# ATCR250-48D12-03J

**Total Power:** 250 Watts
**Input Voltage:** -48 VDC
**Output:** 12 V Intermediate Bus
3.3 V Management Bus





RoHS 2002/95/EC

## Special Features

- Optimized footprint for high density ATCA applications
- Accepts inputs from -48 V and B Feeds
- CISPR Class A EMI
- Adjustable Hold Up Voltage from 50 to 80 VDC
- I²C serial bus interface for monitoring and reporting
- Programmable alarm thresholds via I²C bus
- Hardware alarms via opto-isolators for loss of A or B Feeds
- Comprehensive protection circuitry - current, voltage and temperature
- EU directive 2002/95/EC compliant for RoHS

## Safety

- **UL, cUL** 60950-1
- **TUV** EN60950-1

# Electrical Specifications

| Input | |
|---|---|
| Input range: | -36 V to -72 VDC |
| Transient: | -100 VDC (< 1 ms) |
| External Input Capacitance: | 82uF max |
| Inrush Current: | 11 A typ |
| Inrush Duration: | < 2ms |
| Undervoltage Lockout: | -36 < $V_{IN}$ |
| Overvoltage Lockout: | -77.5 ≤ $V_{IN}$ < 72 VDC |
| Efficiency: | 89% @ 250W |

| Output | **12 V Intermediate Bus** | **3.3 V Management Bus** |
|---|---|---|
| Nominal Setpoint: | 12.2 V | 3.32V |
| Total Regulation Band[1]: | 11.4 - 12.6 V | 3.20 - 3.40 V |
| Output Current: | 0 - 20.83 A | 0 - 4.5 A |
| Current Limit: | 118% lo, max (typ) | 130% lo, max (typ) |
| Short Circuit: | Shutdown/Autorecovery | |
| Ripple and Noise[2]: | 50 mVp-p | 40 mVp-p |
| Overvoltage: | Vo > 13.4 VDC | Vo > 3.6 VDC (typ) |
| Undervoltage: | NA | Vo < 3.0 VDC (typ) |
| External Output Capacitance: | 1000 uF min | 100 uF min |

| Control/Monitoring | |
|---|---|
| ON/OFF+ and ON/OFF-: | Remote activation of Module. See ATCR250 Application Note |
| I²C Serial Bus Interface: | For digital monitoring (Vout, Vin, Temp, Iin) referenced to secondary side |

| Isolation Characteristic | |
|---|---|
| Input to Output Isolation Voltage: | 2250 VDC |
| Input to Output Insulation: | Basic |

# Environmental Specifications

| | |
|---|---|
| Operating ambient temperature range: | -25 °C to +85 °C ambient |
| Storage temperature: | -40 °C to +125 °C |
| MTBF: | > 1 MHrs @ 25 °C 100% Load (Target) |

EMERSON Network Power

# Part Number System with Options

| Product Family | Rated O/P Power | Input Voltage | | Ouput Voltage | RoHS Compliance |
|---|---|---|---|---|---|
| **ATCR** | **250** | **48** | **-** | **D12-03** | **J** |
| ATCA Product Series | 250 Watts | -36 to -72 VDC | | Dual Output:<br>12.0V @ 20.83A - Intermediate Bus<br>3.3V @ 4.5A - Management Bus | J = RoHS 6/6 |

