | 4.5 to 9      | 10            | IWS505                  |
| 5              | 2                     | 9 to 18       | 10            | 12IMR15-05-2            |
| 5              | 2                     | 9 to 18       | 10            | DFC10E12S5              |
| 5              | 2                     | 18 to 36      | 10            | DFC10E24S5              |
| 5              | 2                     | 18 to 36      | 10            | IAS010YG                |
| 5              | 2                     | 34 to 75      | 10            | IAS010ZG                |
| 5              | 2                     | 36 to 72      | 10            | DFC10E48S5              |
| 5              | 2                     | 36 to 75      | 10            | NDS02ZG-M6 ★ SMT Design |
| 5              | 2                     | 38 to 75      | 10            | RNS02ZG-M6 ★ SMT Design |
| 5              | 2.4                   | 10 to 36      | 12            | 24IMP12-05-7            |
| 5              | 2.4                   | 18 to 36      | 12            | SMS012YG                |
| 5              | 2.4                   | 18 to 72      | 12            | 48IMP12-05-7            |
| 5              | 2.4                   | 36 to 72      | 12            | SMS012ZG                |
| 5              | 3                     | 18 to 36      | 15            | LES015YG                |
| 5              | 3                     | 18 to 36      | 15            | 24IMR15-05-2            |
| 5              | 3                     | 20 to 60      | 15            | DFC15U48S5              |
| 5              | 3                     | 36 to 72      | 15            | 48IMR15-05-2            |
| 5              | 3                     | 36 to 75      | 15            | RDS03ZG-M6 SMT Design   |
| 5              | 3                     | 36 to 75      | 15            | LES015ZG                |
| 5              | 3.5                   | 8.4 to 36     | 17.5          | 20IMX15-05-9RG          |
| 5              | 3.5                   | 16.8 to 75    | 17.5          | 40IMX15-05-9RG          |
| 5              | 3.5                   | 50 to 150     | 17.5          | 110IMY15-05-9RG         |
| 5              | 4                     | 9 to 18       | 20            | DFA20E12S5              |
| 5              | 4                     | 16 to 36      | 20            | IES020YG-A              |
| 5              | 4                     | 18 to 36      | 20            | DFA20E24S5              |
| 5              | 4                     | 33 to 75      | 20            | MWS020ZGY               |
| 5              | 4                     | 36 to 72      | 20            | DFA20E48S5              |
| 5              | 4                     | 36 to 72      | 20            | IES020ZG-A              |
| 5              | 4                     | 36 to 75      | 20            | RFS04ZG-M6 ★ SMT Design |
| 5              | 4                     | 40 to 60      | 20            | LES020ZG-3N             |
| 5              | 5                     | 9 to 18       | 25            | 12IMR25-05-2            |
| 5              | 5                     | 10 to 20      | 25            | OWS1205                 |
| 5              | 5                     | 18 to 36      | 25            | 24IMR25-05-2            |
| 5              | 5                     | 20 to 60      | 25            | OWS4805                 |
| 5              | 5                     | 34 to 75      | 25            | OBS025ZG                |
| 5              | 5                     | 36 to 72      | 25            | 48IMR25-05-2            |
| 5              | 5                     | 36 to 72      | 25            | DGP30E48S5              |

## One-SMaT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a “-M6” suffix to the listed part number for an SMT-mountable version.

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**IMP12 & IMR15**  
2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

**IMR25, IMR40**  
2.75 x 2.75 x 0.90 inch  
70 x 70 x 23 mm

**IMS6**  
1.25 x 0.8 x 0.33 inch  
32 x 20 x 8.5 mm

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

**IMX15 & IMY15**  
2.00 x 1.50 x 0.42 inch  
50.8 x 38.1 x 10.7 mm

**IXP3**  
1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

**LES**  
2.00 x 1.00 x 0.42 inch  
50.8 x 25.4 x 10.7 mm

**MWS**  
2.00 x 1.60 x 0.46 inch  
50.8 x 40.6 x 11.7 mm

**NDS**  
1.3 x 0.9 x 0.33 inch  
33 x 23 x 8.5 mm

**NV**  
1.3 x 0.8 x 0.33 inch  
33 x 20 x 8.5 mm

**OBS, OES**  
2.00 x 2.00 x 0.42 inch  
50.8 x 50.8 x 10.7 mm

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

**RFS**  
2 x 1 x 0.37 inch  
50.8 x 25.4 x 9.5 mm

**RN**  
2 x 1 x 0.33 inch  
50.8 x 25.4 x 8.5 mm

**SMS**  
SMT Mounting  
2.00 x 1.00 x 0.35 inch  
50.8 x 25.4 x 8.9 mm

# DC/DC Board Mount — Isolated Under 40 Watts — Single Output

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

## BRS & BUS

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

## BWS

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

## DFA20

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

## DFC10

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

## DFC15

1.62 x 2.02 x 0.55 inch  
41.5 x 51.3 x 14.0 mm

## DFC25

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

## DSP1

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

## EWS & IWS

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

## HAS30

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

## IAS

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

## IML

2.00 x 1.00 x 0.41 inch  
50.8 x 25.4 x 10.4 mm

## IMO

2.00 x 1.00 x 0.47 inch  
50.8 x 25.4 x 11.9 mm

## IMP1

1.25 x 0.80 x 0.34 inch  
32.0 x 20.0 x 8.5 mm

## IMP3 & IMR3

1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

## IMP6 & IMR6

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 12 mm

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                  |
|----------------|-----------------------|---------------|---------------|------------------------|
| 5              | 6                     | 18 to 24      | 30            | DFC25E24S5             |
| 5              | 6                     | 18 to 36      | 30            | HAS030YG-A             |
| 5              | 6                     | 36 to 72      | 30            | DFC25E48S5             |
| 5              | 6                     | 36 to 75      | 30            | HAS030ZG-A             |
| 5.1            | 1.2                   | 8.4 to 36     | 6             | 20IMX7-05-9            |
| 5.1            | 1.2                   | 14 to 36      | 6             | 24IMS7-05-9            |
| 5.1            | 1.2                   | 16.8 to 75    | 6             | 40IMX7-05-9            |
| 5.1            | 1.2                   | 36 to 75      | 6             | 48IMS7-05-9            |
| 5.1            | 1.2                   | 40 to 121     | 6             | 70IMX7-05-9            |
| 5.1            | 1.2                   | 60 to 150     | 6             | 110IMX7-05-9           |
| 5.1            | 2.3                   | 8.4 to 36     | 11.7          | 20IMX15-05-9R          |
| 5.1            | 2.5                   | 16.8 to 75    | 12.8          | 40IMX15-05-9R          |
| 5.1            | 2.5                   | 50 to 150     | 12.8          | 110IMY15-05-9R         |
| 5.1            | 2.7                   | 14 to 36      | 13.8          | 24IMS15-05-9R          |
| 5.1            | 2.7                   | 36 to 75      | 13.8          | 48IMS15-05-9R          |
| 5.1            | 5                     | 14 to 36      | 25            | 24IMS25-05-9G          |
| 5.1            | 5                     | 32 to 75      | 25            | 48IMS25-05-9G          |
| 7              | 0.14                  | 4.5 to 5.5    | 1             | DSP1N5S7               |
| 7              | 0.86                  | 18 to 75      | 6             | RNS0.9ET-M6 SMT Design |
| 9              | 0.2                   | 4.65 to 5.5   | 1.8           | BRS509                 |
| 12             | 0.08                  | 4.5 to 5.5    | 1             | 5IMP1-12-7             |
| 12             | 0.08                  | 4.5 to 5.5    | 1             | DSP1N5S12              |
| 12             | 0.15                  | 4.65 to 5.5   | 1.8           | BRS512                 |
| 12             | 0.2                   | 9 to 18       | 2.4           | 12IMR3-12-2            |
| 12             | 0.25                  | 4.5 to 9      | 3             | BWS512                 |
| 12             | 0.25                  | 9 to 18       | 3             | BWS1212                |
| 12             | 0.25                  | 9 to 36       | 3             | 24IXP3-12-7S           |
| 12             | 0.25                  | 10 to 36      | 3             | 24IMP3-12-7S           |
| 12             | 0.25                  | 18 to 36      | 3             | 24IMR3-12-2            |
| 12             | 0.25                  | 18 to 72      | 3             | 48IMP3-12-7S           |
| 12             | 0.25                  | 18 to 72      | 3             | 48IXP3-12-7S           |
| 12             | 0.25                  | 36 to 72      | 3             | 48IMR3-12-2            |
| 12             | 0.3                   | 4.65 to 5.5   | 3.6           | BUS512 ★               |
| 12             | 0.3                   | 4.7 to 16.8   | 3.6           | 5IMX4-12-8Z            |
| 12             | 0.3                   | 16.8 to 75    | 4             | 40IMX4-12-9            |
| 12             | 0.34                  | 8.4 to 36     | 4             | 20IMX4-12-9            |
| 12             | 0.34                  | 9 to 36       | 4             | NVS0.3CH-M6 SMT Design |
| 12             | 0.34                  | 18 to 75      | 4             | NVS0.3EH-M6 SMT Design |
| 12             | 0.34                  | 40 to 121     | 4             | 70IMX4-12-9            |

# DC/DC Board Mount — Isolated Under 40 Watts — Single Output

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

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                    |
|----------------|-----------------------|---------------|---------------|--------------------------|
| 12             | 0.5                   | 4.5 to 5.5    | 6             | 5IMP6-12-7               |
| 12             | 0.5                   | 4.5 to 9      | 6             | EWS512                   |
| 12             | 0.5                   | 8.4 to 36     | 6             | 20IMX7-12-9              |
| 12             | 0.5                   | 9 to 18       | 6             | 12IMR6-12-2              |
| 12             | 0.5                   | 10 to 36      | 6             | 24IMO6-12-2              |
| 12             | 0.5                   | 10 to 36      | 6             | 24IMP6-12-7              |
| 12             | 0.5                   | 18 to 36      | 6             | 24IMR6-12-2              |
| 12             | 0.5                   | 18 to 36      | 6             | 24IMS6-12-9              |
| 12             | 0.5                   | 18 to 36      | 6             | NVS0.5YH-M6 SMT Design   |
| 12             | 0.5                   | 18 to 72      | 6             | 48IMO6-12-2              |
| 12             | 0.5                   | 18 to 72      | 6             | 48IMP6-12-7              |
| 12             | 0.5                   | 36 to 72      | 6             | 48IMR6-12-2              |
| 12             | 0.5                   | 36 to 75      | 6             | 48IMS6-12-9              |
| 12             | 0.5                   | 36 to 75      | 6             | NVS0.5ZH-M6 SMT Design   |
| 12             | 0.6                   | 16.8 to 75    | 7.2           | 40IMX7-12-9              |
| 12             | 0.6                   | 38 to 75      | 7.2           | RNS0.6ZH-M6 ★ SMT Design |
| 12             | 0.84                  | 9 to 18       | 10            | 12IMR15-12-2             |
| 12             | 0.9                   | 9 to 18       | 10.8          | DFC10E12S12              |
| 12             | 0.9                   | 18 to 36      | 10.8          | DFC10E24S12              |
| 12             | 0.9                   | 36 to 72      | 10.8          | DFC10E48S12              |
| 12             | 1                     | 4.5 to 9      | 12            | IWS512                   |
| 12             | 1                     | 9 to 18       | 12            | IWS1212                  |
| 12             | 1                     | 10 to 36      | 12            | 24IMP12-12-7             |
| 12             | 1                     | 18 to 36      | 12            | IAS012YH                 |
| 12             | 1                     | 18 to 72      | 12            | 48IMP12-12-7             |
| 12             | 1                     | 34 to 75      | 12            | IAS012ZH                 |
| 12             | 1.25                  | 18 to 36      | 15            | 24IMR15-12-2             |
| 12             | 1.25                  | 18 to 36      | 15            | LES015YH                 |
| 12             | 1.25                  | 20 to 60      | 15            | DFC15U48S12              |
| 12             | 1.25                  | 36 to 72      | 15            | 48IMR15-12-2             |
| 12             | 1.25                  | 36 to 75      | 15            | LES015ZH                 |
| 12             | 1.7                   | 9 to 18       | 20.4          | DFA20E12S12              |
| 12             | 1.7                   | 18 to 36      | 20.4          | DFA20E24S12              |
| 12             | 1.7                   | 36 to 72      | 20.4          | DFA20E48S12              |
| 12             | 2                     | 14 to 36      | 24            | 24IMS25-12-9             |
| 12             | 2                     | 32 to 75      | 24            | 48IMS25-12-9-Z ★         |

## IMP12

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

## IMR15

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

## IMS6

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

## IMX7 & IMX7

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

## IMS15

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

## IMS25

1.6 x 2 x 0.32 inch  
40.6 x 50.8 x 8.1 mm

## IMX4

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

## IMX15 & IMY15

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

## IWS

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

## IXP3

1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

## LES

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

## NV

1.3 x 0.8 x 0.33 inch  
33 x 20 x 8.5 mm

## RN

2 x 1 x 0.33 inch  
50.8 x 25.4 x 8.5 mm

## One-SMaRT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a "-M6" suffix to the listed part number for an SMT-mountable version.

## ★ QUICK EVALUATION DELIVERY (QED) PRODUCTS

These latest technology products are readily available at Power-One, or your local distributor, to quickly get power to your prototype system. In addition to fast delivery, Power-One's QED solutions provide industry-leading current and power densities.

# DC/DC Board Mount — Isolated Under 40 Watts — Single Output

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

## BRS & BUS

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

## BWS

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

## DFA20

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

## DFC10

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

## DFC15 & DGP30

1.62 x 2.02 x 0.55 inch  
41.5 x 51.3 x 14.0 mm

## DFC25

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

## DSP1

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

## EWS & IWS

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

## HAS30

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

## IAS & IES

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

## IML

2.00 x 1.00 x 0.41 inch  
50.8 x 25.4 x 10.4 mm

## IMO

2.00 x 1.00 x 0.47 inch  
50.8 x 25.4 x 11.9 mm

## IMP1

1.25 x 0.80 x 0.34 inch  
33.0 x 20.0 x 12.0 mm

## IMP3 & IMR3

1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

## IMP6 & IMR6

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 12 mm

## IMP12 & IMR15

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                  |
|----------------|-----------------------|---------------|---------------|------------------------|
| 12             | 2.1                   | 9 to 18       | 25            | 12IMR25-12-2           |
| 12             | 2.1                   | 10 to 20      | 25            | OWS1212                |
| 12             | 2.1                   | 18 to 36      | 25            | 24IMR25-12-2           |
| 12             | 2.1                   | 18 to 36      | 25            | OBS025YH               |
| 12             | 2.1                   | 20 to 60      | 25            | OWS4812                |
| 12             | 2.1                   | 34 to 75      | 25            | OBS025ZH               |
| 12             | 2.1                   | 36 to 72      | 25            | 48IMR25-12-2           |
| 12             | 2.5                   | 18 to 36      | 30            | HAS030YH-A             |
| 12             | 2.5                   | 36 to 72      | 30            | DFC25E48S12            |
| 12             | 2.5                   | 36 to 72      | 30            | DGP30E48S12            |
| 12             | 2.5                   | 36 to 75      | 30            | HAS030ZH-A             |
| 14             | 0.07                  | 4.5 to 5.5    | 1             | DSP1N5S14              |
| 15             | 0.07                  | 4.5 to 5.5    | 1             | DSP1N5S15              |
| 15             | 0.07                  | 4.5 to 5.5    | 1             | 5IMP1-15-7             |
| 15             | 0.15                  | 4.65 to 5.5   | 2.25          | BRS515                 |
| 15             | 0.15                  | 9 to 18       | 2.25          | 12IMR3-15-2            |
| 15             | 0.2                   | 9 to 18       | 3             | BWS1215                |
| 15             | 0.2                   | 9 to 36       | 3             | 24IXP3-15-7S           |
| 15             | 0.2                   | 10 to 36      | 3             | 24IMP3-15-7S           |
| 15             | 0.2                   | 18 to 36      | 3             | 24IMR3-15-2            |
| 15             | 0.2                   | 18 to 72      | 3             | 48IMP3-15-7S           |
| 15             | 0.2                   | 18 to 72      | 3             | 48IXP3-15-7S           |
| 15             | 0.2                   | 36 to 72      | 3             | 48IMR3-15-2            |
| 15             | 0.24                  | 4.65 to 5.5   | 3.6           | BUS515                 |
| 15             | 0.28                  | 8.4 to 36     | 4.2           | 20IMX4-15-9            |
| 15             | 0.28                  | 9 to 36       | 4.2           | NVS0.3CJ-M6 SMT Design |
| 15             | 0.28                  | 16.8 to 75    | 4.2           | 40IMX4-15-9            |
| 15             | 0.28                  | 18 to 75      | 4.2           | NVS0.3EJ-M6 SMT Design |
| 15             | 0.28                  | 40 to 121     | 4.2           | 70IMX4-15-9            |
| 15             | 0.4                   | 4.5 to 5.5    | 6             | 5IMP6-15-7             |
| 15             | 0.4                   | 8.4 to 36     | 6             | 20IMX7-15-9            |
| 15             | 0.4                   | 9 to 18       | 6             | EWS1215                |
| 15             | 0.4                   | 9 to 18       | 6             | 12IMR6-15-2            |
| 15             | 0.4                   | 10 to 36      | 6             | 24IMO6-15-2            |
| 15             | 0.4                   | 10 to 36      | 6             | 24IMP6-15-7            |
| 15             | 0.4                   | 18 to 36      | 6             | 24IMS6-15-9            |
| 15             | 0.4                   | 18 to 36      | 6             | 24IMR6-15-2            |
| 15             | 0.4                   | 18 to 36      | 6             | NVS0.4YJ-M6 SMT Design |
| 15             | 0.4                   | 18 to 72      | 6             | 48IMO6-15-2            |
| 15             | 0.4                   | 18 to 72      | 6             | 48IMP6-15-7            |
| 15             | 0.4                   | 36 to 72      | 6             | 48IMR6-15-2            |
| 15             | 0.4                   | 36 to 75      | 6             | 48IMS6-15-9            |
| 15             | 0.4                   | 36 to 75      | 6             | NVS0.4ZJ-M6 SMT Design |
| 15             | 0.48                  | 16.8 to 75    | 7.2           | 40IMX7-15-9            |

# DC/DC Board Mount — Isolated Under 40 Watts — Single Output

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

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model            |
|----------------|-----------------------|---------------|---------------|------------------|
| 15             | 0.68                  | 9 to 18       | 10            | 12IMR15-15-2     |
| 15             | 0.7                   | 9 to 18       | 10.5          | DFC10E12S15      |
| 15             | 0.7                   | 18 to 36      | 10.5          | DFC10E24S15      |
| 15             | 0.7                   | 36 to 72      | 10.5          | DFC10E48S15      |
| 15             | 0.75                  | 4.5 to 9      | 11.25         | IWS515           |
| 15             | 0.75                  | 9 to 18       | 11.25         | IWS1215          |
| 15             | 0.8                   | 10 to 36      | 12            | 24IMP12-15-7     |
| 15             | 0.8                   | 18 to 36      | 12            | IAS012YJ         |
| 15             | 0.8                   | 18 to 72      | 12            | 48IMP12-15-7     |
| 15             | 0.8                   | 34 to 75      | 12            | IAS012ZJ         |
| 15             | 1                     | 18 to 36      | 15            | 24IMR15-15-2     |
| 15             | 1                     | 18 to 36      | 15            | LES015YJ         |
| 15             | 1                     | 20 to 60      | 15            | DFC15U48S15      |
| 15             | 1                     | 36 to 72      | 15            | 48IMR15-15-2     |
| 15             | 1                     | 36 to 75      | 15            | LES015ZJ         |
| 15             | 1.3                   | 18 to 36      | 20            | MWS020YJY        |
| 15             | 1.4                   | 9 to 18       | 21            | DFA20E12S15      |
| 15             | 1.4                   | 18 to 36      | 21            | DFA20E24S15      |
| 15             | 1.4                   | 36 to 72      | 21            | DFA20E48S15      |
| 15             | 1.6                   | 14 to 36      | 24            | 24IMS25-15-9-Z ★ |
| 15             | 1.6                   | 32 to 75      | 24            | 48IMS25-15-9     |
| 15             | 1.65                  | 10 to 20      | 24.8          | OWS1215IZ        |
| 15             | 1.7                   | 9 to 18       | 25.5          | 12IMR25-15-2     |
| 15             | 1.7                   | 18 to 36      | 25.5          | 24IMR25-15-2     |
| 15             | 1.7                   | 18 to 36      | 25.5          | OBS025YJ         |
| 15             | 1.7                   | 34 to 75      | 25.5          | OBS025ZJ         |
| 15             | 1.7                   | 36 to 72      | 25.5          | 48IMR25-15-2     |
| 15             | 2                     | 18 to 36      | 30            | HAS030YJ-A       |
| 15             | 2                     | 36 to 72      | 30            | DGP30E48S15      |
| 15             | 2                     | 36 to 75      | 30            | HAS030ZJ-A       |

## One-SMaRT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a "-M6" suffix to the listed part number for an SMT-mountable version.

