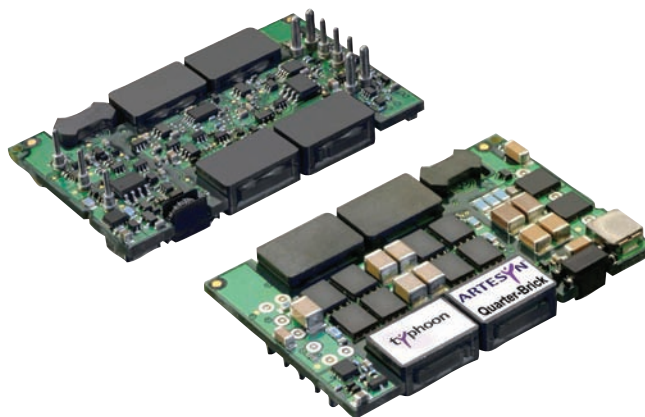


## LQS Series

### Quarter-Brick Series

**Total Power:** 200 Watts  
**Input Voltage:** 36 V to 75 V  
**# of Outputs:** 1



### Special Features

- Ultra high efficiency topology
- Unprecedented useable output power levels
- High power density (200 W/in<sup>3</sup>) open-frame technology
- Wide ambient temperature range, -40 °C to +85 °C
- 80% to 110% output trim
- Monotonic start-up in normal and prebiased loads
- Basic insulation system
- Overvoltage and overtemperature protection
- Secondary side control, no optocouplers, fast transient response
- 100 V, 100 ms input transient rated
- Available RoHS compliant

### Electrical Specifications

| Input                            |                         |                                         |
|----------------------------------|-------------------------|-----------------------------------------|
| Input voltage range:             | 24 V nominal            | 18 - 36 Vdc                             |
|                                  | 48 V nominal            | 36 - 75 Vdc                             |
| Input current:                   | No load                 | 85 mA to 150 mA                         |
|                                  | Remote OFF              | 5 mA                                    |
| Active high remote ON/OFF:       | Logic compatibility     | Open collector ref to -input            |
|                                  | ON                      | Open circuit or > 2.4 Vdc               |
| Undervoltage lockout:            | OFF                     | < 0.4 Vdc                               |
|                                  | Power up                | 35.5 V (typ.)                           |
| Start-up time (See note 2):      | Power down              | 33.5 V (typ.)                           |
|                                  | Remote ON/OFF           | 10 ms (typ.)                            |
| Output                           |                         |                                         |
| Voltage adjustability:           |                         | 80% to 110%                             |
| Minimum load:                    |                         | 0%                                      |
| Overshoot                        | At turn-on and turn-off | None                                    |
| Undershoot:                      |                         | None                                    |
| Transient response: (See note 1) |                         | 70 mV, typ. deviation<br>20 µs recovery |

### Safety

UL, cUL 60950-1 Ed 2  
CSA C22.2 No 60950-1 Ed 2  
VDE EN60950-1:2006 + A11:2009



## Electrical Specifications continued

| EMC Characteristics          |                                                     |                               |
|------------------------------|-----------------------------------------------------|-------------------------------|
| Immunity:                    |                                                     |                               |
| ESD air enclosure:           | EN61000-4-2 8 kV/6 kV (O/P within spec.)            |                               |
| Radiated field enclosure:    | EN61000-4-3 10 V/m (O/P within spec.)               |                               |
| Conducted:                   | EN61000-4-6 10 V (O/P within spec.)                 |                               |
| Input transients:            | 100 V, 100 ms                                       |                               |
| General Characteristics      |                                                     |                               |
| Basic insulation:            | Input/output                                        | 2250 Vdc                      |
| Switching frequency:         | Fixed                                               | 480 kHz                       |
| Approvals and standards:     | (See Note 3)                                        | EN60950-1 VDE, UL/cUL 60950-1 |
| Material flammability:       |                                                     | UL94V-0                       |
| Weight:                      |                                                     | 37g (1.30 oz)                 |
| MTBF:                        | Telcordia Tech SR-332                               | 3,866,933 hours               |
| Environmental Specifications |                                                     |                               |
| Thermal performance:         | Operating ambient temperature                       | -40 °C to +85 °C              |
|                              | Non-operating                                       | -55 °C to +125 °C             |
| Protection                   |                                                     |                               |
| Short-circuit                | Continuous                                          |                               |
| Overvoltage                  | Non-latching                                        |                               |
| Thermal                      | 125 °C hot spot temperature with automatic recovery |                               |

