

## ADQ700 Series

700 Watt Quarter Brick DC-DC Converter

### Data Sheet

**Total Power:** 700 Watt (target)  
(12 V @ 58 A)  
**Input Voltage:** 40 - 60 Vdc  
**Single Outputs:** 12 V Nom

### SPECIAL FEATURES

- 700 W continuous power
- Ultra high efficiency > 96%
- 40 - 60 Vdc Datacomm input range
- Baseplate optimized for contact cooling or heatsink mounting
- Open frame version optimized for air cooling
- Low ripple and noise
- Fixed switching frequency
- High capacitive load capability
- Pre-bias start-up capability
- High reliability
- RoHS 6 compliant
- UL94 V-0 materials
- Heatsink accessory pack can be ordered (heatsink, thermal pad and screws)
- DOSA footprint compliant
- PMBus® communication
- Droop and Parallel function (ADQ700-48S12B-8LIG)
- IPC9592 component stress compliant
- Two year warranty (consult factory for extended terms)

### SAFETY

- EN60950
- CE
- CSA
- UL



### Electrical Specifications

| Input   |   |
|---|---|
| Input voltage                                 | 40 - 60 Vdc   |
| Input surge                                   | 80 V / 100 mSec   |
| Input UVLO                                    | Turn-on: 38.7 Vdc<br>Turn-off: 37 Vdc<br>Hysteresis: 2 Vdc          |
| Input OVP                                     | Turn-off: 64.5 Vdc<br>Recovery point: 62.3 Vdc<br>Hysteresis: 2 Vdc |
| I/O insulation                                | Basic insulation  |
| I/O isolation                                 | 1500 Vdc  |
| Efficiency (48 Vin, 25 °C ambient)            | 96% @ 12 V (100% load and 50% load)                                 |
| Output  |   |
| Output voltage                                | 12 V nominal set point  |
| Output voltage regulation                     | 12 V ± 1%   |
| Output current maximum                        | 58 A for 12 V   |
| Noise & ripple                                | At 12 V; 200 mV pk-pk max   |
| Overtemperature protection                    | Baseplate: 110 °C<br>Open frame: 120 °C hot spot                    |
| Overvoltage protection method / OVP operation | Auto restart<br>13.8 V - 16 V window                                |
| Overcurrent protection method / OCP operation | Auto-restart<br>64 A - 82 A window                                  |
| Control                                       |   |
| Enable  | TTL compatible (negative logic)                                     |
| PMBus connectivity                            | Connection port and control/monitoring available                    |
| Switching frequency                           | 200 KHz   |
| Pre-bias start-up                             | 0% to 95% Vout  |

### Environmental Specifications

|                       |                   |
|-----------------------|-------------------|
| Operating temperature | -40° C to +85 °C  |
| Storage temperature   | -55 °C to +125 °C |
| MTBF                  | 1.5 Million hours |

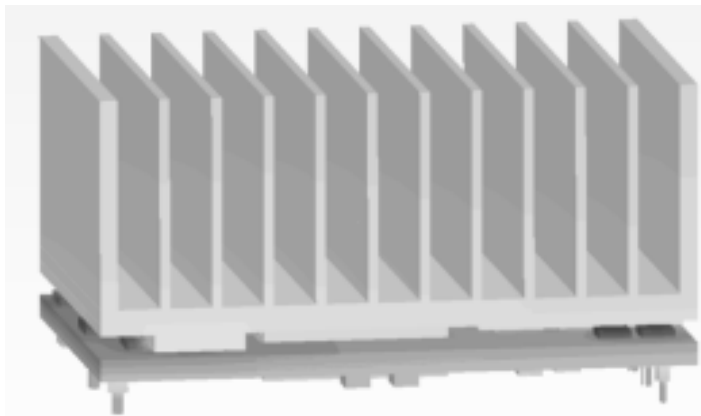
### Ordering Information

| Model number        | Input voltage | Output voltage set point | Output current | Efficiency      |
|---------------------|---------------|--------------------------|----------------|-----------------|
| ADQ700-48S12-4L     | 40 - 60 Vdc   | 12 Vdc                   | 58 A           | 96% (full load) |
| ADQ700-48S12-4LI    | 40 - 60 Vdc   | 12 Vdc                   | 58 A           | 96% (full load) |
| ADQ700-48S12B-4L    | 40 - 60 Vdc   | 12 Vdc                   | 58 A           | 96% (full load) |
| ADQ700-48S12B-4LI   | 40 - 60 Vdc   | 12 Vdc                   | 58 A           | 96% (full load) |
| ADQ700-48S12B-4LIHS | 40 - 60 Vdc   | 12 Vdc                   | 58 A           | 96% (full load) |
| ADQ700-48S12B-4LHS  | 40 - 60 Vdc   | 12 Vdc                   | 58 A           | 96% (full load) |
| ADQ700-48S12B-8LIG  | 40 - 60 Vdc   | 12 Vdc                   | 58 A           | 96% (full load) |

