

## HQ Series

## 40-50A High Efficiency Quarter Bricks

### Description

The HQ series of high current, high efficiency DC/DC converters offer current levels that exceed all other quarter-bricks and are comparable to existing quarter-bricks. With a wide input voltage range of 36-75V they are available with an output voltage of either 1.5, 1.8, 2.5 or 3.3 Volts. All models feature an input filter, input undervoltage lockout, output overvoltage and overtemperature protection, output current limiting and short circuit protection. The unique open-frame construction with aluminum heat spreader design achieves efficient heat transfer with no hot spots. The use of patented Flat Matrix Transformer technology and other patent-pending design concepts facilitate maximum power delivered with the highest efficiency up to 91%. The converters combine creative design concepts with highly derated power devices to achieve very high reliability, high performance and offer a low cost solution to systems designers that are challenged to maximize power and minimize board space.



### Features

- Delivers up to 50A in Quarter Brick
- High efficiency patented topology
- Low profile of only 0.48 inch
- 1.5V, 1.8V, 2.5V or 3.3V output modules
- 100V/100ms Input transient capability
- -40°C to +85 °C ambient operation
- Meets Basic Insulation requirements of EN60950
- UL 1950 recognized, CAN / CSA C22.2 No. 950-95 Certified, and TUV EN60950 ( pending )
- Meets conducted limits of FCC Class B and CEI IEC61204-3 Class B with external filter

### Applications

- Telecommunications
- Data Communications
- Wireless Communications
- Networking Gear
- Servers, Switches and Data Storage
- Semiconductor Test Equipment
- Distributed Power Architecture

### Specification Summary

- 40A @ 3.3V, 45A @ 2.5V, 50A @ 1.8V, 50A @ 1.5V
- Tightly output regulation, typical  $\pm 1\%$
- No minimum load required
- Ripple & Noise (20Mhz BW) 100 mV (pk-pk)
- Wide input operating range 36-75V
- On/Off pin and remote sense
- Output adjustment +/-10% range
- 1500V, 10M input-to-output isolation
- Open frame construction with heat spreader for low temperature rise
- Output overcurrent and overvoltage protection
- Over Temperature protection
- Input Under voltage protection
- MTBF of 1,600,000 hours @ 50°C ( Bellcore )

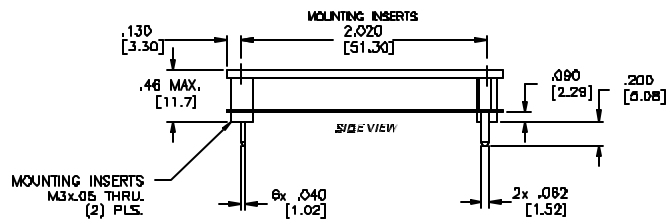
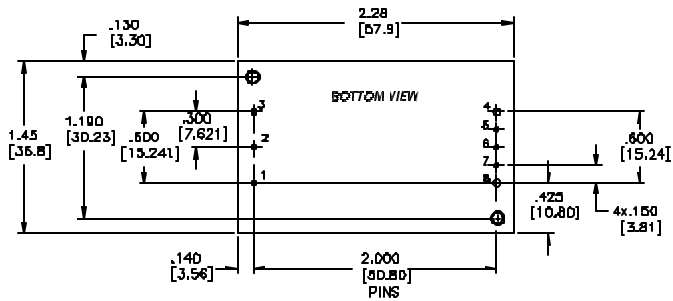
**Part Number and Selection Information**

Model Part Number		Input				Output		Efficiency 75% Load
		Voltage (Volts)		Current (A)		Voltage	Current	
Positive Logic	Negative Logic	Nominal	Range	No load	Full load	(Volts)	(Amps)	(%)
HQ40A-48-3.3	HQ40A-48-3.3N	48	36-75	0.1	3.2	3.3	40	89
HQ45A-48-2.5	HQ45A-48-2.5N	48	36-75	0.1	2.8	2.5	45	87
HQ50A-48-1.8	HQ50A-48-1.8N	48	36-75	0.1	2.2	1.8	50	86
HQ50A-48-1.5	HQ50A-48-1.5N	48	36-75	0.1	1.8	1.5	50	85
HQ15A-48-12	HQ15A-48-12N	48	36-75	0.1	4.1	12.0	15	93
HQ35A-48-5	HQ35A-48-5N	48	36-75	0.1	4.0	5.0	35	91

Typical at Ta= +25°C under nominal line voltage and 75% load conditions, unless noted.  
 Consult factory for other output voltage configurations and optional accessories such as heatsinks and filters.

**Outline Information and Pin-out**

Pin Connection	
Pin#	Function
1	Vin +
2	On/Off
3	Vin -
4	Vout -
5	Sense -
6	Trim
7	Sense +
8	Vout +



All dimensions are in inches [mm]  
 Pin 4 and 8 are dia. 0.062 [1.57]  
 All other pins are all dia. 0.040 [1.02]  
 Pin material: Brass  
 Pin finish: Tin/Lead plated  
 Heat spreader (baseplate) material:  
 Aluminum  
 Weight: 39.5g (1.4oz)

Thermal derating for vertical orientation, Vin=54V

Output Voltage (Volts)	Output Current at 40°C (Amps)				Output Current at 60°C (Amps)			
	200 LFM		300 LFM		200 LFM		300 LFM	
	NoHeatsink	With Heatsink	No Heatsink	With Heatsink	No Heatsink	With Heatsink	No Heatsink	With Heatsink
3.3	32	40	35	40	28	40	30	40
2.5	35	45	37	45	30	45	32	45
1.8	39	50	42	50	33	50	38	50
1.5	41	50	46	50	37	50	41	50
12.0	8.0	12	10.0	12	6.0	12	8.0	12
5.0	16	25	21	25	13	25	16	25

The information and specifications contained in this brief are believed to be accurate and reliable at the time of publication. Specifications are subject to change without notice. Refer to product specification sheet for performance characteristics and application guidelines.