

The new **QD48** Family of dual output, 48 V input, DC-DC converters from Power-One offers unprecedented performance in a quarter brick package by providing two independently regulated high current outputs. This is accomplished by the use of patent pending circuit and packaging techniques to achieve ultra-high efficiency, excellent thermal performance and a very low body profile.

In telecommunications applications the **QD48** converters provide up to 15 A per channel simultaneously - 30 A total - with thermal performance far exceeding existing dual quarter bricks and comparable to dual half bricks.

Unique to quarter bricks, the **QD48** converters utilize independent power trains and control functions for each output, allowing very tight output voltage regulation and very low channel interference. In some applications they can be used to replace two single-output quarter bricks.

Low body profile and the preclusion of heat sinks minimize airflow shadowing, thus enhancing cooling for downstream devices. The use of 100% surface-mount technologies for assembly, coupled with Power-One's advanced electric and thermal circuitry and packaging, result in a product with extremely high reliability.

The **QD48** family provides any combination of standard voltages from 5.0 V to 1.2 V in an industry standard seven-pin package. Outputs can be trimmed from -10% to +10% of the nominal output voltage, thus providing outstanding design flexibility.

The **QD48** family is designed to be a drop-in replacement for existing dual designs, and utilizes a common trim function for both outputs. The converters are also available in a surface mount package.

Inclusion of this new converter in new designs can result in a significant reliability improvement over other available duals because of its optimized thermal efficiency.