## ★ QUICK EVALUATION DELIVERY (QED) PRODUCTS

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**IMR25**  
2.75 x 2.75 x 0.90 inch  
70 x 70 x 23 mm

**IMS6**  
1.25 x 0.8 x 0.33 inch  
32 x 20 x 8.5 mm

**IMS7**  
2.00 x 1.00 x 0.42 inch  
50.8 x 25.4 x 10.5 mm

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

**IMS25**  
1.6 x 2 x 0.32 inch  
40.6 x 50.8 x 8.1 mm

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

**IMX7**  
SMT Mounting Available  
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

**IXP3**  
1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

**IWS**  
2.00 X 1.00 X 0.40 inch  
50.8 X 25.4 X 10.2 mm

**LES**  
2.00 x 1.00 x 0.42 inch  
50.8 x 25.4 x 10.7 mm

**MWS**  
2.00 x 1.60 x 0.46 inch  
50.8 x 40.6 x 11.7 mm

**NV**  
1.3 x 0.8 x 0.33 inch  
33 x 20 x 8.5 mm

**OBS**  
2.00 x 2.00 x 0.42 inch  
50.8 x 50.8 x 10.7 mm

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

# DC/DC Board Mount — Isolated Under 40 Watts — Single Output

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

## BRD

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

## BUS

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

## BWD

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

## DSP1

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

## HAD30

Industry Standard  
1/2-Brick  
2.40 x 2.00 x 0.50 inch  
61.0 x 50.8 x 12.7 mm

## IAS

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

## IES

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

## IML

2.00 x 1.00 x 0.41 inch  
50.8 x 25.4 x 10.4 mm

## IMP1

1.25 x 0.80 x 0.34 inch  
33.0 x 20.0 x 12.0 mm

## IMP3

1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

## IMR3

1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

## IMS7

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

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model            |
|----------------|-----------------------|---------------|---------------|------------------|
| 17             | 0.07                  | 4.5 to 5.5    | 1             | DSP1N5S17        |
| 24             | 0.26                  | 8.4 to 36     | 6.2           | 20IMX7-24-24-9   |
| 24             | 0.3                   | 16.8 to 75    | 7.2           | 40IMX7-24-24-9   |
| 24             | 0.5                   | 4.5 to 9      | 12            | IWS524           |
| 24             | 0.5                   | 9 to 18       | 12            | IWS1224          |
| 24             | 0.5                   | 18 to 36      | 12            | IWS2424          |
| 24             | 0.5                   | 36 to 72      | 12            | IWS4824          |
| 48             | 0.08                  | 8.4 to 36     | 4             | 20IMX4-2424-9    |
| 48             | 0.08                  | 16.8 to 75    | 4             | 40IMX4-2424-9    |
| 48             | 0.13                  | 9 to 36       | 6             | 20IMX7-24-24-9   |
| 48             | 0.13                  | 14 to 36      | 6             | 24IMS7-24-24-9   |
| 48             | 0.15                  | 17 to 75      | 7             | 40IMX7-24-24-9   |
| 48             | 0.15                  | 36 to 75      | 7             | 48IMS7-24-24-9   |
| 48             | 0.15                  | 40 to 121     | 7             | 70IMX7-24-24-9   |
| 48             | 0.15                  | 60 to 150     | 7             | 110IMX7-24-24-9  |
| 48             | 0.25                  | 4.5 to 9      | 12            | IWS548           |
| 48             | 0.25                  | 9 to 18       | 12            | IWS1248          |
| 48             | 0.25                  | 18 to 36      | 12            | IWS2448          |
| 48             | 0.25                  | 36 to 72      | 12            | IWS4848          |
| 48             | 0.32                  | 9 to 36       | 15            | 20IMX15-24-24-9  |
| 48             | 0.35                  | 14 to 36      | 17            | 24IMS15-24-24-9  |
| 48             | 0.35                  | 16.8 to 75    | 17            | 40IMX15-24-24-9  |
| 48             | 0.35                  | 36 to 75      | 17            | 48IMS15-24-24-9  |
| 48             | 0.35                  | 50 to 150     | 17            | 110IMY15-24-24-9 |

Check distributor inventory on-line!

IES020ZG-A

Enter partial or full part number above

North America



North America

Outside North America

[www.power-one.com](http://www.power-one.com)

# DC/DC Board Mount — Isolated Under 40 Watts — Dual Output

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

| Output Voltage                                | Output Current (Amps) | Input Voltage | Power (Watts) | Model                    |
|---|-----------------------|---------------|---------------|--------------------------|
| <b>Dual Output Models, 3.3V and 1.8Vout</b>   |                       |               |               |                          |
| 3.3, 1.8                                      | 4, 5                  | 32 to 75      | 22            | 48IMS30-0302-9G ★        |
| <b>Dual Output Models, 5-5.2V and 3.3Vout</b> |                       |               |               |                          |
| +5, +3.3                                      | 6, 7.5                | 34 to 75      | 30            | HAD030ZGE-A              |
| 5.1, 3.3                                      | 1, 1                  | 36 to 75      | 8.4           | 48IML10-0503-3           |
| +5.1, +3.3                                    | 1.35, 1.35            | 9 to 36       | 11.3          | 20IMX15-0503-9R          |
| +5.1, +3.3                                    | 1.5, 1.5              | 16.8 to 75    | 12.6          | 40IMX15-0503-9R          |
| +5.1, +3.3                                    | 1.5, 1.5              | 50 to 150     | 12.6          | 110IMY15-0503-9R         |
| +5.1, +3.3                                    | 1.6, 1.6              | 14 to 36      | 13.5          | 24IMS15-0503-9R          |
| +5.1, +3.3                                    | 1.6, 1.6              | 36 to 75      | 13.5          | 48IMS15-0503-9R          |
| +5.1, +3.3                                    | 4.5, 6                | 32 to 75      | 30            | 48IMS30-0503-9G ★        |
| 5.2, 3.3                                      | 1, 1                  | 38 to 75      | 8.3           | RND02ZGE-M6 ★ SMT Design |
| <b>Dual Output Models, 5V Both Outputs</b>    |                       |               |               |                          |
| +5, -5  | 0.075, 0.075          | 4.5 to 5.5    | 0.75          | DSP1N5D5                 |
| +5, -5  | 0.1, 0.1              | 4.5 to 5.5    | 1             | 5IMP1-0505-7             |
| +5, -5  | 0.1, 0.1              | 4.65 to 5.5   | 1             | BRD505                   |
| +5, -5  | 0.2, 0.2              | 9 to 18       | 2             | 12IMR3-0505-2            |
| +5, -5  | 0.25, 0.25            | 9 to 18       | 2.5           | BWD1205                  |
| +5, -5  | 0.25, 0.25            | 9 to 36       | 2.5           | 24IXP3-0505-7S           |
| 5, 5  | 0.25, 0.25            | 9 to 36       | 2.5           | 24IXP3-05-05-7           |
| +5, -5  | 0.25, 0.25            | 10 to 36      | 2.5           | 24IMP3-0505-7S           |
| 5, 5  | 0.25, 0.25            | 10 to 36      | 2.5           | 24IMP3-05-05-7           |
| +5, -5  | 0.25, 0.25            | 18 to 36      | 2.5           | BWD2405                  |
| +5, -5  | 0.25, 0.25            | 18 to 36      | 2.5           | 24IMR3-0505-2            |
| +5, -5  | 0.25, 0.25            | 18 to 72      | 2.5           | 48IMP3-0505-7S           |
| 5, 5  | 0.25, 0.25            | 18 to 72      | 2.5           | 48IMP3-05-05-7           |
| 5, 5  | 0.25, 0.25            | 18 to 72      | 2.5           | 48IXP3-05-05-7           |
| +5, -5  | 0.25, 0.25            | 18 to 72      | 2.5           | 48IXP3-0505-7S           |
| +5, -5  | 0.25, 0.25            | 36 to 72      | 2.5           | BWD4805                  |
| +5, -5  | 0.25, 0.25            | 36 to 72      | 2.5           | 48IMR3-0505-2            |
| +5, -5  | 0.35, 0.35            | 8.4 to 36     | 3.5           | 20IMX4-0505-9            |
| +5, -5  | 0.35, 0.35            | 9 to 36       | 3.5           | NVD0.7CGG-M6 SMT Design  |
| +5, -5  | 0.35, 0.35            | 16.8 to 75    | 3.5           | 40IMX4-0505-9            |
| +5, -5  | 0.35, 0.35            | 18 to 75      | 3.5           | NVD0.7EGG-M6 SMT Design  |
| +5, -5  | 0.35, 0.35            | 40 to 121     | 3.5           | 70IMX4-0505-9            |

## One-SMaT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a "-M6" suffix to the listed part number for an SMT-mountable version.

## ★ QUICK EVALUATION DELIVERY (QED) PRODUCTS

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

**IMS25**  
1.6 x 2.00 x 0.32 inch  
40.6 x 50.8 x 8.1 mm

**IMS30**  
2.00 x 2.00 x 0.37 inch  
50.8 x 50.8 x 9.4 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

**IXP3**  
1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

**IWS**  
2.00 X 1.00 X 0.40 inch  
50.8 X 25.4 X 10.2 mm

**NV**  
1.3 x 0.8 x 0.33 inch  
33 x 20 x 8.5 mm

**RN**  
2 x 1 x 0.33 inch  
50.8 x 25.4 x 8.5 mm

# DC/DC Board Mount — Isolated Under 40 Watts — Dual Output

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

**BRD**  
1.25 x 0.80 x 0.40 inch  
31.8 x 20.3 x 10.2 mm

**BWD**  
1.25 x 0.80 x 0.52 inch  
31.8 x 20.3 x 13.2 mm

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

**DFC10**  
1.02 x 2.02 x 0.42 inch  
25.9 x 51.3 x 10.7 mm

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

**IAD**  
2.00 x 1.00 x 0.42 inch  
50.8 x 25.4 x 10.5 mm

**IMO**  
2.00 x 1.00 x 0.47 inch  
50.8 x 25.4 x 11.9 mm

**IMP1**  
1.25 x 0.80 x 0.34 inch  
32.0 x 20.0 x 8.5 mm

**IMP3**  
1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

**IMP6**  
2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

**IMP12**  
2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

**IMR3**  
1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

**IMR6**  
2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                  |
|----------------|-----------------------|---------------|---------------|------------------------|
| +5, -5         | 0.5, 0.5              | 4.5 to 5.5    | 5             | 5IMP6-0505-7           |
| +5, -5         | 0.5, 0.5              | 9 to 18       | 5             | 12IMR6-0505-2          |
| +5, -5         | 0.5, 0.5              | 10 to 36      | 5             | 24IMO6-0505-2          |
| +5, -5         | 0.5, 0.5              | 10 to 36      | 5             | 24IMP6-0505-7          |
| +5, -5         | 0.5, 0.5              | 18 to 36      | 5             | 24IMR6-0505-2          |
| +5, -5         | 0.5, 0.5              | 18 to 36      | 5             | 24IMS6-0505-9          |
| +5, -5         | 0.5, 0.5              | 18 to 36      | 5             | NVD01YGG-M6 SMT Design |
| +5, -5         | 0.5, 0.5              | 18 to 72      | 5             | 48IMO6-0505-2          |
| +5, -5         | 0.5, 0.5              | 18 to 72      | 5             | 48IMP6-0505-7          |
| +5, -5         | 0.5, 0.5              | 36 to 72      | 5             | 48IMR6-0505-2          |
| +5, -5         | 0.5, 0.5              | 36 to 75      | 5             | 48IMS6-0505-9          |
| +5, -5         | 0.5, 0.5              | 36 to 75      | 5             | NVD01ZGG-M6 SMT Design |
| 5, 5           | 0.7, 0.7              | 8.4 to 36     | 7             | 20IMX7-05-05-9         |
| 5, 5           | 0.7, 0.7              | 14 to 36      | 7             | 24IMS7-05-05-9         |
| 5, 5           | 0.7, 0.7              | 16.8 to 75    | 7             | 40IMX7-05-05-9         |
| 5, 5           | 0.7, 0.7              | 36 to 75      | 7             | 48IMS7-05-05-9         |
| 5, 5           | 0.7, 0.7              | 40 to 121     | 7             | 70IMX7-05-05-9         |
| 5, 5           | 0.7, 0.7              | 60 to 150     | 7             | 110IMX7-05-05-9        |
| +5, -5         | 0.8, 0.8              | 18 to 72      | 8             | DFC10U48D5             |
| +5, -5         | 0.85, 0.85            | 9 to 36       | 8.5           | DFC10U24D5             |
| +5, -5         | 1, 1                  | 4.65 to 5.5   | 10            | IWD505                 |
| +5, -5         | 1, 1                  | 10.90 to 13.2 | 10            | IWD1205                |
| +5, -5         | 1, 1                  | 34 to 75      | 10            | IAD010ZGG              |
| +5, -5         | 1.2, 1.2              | 10 to 36      | 12            | 24IMP12-0505-7         |
| +5, -5         | 1.2, 1.2              | 18 to 72      | 12            | 48IMP12-0505-7         |
| 5, 5           | 1.3, 1.3              | 8.4 to 36     | 13            | 20IMX15-05-05-9        |
| 5, 5           | 1.4, 1.4              | 14 to 36      | 14            | 24IMS15-05-05-9        |
| 5, 5           | 1.4, 1.4              | 16.8 to 75    | 14            | 40IMX15-05-05-9        |
| 5, 5           | 1.4, 1.4              | 36 to 75      | 14            | 48IMS15-05-05-9        |
| +5, -5         | 1.7, 1.7              | 9 to 18       | 17            | DFA20E12D5             |
| +5, -5         | 1.7, 1.7              | 18 to 36      | 17            | DFA20E24D5             |
| +5, -5         | 1.7, 1.7              | 36 to 72      | 17            | DFA20E48D5             |
| +5, -5         | 4.7, 0.3              | 9 to 18       | 25            | 12IMR25-0505-2         |
| +5, -5         | 4.7, 0.3              | 18 to 36      | 25            | 24IMR25-0505-2         |
| +5, -5         | 2.5, 2.5              | 34 to 75      | 25            | OBD025ZGG              |
| +5, -5         | 4.7, 0.3              | 36 to 72      | 25            | 48IMR25-0505-2         |
| 5, 5           | 2.7, 2.7              | 9 to 36       | 30.3          | 20IMX35-05-05-9        |
| 5, 5           | 2.8, 2.8              | 18 to 75      | 31.9          | 40IMX35-05-05-9        |

# DC/DC Board Mount — Isolated Under 40 Watts — Dual Output

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

| Output Voltage                                | Output Current (Amps) | Input Voltage | Power (Watts) | Model                   |
|---|-----------------------|---------------|---------------|-------------------------|
| <b>Dual Output Models, 7Vout Both Outputs</b> |                       |               |               |                         |
| +7, -7  | 0.07, 0.07            | 4.5 to 5.5    | 1             | DSP1N5D7                |
| <b>Dual Output Models, 12V Both Outputs</b>   |                       |               |               |                         |
| +12, -12                                      | 0.04, 0.04            | 4.5 to 5.5    | 1             | DSP1N5D12               |
| +12, -12                                      | 0.042, 0.042          | 4.5 to 5.5    | 1             | 5IMP1-1212-7            |
| +12, -12                                      | 0.09, 0.09            | 4.65 to 5.5   | 2             | BRD512                  |
| +12, -12                                      | 0.1, 0.1              | 9 to 18       | 2.4           | 12IMR3-1212-2           |
| +12, -12                                      | 0.125, 0.125          | 4.5 to 9      | 3             | BWD512                  |
| +12, -12                                      | 0.125, 0.125          | 9 to 18       | 3             | BWD1212                 |
| 12, 12  | 0.125, 0.125          | 9 to 36       | 3             | 24IXP3-12-12-7          |
| +12, -12                                      | 0.125, 0.125          | 9 to 36       | 3             | 24IXP3-1212-7S          |
| +12, -12                                      | 0.125, 0.125          | 10 to 36      | 3             | 24IMP3-1212-7S          |
| 12, 12  | 0.125, 0.125          | 10 to 36      | 3             | 24IMP3-12-12-7          |
| +12, -12                                      | 0.125, 0.125          | 18 to 36      | 3             | BWD2412                 |
| +12, -12                                      | 0.125, 0.125          | 18 to 36      | 3             | 24IMR3-1212-2           |
| +12, -12                                      | 0.125, 0.125          | 18 to 72      | 3             | 48IMP3-1212-7S          |
| +12, -12                                      | 0.125, 0.125          | 18 to 72      | 3             | 48IXP3-1212-7S          |
| 12, 12  | 0.125, 0.125          | 18 to 72      | 3             | 48IMP3-12-12-7          |
| 12, 12  | 0.125, 0.125          | 18 to 72      | 3             | 48IXP3-12-12-7          |
| +12, -12                                      | 0.125, 0.125          | 36 to 72      | 3             | 48IMR3-1212-2           |
| +12, -12                                      | 0.125, 0.125          | 36 to 72      | 3             | BWD4812                 |
| +12, -12                                      | 0.17, 0.17            | 8.4 to 36     | 4.1           | 20IMX4-1212-9           |
| +12, -12                                      | 0.17, 0.17            | 9 to 36       | 4.1           | NVD0.3CHH-M6 SMT Design |
| +12, -12                                      | 0.17, 0.17            | 16.8 to 75    | 4.1           | 40IMX4-1212-9           |
| +12, -12                                      | 0.17, 0.17            | 18 to 75      | 4.1           | NVD0.3EHH-M6 SMT Design |
| +12, -12                                      | 0.25, 0.25            | 4.5 to 5.5    | 6             | 5IMP6-1212-7            |
| +12, -12                                      | 0.25, 0.25            | 9 to 18       | 6             | 12IMR6-1212-2           |
| +12, -12                                      | 0.25, 0.25            | 10 to 36      | 6             | 24IMO6-1212-2           |

**IMR25**  
2.75 x 2.75 x 0.90 inch  
70 x 70 x 23 mm

**IMS6**  
1.25 x 0.8 x 0.33 inch  
32 x 20 x 8.5 mm

**IMS7**  
2.00 x 1.00 x 0.42 inch  
50.8 x 25.4 x 10.5 mm

**IMS15**  
2.00 x 1.50 x 0.42 inch  
50.8 x 38.1 x 10.7 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

**IMX35**  
3.00 x 2.50 x 0.41 inch  
76.2 x 63.5 x 10.4 mm

**IWD**  
2.00 x 1.00 x 0.40 inch  
50.8 x 25.4 x 10.2 mm

**IXP3**  
1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

**NV**  
1.3 x 0.8 x 0.33 inch  
33 x 20 x 8.5 mm

**OBD**  
2.00 x 2.00 x 0.42 inch  
50.8 x 50.8 x 10.7 mm

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## One-SMarT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a "-M6" suffix to the listed part number for an SMT-mountable version.