“B” = Baseplate

“I” = Digital interface option

“HS” = Heatsink kit added, 1.4” heatsink, thermal pad



Example of heatsink integration  
Height: 35.56 mm [1.40”]

### Pin Length Options

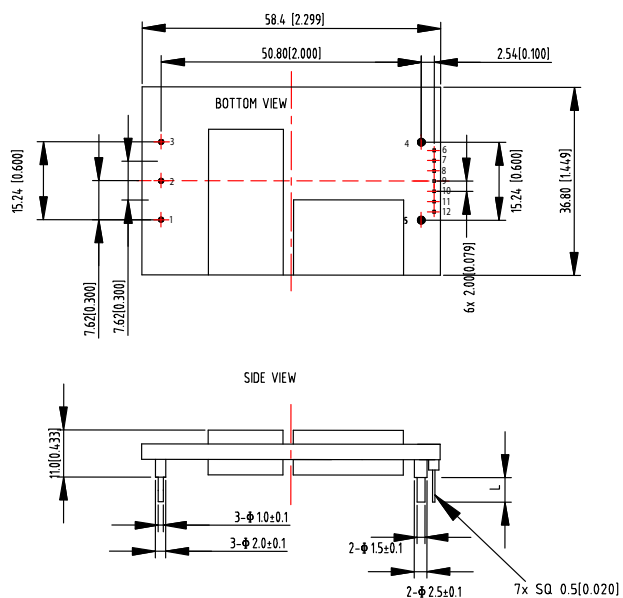
| Device code suffix | L                |
|--------------------|------------------|
| -4                 | 4.6 mm ± 0.25 mm |
| -6                 | 3.8 mm ± 0.25 mm |
| -8                 | 2.8 mm ± 0.25 mm |
| None               | 5.8 mm ± 0.25 mm |

### Pin Designations

| Pin | Function      | Function                |
|-----|---------------|-------------------------|
| 1   | Vin+          | Positive input voltage  |
| 2   | Remote On/Off | Remote control          |
| 3   | Vin-          | Negative input voltage  |
| 4   | Vo-           | Negative output voltage |
| 5   | Vo+           | Positive output voltage |
| 6   | C2            | Digital                 |
| 7   | Sig_Gnd       | Digital                 |
| 8   | Data          | Digital                 |
| 9   | SMBAlert      | Digital                 |
| 10  | Clock         | Digital                 |
| 11  | Addr1         | Digital                 |
| 12  | Addr0         | Digital                 |

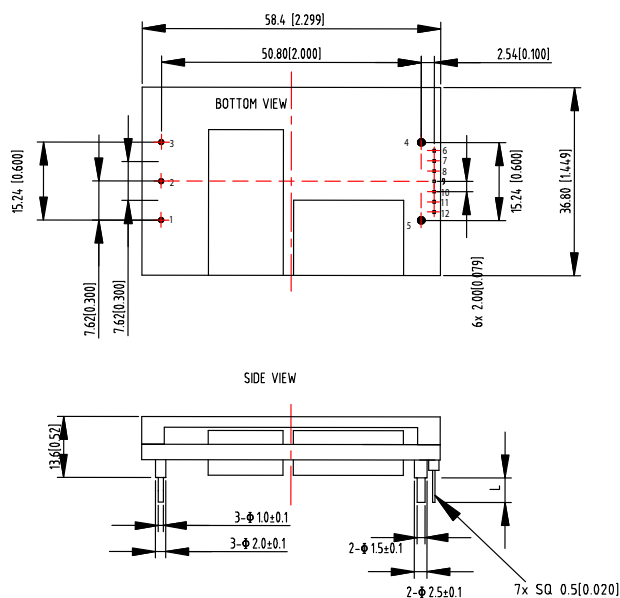
Mechanical Drawing

Open Frame Module



UNIT: mm[inch]      BOTTOM VIEW: pin on upside      L=4.60mm  
 TOLERANCE: X.Xmm±0.5mm[X.XX in.±0.02in.]  
 X.XXmm±0.25mm[X.XXX in.±0.01in.]

Baseplate Module



UNIT: mm[inch]      BOTTOM VIEW: pin on upside      L=4.60mm  
 TOLERANCE: X.Xmm±0.5mm[X.XX in.±0.02in.]  
 X.XXmm±0.25mm[X.XXX in.±0.01in.]

WORLDWIDE OFFICES

Americas

2900 South Diablo Way  
 Suite B100  
 Tempe, AZ 85282, USA  
 +1 888 412 7832

Europe (UK)

Ground Floor Offices, Barbary House  
 4 Harbour Buildings, Waterfront West  
 Brierley Hill, West Midlands  
 DY5 1LN, UK  
 +44 (0) 1384 842 211

Asia (HK)

14/F, Lu Plaza  
 2 Wing Yip Street  
 Kwun Tong, Kowloon  
 Hong Kong  
 +852 2176 3333



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