POWER

ATCR250 Series

250 Watt Half-Brick Isolated DCDC Converter

Data Sheet

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

RoHS 6/6 COMPLIANT

SPECIAL FEATURES

- Optimized footprint for high density ATCA applications
- Accepts inputs from -48 V A and B feeds
- CISPR Class A EMI
- Adjustable Hold Up Voltage from 50 - 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
- TÜV EN60950-1

Electrical Specifications

Input		
Input range	-36 V to -72 VDC	
Transient	-100 VDC (< 1 ms)	
External input capacitance	82 µF max	
Inrush current	11 A typical	
Inrush duration	< 2 ms	
Undervoltage lockout	-36 < Vin	
Overvoltage lockout	-77.5 ≤ Vin < 72 VDC	
Efficiency	89% @ 250 W	
Output		
	12 V Intermediate Bus	*3.3 V Management Bus*
Nominal setpoint	12.2 V	3.32 V
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% Io, max (typ)	130% Io, max (typ)
Short circuit	Shutdown/Autorecovery	
Ripple and noise[2]	50 mV pk-pk	40 mV pk-pk
Overvoltage	Vo > 13.4 VDC	Vo > 3.6 VDC (typ)
Undervoltage	NA	Vo < 3.0 VDC (typ)
External output capacitance	1000 µF min	100 µF min
Control/Monitoring		
ON/OFF+ and ON/OFF- I²C serial bus interface	Remote activation of module. See ATCR250 Application Note. 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	

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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)

Part Number System with Options

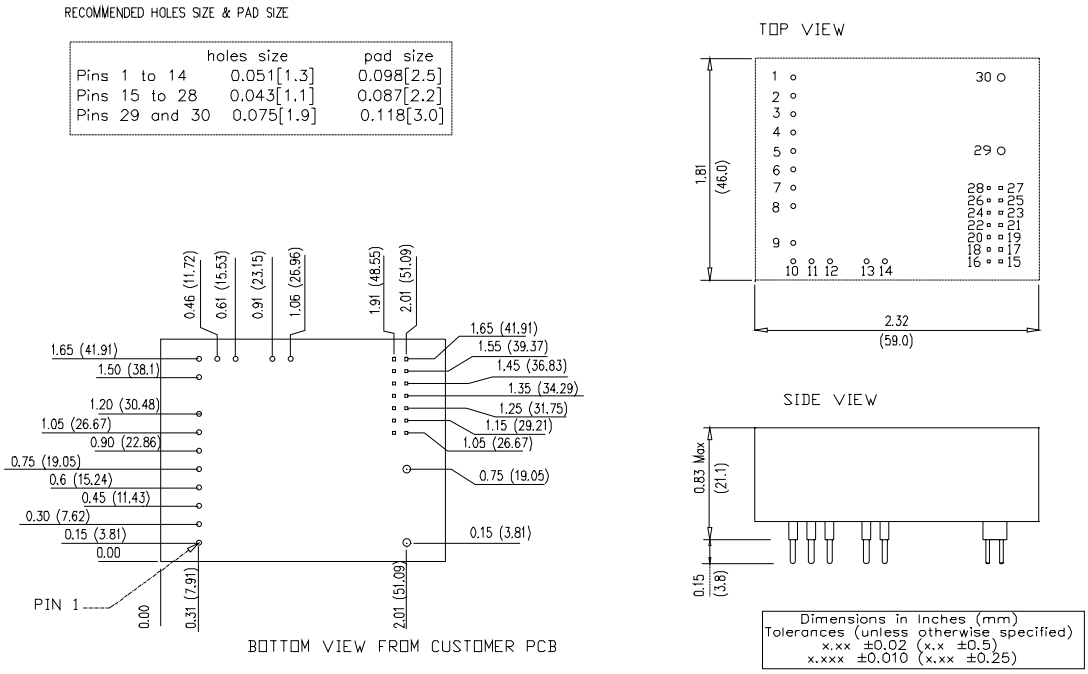
Product Family	Product Family	Product Family	Product Family	Product Family
ATCR	**250**	**48**	**D12-03**	**J**
ATCA Product Series	250 Watts	-36 to 72 VDC	Dual output: 12.0 V @ 20.83 A Intermediate Bus 3.3 V @ 4.5 A Management Bus	RoHS 6/6

Pin Assignments			
Pin #	*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 Return	Management power return and I^2C	Also return for A_OK# and B_OK# signals 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	12 V return	Externally connected to ATCA Zone 1 connector pin 26
30	12V OUT	12 V 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, TA = 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 Drawings



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