# DC/DC Board Mount — Isolated Under 40 Watts — Dual Output

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

## BRD

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

## BWD

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

## DFA20

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

## DFC10

1.02 x 2.02 x 0.42 inch  
25.9 x 51.3 x 10.7 mm

## DFC15

1.62 x 2.02 x 0.55 inch  
41.2 x 51.3 x 14.0 mm

## DSP1

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

## IAD

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

## IML

2.00 x 1.00 x 0.41 inch  
50.8 x 25.4 x 10.4 mm

## IMO

2.00 x 1.00 x 0.47 inch  
50.8 x 25.4 x 11.9 mm

## IMP1

1.25 x 0.80 x 0.34 inch  
32.0 x 20.0 x 8.5 mm

## IMP3

1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

## IMP6

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

## IMP12

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

## IMR3

1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

## IMR6

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

| Output Voltage  | Output Current (Amps) | Input Voltage | Power (Watts) | Model                     |
|---|-----------------------|---------------|---------------|---------------------------|
| <b>Dual Output Models, 12V Both Outputs (Continued)</b> |                       |               |               |                           |
| +12, -12  | 0.25, 0.25            | 10 to 36      | 6             | 24IMP6-1212-7             |
| +12, -12  | 0.25, 0.25            | 18 to 36      | 6             | 24IMR6-1212-2             |
| +12, -12  | 0.25, 0.25            | 18 to 36      | 6             | 24IMS6-1212-9             |
| +12, -12  | 0.25, 0.25            | 18 to 36      | 6             | NVD0.5YHH-M6 SMT Design   |
| +12, -12  | 0.25, 0.25            | 18 to 72      | 6             | 48IM06-1212-2             |
| +12, -12  | 0.25, 0.25            | 18 to 72      | 6             | 48IMP6-1212-7             |
| +12, -12  | 0.25, 0.25            | 36 to 72      | 6             | 48IMR6-1212-2             |
| +12, -12  | 0.25, 0.25            | 36 to 75      | 6             | 48IMS6-1212-9             |
| +12, -12  | 0.25, 0.25            | 36 to 75      | 6             | NVD0.5ZHH-M6 SMT Design   |
| 12, 12  | 0.3, 0.3              | 8.4 to 36     | 7.2           | 20IMX7-12-12-9            |
| 12, 12  | 0.3, 0.3              | 14 to 36      | 7.2           | 24IMS7-12-12-9            |
| 12, 12  | 0.3, 0.3              | 16.8 to 75    | 7.2           | 40IMX7-12-12-9            |
| 12, 12  | 0.3, 0.3              | 36 to 75      | 7.2           | 48IMS7-12-12-9            |
| 12, 12  | 0.3, 0.3              | 40 to 121     | 7.2           | 70IMX7-12-12-9            |
| 12, 12  | 0.3, 0.3              | 60 to 150     | 7.2           | 110IMX7-12-12-9           |
| +12, -12  | 0.4, 0.4              | 9 to 36       | 9.6           | DFC10U24D12               |
| +12, -12  | 0.42, 0.42            | 9 to 18       | 10            | 12IMR15-1212-2            |
| +12, -12  | 0.42, 0.42            | 18 to 72      | 10            | DFC10U48D12               |
| +12, -12  | 0.42, 0.42            | 36 to 75      | 10            | RND0.8ZHH-M6 ★ SMT Design |
| 12, 12  | 0.45, 0.45            | 18 to 36      | 10.8          | 24IML10-12-12-3           |
| 12, 12  | 0.45, 0.45            | 36 to 75      | 10.8          | 48IML10-12-12-3           |
| +12, -12  | 0.5, 0.5              | 4.65 to 5.5   | 12            | IWD512                    |
| +12, -12  | 0.5, 0.5              | 10 to 36      | 12            | 24IMP12-1212-7            |
| +12, -12  | 0.5, 0.5              | 10.9 to 13.2  | 12            | IWD1212                   |
| +12, -12  | 0.5, 0.5              | 18 to 36      | 12            | IAD012YHH                 |
| +12, -12  | 0.5, 0.5              | 18 to 72      | 12            | 48IMP12-1212-7            |
| +12, -12  | 0.5, 0.5              | 34 to 75      | 12            | IAD012ZHH                 |
| +12, -12  | 0.625, 0.625          | 18 to 36      | 15            | 24IMR15-1212-2            |
| +12, -12  | 0.625, 0.625          | 20 to 72      | 15            | DFC15U48D12               |
| +12, -12  | 0.625, 0.625          | 36 to 72      | 15            | 48IMR15-1212-2            |
| 12, 12  | 0.65, 0.65            | 8.4 to 36     | 15.6          | 20IMX15-12-12-9           |
| 12, 12  | 0.7, 0.7              | 14 to 36      | 16.8          | 24IMS15-12-12-9           |
| 12, 12  | 0.7, 0.7              | 16.8 to 75    | 16.8          | 40IMX15-12-12-9           |
| 12, 12  | 0.7, 0.7              | 36 to 75      | 16.8          | 48IMS15-12-12-9           |
| 12, 12  | 0.7, 0.7              | 50 to 150     | 16.8          | 110IMY15-12-12-9          |
| +12, -12  | 0.85, 0.85            | 9 to 18       | 20.4          | DFA20E12D12               |
| +12, -12  | 0.85, 0.85            | 18 to 36      | 20.4          | DFA20E24D12               |
| +12, -12  | 0.85, 0.85            | 36 to 72      | 20.4          | DFA20E48D12               |

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# DC/DC Board Mount — Isolated Under 40 Watts — Dual Output

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

| Output Voltage  | Output Current (Amps) | Input Voltage | Power (Watts) | Model                   |
|---|-----------------------|---------------|---------------|-------------------------|
| <b>Dual Output Models, 12V Both Outputs (Continued)</b> |                       |               |               |                         |
| +12, -12  | 1, 1                  | 34 to 75      | 24            | OBD025ZHH               |
| +12, -12  | 1.8, 0.3              | 9 to 18       | 25            | 12IMR25-1212-2          |
| +12, -12  | 1.8, 0.3              | 18 to 36      | 25            | 24IMR25-1212-2          |
| +12, -12  | 1.8, 0.3              | 36 to 72      | 25            | 48IMR25-1212-2          |
| 12, 12  | 1.3, 1.3              | 9 to 36       | 31            | 20IMX35-12-12-9         |
| 12, 12  | 1.4, 1.4              | 18 to 75      | 33            | 40IMX35-12-12-9         |
| <b>Dual Output Models, 14V Both Outputs</b>             |                       |               |               |                         |
| +14, -14  | 0.035, 0.035          | 4.5 to 5.5    | 1             | DSP1N5D14               |
| <b>Dual Output Models, 15V Both Outputs</b>             |                       |               |               |                         |
| +15, -15  | 0.033, 0.033          | 4.5 to 5.5    | 1             | DSP1N5D15               |
| +15, -15  | 0.033, 0.033          | 4.5 to 5.5    | 1             | 5IMP1-1515-7            |
| +15, -15  | 0.07, 0.07            | 4.65 to 5.5   | 2             | BRD515                  |
| +15, -15  | 0.08, 0.08            | 9 to 18       | 2.4           | 12IMR3-1515-2           |
| +15, -15  | 0.1, 0.1              | 4.5 to 9      | 3             | BWD515                  |
| +15, -15  | 0.1, 0.1              | 9 to 18       | 3             | BWD1215                 |
| +15, -15  | 0.1, 0.1              | 9 to 36       | 3             | 24IXP3-1515-7S          |
| 15, 15  | 0.1, 0.1              | 9 to 36       | 3             | 24IXP3-15-15-7          |
| +15, -15  | 0.1, 0.1              | 10 to 36      | 3             | 24IMP3-1515-7S          |
| 15, 15  | 0.1, 0.1              | 10 to 36      | 3             | 24IMP3-15-15-7          |
| +15, -15  | 0.1, 0.1              | 18 to 36      | 3             | BWD2415                 |
| +15, -15  | 0.1, 0.1              | 18 to 36      | 3             | 24IMR3-1515-2           |
| +15, -15  | 0.1, 0.1              | 18 to 72      | 3             | 48IMP3-1515-7S          |
| 15, 15  | 0.1, 0.1              | 18 to 72      | 3             | 48IMP3-15-15-7          |
| +15, -15  | 0.1, 0.1              | 18 to 72      | 3             | 48IXP3-1515-7S          |
| 15, 15  | 0.1, 0.1              | 18 to 72      | 3             | 48IXP3-15-15-7          |
| +15, -15  | 0.1, 0.1              | 36 to 72      | 3             | BWD4815                 |
| +15, -15  | 0.1, 0.1              | 36 to 72      | 3             | 48IMR3-1515-2           |
| +15, -15  | 0.14, 0.14            | 8.4 to 36     | 4.2           | 20IMX4-1515-9           |
| +15, -15  | 0.14, 0.14            | 9 to 36       | 4.2           | NVD0.3CJJ-M6 SMT Design |
| +15, -15  | 0.14, 0.14            | 16.8 to 75    | 4.2           | 40IMX4-1515-9           |
| +15, -15  | 0.14, 0.14            | 18 to 75      | 4.2           | NVD0.3EJJ-M6 SMT Design |

**IMR15**  
2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

**IMR25**  
2.75 x 2.75 x 0.90 inch  
70 x 70 x 23 mm

**IMS6**  
1.25 x 0.8 x 0.33 inch  
32 x 20 x 8.5 mm

**IMS7**  
2.00 x 1.00 x 0.42 inch  
50.8 x 25.4 x 10.7 mm

**IMS15**  
2.00 x 1.50 x 0.42 inch  
50.8 x 38.1 x 10.7 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 10.7 mm

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

**IMX35**  
3.00 x 2.50 x 0.41 inch  
76.2 x 63.5 x 10.4 mm

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

**IWD**  
2.00 x 1.00 x 0.40 inch  
50.8 x 25.4 x 10.2 mm

**IXP3**  
1.25 x 0.80 x 0.47 inch  
31.8 x 20.3 x 12.0 mm

**NV**  
1.3 x 0.8 x 0.33 inch  
33 x 20 x 8.5 mm

**OBD**  
2.00 x 2.00 x 0.42 inch  
50.8 x 50.8 x 10.7 mm

**RN**  
2 x 1 x 0.33 inch  
50.8 x 25.4 x 8.5 mm

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## One-SMarT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a "-M6" suffix to the listed part number for an SMT-mountable version.

# DC/DC Board Mount — Isolated Under 40 Watts — Dual Output

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

## DFA20

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

## DFC10

1.02 x 2.02 x 0.42 inch  
25.9 x 51.3 x 10.7 mm

## DFC15

1.62 x 2.02 x 0.55 inch  
41.2 x 51.3 x 14.0 mm

## DFC25

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

## DSP1

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

## IAD

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

## IML

2.00 x 1.00 x 0.41 inch  
50.8 x 25.4 x 10.4 mm

## IMO

2.00 x 1.00 x 0.47 inch  
50.8 x 25.4 x 11.9 mm

## IMP6

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

## IMP12

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

## IMR6

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

## IMR15

2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

## IMR25

2.75 x 2.75 x 0.90 inch  
70 x 70 x 23 mm

| Output Voltage                              | Output Current (Amps) | Input Voltage | Power (Watts) | Model                   |
|---|-----------------------|---------------|---------------|-------------------------|
| <b>Dual Output Models, 15V Both Outputs</b> |                       |               |               |                         |
| +15, -15                                    | 0.2, 0.2              | 4.5 to 5.5    | 6             | 5IMP6-1515-7            |
| +15, -15                                    | 0.2, 0.2              | 9 to 18       | 6             | 12IMR6-1515-2           |
| +15, -15                                    | 0.2, 0.2              | 10 to 36      | 6             | 24IM06-1515-2           |
| +15, -15                                    | 0.2, 0.2              | 10 to 36      | 6             | 24IMP6-1515-7           |
| +15, -15                                    | 0.2, 0.2              | 18 to 36      | 6             | NVD0.4YJJ-M6 SMT Design |
| +15, -15                                    | 0.2, 0.2              | 18 to 36      | 6             | 24IMR6-1515-2           |
| +15, -15                                    | 0.2, 0.2              | 18 to 36      | 6             | 24IMS6-1515-9           |
| +15, -15                                    | 0.2, 0.2              | 18 to 72      | 6             | 48IM06-1515-2           |
| +15, -15                                    | 0.2, 0.2              | 18 to 72      | 6             | 48IMP6-1515-7           |
| +15, -15                                    | 0.2, 0.2              | 36 to 72      | 6             | 48IMR6-1515-2           |
| +15, -15                                    | 0.2, 0.2              | 36 to 75      | 6             | NVD0.4ZJJ-M6 SMT Design |
| +15, -15                                    | 0.2, 0.2              | 36 to 75      | 6             | 48IMS6-1515-9           |
| 15, 15                                      | 0.24, 0.24            | 8.4 to 36     | 7.2           | 20IMX7-15-15-9          |
| 15, 15                                      | 0.24, 0.24            | 14 to 36      | 7.2           | 24IMS7-15-15-9          |
| 15, 15                                      | 0.24, 0.24            | 16.8 to 75    | 7.2           | 40IMX7-15-15-9          |
| 15, 15                                      | 0.24, 0.24            | 36 to 75      | 7.2           | 48IMS7-15-15-9          |
| 15, 15                                      | 0.24, 0.24            | 40 to 121     | 7.2           | 70IMX7-15-15-9          |
| 15, 15                                      | 0.24, 0.24            | 60 to 150     | 7.2           | 110IMX7-15-15-9         |
| +15, -15                                    | 0.32, 0.32            | 9 to 36       | 9.6           | DFC10U24D15             |
| +15, -15                                    | 0.33, 0.33            | 18 to 72      | 9.9           | DFC10U48D15             |
| +15, -15                                    | 0.334, 0.334          | 9 to 18       | 10            | 12IMR15-1515-2          |
| 15, 15                                      | 0.35, 0.35            | 18 to 36      | 10.5          | 24IML10-15-15-3         |
| 15, 15                                      | 0.35, 0.35            | 36 to 75      | 10.5          | 48IML10-15-15-3         |
| +15, -15                                    | 0.38, 0.38            | 4.65 to 5.5   | 11.3          | IWD515                  |
| +15, -15                                    | 0.4, 0.4              | 10 to 36      | 12            | 24IMP12-1515-7          |
| +15, -15                                    | 0.4, 0.4              | 18 to 36      | 12            | IAD012YJJ               |
| +15, -15                                    | 0.4, 0.4              | 18 to 72      | 12            | 48IMP12-1515-7          |
| +15, -15                                    | 0.4, 0.4              | 34 to 75      | 12            | IAD012ZJJ               |
| 15, 15                                      | 0.5, 0.5              | 8.4 to 36     | 15            | 20IMX15-15-15-9         |
| +15, -15                                    | 0.5, 0.5              | 18 to 36      | 15            | 24IMR15-1515-2          |
| +15, -15                                    | 0.5, 0.5              | 20 to 72      | 15            | DFC15U48D15             |
| +15, -15                                    | 0.5, 0.5              | 36 to 72      | 15            | 48IMR15-1515-2          |
| 15, 15                                      | 0.56, 0.56            | 14 to 36      | 15            | 24IMS15-15-15-9         |
| 15, 15                                      | 0.56, 0.56            | 16.8 to 75    | 15            | 40IMX15-15-15-9         |
| 15, 15                                      | 0.56, 0.56            | 36 to 75      | 15            | 48IMS15-15-15-9         |
| 15, 15                                      | 0.56, 0.56            | 50 to 150     | 15            | 110IMY15-15-15-9        |
| +15, -15                                    | 0.7, 0.7              | 9 to 18       | 20            | DFA20E12D15             |
| +15, -15                                    | 0.7, 0.7              | 18 to 36      | 20            | DFA20E24D15             |
| +15, -15                                    | 0.7, 0.7              | 36 to 72      | 20            | DFA20E48D15             |

# DC/DC Board Mount — Isolated Under 40 Watts — Dual/Triple Output

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

| Output Voltage  | Output Current (Amps) | Input Voltage | Power (Watts) | Model                   |
|---|-----------------------|---------------|---------------|-------------------------|
| <b>Dual Output Models, 15Vout (Continued)</b>         |                       |               |               |                         |
| +15, -15  | 1.4, 0.3              | 9 to 18       | 25            | 12IMR25-1515-2          |
| +15, -15  | 1.4, 0.3              | 18 to 36      | 25            | 24IMR25-1515-2          |
| +15, -15  | 0.85, 0.85            | 18 to 36      | 25            | OBD025YJJ               |
| +15, -15  | 0.85, 0.85            | 34 to 75      | 25            | OBD025ZJJ               |
| +15, -15  | 1.4, 0.3              | 36 to 72      | 25            | 48IMR25-1515-2          |
| 15, 15  | 1.1, 1.1              | 9 to 36       | 33            | 20IMX35-15-15-9         |
| 15, 15  | 1.2, 1.2              | 18 to 75      | 35            | 40IMX35-15-15-9         |
| +15, -15  | 2, 0.5                | 9 to 18       | 38            | 12IMR40-1515-2          |
| +15, -15  | 2, 0.5                | 18 to 36      | 38            | 24IMR40-1515-2          |
| +15, -15  | 2, 0.5                | 36 to 72      | 38            | 48IMR40-1515-2          |
| <b>Dual Output Models, 17V Both Outputs</b>           |                       |               |               |                         |
| +17, -17  | 0.03, 0.03            | 4.5 to 5.5    | 1             | DSP1N5D17               |
| <b>Dual Output Models, 24V Both Outputs</b>           |                       |               |               |                         |
| +24, -24  | 0.08, 0.08            | 9 to 36       | 3.8           | NVD0.2CKK-M6 SMT Design |
| +24, -24  | 0.08, 0.08            | 18 to 75      | 3.8           | NVD0.2EKK-M6 SMT Design |
| +24, -24  | 0.08, 0.08            | 8.4 to 36     | 4             | 20IMX4-2424-9           |
| +24, -24  | 0.08, 0.08            | 16.8 to 75    | 4             | 40IMX4-2424-9           |
| 24, 24  | 0.15, 0.15            | 8.4 to 36     | 7             | 20IMX7-24-24-9          |
| 24, 24  | 0.15, 0.15            | 14 to 36      | 7             | 24IMS7-24-24-9          |
| 24, 24  | 0.15, 0.15            | 16.8 to 75    | 7             | 40IMX7-24-24-9          |
| 24, 24  | 0.15, 0.15            | 36 to 75      | 7             | 48IMS7-24-24-9          |
| 24, 24  | 0.15, 0.15            | 40 to 121     | 7             | 70IMX7-24-24-9          |
| 24, 24  | 0.15, 0.15            | 60 to 150     | 7             | 110IMX7-24-24-9         |
| 24, 24  | 0.32, 0.32            | 8.4 to 36     | 15            | 20IMX15-24-24-9         |
| 24, 24  | 0.35, 0.35            | 14 to 36      | 15            | 24IMS15-24-24-9         |
| 24, 24  | 0.35, 0.35            | 16.8 to 75    | 15            | 40IMX15-24-24-9         |
| 24, 24  | 0.35, 0.35            | 36 to 75      | 15            | 48IMS15-24-24-9         |
| 24, 24  | 0.35, 0.35            | 50 to 150     | 15            | 110IMY15-24-24-9        |
| <b>Triple Output Models, 3.3V and Two 5V Outputs</b>  |                       |               |               |                         |
| 3.3, 5, 5   | 4.5, 1.25, 1.25       | 18 to 75      | 28.9          | 40IMX35-03D05-9         |
| <b>Triple Output Models, 3.3V and Two 12V Outputs</b> |                       |               |               |                         |
| 3.3, +12, -12   | 3.5, 0.35, 0.35       | 34 to 75      | 25            | OET020ZEHH-A            |
| 3.3, +12, -12   | 5, 1, 1               | 36 to 72      | 25            | DFC25E48T3.3/12         |
| 3.3, 12, 12   | 4.5, 0.7, 0.7         | 18 to 75      | 31.7          | 40IMX35-03D12-9         |
| <b>Triple Output Models, 3.3V and Two 15V Outputs</b> |                       |               |               |                         |
| 3.3, +15, -15   | 3.5, 0.28, 0.28       | 34 to 75      | 20            | OET020ZEJJ-A            |
| 3.3, 15, 15   | 4.5, 0.6, 0.6         | 18 to 75      | 32.9          | 40IMX35-03D15-9         |
| <b>Triple Output Models, 5.1V and Two 5V Outputs</b>  |                       |               |               |                         |
| 5.1, 5, 5   | 3.5, 1.4, 1.4         | 18 to 75      | 32            | 40IMX35-05D05-9         |

**IMR40**  
2.75 x 2.75 x 0.90 inch  
70 x 70 x 23 mm

**IMS6**  
1.25 x 0.8 x 0.33 inch  
32 x 20 x 8.5 mm

**IMS7**  
2.00 x 1.00 x 0.42 inch  
50.8 x 25.4 x 10.7 mm

**IMS15**  
2.00 x 1.50 x 0.42 inch  
50.8 x 38.1 x 10.7 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 10.7 mm

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

**IMX35**  
3.00 x 2.50 x 0.41 inch  
76.2 x 63.5 x 10.4 mm

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

**IWD**  
2.00 x 1.00 x 0.40 inch  
50.8 x 25.4 x 10.2 mm

**NV**  
1.3 x 0.8 x 0.33 inch  
33 x 20 x 8.5 mm

**OBD**  
2.00 x 2.00 x 0.42 inch  
50.8 x 50.8 x 10.7 mm

**OET**  
2.00 x 2.00 x 0.38 inch  
50.8 x 50.8 x 9.5 mm

## One-SMarT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

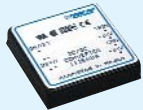
SMT Optional- Add a "-M6" suffix to the listed part number for an SMT-mountable version.