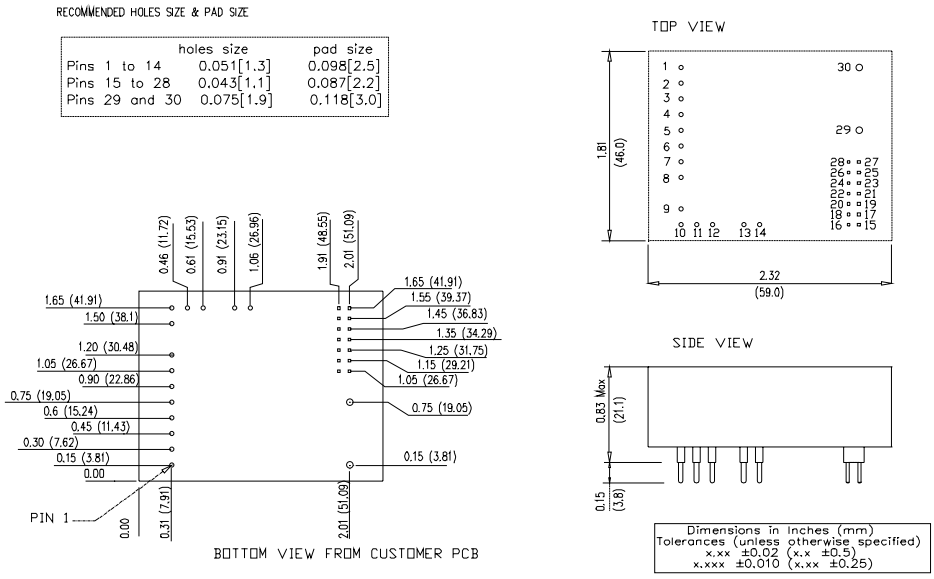
## Pin Assignments

| Pin Number/Pin Name | Function | Note |
|---|---|---|
| 1. -48VA | Power input from A' bus | Connects to ATCAZone 1 connector pin 33 via external 12 A fuse |
| 2. -48VB | Power input from B' bus | Connects to ATCAZone 1 connector pin 34 via external 12 A fuse |
| 3. Reserved | For future use | |
| 4. Hold Up Trim | Hold up voltage trim | Connects a resistor between this pin and pin 11 to trim hold up voltage |
| 5. RTN A | Power return from A' bus | Connects to ATCAZone 1 connector pin 28 via external 15 A fuse |
| 6. RTN B | Power return from B' bus | Connects to ATCAZone 1 connector pin 29 via external 15 A fuse |
| 7. ENA | When connected to RTN A, turns ON isolated open collector A enabled' device (See Note 3) | Connects to ATCAZone 1 connector pin 32 via external 1 A fuse. Used to signal to management system correct board insertion and presence of A' bus |
| 8. ENB | When connected to RTN B, turns ON isolated open collector B enabled' device (See Note 3) | Connects to ATCAZone 1 connector pin 27 via external 1 A fuse. Used to signal to management system correct board insertion and presence of B' bus |
| 9. C_CL- | Connection to module of auxiliary capacitor hold up array -ve | Utilizes greater capacitance in a given can size of lower voltage capacitors. Clamped to -50V wrt HU+OUT when pin 4 is open. |
| 10. HU- | Connection to module of hold up capacitor array -ve | |
| 11.HU+OUT | Connection from on board filter and management circuits to hold up capacitor array +ve | May also connect to input of boost module to reduce hold up storage area |
| 12.HU+IN | Connection to main power converter from hold up capacitor array +ve | May also connect to output of boost module to reduce hold up storage area |
| 13.ON/OFF- | Current from pin to turn main output ON | Fully floating remote ON/OFF signal, may be used with management system or ATCA ENABLE_A/B via R-D network |
| 14.ON/OFF+ | Current into pin to turn main output ON | Fully floating remote ON/OFF signal, may be used with management system or ATCA ENABLE_A/B via R-D network |
| 15.B_OK# | Open collector signal, monitors status of B feed | Low when OK |
| 16.A_OK# | Open collector signal, monitors status of A feed | Low when OK |
| 17.A2 | | $I^2C$ lines, address strapping |
| 18.INTRPT | Interrupt Alarm | $I^2C$ Register out of limits, LM80 pin INT#' direct connection |
| 19.A1 | | $I^2C$ lines, address strapping |
| 20.SCL | Clock | $I^2C$ lines, clock line input |
| 21.A0 | | $I^2C$ lines, address strapping |
| 22.SDA | Data | $I^2C$ lines, serial data |
| 23., 24. 3V3 RTN | Management power return and $I^2C$ | Also return for A_OK#' and 'B_OK#' signals<br>Externally connected to ATCA Zone 1 connector pin 26 |
| 25., 26. 3V3 OUT | 3V3, 14.85 W management power | |
| 27., 28. 3V3 TRIM | Trim pin for management power | |
| 29.12V RTN | 12V return | Externally connected to ATCA Zone 1 connector pin 26 |
| 30.12V OUT | 12V power | |

Notes:
1. Regulation band over line, load and temperature.
2. Measured at 20 MHz with external 10 mF Tantalum in parallel with 1 mF ceramic, 25V rated low ESR type capacitors across each output.
3. All specifications are typical at nominal line, $T_A$ = 25 °C unless otherwise indicated.
4. All specifications are subject to change without notice.
5. Technical Reference Notes and Application Notes should be consulted for complete product details
6. Warranty 2 years.

## Mechanical Drawing

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