## Ordering Information

| Output Voltage            | Input Current Max. <sup>4</sup> | Input Ripple Current <sup>5</sup> | Output Current Max. | Efficiency typ. | Regulation              |        |        | Ripple & noise (pk-pk) | Model Number <sup>6,8, 9,10</sup> |
|---------------------------|---------------------------------|-----------------------------------|---------------------|-----------------|-------------------------|--------|--------|------------------------|-----------------------------------|
|                           |                                 |                                   |                     |                 | Set point accuracy Max. | Line   | Load   |                        |                                   |
| 48 Vin VALUE MODELS       |                                 |                                   |                     |                 |                         |        |        |                        |                                   |
| 1.2 V                     | 1.92 A                          | 150 mA                            | 50 A                | 88.5%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS50A48-1V2J                     |
| 1.5 V                     | 2.36 A                          | 150 mA                            | 50 A                | 89.5 %          | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS50A48-1V5J                     |
| 1.8 V                     | 2.82 A                          | 150 mA                            | 50 A                | 90.4%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS50A48-1V8J                     |
| 48 Vin PERFORMANCE MODELS |                                 |                                   |                     |                 |                         |        |        |                        |                                   |
| 1.2 V                     | 4.05 A                          | 250 mA                            | 100 A               | 86.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS100A48-1V2J                    |
| 1.5 V                     | 3.8 A                           | 200 mA                            | 80 A                | 88.8%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS80A48-1V5J                     |
| 1.8 V                     | 4.6 A                           | 200 mA                            | 80 A                | 90.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS80A48-1V8J                     |
| 2.5 V                     | 4.1 A                           | 200 mA                            | 50 A                | 90.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS50A48-2V5J                     |
| 3.3 V                     | 5.2 A                           | 200 mA                            | 50 A                | 91.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS50A48-3V3J                     |
| 48 Vin ULTRA MODELS       |                                 |                                   |                     |                 |                         |        |        |                        |                                   |
| 1.5 V                     | 4.8 A                           | 200 mA                            | 100 A               | 88.5%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS100A48-1V5J                    |
| 1.8 V                     | 5.7 A                           | 200 mA                            | 100 A               | 89.5%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS100A48-1V8J                    |
| 2.5 V                     | 6.2 A                           | 200 mA                            | 80 A                | 91.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS80A48-2V5J                     |
| 3.3 V                     | 6.2 A                           | 200 mA                            | 60 A                | 91.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS60A48-3V3J                     |
| 5 V                       | 6.2 A                           | 200 mA                            | 40 A                | 92.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS40A48-5V0J <sup>(7)</sup>      |
| 5 V                       | 6.2 A                           | 200 mA                            | 40 A                | 91.8%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS40A48-5V0GJ <sup>(11)</sup>    |
| 24 Vin MODELS             |                                 |                                   |                     |                 |                         |        |        |                        |                                   |
| 1.8 V                     | 3.4 A                           | 200 mA                            | 30 A                | 91.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS30A24-1V8J                     |
| 3.3 V                     | 6.5 A                           | 300 mA                            | 30 A                | 89.5%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS30A24-3V3J                     |

### LQS60A48-3V3RANJ

**L** = Low Profile  
**Q** = 1/4 Brick  
**Type of Output**  
**S** = Single  
**Rated Output Current**  
 40 A = 40 Amps, 60 A = 60 Amps etc.  
**Nominal Rated Input Voltage**  
 24 = 24 Volts (18 Vdc to 36 Vdc range)  
 48 = 48 Volts (36 Vdc to 75 Vdc range)  
**Output Voltage**  
 1V5 = 1.5 Volts, 1V8 = 1.8 Volts etc.