# DC/DC Board Mount — Isolated Under 40 Watts — Triple Output

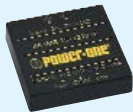
Unsigned output voltages are isolated and can be used as either + or - polarities.



**DFC25**  
3.00 x 2.50 x 0.43 inch  
76.2 x 63.5 x 11.0 mm



**DGP20**  
2.02 x 2.02 x 0.45 inch  
51.3 x 51.3 x 11.4 mm



**IMP12 & IMR15  
(IMR15 Shown)**  
2.00 x 2.00 x 0.47 inch  
50.8 x 50.8 x 11.9 mm

| Output Voltage  | Output Current (Amps) | Input Voltage | Power (Watts) | Model            |
|---|-----------------------|---------------|---------------|------------------|
| <b>Triple Output Models, 5V and Two 12V Outputs</b>         |                       |               |               |                  |
| +5, +12, -12  | 1.5, 0.12, 0.12       | 9 to 18       | 10            | 12IMR15-051212-2 |
| 5, +12, -12   | 1.5, 0.2, 0.2         | 10 to 36      | 12            | 24IMP12-051212-7 |
| 5, +12, -12   | 1.5, 0.2, 0.2         | 18 to 72      | 12            | 48IMP12-051212-7 |
| +5, +12, -12  | 2, 0.2, 0.2           | 18 to 36      | 15            | 24IMR15-051212-2 |
| +5, +12, -12  | 2, 0.2, 0.2           | 36 to 72      | 15            | 48IMR15-051212-2 |
| +5, +12, -12  | 3.5, 0.31, 0.31       | 18 to 36      | 25            | OET025YGHH-A     |
| +5, +12, -12  | 3.5, 0.31, 0.31       | 34 to 75      | 25            | OET025ZGHH-A     |
| +5, +12, -12  | 3.5, 0.31, 0.31       | 10 to 20      | 25            | OWT1205-12       |
| +5, +12, -12  | 3.5, 0.31, 0.31       | 18 to 36      | 25            | OWT2405-12       |
| +5, +12, -12  | 3.5, 0.31, 0.311      | 20 to 60      | 25            | OWT4805-12S1     |
| +5, +12, -12  | 3.5, 0.31, 0.31       | 36 to 72      | 25            | OWT4805-12       |
| 5, +12, -12   | 2.5, 0.31, 0.31       | 9 to 18       | 20            | DGP20E12T5/12    |
| 5, +12, -12   | 2.5, 0.31, 0.31       | 18 to 36      | 20            | DGP20E24T5/12    |
| 5, +12, -12   | 2.5, 0.31, 0.31       | 36 to 72      | 20            | DGP20E48T5/12    |
| +5, +12, -12  | +4, 0.3, 0.3          | 9 to 18       | 25            | 12IMR25-051212-2 |
| 5, +12, -12   | 5, 1, 1               | 18 to 36      | 25            | DFC25E24T5/12    |
| +5, +12, -12  | 4, 0.3, 0.3           | 18 to 36      | 25            | 24IMR25-051212-2 |
| +5, +12, -12  | 4, 0.3, 0.3           | 36 to 72      | 25            | 48IMR25-051212-2 |
| 5, +12, -12   | 5, 1, 1               | 36 to 72      | 25            | DFC25E48T5/12    |
| 5.1, 12, 12   | 3.5, 0.7, 0.7         | 18 to 75      | 34.1          | 40IMX35-05D12-9  |
| <b>Triple Output Models, 5V to 5.1V and Two 15V Outputs</b> |                       |               |               |                  |
| +5, +15, -15  | 1.5, 0.1, 0.1         | 9 to 18       | 10            | 12IMR15-051515-2 |
| 5, +15, -15   | 1.5, 0.16, 0.16       | 10 to 36      | 12            | 24IMP12-051515-7 |
| 5, +15, -15   | 1.5, 0.16, 0.16       | 18 to 72      | 12            | 48IMP12-051515-7 |
| +5, +15, -15  | 2, 0.16, 0.16         | 18 to 36      | 15            | 24IMR15-051515-2 |
| +5, +15, -15  | 2, 0.16, 0.16         | 36 to 72      | 15            | 48IMR15-051515-2 |
| 5, +15, -15   | 2.5, 0.25, 0.25       | 9 to 18       | 20            | DGP20E12T5/15    |
| 5, +15, -15   | 2.5, 0.25, 0.25       | 18 to 36      | 20            | DGP20E24T5/15    |
| 5, +15, -15   | 2.5, 0.25, 0.25       | 36 to 72      | 20            | DGP20E48T5/15 ★  |
| +5, +15, -15  | 3.5, 0.25, 0.25       | 18 to 36      | 25            | OET025YGJJ-A     |
| +5, +15, -15  | 3.5, 0.25, 0.25       | 18 to 36      | 25            | OWT2405-15       |
| +5, +15, -15  | 3.5, 0.25, 0.25       | 34 to 75      | 25            | OET025ZGJJ-A     |
| +5, +15, -15  | 3.5, 0.25, 0.25       | 36 to 72      | 25            | OWT4805-15       |
| +5, +15, -15  | 3.5, 0.3, 0.3         | 9 to 18       | 25            | 12IMR25-051515-2 |
| +5, +15, -15  | 3.5, 0.3, 0.3         | 18 to 36      | 25            | 24IMR25-051515-2 |
| +5, +15, -15  | 3.5, 0.3, 0.3         | 36 to 72      | 25            | 48IMR25-051515-2 |
| 5, +15, -15   | 5, 0.8, 0.8           | 18 to 36      | 25            | DFC25E24T5/15    |
| 5.1, 15, 15   | 3.5, 0.6, 0.6         | 18 to 75      | 35.9          | 40IMX35-05D15-9  |

# DC/DC Board Mount — Isolated Under 40 Watts — Quad Output

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

| Output Voltage            | Output Current (Amps)  | Input Voltage | Power (Watts) | Model              |
|---------------------------|------------------------|---------------|---------------|--------------------|
| <b>Quad Output Models</b> |                        |               |               |                    |
| 5, 5, 5, 5                | 1.35, 1.35, 1.35, 1.35 | 9 to 36       | 27            | 20IMX35D05D05-9    |
| 5, 5, 5, 5                | 1.4, 1.4, 1.4, 1.4     | 18 to 75      | 28            | 40IMX35D05D05-9    |
| 5, 5, 12, 12              | 1.35, 1.35, 0.65, 0.65 | 9 to 36       | 29.1          | 20IMX35D05D12-9    |
| 5, 5, 12, 12              | 1.4, 1.4, 0.7, 0.7     | 18 to 75      | 30.8          | 40IMX35D05D12-9    |
| 5, 5, 15, 15              | 1.35, 1.35, 0.55, 0.55 | 9 to 36       | 30            | 20IMX35D05D15-9    |
| 5, 5, 15, 15              | 1.4, 1.4, 0.6, 0.6     | 18 to 75      | 32            | 40IMX35D05D15-9    |
| 12, 12, 12, 12            | 0.65, 0.65, 0.65, 0.65 | 9 to 36       | 31.2          | 20IMX35D12D12-9    |
| 12, 12, 12, 12            | 0.7, 0.7, 0.7, 0.7     | 18 to 75      | 33.6          | 40IMX35D12D12-8Z ★ |
| 15, 15, 15, 15            | 0.55, 0.55, 0.55, 0.55 | 9 to 36       | 33            | 20IMX35D15D15-9    |
| 15, 15, 15, 15            | 0.6, 0.6, 0.6, 0.6     | 18 to 75      | 35            | 40IMX35D15D15-9    |

Check distributor inventory on-line!

Enter partial or full part number above

[www.power-one.com](http://www.power-one.com)

## One-SMarT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a "-M6" suffix to the listed part number for an SMT-mountable version.

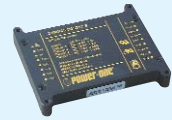
## ★ QUICK EVALUATION DELIVERY (QED) PRODUCTS

These latest technology products are readily available at Power-One, or your local distributor, to quickly get power to your prototype system. In addition to fast delivery, Power-One's QED solutions provide industry-leading current and power densities.



**IMR25**

3.94 x 2.75 x 0.90 inch  
100 x 70 x 23 mm



**IMX35**

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



**OET**

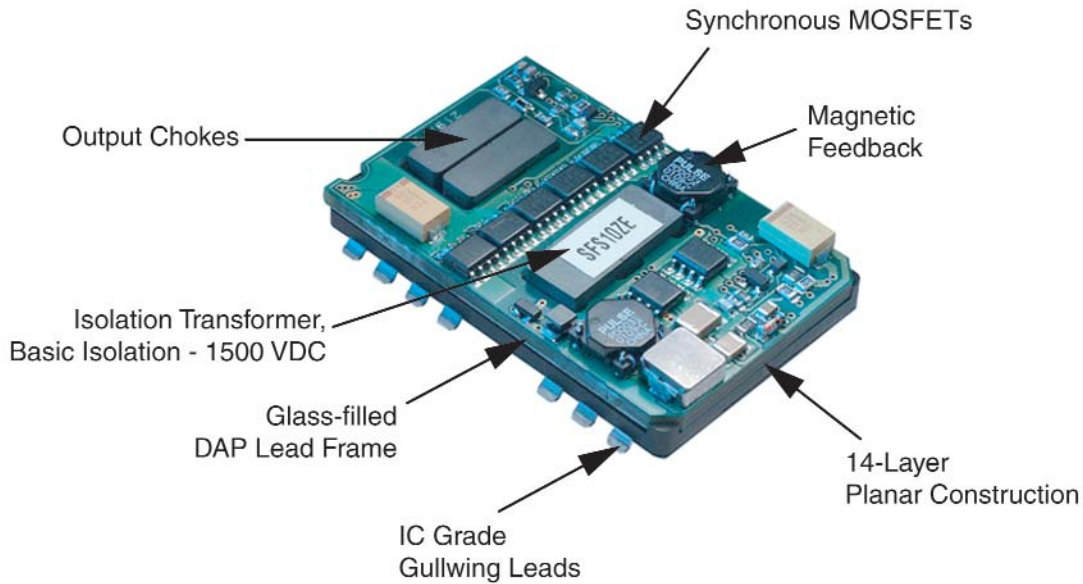
2.00 x 2.00 x 0.38 inch  
50.8 x 50.8 x 9.5 mm



**OWT**

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

## One-SMaRT™ SMT Mountable DC/DC Converters



**Advanced Designs Provide Ultra-High Current Density Construction Shown is Typical and Varies By Model**

### Overview

The One-SMaRT™ family of surface mountable DC/DC converters provide low voltage outputs from one to thirty amps. These Distributed Power Architecture (DPA) compatible products are available in a comprehensive range of ultra-low profile form factors, most under 8.5mm. High efficiencies and current densities are achieved through sophisticated design techniques such as highly-integrated single-substrate planar transformers, which also increase reliability by providing very uniform heat dissipation. Additional benefits of this advanced thermal management include 60°C operation at full-rated power with no airflow for selected models. Highly automated manufacturing processes facilitate high quality, including exceptional lead co-planarity. JEDEC trays are available for use in high-volume SMT lines with vacuum pick-ups.

### Features

- ▶ Comprehensive selection of power ranges and packages.
- ▶ Compatible with high volume SMT processes.
- ▶ Excellent low-load regulation, stability, and EMC performance.
- ▶ Ultra-low profiles, most under 8.5mm.
- ▶ High efficiencies and current densities.
- ▶ Wide input ranges on selected models.
- ▶ Exceptional lead co-planarity.
- ▶ Competitively priced.

# DC/DC Board Mount — Isolated — 40 Watts and Greater

## 1/8-Bricks & 1/4-Bricks

### NEW 1/8-Brick

#### E2S

- 15 to 50 Watts
- 2000 VDC Isolation
- 1/8-Brick Footprint
- One-SMarT™ SMT Package Optional



2.3 x 0.90 x 0.26 inch  
58 x 23 x 6.6 mm

#### QLS

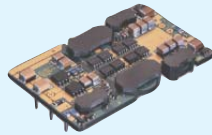
- Up to 100 Watts
- Single Outputs from 1.2 to 12 VDC
- Industry Standard 1/4-Brick
- Start-up into Capacitive Load



2.30 x 1.45 x 0.43 inch  
58.4 x 36.8 x 11 mm

#### Q2S

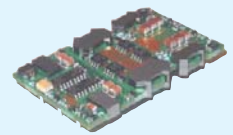
- Up to 66 Watts
- Single Outputs from 1.5 to 3.3 VDC
- Industry Standard 1/4-Brick
- One-SMarT™ SMT Package Optional



2.30 x 1.45 x 0.34 inch  
58.4 x 36.8 x 8.5 mm

#### Q2D

- Up to 100 Watts
- Dual Outputs from 1.2 to 5 VDC
- Industry Standard 1/4-Brick
- One-SMarT™ SMT Package Optional



2.30 x 1.45 x 0.34 inch  
58.4 x 36.8 x 8.5 mm

#### QES

- Up to 66 Watts
- Single Outputs from 2.5 to 3.3 VDC
- Industry Standard 1/4-Brick
- 1500 VDC Isolation



2.28 x 1.45 x 0.50 inch  
57.9 x 36.8 x 12.7 mm

#### QBS

- Up to 120 Watts
- Single Outputs from 2.5 to 15 VDC
- Industry Standard 1/4-Brick
- 1500 VDC Isolation



2.28 x 1.45 x 0.50 inch  
57.9 x 36.8 x 12.7 mm

#### QHS

- Up to 132 Watts
- 36 to 72 VDC Input
- Industry Standard 1/4-Brick



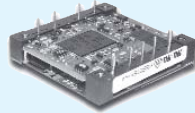
2.30 x 1.45 x 0.50 inch  
58.4 x 36.8 x 12.7 mm

# DC/DC Board Mount — Isolated — 40 Watts and Greater

## 1/2-Bricks

### HBS

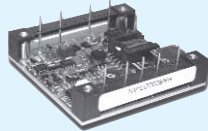
- Up to 50 Watts
- Single Outputs from 3.3 to 15 VDC
- Industry Standard 1/2-Brick
- 1500 VDC Isolation



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

### HAS60

- Up to 60 Watts
- Single Outputs from 3.3 to 12 VDC
- Industry Standard 1/2-Brick
- 1500 VDC Isolation



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

### HLD

- Up to 60 Watts
- Dual Outputs from 1.8 to 5 VDC
- Industry Standard 1/2-Brick
- 0.5" Installed Height
- 18 to 36 & 36 to 72 VDC Input Versions Available



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

### HBT

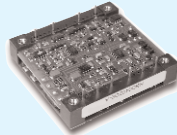
- 60 Watts, Three Isolated Outputs
- 5, 12, and 12 VDC Outputs
- Industry Standard 1/2-Brick
- 33 to 75 VDC Input Range



2.40 x 2.30 x 0.50 inch  
61.0 x 58.4 x 12.7 mm

### HBD

- Up to 60 Watts
- Dual Outputs from 2.5 to 5 VDC
- Industry Standard 1/2-Brick
- 18 to 36 and 34 to 75 VDC Input Ranges



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

### HWD

- Up to 75 Watts
- Dual Outputs: 3.3 and 5 VDC
- Industry Standard 1/2-Brick
- 18 to 60 VDC Input Range



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

### HNT

- Up to 80 Watts
- Triple Output; 3.3, 2.5, & 1.8 VDC
- Industry Standard 1/2-Brick
- Up to 15 Amps Per Output
- 36 to 75 VDC Input
- Each Output Can be Trimmed from 0.8 to 5.25 VDC



2.40 x 2.28 x 0.33 inch  
51 x 58 x 8.5 mm

### HHD

- Up to 100 Watts
- Dual Outputs from 1.8 to 5 VDC
- Industry Standard 1/2-Brick
- Up to 25 Amps Per Output
- 18 to 36 & 36 to 72 VDC Input Versions Available



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

### HLS30/40

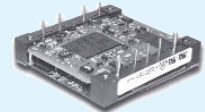
- Up to 150 Watts, 40 Amps
- Single Outputs, 1.5 to 5 VDC
- Industry Standard 1/2-Brick
- Remote Trim and On/Off
- 36 to 75 VDC Input



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

### HBS150

- Up to 150 Watts
- Single Outputs, 5 to 15 VDC
- Industry Standard 1/2-Brick
- Remote Trim and On/Off
- 34 to 75 VDC Input



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

### HHS40/60

- Up to 198 Watts, 60 Amps
- Single Outputs, 1.5 and 3.3 VDC
- Industry Standard 1/2-Brick
- 1500 VDC Isolation



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

# DC/DC Board Mount — Isolated — 40 Watts and Greater

## 3/4-Bricks, Full-Bricks, & Other Footprints

### TKD

- Dual Outputs: 2.5 and 3.3 VDC
- Up to 50 Watts Total Power
- Industry Standard 3/4-Brick
- 36-75 VDC Input Range



3.90 x 2.36 x 0.63 inch  
99.1 x 60.0 x 16.0 mm

### TQD

- Dual Outputs: 2 to 5 VDC
- Up to 100 Watts Total Power
- Industry Standard 3/4-Brick
- 18-36 and 36-72 VDC Input Ranges



3.45 x 2.40 x 0.50 inch  
87.6 x 61.0 x 12.7 mm

### TXS

- Up to 180 Watts, 100 Amps
- Single Outputs, 1.2 to 2.5 VDC
- Industry Standard 3/4-Brick



3.45 x 2.40 x 0.50 inch  
87.6 x 61.0 x 12.7 mm

### TES

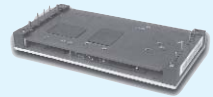
- Up to 225 Watts, 45 Amps
- Single Outputs, 2.5 to 5 VDC
- Industry Standard 3/4-Brick



3.45 x 2.40 x 0.50 inch  
87.6 x 61.0 x 12.7 mm

### VWS300

- Up to 300 Watts, 25 Amps
- Single Outputs, 5 to 48 VDC
- Industry Standard Full-Brick
- Remote Sense and On/Off



4.60 x 2.40 x 0.50 inch  
116.8 x 61.0 x 12.7 mm

### FES

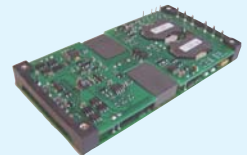
- Up to 300 Watts, 60 Amps
- Single Outputs, 2.5 to 5 VDC
- Industry Standard Full-Brick
- 1500 VDC Isolation



4.60 x 2.40 x 0.50 inch  
116.8 x 61.0 x 12.7 mm

### FHS

- Up to 500 Watts, 42 Amps
- Single Output, 12, 24, & 28 VDC
- Industry Standard Full-Brick
- 1500 VDC Isolation
- 36 to 75 VDC Input Range



4.60 x 2.40 x 0.50 inch  
116.8 x 61.0 x 12.7 mm

### IMR40

- Up to 40 Watts
- Single, Dual, and Triple Outputs
- Operation from -10 to 50°C
- 3.3 to 24 VDC Outputs
- 1500 VDC Isolation