## Applications

- Telecommunications
- Data communications
- Wireless
- Servers

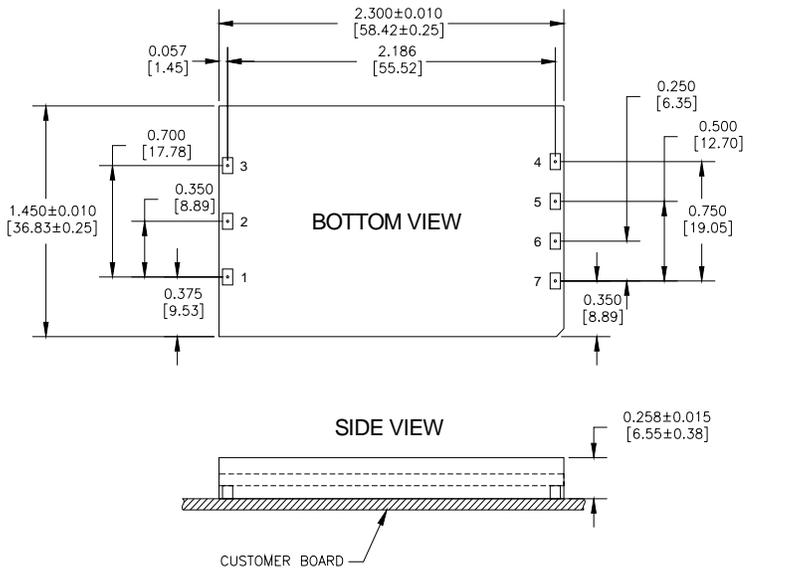


**QD48T Converter**

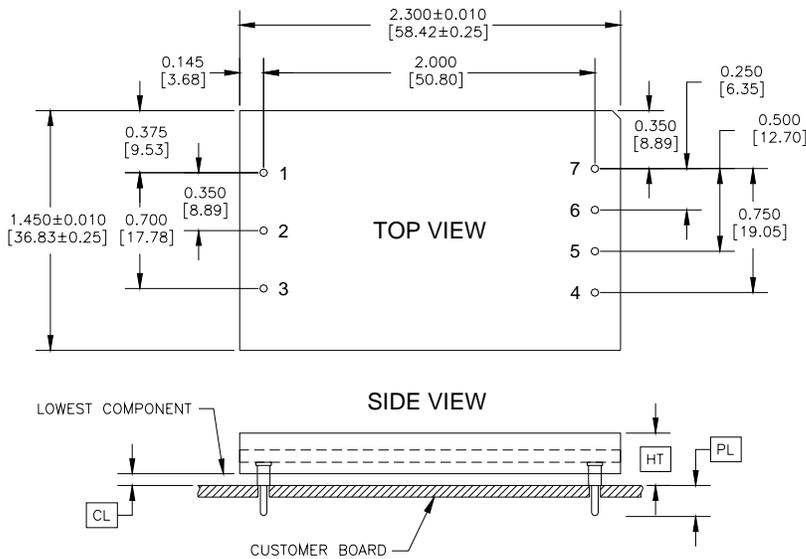
## Features

- RoHS lead-free solder and lead-solder-exempted products are available
- Two independently regulated outputs in any combination of voltages from 1.2 V to 5.0 V
- Simultaneously delivers 15 A per output from 1.2 V to 3.3 V; 10 A for 5 V output
- Minimal cross-channel interference
- Can replace two single-output quarter bricks
- High efficiency – no heatsink required
- High reliability
- On-board differential input LC- filter
- Start-up into pre-biased outputs
- No minimum load required on either output
- Available in through-hole and SM packages
- Industry-standard pinout
- Industry-standard footprint: 1.45" x 2.30"
- Low profile: 0.26" [6.6 mm]
- Low weight: 1 oz [28 g] typical)
- Meets Basic Insulation requirements of EN60950  
Withstands 100 V input transient for 100 ms
- Positive or negative logic ON/OFF referenced to input
- Fixed-frequency operation
- Both outputs trimmed via common external trim resistor, range: +10%/-10% of  $V_{NOM}$  for both outputs
- UL 60950 recognized in US and Canada and DEMKO certified per IEC/EN 60950
- Meets FCC Class B and IEC/EN 55022 Class B conducted requirements with external filter

**Physical Information**



**QD48S Pinout (Surface mount)**



**QD48T Pinout (Through-hole)**

**QD48S Platform Notes**

- All dimensions are in inches [mm]
- Connector Material: Copper
- Connector Finish: Gold over Nickel
- Module Weight: 1 oz [28 g]
- Recommended surface mount pads:  
Min. 0.080" X 0.112"  
Max. 0.092" X 0.124"

**Pin Connections**

Pin #	Function
1	V <sub>in</sub> (+)
2	ON/OFF
3	V <sub>in</sub> (-)
4	V <sub>OUT1</sub> (+)
5	RTN [Vo1(-) +Vo2(-)]
6	TRIM
7	V <sub>OUT2</sub> (+)

Height Option	[HT] (Max. Height)	[CL] (Min. Clearance)
	+0.000 [0.00] - 0.038 [-0.97]	+0.016 [+0.41] -0.000 [-0.00]
A	0.303 [7.69]	0.030 [0.77]
B	0.336 [8.53]	0.063 [1.60]
C	0.500 [12.70]	0.227 [5.77]
D	0.400 [10.16]	0.127 [3.23]

Pin Option	PL Pin Length
	±0.005 [±0.13]
A	0.188 [4.77]
B	0.145 [3.68]
C	0.110 [2.79]

**QD48T Platform Notes**

- All dimensions are in inches [mm]
- All pins are 0.040"[1.02] diameter with 0.078" [1.98] shoulder
- Pin material: Brass
- Pin Finish: Tin/Lead over Nickel
- Pin Length: Options shown on page 3
- Module Weight: 1 oz [28 g]

## Converter Part Numbering Scheme

Product Series	Input Voltage	Mounting Scheme	Output Voltage 1 (V <sub>OUT1</sub> )	Output Voltage 2 (V <sub>OUT2</sub> )		ON/OFF Logic	Maximum Height [HT]	Pin Length [PL]	Special Features
<b>QD</b>	<b>48</b>	<b>T</b>	<b>025</b>	<b>033</b>	<b>-</b>	<b>N</b>	<b>B</b>	<b>A</b>	<b>0</b>
Dual Quarter-Brick Format	36-75 V	S ⇒ Surface Mount  T ⇒ Through-hole	012 ⇒ 1.2 V 015 ⇒ 1.5 V 018 ⇒ 1.8 V 020 ⇒ 2.0 V 025 ⇒ 2.5 V 033 ⇒ 3.3 V	015 ⇒ 1.5 V 018 ⇒ 1.8 V 020 ⇒ 2.0 V 025 ⇒ 2.5 V 033 ⇒ 3.3 V 050 ⇒ 5.0 V		N ⇒ Negative  P ⇒ Positive	<u>SMT</u> S ⇒ 0.273"	<u>SMT</u> 0 ⇒ 0.00"	0 ⇒ STD
			Note: Always specify V <sub>OUT2</sub> as the higher of the two output voltages.				<u>Through hole</u> A ⇒ 0.303" B ⇒ 0.336" C ⇒ 0.500" D ⇒ 0.400"	<u>Through hole</u> A ⇒ 0.188" B ⇒ 0.145" C ⇒ 0.110"	

The example above describes P/N QD48T025033-NBA0: 36-75 V input, through-hole dual output, 2.5 V and 3.3 V outputs @ 15 A each, negative ON/OFF logic, a maximum height of 0.336", and a through the board pin length of 0.188". Please consult factory regarding availability of a specific version.

### RoHS Ordering Information:

- No RoHS suffix character is required for lead-solder-exemption compliance.
- For RoHS compliance to all six substances, add the letter "G" as the last letter of the part number.

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

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