**RoHS Compliance <sup>(9)</sup>**  
**J** = Pb-free (RoHS 6/6 compliant)

**Pin Length Options**  
 Blank = 0.188" (4.78 mm)  
**N** = 0.145" (3.68 mm)  
**K** = 0.110" (2.79 mm)

**Body Height, Package Type, and Pin Length**  
**A** = 0.300" (7.62 mm), Through hole,  
 0.188" (4.78mm) Pins  
**E** = 0.340" (8.64 mm), Through hole,  
 0.188" (4.78mm) Pins  
**S** = 0.28" (7.11 mm), Surface Mount <sup>(6)</sup>

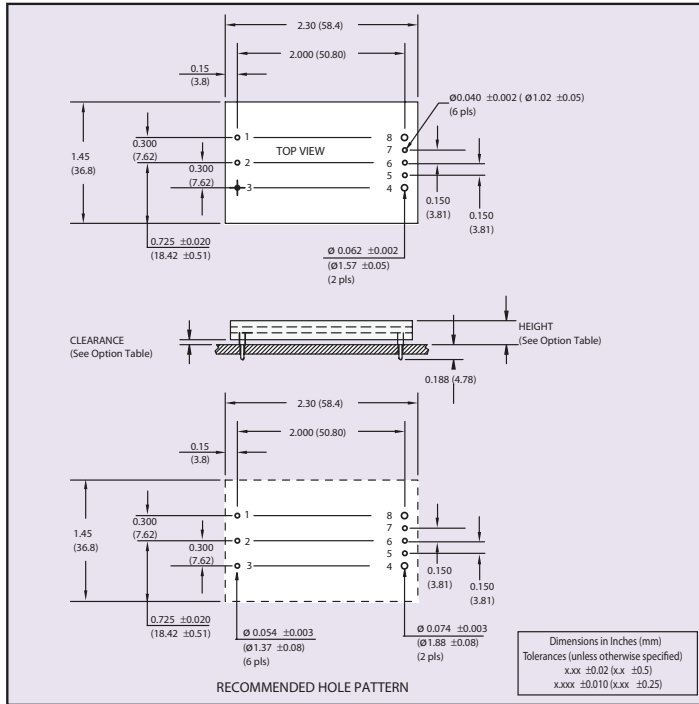
**Remote ON/OFF Logic <sup>(8)</sup>**  
 Blank = Positive  
**R** = Negative

#### Notes:

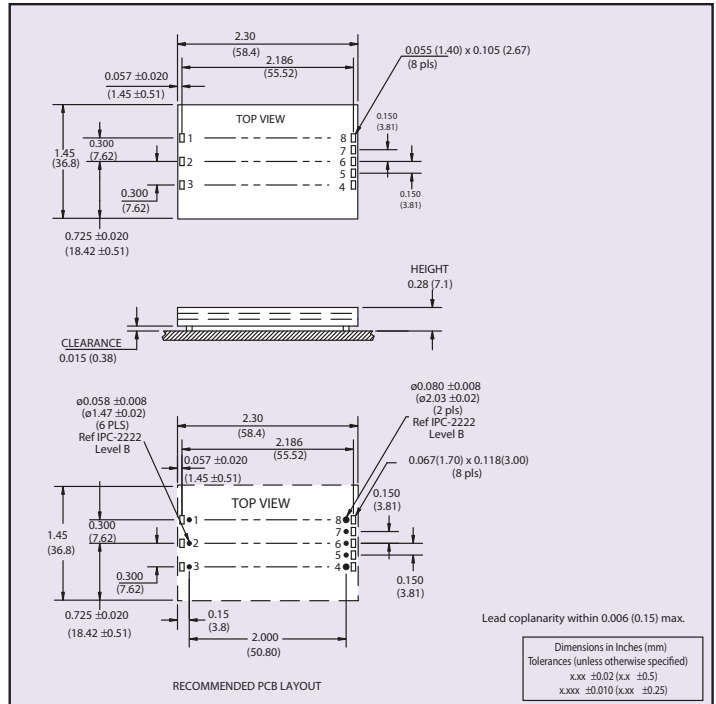
1. di/dt = 1 A/us, Vin = 48 Vdc, Tc = 25 °C, load change = 50% to 75% Io max. and 75% to 50% Io max. Deviation varies by model. For further details see longform datasheet
2. Start-up into resistive load.
3. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
4. Recommended input fusing is up to 10 A HRC 200 V rated fuse.
5. Peak to peak measured without external  $\pi$  filter. Significant reduction possible with external filter. See Application Note 141 for further details.