3.94 x 2.75 x 0.90 inch  
100.1 x 69.9 x 22.9 mm

### SFS

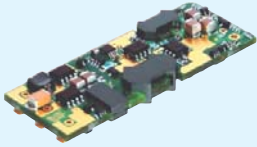
- Up to 43 Watts
- Single Outputs, 1.5 to 5 VDC
- 36-75 VDC Input Range
- One-SMarT™ SMT Package



2.0 x 1.27 x 0.33 inch  
51 x 33 x 8.5 mm

# DC/DC Board Mount — Isolated — 40 Watts and Greater — Single Output

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



**E2S**  
1/8-Brick  
2.3 x 0.90 x 0.26 inch  
58 x 23 x 6.6 mm



**FES**  
Industry Standard Full-Brick  
4.60 x 2.40 x 0.50 inch  
116.8 x 61.0 x 12.7 mm



**HAS, HBS, HES, HHS, & HLS (HHS Shown)**  
Industry Standard 1/2-Bricks  
2.40 x 2.28 x 0.50 inch  
61.0 x 57.9 x 12.7 mm

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                  |
|----------------|-----------------------|---------------|---------------|------------------------|
| 1.2            | 30                    | 36 to 75      | 36            | QLS30ZY ★              |
| 1.2            | 50                    | 36 to 75      | 60            | QHS50ZY ★              |
| 1.2            | 75                    | 36 to 75      | 90            | TXS75ZY                |
| 1.2            | 100                   | 36 to 75      | 120           | TXS100ZY               |
| 1.5            | 30                    | 18 to 36      | 45            | Q2S30YA SMT Optional   |
| 1.5            | 30                    | 36 to 75      | 45            | QLS30ZA ★              |
| 1.5            | 30                    | 36 to 75      | 45            | Q2S30ZA SMT Optional   |
| 1.5            | 40                    | 36 to 75      | 60            | HLS40ZA ★              |
| 1.5            | 50                    | 36 to 75      | 75            | QHS50ZA                |
| 1.5            | 60                    | 36 to 75      | 90            | HHS60ZA ★              |
| 1.5            | 75                    | 36 to 75      | 112.5         | TXS75ZA                |
| 1.5            | 100                   | 36 to 75      | 150           | TXS100ZA               |
| 1.8            | 30                    | 18 to 36      | 54            | Q2S30YB SMT Optional   |
| 1.8            | 30                    | 36 to 75      | 54            | Q2S30ZB ★ SMT Optional |
| 1.8            | 30                    | 36 to 75      | 54            | QLS30ZB ★              |
| 1.8            | 40                    | 36 to 72      | 72            | QHS40ZB ★              |
| 1.8            | 40                    | 36 to 75      | 72            | HLS40ZB ★              |
| 1.8            | 60                    | 36 to 75      | 108           | HHS60ZB ★              |
| 1.8            | 75                    | 36 to 75      | 135           | TXS75ZB                |
| 1.8            | 100                   | 36 to 75      | 180           | TXS100ZB               |
| 2.0            | 30                    | 18 to 36      | 60            | Q2S30YC SMT Optional   |
| 2.0            | 30                    | 36 to 75      | 60            | Q2S30ZC SMT Optional   |
| 2.1            | 30                    | 36 to 72      | 63            | HES063ZC-A             |
| 2.5            | 30                    | 18 to 36      | 75            | Q2S30YD SMT Optional   |
| 2.5            | 30                    | 36 to 75      | 75            | Q2S30ZD ★ SMT Optional |
| 2.5            | 20                    | 36 to 72      | 50            | HES050ZD-A             |
| 2.5            | 20                    | 36 to 75      | 50            | QES050ZD-A             |
| 2.5            | 25                    | 36 to 75      | 62.5          | QLS25ZD ★              |
| 2.5            | 30                    | 18 to 36      | 75            | HES075YD-A             |
| 2.5            | 30                    | 36 to 72      | 75            | HES075ZD-A             |
| 2.5            | 30                    | 36 to 75      | 75            | HLS30ZD ★              |
| 2.5            | 40                    | 36 to 72      | 100           | QHS40ZD ★              |
| 2.5            | 40                    | 36 to 75      | 100           | HHS40ZD ★              |
| 2.5            | 60                    | 36 to 75      | 150           | FES150ZD-A             |
| 2.5            | 60                    | 36 to 75      | 150           | HHS60ZD ★              |
| 2.5            | 80                    | 36 to 75      | 200           | TXS80ZD                |

# DC/DC Board Mount — Isolated — 40 Watts and Greater — Single Output

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

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                   |
|----------------|-----------------------|---------------|---------------|-------------------------|
| 3.3            | 12                    | 18 to 36      | 40            | HAS040YE-AN             |
| 3.3            | 13                    | 36 to 75      | 42.9          | SFS13ZE-M6 ★ SMT Design |
| 3.3            | 15                    | 18 to 36      | 50            | QES050YE-A              |
| 3.3            | 15                    | 18 to 36      | 50            | QBS050YE-A              |
| 3.3            | 15                    | 34 to 75      | 50            | HBS050ZE-A              |
| 3.3            | 15                    | 36 to 72      | 50            | HES050ZE-AN             |
| 3.3            | 15                    | 36 to 75      | 50            | QES050ZE-A              |
| 3.3            | 15                    | 36 to 75      | 50            | QBS050ZE-A              |
| 3.3            | 15                    | 36 to 75      | 50            | E2S15ZE ★ SMT Optional  |
| 3.3            | 20                    | 18 to 36      | 66            | QES066YE-A              |
| 3.3            | 20                    | 34 to 75      | 66            | HBS066ZE-A              |
| 3.3            | 20                    | 36 to 72      | 66            | HES066ZE-AT             |
| 3.3            | 20                    | 36 to 75      | 66            | QBS066ZE-A              |
| 3.3            | 20                    | 36 to 75      | 66            | QES066ZE-A              |
| 3.3            | 22.7                  | 34 to 75      | 75            | HES075ZE-A              |
| 3.3            | 25                    | 36 to 75      | 82.5          | QLS25ZE ★               |
| 3.3            | 30                    | 18 to 36      | 100           | Q2S30YE SMT Optional    |
| 3.3            | 30                    | 18 to 36      | 100           | HES100YE-AT             |
| 3.3            | 30                    | 34 to 75      | 100           | HBS100ZE-A              |
| 3.3            | 30                    | 36 to 72      | 100           | HES100ZE-A              |
| 3.3            | 30                    | 36 to 75      | 100           | HLS30ZE ★               |
| 3.3            | 30                    | 36 to 75      | 100           | Q2S30ZE ★ SMT Optional  |
| 3.3            | 30                    | 36 to 75      | 100           | HLS30ZE                 |
| 3.3            | 40                    | 36 to 72      | 132           | QHS40ZE ★               |
| 3.3            | 40                    | 36 to 75      | 132           | FES132ZE-A              |
| 3.3            | 40                    | 36 to 75      | 132           | HHS40ZE ★               |
| 3.3            | 45                    | 36 to 72      | 150           | TES150ZE-A              |
| 3.3            | 60                    | 36 to 75      | 198           | HHS60ZE ★               |
| 3.3            | 60                    | 36 to 75      | 198           | FES200ZE-A              |

## One-SMarT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a "-M6" suffix to the listed part number for an SMT-mountable version.

## ★ QUICK EVALUATION DELIVERY (QED) PRODUCTS

These latest technology products are readily available at Power-One, or your local distributor, to quickly get power to your prototype system. In addition to fast delivery, Power-One's QED solutions provide industry-leading current and power densities.



### Q2S\*, QBS, QES, QHS, & QLS (QBS Shown)

Industry Standard  
1/4-Bricks

\*SMT Mounting Available

2.30 x 1.45 inch

58.42 x 36.8 mm

QLS height 0.43", 11mm

Q2S height 0.34", 8.5mm

QBS height 0.5", 12.7mm

QES height 0.5", 12.7mm

QHS height 0.5", 12.7mm



### SFS

2.0 x 1.27 x 0.33 inch

51 x 33 x 8.5 mm



### TES & TXS (TXS Shown)

Industry Standard  
3/4-Bricks

3.45 x 2.40 x 0.50 inch

87.6 x 61.0 x 12.7 mm

# DC/DC Board Mount — Isolated — 40 Watts and Greater — Single Output

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



**E2S**  
1/8-Brick  
2.3 x 0.90 x 0.26 inch  
58 x 23 x 6.6 mm



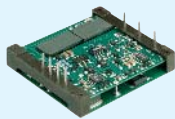
**FES & VWS150**  
(FES Shown)  
Industry Standard Full-Brick  
4.60 x 2.40 x 0.50 inch  
116.8 x 61.0 x 12.7 mm



**HAS, HBS, HES, HHS, & HLS** (HHS Shown)  
Industry Standard 1/2-Bricks  
2.40 x 2.28 x 0.50 inch  
61.0 x 57.9 x 12.7 mm



**IMR40**  
2.75 x 2.75 x 0.90 inch  
70 x 70 x 23 mm



**OES**  
2.00 x 2.00 x 0.42 inch  
50.8 x 50.8 x 10.7 mm

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                   |
|----------------|-----------------------|---------------|---------------|-------------------------|
| 5              | 8                     | 9 to 18       | 40            | 12IMR40-05-2            |
| 5              | 8                     | 18 to 36      | 40            | 24IMR40-05-2            |
| 5              | 8                     | 36 to 75      | 40            | SFS08ZG-M6 ★ SMT Design |
| 5              | 8                     | 36 to 72      | 40            | 48IMR40-05-2            |
| 5              | 8                     | 36 to 72      | 40            | OES040ZG-A              |
| 5              | 10                    | 18 to 36      | 50            | HAS050YG-AN             |
| 5              | 10                    | 18 to 36      | 50            | HBS050YG-A              |
| 5              | 10                    | 34 to 75      | 50            | HBS050ZG-A              |
| 5              | 10                    | 36 to 72      | 50            | HES050ZG-A              |
| 5              | 10                    | 36 to 72      | 50            | QAS050ZG                |
| 5              | 10                    | 36 to 75      | 50            | E2S10ZG SMT Optional    |
| 5              | 15                    | 18 to 36      | 75            | Q2S15ZG SMT Optional    |
| 5              | 15                    | 18 to 36      | 75            | QBS075YG-A              |
| 5              | 15                    | 18 to 36      | 75            | HBS075YG-A              |
| 5              | 15                    | 36 to 72      | 75            | HES075ZG-A              |
| 5              | 15                    | 36 to 75      | 75            | QBS075ZG-A              |
| 5              | 15                    | 34 to 75      | 75            | HBS075ZG-A              |
| 5              | 20                    | 18 to 36      | 100           | HBS100YG-A              |
| 5              | 20                    | 34 to 75      | 100           | HBS100ZG-A              |
| 5              | 20                    | 36 to 72      | 100           | HES100ZG-A              |
| 5              | 20                    | 36 to 75      | 100           | QLS20ZG ★               |
| 5              | 20                    | 36 to 75      | 100           | QBS100ZG-A              |
| 5              | 25                    | 36 to 75      | 125           | QHS25ZG ★               |
| 5              | 30                    | 18 to 36      | 150           | HBS150YG-A              |
| 5              | 30                    | 34 to 75      | 150           | HBS150ZG-A              |
| 5              | 30                    | 36 to 72      | 150           | HES150ZG-A              |
| 5              | 30                    | 36 to 75      | 150           | HLS30ZG ★               |
| 5              | 40                    | 36 to 75      | 200           | FES200ZG-A              |
| 5              | 60                    | 36 to 75      | 300           | FES300ZG-A              |
| 8              | 21                    | 36 to 75      | 168           | FHS21ZQ                 |

# DC/DC Board Mount — Isolated — 40 Watts and Greater — Single Output

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

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model        |
|----------------|-----------------------|---------------|---------------|--------------|
| 12             | 3.5                   | 9 to 18       | 42            | 12IMR40-12-2 |
| 12             | 3.5                   | 18 to 36      | 42            | 24IMR40-12-2 |
| 12             | 3.5                   | 36 to 72      | 42            | 48IMR40-12-2 |
| 12             | 4.2                   | 18 to 36      | 50            | HAS050YH-AN  |
| 12             | 4.2                   | 18 to 36      | 50            | HBS050YH-A   |
| 12             | 4.2                   | 34 to 75      | 50            | HBS050ZH-A   |
| 12             | 5                     | 36 to 75      | 60            | HAS060ZH-A   |
| 12             | 6.25                  | 18 to 36      | 75            | HBS075YH-A   |
| 12             | 6.25                  | 34 to 75      | 75            | HBS075ZH-A   |
| 12             | 8                     | 36 to 75      | 96            | QLS08ZH ★    |
| 12             | 8.3                   | 18 to 36      | 100           | HBS100YH-A   |
| 12             | 8.33                  | 18 to 36      | 100           | QBS100YH-A   |
| 12             | 8.3                   | 34 to 75      | 100           | HBS100ZH-A   |
| 12             | 8.33                  | 36 to 75      | 100           | QBS100ZH-A   |
| 12             | 10                    | 18 to 36      | 120           | QBS120YH-A   |
| 12             | 10                    | 36 to 75      | 120           | QBS120ZH-A   |
| 12             | 12                    | 36 to 75      | 144           | QHS12ZH ★    |
| 12             | 12.5                  | 18 to 36      | 150           | HBS150YH-A   |
| 12             | 12.5                  | 34 to 75      | 150           | HBS150ZH-A   |
| 12             | 20.8                  | 18 to 36      | 250           | VWS250YH-A   |
| 12             | 25                    | 36 to 72      | 300           | VWS300ZH-A   |
| 12             | 42                    | 36 to 72      | 504           | FHS42ZH      |

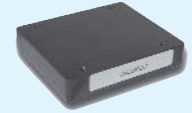
## One-SMaT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a "-M6" suffix to the listed part number for an SMT-mountable version.

## ★ QUICK EVALUATION DELIVERY (QED) PRODUCTS

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**QAS**  
2.80 x 2.40 x 0.50 inch  
71 x 61 x 12.7 mm



**Q2S\*, QBS, QHS,  
& QLS (QBS Shown)**  
Industry Standard  
1/4-Bricks  
\*SMT Mounting Available  
2.30 x 1.45 inch  
58.42 x 36.8 mm  
QLS height 0.43", 11mm  
Q2S height 0.34", 8.5mm  
QBS height 0.5", 12.7mm  
QHS height 0.5", 12.7mm



**SFS**  
2.0 x 1.27 x 0.33 inch  
51 x 33 x 8.5 mm



**TES & TXS  
(TXS Shown)**  
Industry Standard  
3/4-Bricks  
3.45 x 2.40 x 0.50 inch  
87.6 x 61.0 x 12.7 mm

# DC/DC Board Mount — Isolated — 40 Watts and Greater — Single Output

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



**FES, FHS, VWS150, & VWS300 (FES Shown)**  
 Industry Standard  
 Full-Brick  
 4.60 x 2.40 x 0.50 inch  
 116.8 x 61.0 x 12.7 mm



**HBS & HHS (HHS Shown)**  
 Industry Standard  
 1/2-Bricks  
 2.40 x 2.28 x 0.50 inch  
 61.0 x 57.9 x 12.7 mm



**IMR40**  
 2.75 x 2.75 x 0.90 inch  
 70 x 70 x 23 mm

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model        |
|----------------|-----------------------|---------------|---------------|--------------|
| 15             | 3                     | 9 to 18       | 45            | 12IMR40-15-2 |
| 15             | 3                     | 18 to 36      | 45            | 24IMR40-15-2 |
| 15             | 3                     | 36 to 72      | 45            | 48IMR40-15-2 |
| 15             | 3.3                   | 18 to 36      | 50            | HBS050YJ-A   |
| 15             | 3.3                   | 34 to 75      | 50            | HBS050ZJ-AT  |
| 15             | 5                     | 18 to 36      | 75            | HBS075YJ-ANT |
| 15             | 5                     | 34 to 75      | 75            | HBS075ZJ-A   |
| 15             | 6.67                  | 18 to 36      | 100           | QBS100YJ-A   |
| 15             | 6.67                  | 36 to 75      | 100           | QBS100ZJ-A   |
| 15             | 10                    | 18 to 36      | 150           | VWS150YJ-A   |
| 15             | 10                    | 34 to 75      | 150           | HBS150ZJ-ANT |

[www.power-one.com](http://www.power-one.com)

## Comprehensive Information

- Product Data Sheets
- Application Notes
- New Product Announcements
- Power-One Contacts
- Investor Relations



## Product Selection

- AC/DC Power Supplies
- DC/DC Converters
- Telecom Power Plants
- Power Accessories
- Modular Product Configurator



# DC/DC Board Mount — Isolated — 40 Watts and Greater — Single Output

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

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model        |
|----------------|-----------------------|---------------|---------------|--------------|
| 24             | 2                     | 9 to 18       | 48            | 12IMR40-24-2 |
| 24             | 2                     | 18 to 36      | 48            | 24IMR40-24-2 |
| 24             | 2                     | 36 to 72      | 48            | 48IMR40-24-2 |
| 24             | 4.2                   | 18 to 36      | 100           | VWS100YK     |
| 24             | 4.2                   | 36 to 72      | 100           | VWS100ZK     |
| 24             | 6.25                  | 18 to 36      | 150           | VWS150YK-A   |
| 24             | 6.25                  | 36 to 72      | 150           | VWS150ZK-A   |
| 24             | 12.5                  | 36 to 72      | 300           | VWS300ZK-A   |
| 24             | 21                    | 36 to 75      | 500           | FHS21ZK      |
| 28             | 3.6                   | 18 to 36      | 100           | VWS100Y28    |
| 28             | 3.6                   | 36 to 72      | 100           | VWS100Z28    |
| 28             | 10.7                  | 36 to 72      | 300           | VWS300Z28-A  |
| 28             | 18                    | 36 to 75      | 500           | FHS18Z28     |
| 48             | 5.2                   | 18 to 36      | 250           | VWS250YL-A   |

Additional 48V outputs can be configured using dual 24V output products listed on page 23.

[www.power-one.com](http://www.power-one.com)

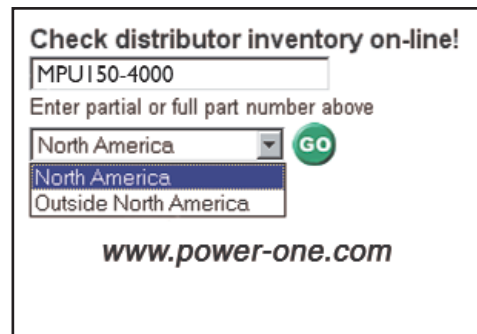
## Technical Reference

- Technical Articles
- Industry Links
- Regulatory Agency Information
- Power Conversion Glossary



## Distributor Inventory

- Locates Power-One Products Fast
- Links to Distributor Ordering Pages Provide Price and Availability



**QBS**  
Industry Standard  
1/4-Brick  
2.30 x 1.45 x 0.5 inch  
58.42 x 36.8 x 12.7 mm



**VWS100**  
4.60 x 2.04 x 0.55 inch  
116.8 x 51.8 x 14.0 mm



**VWS150**  
Industry Standard  
Full-Brick  
4.60 x 2.40 x 0.50 inch  
116.8 x 61.0 x 12.7 mm

# DC/DC Board Mount — Isolated — 40 Watts and Greater — Dual Output

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



### HBT

Industry Standard  
1/2-Brick  
2.40 x 2.30 x 0.50 inch  
60.1 x 58.4 x 12.7 mm



### HBD, HHD, HLD, & HWD (HLD Shown)

Industry Standard  
1/2-Brick  
2.40 x 2.28 x 0.50 inch  
61.0 x 57.9 x 12.7 mm



### HNT

Industry Standard  
1/2-Brick  
2.40 x 2.28 x 0.33 inch  
50.8 x 58.0 x 8.5 mm



### IMR40

2.75 x 2.75 x 0.90 inch  
70 x 70 x 23 mm



### Q2D

Industry Standard  
1/4-Brick  
2.30 x 1.45 x 0.34 inch  
58.4 x 36.8 x 8.5 mm

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model                   |
|----------------|-----------------------|---------------|---------------|-------------------------|
| 1.2, 1.5       | 15, 15                | 36 to 75      | 40.5          | Q2D30ZAY SMT Optional   |
| 1.2, 1.8       | 15, 15                | 36 to 75      | 45            | Q2D30ZBY SMT Optional   |
| 1.2, 2.0       | 15, 15                | 36 to 75      | 48            | Q2D30ZCY SMT Optional   |
| 1.2, 2.5       | 15, 15                | 36 to 75      | 55.5          | Q2D30ZDY SMT Optional   |
| 1.2, 3.3       | 15, 15                | 36 to 75      | 67.5          | Q2D30ZEY SMT Optional   |
| 1.2, 5.0       | 15, 10                | 36 to 75      | 68            | Q2D25ZGY SMT Optional   |
| 1.5, 1.8       | 15, 15                | 36 to 75      | 49.5          | Q2D30ZBA SMT Optional   |
| 1.5, 2.0       | 15, 15                | 36 to 75      | 52.5          | Q2D30ZCA SMT Optional   |
| 1.5, 2.5       | 15, 15                | 36 to 75      | 60            | Q2D30ZDA SMT Optional   |
| 1.5, 3.3       | 15, 15                | 36 to 75      | 72            | Q2D30ZEA SMT Optional   |
| 1.5, 5.0       | 15, 10                | 36 to 75      | 72.5          | Q2D25ZGA SMT Optional   |
| 1.8, 2.0       | 15, 15                | 36 to 75      | 57            | Q2D30ZCB SMT Optional   |
| 1.8, 2.5       | 15, 15                | 36 to 75      | 64.5          | Q2D30ZDB ★ SMT Optional |
| 1.8, 3.3       | 15, 15                | 36 to 75      | 76.5          | Q2D30ZEB ★ SMT Optional |
| 1.8, 5.0       | 15, 10                | 36 to 75      | 77            | Q2D25ZGB SMT Optional   |
| 2.0, 2.5       | 15, 15                | 36 to 75      | 67.5          | Q2D30ZDC SMT Optional   |
| 2.0, 3.3       | 15, 15                | 36 to 75      | 79.5          | Q2D30ZEC SMT Optional   |
| 2.0, 5.0       | 15, 10                | 36 to 75      | 80            | Q2D25ZGC SMT Optional   |
| 2.5, 3.3       | 15, 15                | 36 to 75      | 87            | Q2D30ZED ★ SMT Optional |
| 2.5, 5.0       | 15, 10                | 36 to 75      | 87.5          | Q2D25ZGD SMT Optional   |
| 3.3, 1.8       | 15, 15                | 36 to 72      | 60            | HLD15ZEB ★              |
| 3.3, 1.8       | 25, 20                | 36 to 72      | 100           | HHD25ZEB ★              |
| +3.3, +2.5     | 12, 15                | 34 to 75      | 40            | HBD040ZED-A             |
| 3.3, 2.5       | 12, 12                | 36 to 75      | 50            | TKD12ZED-T              |
| 3.3, 2.5       | 15, 15                | 18 to 36      | 60            | HLD15YED                |
| 3.3, 2.5       | 15, 15                | 36 to 72      | 60            | HLD15ZED ★              |
| 3.3, 2.5       | 25, 25                | 18 to 36      | 85            | HHD25YED                |
| 3.3, 2.5       | 25, 25                | 36 to 72      | 85            | TQD085ZED-A             |
| 3.3, 2.5       | 25, 20                | 36 to 72      | 100           | HHD25ZED ★              |
| 3.3, 3.3       | 12, 15                | 18 to 36      | 60            | HLD15YED                |
| 3.3, 5.0       | 15, 10                | 36 to 75      | 100           | Q2D25ZGE ★ SMT Optional |
| 5, 1.8         | 12, 15                | 18 to 36      | 60            | HLD15YGB                |
| 5, 1.8         | 12, 15                | 36 to 72      | 60            | HLD15ZGB                |
| 5, 1.8         | 20, 20                | 36 to 72      | 85            | HHD20ZGB                |
| +5, +3.3       | 8, 12                 | 18 to 36      | 40            | HBD040YGE-A             |
| +5, +3.3       | 8, 12                 | 34 to 75      | 40            | HBD040ZGE-A             |
| +5, +3.3       | 12, 15                | 18 to 36      | 60            | HBD060YGE-A             |
| 5, 3.3         | 12, 15                | 18 to 36      | 60            | HLD15YGE                |
| +5, +3.3       | 12, 15                | 34 to 75      | 60            | HBD060ZGE-A ★           |
| 5, 3.3         | 12, 15                | 36 to 72      | 60            | HLD15ZGE ★              |

# DC/DC Board Mount — Isolated — 40 Watts and Greater — Dual/Triple Output

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

| Output Voltage              | Output Current (Amps) | Input Voltage | Power (Watts) | Model            |
|-----------------------------|-----------------------|---------------|---------------|------------------|
| 5, 3.3                      | 15, 15                | 18 to 60      | 75            | HWD075DGE-A      |
| 5, 3.3                      | 20, 20                | 18 to 36      | 85            | HHD20YGE         |
| 5, 3.3                      | 20, 20                | 36 to 72      | 85            | HHD20ZGE ★       |
| 5, 3.3                      | 20, 25                | 36 to 72      | 100           | TQD100ZGE-A      |
| +5, -5                      | 8, 0.5                | 9 to 18       | 40            | 12IMR40-0505-2   |
| +5, -5                      | 8, 0.5                | 18 to 36      | 40            | 24IMR40-0505-2   |
| +5, -5                      | 8, 0.5                | 36 to 72      | 40            | 48IMR40-0505-2   |
| +12, -12                    | 3, 0.5                | 9 to 18       | 40            | 12IMR40-1212-2   |
| +12, -12                    | 3, 0.5                | 18 to 36      | 40            | 24IMR40-1212-2   |
| +12, -12                    | 3, 0.5                | 36 to 72      | 40            | 48IMR40-1212-2   |
| <b>Triple Output Models</b> |                       |               |               |                  |
| 3.3, 2.5, 1.8               | 15, 15, 15            | 36 to 75      | 80            | HNT45ZEDB*       |
| +5, -5, +12                 | 12, 0.5, 0.5          | 18 to 36      | 40            | 24IMR40-050512-2 |
| +5, -5, +12                 | 12, 0.5, 0.5          | 36 to 72      | 40            | 48IMR40-050512-2 |
| +5, +12, -12                | 6, 0.5, 0.5           | 9 to 18       | 40            | 12IMR40-051212-2 |
| +5, +12, -12                | 6, 0.5, 0.5           | 18 to 36      | 40            | 24IMR40-051212-2 |
| +5, +12, -12                | 6, 0.5, 0.5           | 36 to 72      | 40            | 48IMR40-051212-2 |
| 5, 12, 12                   | 12, 2.5, 2.5          | 33 to 75      | 60            | HBT060ZGHH-A     |
| +5, +15, -15                | 6, 0.5, 0.5           | 9 to 18       | 40            | 12IMR40-051515-2 |
| +5, +15, -15                | 6, 0.5, 0.5           | 18 to 36      | 40            | 24IMR40-051515-2 |
| +5, +15, -15                | 6, 0.5, 0.5           | 36 to 72      | 40            | 48IMR40-051515-2 |

\* The HNT45ZEDB is a triple output, 80 watt DC/DC converter that offers extremely flexible output voltages and power distribution. Providing independent and adjustable outputs (from 0.8V to 5.25V), factory set at 3.3, 2.5, and 1.8V, from an input range of 36 to 75 volts, each output is capable of being driven to 15 amps. This industry standard half-brick features a low 8.5mm height. Other features include 1500 VDC input-to-output isolation, output sequencing at start-up, remote on/off, and operation to 110°C.

## One-SMarT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a "-M6" suffix to the listed part number for an SMT-mountable version.

## ★ QUICK EVALUATION DELIVERY (QED) PRODUCTS

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**TKD**

3.90 x 2.36 x 0.63 inch  
99.1 x 60.0 x 16.0 mm



**TQD**

Industry Standard  
3/4-Brick  
3.45 x 2.40 x 0.50 inch  
87.6 x 61.0 x 12.7 mm

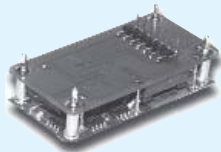
# DC/DC Board Mount — Non-Isolated — Single Output



### SIE

2.50 x 0.55 x 0.25 inch  
63.5 x 14.0 x 6.4 mm

- "R" Option Provides Right Angle Pins for Horizontal Mounting
- Excellent Transient Response
- Industry-Standard SIP Package



### UPM

2.00 x 1.00 x 0.475 inch  
50.8 x 25.4 x 12.1 mm

- Excellent Transient Response
- UPM-EA Output Voltage is Programmable with a 5-Bit Input

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Model        |
|----------------|-----------------------|---------------|---------------|--------------|
| 1.2            | 6                     | 4.5 to 5.5    | 7.2           | SIE501.2LT   |
| 1.2            | 6                     | 4.5 to 5.5    | 7.2           | SIP501.2LT   |
| 1.2            | 12                    | 3 to 3.6      | 14.4          | UPM301.2     |
| 1.3 to 3.5     | 13                    | 3 to 3.6      | 45            | UPM-EA       |
| 1.5            | 6                     | 4.5 to 5.5    | 9             | SIE501.5LT   |
| 1.5            | 6                     | 4.5 to 5.5    | 9             | SIP501.5LT ★ |
| 1.5            | 12                    | 3 to 3.6      | 18            | UPM301.5     |
| 1.5            | 12                    | 4.5 to 5.5    | 18            | UPM501.5     |
| 1.8            | 6                     | 4.5 to 5.5    | 10.8          | SIE501.8LT   |
| 1.8            | 6                     | 4.5 to 5.5    | 10.8          | SIP501.8LT ★ |
| 1.8            | 12                    | 3 to 3.6      | 21.6          | UPM301.8     |
| 1.8            | 12                    | 4.5 to 5.5    | 21.6          | UPM501.8     |
| 2.1            | 6                     | 4.5 to 5.5    | 12.6          | SIE502.1LT   |
| 2.5            | 6                     | 4.5 to 5.5    | 15            | SIE502.5LT   |
| 2.5            | 6                     | 4.5 to 5.5    | 15            | SIP502.5LT ★ |
| 2.5            | 12                    | 4.5 to 5.5    | 30            | UPM502.5     |
| 3.3            | 6                     | 4.5 to 5.5    | 19.8          | SIE503.3LT ★ |
| 3.3            | 6                     | 4.5 to 5.5    | 19.8          | SIP503.3LT   |
| 3.3            | 12                    | 4.5 to 5.5    | 39.6          | UPM503.3     |
| 5              | 4                     | 3 to 4        | 20            | SIP305       |

**Check distributor inventory on-line!**

QLS25ZE

Enter partial or full part number above

North America



North America

Outside North America

[www.power-one.com](http://www.power-one.com)

# DC/DC Board Mount — Non-Isolated — Dual Output

| Output Voltage | Output Current (Amps) | Input Voltage | Power (Watts) | Efficiency | Model                 |
|----------------|-----------------------|---------------|---------------|------------|-----------------------|
| 1.2, 1.2       | 6, 6                  | 3.0 to 3.6    | 12            | 85         | SLD10UYY              |
| 1.8, 1.5       | 5, 5                  | 3.0 to 3.6    | 13.5          | 89         | PLD08UBA SMT Design   |
| 1.8, 1.5       | 6, 6                  | 3.0 to 3.6    | 16.8          | 88         | SLD10UBA              |
| 1.8, 1.5       | 6, 6                  | 4.5 to 5.5    | 16.8          | 88         | SLD10VBA              |
| 1.8, 1.8       | 5, 5                  | 3.0 to 3.6    | 14.4          | 89         | PLD08UBB SMT Design   |
| 1.8, 1.8       | 5, 5                  | 4.5 to 5.5    | 14.4          | 89         | PLD08VBB SMT Design   |
| 1.8, 1.8       | 6, 6                  | 3.0 to 3.6    | 18            | 89         | SLD10UBB              |
| 1.8, 1.8       | 6, 6                  | 4.5 to 5.5    | 18            | 89         | SLD10VBB ★            |
| 1.8, 1.8       | 20, 20                | 3.0 to 3.6    | 57.6          | 88         | PHD32UBB ★            |
| 1.8, 1.8       | 20, 20                | 4.5 to 5.5    | 57.6          | 88         | PHD32VBB ★            |
| 2.5, 1.8       | 5, 5                  | 3.0 to 3.6    | 17.9          | 91         | PLD08UDB ★ SMT Design |
| 2.5, 1.8       | 5, 5                  | 4.5 to 5.5    | 17.9          | 91         | PLD08VDB ★ SMT Design |
| 2.5, 1.8       | 6, 6                  | 3.0 to 3.6    | 22.2          | 92         | SLD10UDB ★            |
| 2.5, 1.8       | 6, 6                  | 4.5 to 5.5    | 22.2          | 91         | SLD10VDB ★            |
| 2.5, 1.8       | 20, 20                | 3.0 to 3.6    | 71.6          | 89         | PHD32UDB ★            |
| 2.5, 1.8       | 20, 20                | 4.5 to 5.5    | 71.6          | 89         | PHD32VDB ★            |
| 2.5, 2.0       | 6, 6                  | 3.0 to 3.6    | 23            | 92         | SLD10UDC              |
| 3.3, 1.8       | 5, 5                  | 4.5 to 5.5    | 21.9          | 92         | PLD08VEB ★ SMT Design |
| 3.3, 2.5       | 5, 5                  | 4.5 to 5.5    | 24            | 93         | PLD08VED ★ SMT Design |
| 3.3, 2.5       | 6, 6                  | 4.5 to 5.5    | 29.8          | 93         | SLD10VED ★            |
| 3.3, 2.5       | 20, 20                | 4.5 to 5.5    | 96            | 89         | PHD32VED ★            |

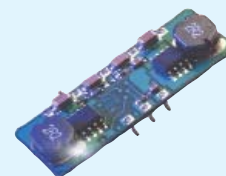
## One-SMaRT™ SMT Mountable Products:

SMT Design- Through-hole versions are not available.

SMT Optional- Add a “-M6” suffix to the listed part number for an SMT-mountable version.

## ★ QUICK EVALUATION DELIVERY (QED) PRODUCTS

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**PLD08**

1.56 x 0.55 x 0.29 inch  
39.6 x 14.0 x 7.4 mm



**SLD10**

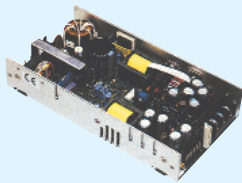
2.50 x 0.55 x 0.26 inch  
63.5 x 14.0 x 6.6 mm



**PHD32**

3.00 x 1.50 x 0.33 inch  
76.2 x 38.1 x 8.4 mm

# DC/DC Chassis Mount



**MDU150**  
8.00" x 4.20" x 1.50"  
(203.2mm) x (106.7mm) x (38.1mm)

| Output Voltage              | Output Current (Amps) | Input Voltage | Power (Watts) | Model         |
|-----------------------------|-----------------------|---------------|---------------|---------------|
| <b>Triple Output Models</b> |                       |               |               |               |
| +3.3, +5, +12               | 35, 20, 2             | 36 to 75      | 150           | MDU150-3300   |
| <b>Quad Output Models</b>   |                       |               |               |               |
| +2.5, +3.3, 12, 5           | 30, 15, 4, 2          | 36 to 75      | 150           | MDU150-4230   |
| +3.3, +5, 12, 12            | 30, 15, 3, 3          | 36 to 75      | 150           | MDU150-4350   |
| +5, +3.3, 12, 12            | 30, 15, 3, 3          | 36 to 75      | 150           | MDU150-4530 ★ |
| +5, +12, 12, 5              | 30, 8, 3, 2           | 36 to 75      | 150           | MDU150-4000 ★ |

- Low Profile Height Fits 1U
- Overtemperature, Overload, & Overvoltage Protection
- Single Wire Current Sense on Outputs V1 and V2
- Greater than 340,000 Hours MTBF
- Also Available with AC Input, the MPU Series

## ★ QUICK EVALUATION DELIVERY (QED) PRODUCTS

These latest technology products are readily available at Power-One, or your local distributor, to quickly get power to your prototype system. In addition to fast delivery, Power-One's QED solutions provide industry-leading current and power densities.

[www.power-one.com](http://www.power-one.com)

## Comprehensive Information

- Product Data Sheets
- Application Notes
- New Product Announcements
- Power-One Contacts
- Investor Relations

## Product Selection

- AC/DC Power Supplies
- DC/DC Converters
- Telecom Power Plants
- Power Accessories
- Modular Product Configurator

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

## CPD250-4530 ★

|                | V1 | V2   | V3  | V4  |
|----------------|----|------|-----|-----|
| Voltage        | +5 | +3.3 | +12 | -12 |
| Current (Amps) | 40 | 40   | 5.5 | 1.5 |



- 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

CompactPCI and PICMG are registered trademarks of the PCI Industrial Computer Manufacturers Group.

The DC input CPD250-4530 is the first in a series of hot-swap, CompactPCI® power supplies that are fully compliant to the PICMG® 2.11 Power Interface Specification using a standard Positronic 47-pin connector. Extra-high current density using innovative Power-One EDGE technology allows this unit to deliver up to 40 amperes on both the +5 and +3.3 volt outputs at 50°C.

Remote sense and active current share on the +5, +3.3 and +12 volt outputs along with ORing FETs allow these units to be used in redundant, hot-swap applications. The CPD250-4530 is feature rich, meets international safety standards, and displays the CE Mark for the Low Voltage Directive (LVD).

✓ Coming Soon: 6U, 450 watt version, available late 2002.