6. 'S' option applies to the 24 V models only.
7. Except LQS40A48-5V0J which has the double output pins.
8. Active low Remote ON/OFF is available. Standard product is Active High. When ordering active low parts, designate with the suffix 'R' e.g. **LQS100A48-1V8RAJ**
9. TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
10. NOTICE: Some models do not support all options. Please contact your local sales representative or use the on-line model number search tool at [www.PowerConversion.com](http://www.PowerConversion.com) to find a suitable alternative.
11. LQS40A48-5V0GJ has single output pins /0.188" pin length/0.340" body height

## Mechanical Drawings



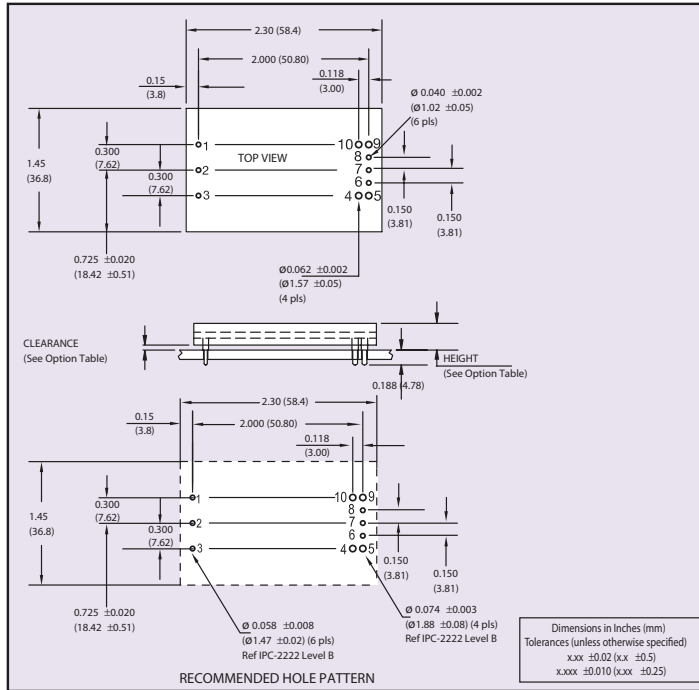
24 V/ 48 V Mechanical Drawing for Output Current of 50 A or less  
(See Note 7)



24 V Surface-mount Mechanical Drawing and Pinout Table

| Pin Connections |          |            |          |
|-----------------|----------|------------|----------|
| Pin Number      | Function | Pin Number | Function |
| 1               | +Vin     | 5          | -Sense   |
| 2               | ON/OFF   | 6          | Trim     |
| 3               | -Vin     | 7          | +Sense   |
| 4               | -Vout    | 8          | +Vout    |

| Dimension Options |                |                                |
|-------------------|----------------|--------------------------------|
| Option            | Clearance      | Height                         |
|                   | ± 0.016 (0.41) | +0.022 (0.56)<br>-0.030 (0.76) |
| A                 | 0.030 (0.76)   | 0.300 (7.62)                   |
| E                 | 0.070 (1.78)   | 0.340 (8.64)                   |



48 V Mechanical Drawing for Output Current Greater than 50 A  
"The Double P" Pinout (7)

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