[www.power-one.com](http://www.power-one.com)

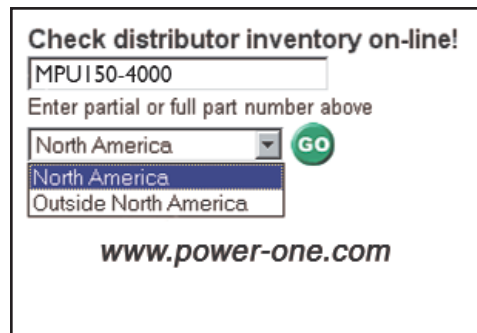
## Technical Reference

- Technical Articles
- Industry Links
- Regulatory Agency Information
- Power Conversion Glossary



## Distributor Inventory

- Locates Power-One Products Fast
- Links to Distributor Ordering Pages Provide Price and Availability



## CPD Series

250 Watt DC/DC Power Converter  
36 to 75 VDC Input



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

# DC/DC Cassette

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

## H Series

50 Watt DC/DC converters  
 Input-to-output isolation  
 1, 2 or 3 outputs up to 48 VDC  
 Input voltage up to 60 VDC



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

| Output Voltage 1, 2, 3 | Output Current 1, 2, 3 (Amps) | Input Voltage | Model      | Options  |
|------------------------|-------------------------------|---------------|------------|----------|
| 5.1                    | 8                             | 8 to 15       | 12H1001-2R | -7, D, V |
| 5.1                    | 8                             | 14 to 30      | 24H1001-2R | -7, D, V |
| 5.1                    | 8                             | 28 to 60      | 48H1001-2R | -7, D, V |
| 12                     | 4                             | 8 to 15       | 12H1301-2R | -7, D    |
| 12                     | 4                             | 14 to 30      | 24H1301-2R | -7, D    |
| 12                     | 4                             | 28 to 60      | 48H1301-2R | -7, D    |
| 15                     | 3.4                           | 8 to 15       | 12H1501-2R | -7, D    |
| 15                     | 3.4                           | 14 to 30      | 24H1501-2R | -7, D    |
| 15                     | 3.4                           | 28 to 60      | 48H1501-2R | -7, D    |
| 24                     | 2                             | 8 to 15       | 12H1601-2R | -7, D    |
| 24                     | 2                             | 14 to 30      | 24H1601-2R | -7, D    |
| 24                     | 2                             | 28 to 60      | 48H1601-2R | -7, D    |
| 48                     | 1                             | 8 to 15       | 12H1901-2R | -7, D    |
| 48                     | 1                             | 14 to 30      | 24H1901-2R | -7, D    |
| 48                     | 1                             | 28 to 60      | 48H1901-2R | -7, D    |
| 12, 12                 | 2, 2                          | 8 to 15       | 12H2320-2  | -7, D    |
| 12, 12                 | 2, 2                          | 14 to 30      | 24H2320-2  | -7, D    |
| 12, 12                 | 2, 2                          | 28 to 60      | 48H2320-2  | -7, D    |
| 15, 15                 | 1.7, 1.7                      | 8 to 15       | 12H2540-2  | -7, D    |
| 15, 15                 | 1.7, 1.7                      | 14 to 30      | 24H2540-2  | -7, D    |
| 15, 15                 | 1.7, 1.7                      | 28 to 60      | 48H2540-2  | -7, D    |
| 5.1, 12, 12            | 5, 0.7, 0.7                   | 8 to 15       | 12H3020-2  | -7, D, V |
| 5.1, 12, 12            | 5, 0.7, 0.7                   | 14 to 30      | 24H3020-2  | -7, D, V |
| 5.1, 12, 12            | 5, 0.7, 0.7                   | 28 to 60      | 48H3020-2  | -7, D, V |
| 5.1, 15, 15            | 5, 0.6, 0.6                   | 8 to 15       | 12H3040-2  | -7, D, V |
| 5.1, 15, 15            | 5, 0.6, 0.6                   | 14 to 30      | 24H3040-2  | -7, D, V |
| 5.1, 15, 15            | 5, 0.6, 0.6                   | 28 to 60      | 48H3040-2  | -7, D, V |

- Output voltage control (R) and inhibit
- Ambient temperature range -2: -10 to 50°C
- Built-in surge, transient suppression circuit
- I/O electric strength test 4.3 kVDC
- Outputs individually isolated
- Outputs fully protected against overload
- Safety: Class I equipment according to IEC/EN 60950, UL 1950

#### Options:

- 7 Ambient temperature range -25 to 71°C
- V ACFAIL signal (for 5.1 V output)
- D Save data signal



# DC/DC Cassette

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

| Output Voltage 1, 2, 3 | Output Current 1, 2, 3 (Amps) | Model Input Voltage 8 to 35 VDC | Model Input Voltage 14 to 70 VDC | Model Input Voltage 20 to 100 VDC | Options              |
|------------------------|-------------------------------|---------------------------------|----------------------------------|-----------------------------------|----------------------|
| 5.1                    | 8                             | AM1001-7R                       | BM1001-7R                        | FM1001-7R                         | -9, P, D, V, A, H, F |
| 12                     | 4                             | AM1301-7R                       | BM1301-7R                        | FM1301-7R                         | -9, P, D, A, H, F    |
| 15                     | 3.4                           | AM1501-7R                       | BM1501-7R                        | FM1501-7R                         | -9, P, D, A, H, F    |
| 24                     | 2                             | AM1601-7R                       | BM1601-7R                        | FM1601-7R                         | -9, P, D, A, H, F    |
| 48                     | 1                             | AM1901-7R                       | BM1901-7R                        | FM1901-7R                         | -9, P, D, A, H, F    |
| 12, 12                 | 2, 2                          | AM2320-7                        | BM2320-7                         | FM2320-7                          | -9, P, D, A, H, F    |
| 15, 15                 | 1.7, 1.7                      | AM2540-7                        | BM2540-7                         | FM2540-7                          | -9, P, D, A, H, F    |
| 5.1, 12, 12            | 5, 0.7, 0.7                   | AM3020-7                        | BM3020-7                         | FM3020-7                          | -9, P, D, V, A, H, F |
| 5.1, 15, 15            | 5, 0.6, 0.6                   | AM3040-7                        | BM3040-7                         | FM3040-7                          | -9, P, D, V, A, H, F |

| Output Voltage 1, 2, 3 | Output Current 1, 2, 3 (Amps) | Model Input Voltage 28 to 140 VDC | Model Input Voltage 44 to 220 VDC | Model Input Voltage 88 to 372 VDC | Options                 |
|------------------------|-------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|
| 5.1                    | 8                             | CM1001-7R                         | DM1001-7R                         | LM1001-7R                         | -9, E, P, D, V, A, H, F |
| 12                     | 4                             | CM1301-7R                         | DM1301-7R                         | LM1301-7R                         | -9, E, P, D, A, H, F    |
| 15                     | 3.4                           | CM1501-7R                         | DM1501-7R                         | LM1501-7R                         | -9, E, P, D, A, H, F    |
| 24                     | 2                             | CM1601-7R                         | DM1601-7R                         | LM1601-7R                         | -9, E, P, D, A, H, F    |
| 48                     | 1                             | CM1901-7R                         | DM1901-7R                         | LM1901-7R                         | -9, E, P, D, A, H, F    |
| 12, 12                 | 2, 2                          | CM2320-7                          | DM2320-7                          | LM2320-7                          | -9, E, P, D, A, H, F    |
| 15, 15                 | 1.7, 1.7                      | CM2540-7                          | DM2540-7                          | LM2540-7                          | -9, E, P, D, A, H, F    |
| 5.1, 12, 12            | 5, 0.7, 0.7                   | CM3020-7                          | DM3020-7                          | LM3020-7                          | -9, E, P, D, V, A, H, F |
| 5.1, 15, 15            | 5, 0.6, 0.6                   | CM3040-7                          | DM3040-7                          | LM3040-7                          | -9, E, P, D, V, A, H, F |

- Output voltage control (R) and inhibit
- Ambient temperature range -7: -25 to 71°C
- Surge and transient suppression circuitry
- I/O electric strength test 5.6 kVDC
- Outputs individually isolated, controlled
- Outputs fully protected against overload
- Safety: Class I equipment according to IEC/EN 60950, UL 1950
- CM, DM, LM types available as CMZ, DMZ, LMZ class II equipment

- Options:
- 9 Ambient temperature range -40 to 71°C
  - H Increased electric strength test voltage
  - F Input fuse internally (not accessible)
  - E Inrush current limitation (CM, LM only)
  - V ACFAIL signal (for 5.1 V output)
  - A Output voltage test sockets
  - P Potentiometer for  $V_O$
  - D Save data signal

## M Series

50 Watt DC/DC converters  
Input-to-output isolation  
1, 2 or 3 outputs up to 48 VDC  
Input voltage up to 372 VDC



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



# DC/DC Cassette

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

## Q Series

100 (150) Watt DC/DC converters  
Input-to-output isolation  
1 or 2 outputs up to 48 VDC  
Input voltage up to 150 VDC  
Surges 168 VDC for 2 s



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

- Extremely slim case (4TE wide)
- Outputs, units parallel or series configurable
- Flexible output power
- Very high efficiency up to 91%
- I/O electric strength test 4.3 kVDC
- Ambient temperature range:  
-7: -25 to 71°C  
-2: -10 to 50°C
- Output voltage control (R) and inhibit
- Redundant operation and auto current sharing
- Extremely low inrush current, hot plug-in
- Safety: Class I equipment according to IEC/EN 60950, UL 1950, EN 41003

### Options:

- 9 Ambient temperature range -40 to 71°C
- P Potentiometer for  $V_O$



| Output Voltage 1, 2 | Output Current 1, 2 (Amps) | Model Input Voltage 16 to 36 VDC | Model Input Voltage 38 to 75 VDC | Options |
|---------------------|----------------------------|----------------------------------|----------------------------------|---------|
| 5.1                 | 16                         | 24Q1001-2R                       | 48Q1001-2R                       | P       |
| 12                  | 8                          | 24Q2320-2R                       | 48Q2320-2R                       | P       |
| 15                  | 6.6                        | 24Q2540-2R                       | 48Q2540-2R                       | P       |
| 24                  | 4.4                        | 24Q2660-2R                       | 48Q2660-2R                       | P       |
| 24                  | 4                          | 24Q2320-2R                       | 48Q2320-2R                       | P       |
| 30                  | 3.3                        | 24Q2540-2R                       | 48Q2540-2R                       | P       |
| 48                  | 2.2                        | 24Q2660-2R                       | 48Q2660-2R                       | P       |
| 5.1, 5.1            | 7.5, 7.5                   | 24Q2001-2R                       | 48Q2001-2R                       | P       |
| 12, 12              | 4, 4                       | 24Q2320-2R                       | 48Q2320-2R                       | P       |
| 15, 15              | 3.3, 3.3                   | 24Q2540-2R                       | 48Q2540-2R                       | P       |
| 24, 24              | 2.2, 2.2                   | 24Q2660-2R                       | 48Q2660-2R                       | P       |

| Output Voltage 1, 2 | Output Current 1, 2 | Output Current $T_A = 50^\circ\text{C}$ Max. (Amps) | Model Input Voltage 14.4 to 36 VDC | Model Input Voltage 21.6 to 54 VDC | Model Input Voltage 35 to 75 VDC | Options |
|---------------------|---------------------|---|------------------------------------|------------------------------------|----------------------------------|---------|
| 3.3                 | 16                  | 20  | BQ1101-7                           | GQ1101-7                           | CQ1101-7                         | -9      |
| 5.1                 | 16                  | 20  | BQ1001-7R                          | GQ1001-7R                          | CQ1001-7R                        | -9, P   |
| 12                  | 8                   | 10  | BQ2320-7R                          | GQ2320-7R                          | CQ2320-7R                        | -9, P   |
| 15                  | 6.6                 | 8   | BQ2540-7R                          | GQ2540-7R                          | CQ2540-7R                        | -9, P   |
| 24                  | 4.4                 | 6   | BQ2660-7R                          | GQ2660-7R                          | CQ2660-7R                        | -9, P   |
| 24                  | 4                   | 5   | BQ2320-7R                          | GQ2320-7R                          | CQ2320-7R                        | -9, P   |
| 30                  | 3.3                 | 4   | BQ2540-7R                          | GQ2540-7R                          | CQ2540-7R                        | -9, P   |
| 48                  | 2.2                 | 3   | BQ2660-7R                          | GQ2660-7R                          | CQ2660-7R                        | -9, P   |
| 5.1, 5.1            | 7.5, 7.5            | 9.5, 9.5  | BQ2001-7R                          | GQ2001-7R                          | CQ2001-7R                        | -9, P   |
| 12, 12              | 4, 4                | 5, 5  | BQ2320-7R                          | GQ2320-7R                          | CQ2320-7R                        | -9, P   |
| 15, 15              | 3.3, 3.3            | 4, 4  | BQ2540-7R                          | GQ2540-7R                          | CQ2540-7R                        | -9, P   |
| 24, 24              | 2.2, 2.2            | 3, 3  | BQ2660-7R                          | GQ2660-7R                          | CQ2660-7R                        | -9, P   |

| Output Voltage 1, 2 | Output Current 1, 2 | Output Current $T_A = 50^\circ\text{C}$ Max. (Amps) | Model Input Voltage 43 to 108 VDC | Model Input Voltage 65 to 168 VDC | Options |
|---------------------|---------------------|---|-----------------------------------|-----------------------------------|---------|
| 3.3                 | 16                  | 20  | DQ1101-7                          | EQ1101-7                          | -9      |
| 5.1                 | 16                  | 20  | DQ1001-7R                         | EQ1001-7R                         | -9, P   |
| 12                  | 8                   | 10  | DQ2320-7R                         | EQ2320-7R                         | -9, P   |
| 15                  | 6.6                 | 8   | DQ2540-7R                         | EQ2540-7R                         | -9, P   |
| 24                  | 4.4                 | 6   | DQ2660-7R                         | EQ2660-7R                         | -9, P   |
| 24                  | 4                   | 5   | DQ2320-7R                         | EQ2320-7R                         | -9, P   |
| 30                  | 3.3                 | 4   | DQ2540-7R                         | EQ2540-7R                         | -9, P   |
| 48                  | 2.2                 | 3   | DQ2660-7R                         | EQ2660-7R                         | -9, P   |
| 5.1, 5.1            | 7.5, 7.5            | 9.5, 9.5  | DQ2001-7R                         | EQ2001-7R                         | -9, P   |
| 12, 12              | 4, 4                | 5, 5  | DQ2320-7R                         | EQ2320-7R                         | -9, P   |
| 15, 15              | 3.3, 3.3            | 4, 4  | DQ2540-7R                         | EQ2540-7R                         | -9, P   |
| 24, 24              | 2.2, 2.2            | 3, 3  | DQ2660-7R                         | EQ2660-7R                         | -9, P   |

# DC/DC Cassette

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

| Output Voltage 1, 2 | Output Current 1, 2 (Amps) | Model Input Voltage 8 to 35 VDC | Model Input Voltage 14 to 70 VDC | Model Input Voltage 20 to 100 VDC | Options               |
|---------------------|----------------------------|---------------------------------|----------------------------------|-----------------------------------|-----------------------|
| 5.1                 | 16                         | AS1001-7R                       | BS1001-7R                        | FS1001-7R                         | -9, E, D, V, P, T, B1 |
| 12                  | 8                          | AS1301-7R                       | BS1301-7R                        | FS1301-7R                         | -9, E, D, P, T, B1    |
| 15                  | 6.5                        | AS1501-7R                       | BS1501-7R                        | FS1501-7R                         | -9, E, D, P, T, B1    |
| 24                  | 4.2                        | AS1601-7R                       | BS1601-7R                        | FS1601-7R                         | -9, E, D, P, T, B1    |
| 24                  | 4                          | AS2320-7R                       | BS2320-7R                        | FS2320-7R                         | -9, E, D, P, T, B1    |
| 30                  | 3.2                        | AS2540-7R                       | BS2540-7R                        | FS2540-7R                         | -9, E, D, P, T, B1    |
| 48                  | 2                          | AS2660-7R                       | BS2660-7R                        | FS2660-7R                         | -9, E, D, P, T, B1    |
| 12, 12              | 4, 4                       | AS2320-7R                       | BS2320-7R                        | FS2320-7R                         | -9, E, D, P, T, B1    |
| 15, 15              | 3.2, 3.2                   | AS2540-7R                       | BS2540-7R                        | FS2540-7R                         | -9, E, D, P, T, B1    |
| 24, 24              | 2, 2                       | AS2660-7R                       | BS2660-7R                        | FS2660-7R                         | -9, E, D, P, T, B1    |

| Output Voltage 1, 2 | Output Current 1, 2 (Amps) | Model Input Voltage 28 to 140 VDC | Model Input Voltage 44 to 220 VDC | Model Input Voltage 67 to 385 VDC | Options               |
|---------------------|----------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------|
| 5.1                 | 16                         | CS1001-7R                         | DS1001-7R                         | ES1001-7R                         | -9, E, D, V, P, T, B1 |
| 12                  | 8                          | CS1301-7R                         | DS1301-7R                         | ES1301-7R                         | -9, E, D, P, T, B1    |
| 15                  | 6.5                        | CS1501-7R                         | DS1501-7R                         | ES1501-7R                         | -9, E, D, P, T, B1    |
| 24                  | 4.2                        | CS1601-7R                         | DS1601-7R                         | ES1601-7R                         | -9, E, D, P, T, B1    |
| 24                  | 4                          | CS2320-7R                         | DS2320-7R                         | ES2320-7R                         | -9, E, D, P, T, B1    |
| 30                  | 3.2                        | CS2540-7R                         | DS2540-7R                         | ES2540-7R                         | -9, E, D, P, T, B1    |
| 48                  | 2                          | CS2660-7R                         | DS2660-7R                         | ES2660-7R                         | -9, E, D, P, T, B1    |
| 12, 12              | 4, 4                       | CS2320-7R                         | DS2320-7R                         | ES2320-7R                         | -9, E, D, P, T, B1    |
| 15, 15              | 3.2, 3.2                   | CS2540-7R                         | DS2540-7R                         | ES2540-7R                         | -9, E, D, P, T, B1    |
| 24, 24              | 2, 2                       | CS2660-7R                         | DS2660-7R                         | ES2660-7R                         | -9, E, D, P, T, B1    |

- Extremely wide input voltage range
- Output voltage control (R) and inhibit
- Input over- and undervoltage lock-out
- Surge and transient suppression circuitry
- I/O electric strength test 5.6 kVDC
- Fully isolated outputs
- Outputs open- and short-circuit proof
- Ambient temperature range -7: -25 to 71°C
- No derating over temperature
- Safety: Class I equipment according to IEC/EN 60950, UL 1950

- Options:
- 9 Ambient temperature range -40 to 71°C
  - V ACFAIL signal (for 5.1 V output)
  - E Inrush current limitation (FS, CS, DS, ES)
  - D Save data signal
  - P Potentiometer for  $V_O$
  - T Current sharing
  - B1 Cooling plate

## S Series

100 Watt DC/DC converters  
Input-to-output isolation  
1 or 2 outputs up to 48 VDC  
Input voltage up to 385 VDC



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

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



# DC/DC Cassette

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

## P Series

120 to 180 Watt DC/DC converters  
Input-to-output isolation  
1 to 4 outputs up to 48 VDC  
Input voltage up to 150 VDC



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

- Flex power: Flexible load distribution
- Excellent surge and transient protection
- 3000 VAC input-to-output electric strength test
- Redundant operation (n+1), current-sharing option
- Extremely low inrush current, hot plug-in
- Extremely slim case (4TE wide) fully enclosed
- Safety according to IEC/EN 60950, UL 1950

### Options:

- 9 Ambient temperature range -40 to 71°C
- D Out OK output
- T Current sharing
- i Isolated inhibit on secondary side
- W Synchronization of switching frequency



| Output Voltage<br>1, 4 | Output Voltage<br>2, 3 | Power Max.<br>(Watts) | Power Nom.<br>(Watts) | Model Input Voltage<br>16 to 36 VDC | Model Input Voltage<br>33.6 to 75 VDC |
|------------------------|------------------------|-----------------------|-----------------------|-------------------------------------|---------------------------------------|
| 3.3                    |                        | 132                   | 100                   | BP1101-7R                           | CP1101-7R                             |
| 5.1                    |                        | 183                   | 122                   | BP1001-7R                           | CP1001-7R                             |
| 3.3                    | 5.1                    | 157                   | 111                   | BP2101-7R                           | CP2101-7R                             |
| 5.1                    | 5.1                    | 180                   | 122                   | BP2001-7R                           | CP2001-7R                             |
| 12                     | 12                     | 180                   | 120                   | BP2320-7R                           | CP2320-7R                             |
| 15                     | 15                     | 180                   | 120                   | BP2540-7R                           | CP2540-7R                             |
| 24                     | 24                     | 180                   | 120                   | BP2660-7R                           | CP2660-7R                             |
| 5.1                    | 12, 12                 | 180                   | 121                   | BP3020-7R                           | CP3020-7R                             |
| 5.1                    | 15, 15                 | 180                   | 121                   | BP3040-7R                           | CP3040-7R                             |
| 5.1, 3.3               | 12, 12                 | 121                   | 100                   | BP4720-7R                           | CP4720-7R                             |
| 24, 24                 | 24, 24                 | 180                   | 120                   | BP4660-7R                           | CP4660-7R                             |

| Output Voltage<br>1, 4 | Output Voltage<br>2, 3 | Power Max.<br>(Watts) | Power Nom.<br>(Watts) | Model Input Voltage<br>40 to 101 VDC | Model Input Voltage<br>66 to 150 VDC |
|------------------------|------------------------|-----------------------|-----------------------|--------------------------------------|--------------------------------------|
| 3.3                    |                        | 132                   | 100                   | DP1101-7R                            | EP1101-7R                            |
| 5.1                    |                        | 183                   | 122                   | DP1001-7R                            | EP1001-7R                            |
| 3.3                    | 5.1                    | 157                   | 111                   | DP2101-7R                            | EP2101-7R                            |
| 5.1                    | 5.1                    | 180                   | 122                   | DP2001-7R                            | EP2001-7R                            |
| 12                     | 12                     | 180                   | 120                   | DP2320-7R                            | EP2320-7R                            |
| 15                     | 15                     | 180                   | 120                   | DP2540-7R                            | EP2540-7R                            |
| 24                     | 24                     | 180                   | 120                   | DP2660-7R                            | EP2660-7R                            |
| 5.1                    | 12, 12                 | 180                   | 121                   | DP3020-7R                            | EP3020-7R                            |
| 5.1                    | 15, 15                 | 180                   | 121                   | DP3040-7R                            | EP3040-7R                            |
| 5.1, 3.3               | 12, 12                 | 121                   | 85                    | DP4720-7R                            | EP4720-7R                            |
| 24, 24                 | 24, 24                 | 180                   | 120                   | DP4660-7R                            | EP4660-7R                            |

| Output Voltage<br>1, 4 | Output Voltage<br>2, 3 | Power Max.<br>(Watts) | Power Nom.<br>(Watts) | Model Input Voltage<br>21.6 to 50.4 VDC |  |
|------------------------|------------------------|-----------------------|-----------------------|---|--|
| 3.3                    |                        | 132                   | 100                   | GP1101-7R                               |  |
| 5.1                    |                        | 183                   | 122                   | GP1001-7R                               |  |
| 3.3                    | 5.1                    | 157                   | 111                   | GP2101-7R                               |  |
| 5.1                    | 5.1                    | 180                   | 122                   | GP2001-7R                               |  |
| 12                     | 12                     | 180                   | 120                   | GP2320-7R                               |  |
| 15                     | 15                     | 180                   | 120                   | GP2540-7R                               |  |
| 24                     | 24                     | 180                   | 120                   | GP2660-7R                               |  |
| 5.1                    | 12, 12                 | 180                   | 121                   | GP3020-7R                               |  |
| 5.1                    | 15, 15                 | 180                   | 121                   | GP3040-7R                               |  |
| 5.1, 3.3               | 12, 12                 | 121                   | 85                    | GP4720-7R                               |  |
| 24, 24                 | 24, 24                 | 180                   | 120                   | GP4660-7R                               |  |

# DC/DC Cassette

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

| Output Voltage 1, 2 | Output Current 1, 2 (Amps) | Model Input Voltage 8 to 35 VDC | Model Input Voltage 14 to 70 VDC | Model Input Voltage 20 to 100 VDC | Options            |
|---------------------|----------------------------|---------------------------------|----------------------------------|-----------------------------------|--------------------|
| 5.1                 | 25                         | AK1001-7R                       | BK1001-7R                        | FK1001-7R                         | -9, D, V, P, T, B1 |
| 12                  | 12                         | AK1301-7R                       | BK1301-7R                        | FK1301-7R                         | -9, D, P, T, B1    |
| 15                  | 10                         | AK1501-7R                       | BK1501-7R                        | FK1501-7R                         | -9, D, P, T, B1    |
| 24                  | 6                          | AK1601-7R                       | BK1601-7R                        | FK1601-7R                         | -9, D, P, T, B1    |
| 24                  | 6                          | AK2320-7R                       | BK2320-7R                        | FK2320-7R                         | -9, D, P, T, B1    |
| 30                  | 5                          | AK2540-7R                       | BK2540-7R                        | FK2540-7R                         | -9, D, P, T, B1    |
| 48                  | 3                          | AK2660-7R                       | BK2660-7R                        | FK2660-7R                         | -9, D, P, T, B1    |
| 12, 12              | 6, 6                       | AK2320-7R                       | BK2320-7R                        | FK2320-7R                         | -9, D, P, T, B1    |
| 15, 15              | 5, 5                       | AK2540-7R                       | BK2540-7R                        | FK2540-7R                         | -9, D, P, T, B1    |
| 24, 24              | 3, 3                       | AK2660-7R                       | BK2660-7R                        | FK2660-7R                         | -9, D, P, T, B1    |

| Output Voltage 1, 2 | Output Current 1, 2 (Amps) | Model Input Voltage 28 to 140 VDC | Model Input Voltage 44 to 220 VDC | Model Input Voltage 67 to 385 VDC | Options               |
|---------------------|----------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------|
| 5.1                 | 25                         | CK1001-7R                         | DK1001-7R                         | EK1001-7R                         | -9, E, D, V, P, T, B1 |
| 12                  | 12                         | CK1301-7R                         | DK1301-7R                         | EK1301-7R                         | -9, E, D, P, T, B1    |
| 15                  | 10                         | CK1501-7R                         | DK1501-7R                         | EK1501-7R                         | -9, E, D, P, T, B1    |
| 24                  | 6                          | CK1601-7R                         | DK1601-7R                         | EK1601-7R                         | -9, E, D, P, T, B1    |
| 24                  | 6                          | CK2320-7R                         | DK2320-7R                         | EK2320-7R                         | -9, E, D, P, T, B1    |
| 30                  | 5                          | CK2540-7R                         | DK2540-7R                         | EK2540-7R                         | -9, E, D, P, T, B1    |
| 48                  | 3                          | CK2660-7R                         | DK2660-7R                         | EK2660-7R                         | -9, E, D, P, T, B1    |
| 12, 12              | 6, 6                       | CK2320-7R                         | DK2320-7R                         | EK2320-7R                         | -9, E, D, P, T, B1    |
| 15, 15              | 5, 5                       | CK2540-7R                         | DK2540-7R                         | EK2540-7R                         | -9, E, D, P, T, B1    |
| 24, 24              | 3, 3                       | CK2660-7R                         | DK2660-7R                         | EK2660-7R                         | -9, E, D, P, T, B1    |

- Extremely wide input voltage range
- Input over- and undervoltage lock-out
- Output voltage control (R) and inhibit
- Surge and transient suppression circuitry
- I/O electric strength test 5.6 kVDC
- Fully isolated outputs
- Outputs open- and short-circuit proof
- Ambient temperature range  
-7: -25 to 71°C
- No derating over temperature  
(exception: AK have reduced output power, approx. 85%)
- Safety: Class I equipment according to IEC/EN 60950, UL 1950

#### Options

- 9 Ambient temperature range -40 to 71°C
- V ACFAIL signal (for 5.1 V output)
- E Inrush current limitation (CK, DK, EK)
- D Save data signal
- P Potentiometer for  $V_0$
- T Current sharing
- B1 Cooling plate

#### K Series

150 Watt DC/DC converters  
Input-to-output isolation  
1 or 2 outputs up to 48 VDC  
Input voltage up to 385 VDC



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

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



# DC/DC — Positive Switching Regulators



## PSA, PSR

2.76 x 2.00 x 1.00 inch  
70.1 x 50.8 x 25.4 mm

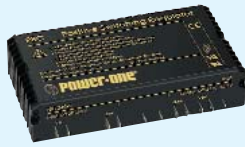
- Input Voltage Up to 144VDC
- Single Output of 5.1 to 48VDC
- No Input-to-Output Isolation



## PSB

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

- Input Voltage Up to 144VDC
- Single Output of 5.1 to 48VDC
- No Input-to-Output Isolation



## PSC

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

- Input Voltage Up to 144VDC
- Single Output of 3.3 to 36VDC
- No Input-to-Output Isolation

### Options:

- 9 Ambient temperature range -40 to 71°C
- A Test sockets
- B Cooling plate large
- B1 Cooling plate small
- C Thyristor-Crowbar
- D "Save Data" undervoltage monitor
- E Inrush current limitation
- i Inhibit
- L Input filter
- P Potentiometer
- R External output voltage control
- Y Small soldering pins (0.5 x 1 mm)

| Output Voltage                    | Output Current (Amps) | Input Voltage | Power (Watts) | Efficiency | Model         | Options        |
|-----------------------------------|-----------------------|---------------|---------------|------------|---------------|----------------|
| <b>DC/DC Chassis Mount PSR's:</b> |                       |               |               |            |               |                |
| 3.3                               | 12                    | 6 to 40       | 39.6          | 77         | PSC 3E12-2    | iR-Package     |
| 5                                 | 2                     | 8 to 80       | 10            | 74         | PSR 52-7      | Y              |
| 5                                 | 3                     | 8 to 80       | 15            | 79         | PSR 53-7      | -9, i, P, R, Y |
| 5                                 | 4                     | 7 to 40       | 20            | 83         | PSR 54-7      | -9, i, P, R, Y |
| 5                                 | 5                     | 7 to 35       | 25            | 83         | PSA 55-7      | -9, i, P, R, Y |
| 5.1                               | 2                     | 8 to 40       | 10.2          | 75         | PSA 5A2-2     | iRY-Package    |
| 5.1                               | 4 to 5                | 15 to 144     | 25.5          | 80         | PSB 5A4-7iR   | -9, L, P, C    |
| 5.1                               | 5                     | 7 to 35       | 25.5          | 83         | PSA 5A5-2     | iRY-Package    |
| 5.1                               | 6                     | 8 to 80       | 30.6          | 81         | PSB 5A6-7iR   | -9, L, P, C    |
| 5.1                               | 7                     | 7 to 40       | 35.7          | 84         | PSB 5A7-7iR   | -9, L, P, C    |
| 5.1                               | 8                     | 7 to 40       | 40.8          | 81         | PSB 5A8-2     | iR-Package     |
| 5.1                               | 10                    | 8 to 80       | 51            | 79         | PSC 5A10-7iR  | -9, L, P, C, D |
| 5.1                               | 11                    | 8 to 40       | 56.1          | 79         | PSC 5A11-2    | iR-Package     |
| 5.1                               | 12                    | 7 to 40       | 61.2          | 83         | PSC 5A12-7iR  | -9, L, P, C, D |
| 12                                | 1.5                   | 18 to 144     | 18            | 87         | PSA 121.5-7iR | -9, P, Y       |
| 12                                | 2.5                   | 15 to 80      | 30            | 87         | PSR 122.5-7   | -9, i, P, R, Y |
| 12                                | 3                     | 15 to 40      | 36            | 89         | PSA 123-2     | iRY-Package    |
| 12                                | 3 to 4                | 18 to 144     | 48            | 89         | PSB 123-7iR   | -9, L, P, C    |
| 12                                | 5                     | 15 to 80      | 60            | 90         | PSB 125-7iR   | -9, L, P, C    |
| 12                                | 6                     | 15 to 40      | 72            | 90         | PSB 126-2     | iR-Package     |
| 12                                | 6                     | 18 to 144     | 72            | 89         | PSC 126-7iR   | -9, L, P, C, D |
| 12                                | 8                     | 15 to 80      | 96            | 90         | PSC 128-7iR   | -9, L, P, C, D |
| 12                                | 9                     | 15 to 40      | 108           | 90         | PSC 129-2     | iR-Package     |
| 15                                | 1.5                   | 22 to 144     | 22.5          | 89         | PSA 151.5-7iR | -9, P, Y       |
| 15                                | 2.5                   | 19 to 80      | 37.5          | 89         | PSR 152.5-7   | -9, i, P, R, Y |
| 15                                | 3                     | 19 to 40      | 45            | 90         | PSA 153-2     | iRY-Package    |
| 15                                | 3 to 4                | 22 to 144     | 60            | 90         | PSB 153-7iR   | -9, L, P, C    |
| 15                                | 5                     | 19 to 80      | 75            | 92         | PSB 155-7iR   | -9, L, P, C    |
| 15                                | 6                     | 19 to 40      | 90            | 92         | PSB 156-2     | iR-Package     |
| 15                                | 6                     | 22 to 144     | 90            | 90         | PSC 156-7iR   | -9, L, P, C, D |
| 15                                | 8                     | 19 to 80      | 120           | 91         | PSC 158-7iR   | -9, L, P, C, D |
| 15                                | 9                     | 19 to 40      | 135           | 91         | PSC 159-2     | iR-Package     |
| 24                                | 1.5                   | 31 to 144     | 36            | 93         | PSA 241.5-7iR | -9, P, Y       |
| 24                                | 2                     | 29 to 80      | 48            | 92         | PSR 242-7     | -9, i, P, R, Y |
| 24                                | 2.5                   | 29 to 60      | 60            | 93         | PSA 242.5-2   | iRY-Package    |
| 24                                | 3 to 4                | 31 to 144     | 96            | 94         | PSB 243-7iR   | -9, L, P, C    |
| 24                                | 5                     | 29 to 80      | 120           | 95         | PSB 245-7iR   | -9, L, P, C    |
| 24                                | 6                     | 29 to 60      | 144           | 95         | PSB 246-2     | iR-Package     |
| 24                                | 6                     | 31 to 144     | 144           | 94         | PSC 246-7iR   | -9, L, P, C, D |
| 24                                | 8                     | 29 to 80      | 192           | 94         | PSC 248-7iR   | -9, L, P, C, D |
| 24                                | 9                     | 29 to 60      | 216           | 94         | PSC 249-2     | iR-Package     |
| 36                                | 1.2                   | 44 to 144     | 43.2          | 95         | PSA 361-7iR   | -9, P, Y       |
| 36                                | 2                     | 42 to 80      | 72            | 94         | PSR 362-7     | -9, i, P, R, Y |
| 36                                | 3 to 4                | 44 to 144     | 144           | 95         | PSB 363-7iR   | -9, L, P, C    |
| 36                                | 5                     | 42 to 80      | 180           | 96         | PSB 365-7iR   | -9, L, P, C    |
| 36                                | 6                     | 44 to 144     | 216           | 95         | PSC 366-7iR   | -9, L, P, C, D |
| 36                                | 8                     | 42 to 80      | 288           | 96         | PSC 368-7iR   | -9, L, P, C, D |

# DC/DC — Positive Switching Regulators

| Output Voltage                                | Output Current (Amps) | Input Voltage | Power (Watts) | Efficiency | Model       | Options              |
|---|-----------------------|---------------|---------------|------------|-------------|----------------------|
| <b>DC/DC Chassis Mount PSR's: (Continued)</b> |                       |               |               |            |             |                      |
| 48  | 1                     | 58 to 144     | 48            | 95         | PSA 481-7IR | -9, P, Y             |
| 48  | 3 to 4                | 58 to 144     | 192           | 96         | PSB 483-7IR | -9, L, P, C          |
| 48  | 6                     | 58 to 144     | 288           | 97         | PSC 486-7IR | -9, L, P, C, D*      |
| <b>DC/DC Cassette Style PSR's:</b>            |                       |               |               |            |             |                      |
| 5.1   | 10                    | 8 to 80       | 51            | 79         | PSL 5A10-7R | -9, L, i, P, C, D, A |
| 5.1   | 11                    | 8 to 40       | 56.1          | 79         | PSL 5A11-2R |                      |
| 5.1   | 12                    | 7 to 40       | 61.2          | 83         | PSL 5A12-7R | -9, L, i, P, C, D, A |
| 5.1   | 12                    | 8 to 80       | 61.2          | 79         | PSS 5A12-7  | -9, E, P, C, B, B1   |
| 5.1   | 14                    | 8 to 40       | 71.4          | 83         | PSS 5A14-2  | B, B1                |
| 5.1   | 16                    | 8 to 80       | 81.6          | 79         | PSK 5A16-7  | -9, E, P, C, B, B1   |
| 5.1   | 18                    | 8 to 40       | 91.8          | 82         | PSK 5A18-2  | B, B1                |
| 5.1   | 20                    | 8 to 80       | 102           | 79         | PSK 5A20-7  | -9, E, P, C, B, B1   |
| 5.1   | 25                    | 8 to 40       | 127.5         | 82         | PSK 5A25-7  | -9, E, P, C, B, B1   |
| 12  | 6                     | 18 to 144     | 72            | 89         | PSL 126-7R  | -9, L, i, P, C, D, A |
| 12  | 8                     | 15 to 80      | 96            | 90         | PSL 128-7R  | -9, L, i, P, C, D, A |
| 12  | 9                     | 15 to 40      | 108           | 90         | PSL 129-2R  |                      |
| 12 (15)                                       | 9                     | 18 to 144     | 108 (135)     | 91         | PSS129-7    | -9, E, P, C, B, B1   |
| 12 (15)                                       | 12                    | 15 to 80      | 144 (180)     | 91         | PSS1212-7   | -9, E, P, C, B, B1   |
| 12 (15)                                       | 12                    | 18 to 144     | 144 (180)     | 91         | PSK 1212-7  | -9, E, P, C, B, B1   |
| 12 (15)                                       | 14                    | 16 to 40      | 168 (210)     | 90         | PSS1214-2   | B, B1                |
| 12 (15)                                       | 16                    | 15 to 80      | 192 (240)     | 90         | PSK 1216-7  | -9, E, P, C, B, B1   |
| 12 (15)                                       | 18                    | 16 to 40      | 216 (270)     | 90         | PSK 1218-2  | B, B1                |
| 12 (15)                                       | 20                    | 15 to 80      | 240 (300)     | 90         | PSK 1220-7  | -9, E, P, C, B, B1   |
| 15  | 6                     | 22 to 144     | 90            | 90         | PSL 156-7R  | -9, L, i, P, C, D, A |
| 15  | 8                     | 19 to 80      | 120           | 91         | PSL 158-7R  | -9, L, i, P, C, D, A |
| 15  | 9                     | 19 to 40      | 135           | 91         | PSL 159-2R  |                      |
| 24  | 6                     | 31 to 144     | 144           | 94         | PSL 246-7R  | -9, L, i, P, C, D, A |
| 24  | 8                     | 29 to 80      | 192           | 94         | PSL 248-7R  | -9, L, i, P, C, D, A |
| 24  | 9                     | 29 to 60      | 216           | 94         | PSL 249-2R  |                      |
| 24  | 9                     | 31 to 144     | 216           | 94         | PSS 249-7   | -9, E, P, C, B, B1   |
| 24  | 12                    | 29 to 80      | 288           | 94         | PSS 2412-7  | -9, E, P, C, B, B1   |
| 24  | 12                    | 31 to 144     | 288           | 94         | PSK 2412-7  | -9, E, P, C, B, B1   |
| 24  | 14                    | 29 to 60      | 336           | 94         | PSS 2414-2  | B, B1                |
| 24  | 16                    | 29 to 80      | 384           | 94         | PSK 2416-7  | -9, E, P, C, B, B1   |
| 24  | 18                    | 29 to 60      | 432           | 94         | PSK 2418-2  | B, B1                |
| 24  | 20                    | 29 to 80      | 480           | 94         | PSK 2420-7  | -9, E, P, C, B, B1   |
| 36  | 6                     | 44 to 144     | 216           | 96         | PSL 366-7R  | -9, L, i, P, C, D, A |
| 36  | 8                     | 42 to 80      | 288           | 96         | PSL 368-7R  | -9, L, i, P, C, D, A |
| 36  | 9                     | 44 to 144     | 324           | 96         | PSS 369-7   | -9, E, P, C, B, B1   |
| 36  | 12                    | 42 to 80      | 432           | 96         | PSS 3612-7  | -9, E, P, C, B, B1   |
| 36  | 12                    | 44 to 144     | 432           | 96         | PSK 3612-7  | -9, E, P, C, B, B1   |
| 36  | 16                    | 42 to 80      | 576           | 95         | PSK 3616-7  | -9, E, P, C, B, B1   |
| 36  | 20                    | 42 to 80      | 720           | 95         | PSK 3620-7  | -9, E, P, C, B, B1   |
| 48  | 6                     | 58 to 144     | 288           | 97         | PSL 486-7R  | -9, L, i, P, C, D, A |
| 48  | 9                     | 58 to 144     | 432           | 97         | PSS 489-7   | -9, E, P, C, B, B1   |
| 48  | 12                    | 58 to 144     | 576           | 97         | PSK 4812-7  | -9, E, P, C, B, B1   |



**PSK**

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

- Input Voltage Up to 144VDC
- Single Output of 3.3 to 48VDC
- No Input-to-Output Isolation



**PSL**

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

- Input Voltage Up to 144VDC
- Single Output of 5.1 to 48VDC
- No Input-to-Output Isolation



**PSS**

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

- Input Voltage Up to 144VDC
- Single Output of 3.3 to 48VDC
- No Input-to-Output Isolation

**Options:**

- 9 Ambient temperature range -40 to 71°C
- A Test sockets
- B Cooling plate large
- B1 Cooling plate small
- C Thyristor-Crowbar
- D "Save Data" undervoltage monitor
- E Inrush current limitation
- i Inhibit
- L Input filter
- P Potentiometer
- R External output voltage control
- Y Small soldering pins (0.5 x 1 mm)

## Comprehensive Information

- Product Data Sheets
- Application Notes
- New Product Announcements
- Power-One Contacts
- Investor Relations



## Product Selection

- AC/DC Power Supplies
- DC/DC Converters
- Telecom Power Plants
- Power Accessories
- Modular Product Configurator



## Technical Reference

- Technical Articles
- Industry Links
- Regulatory Agency Information
- Power Conversion Glossary



## Distributor Inventory

- Locates Power-One Products Fast
- Links to Distributor Ordering Pages Provide Price and Availability



# Product Update 2002 Edition Two

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geographic areas not listed below

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