ARTESYN ADQ500 SERIES

500 Watt Quarter Brick DC-DC Converter

ADQ500 series quarter-brick isolated DC-DC converters produce a single fully regulated 12 V output. Rated at 500 watts, these converters can deliver up to 42 amps output current and have no minimum load requirement. They have an input voltage range of 36 to 75 V and are primarily designed for use with standard 48 V supplies in computing and server applications, as well as regulated 48V supplies in communications equipment.

DATA SHEET

Total Power:

500 Watt (target)
(12 V @ 42 A)

Input Voltage:

36 - 75 V

# of Outputs:

Single (12 V Nom)

SPECIAL FEATURES

- 500 W continuous power
- Ultra high efficiency: 95.5% typical at half load
- 36-75 Vdc Telecomm input range
- Baseplate optimized for contact cooling or heatsink mounting
- Trim -20% to +10% Vout
- Open frame version optimised 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
- DOSA footprint compliant
- PMBus Rev. 1.2 compliant
- Two year warranty (consult factory for extended terms)

SAFETY

- TUV/CE 62368-1
- UL/cUL 60950-1

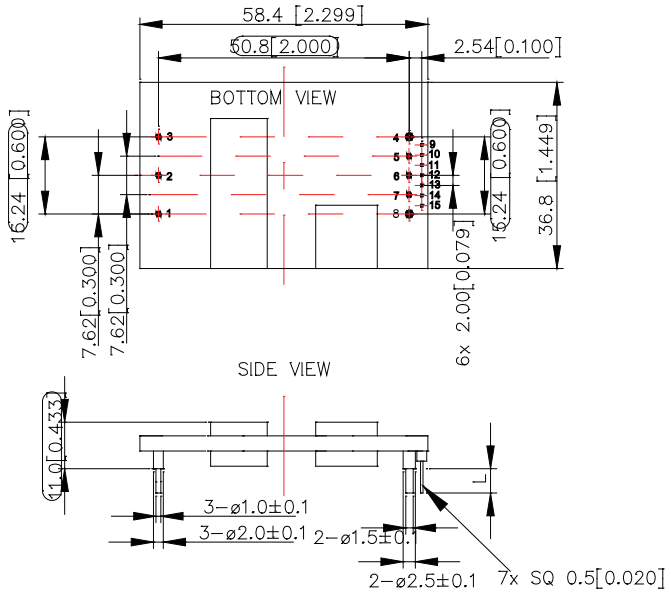
ELECTRICAL SPECIFICATIONS

Input	
Input voltage	36 - 75 Vdc
Input surge	100 V / 100 mSec
Input UVLO	Turn-on: 35 Vdc Turn-off: 33 Vdc Hysteresis: 2 Vdc
I/O insulation	Basic insulation
I/O isolation	1500 Vdc
Efficiency (48 Vin, 25 °C ambient)	94.5% @ 100% load (95.5% @ 50% load)
Output	
Output voltage	12 V nominal set point
Output voltage regulation	Line regulation: 20 mV typical Load regulation: 20 mV typical Temperature regulation: 0.002% / °C typical
Output current maximum	42 A
Noise/ripple	200 mVpp
Overtemperature protection	120 °C hot spot
Overvoltage protection Method / OVP operation	13.8 - 16 V window Auto restart / 130% Vout
Overcurrent protection voltage Method / OCP operation	46.5 A - 59 A window Hiccup at 140% Iout
Output voltage control	-20% to +10% Vout Trim
Control	
Enable	TTL compatible (negative logic)
Switching frequency	175 KHz
Pre-bias start-up	0% to 95% Vout

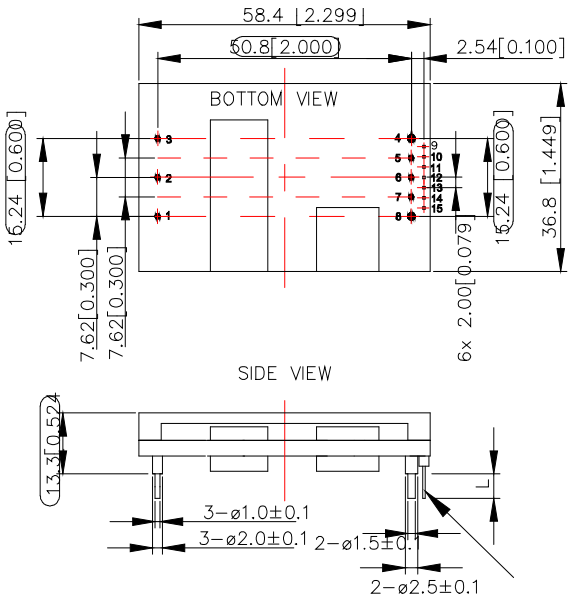
ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature range	-40 °C to +85 °C
Storage temperature	-55 °C to +105 °C
Baseplate operating temperature	-40 °C to +100 °C (no power derating)
MTBF	1 Million hours (target)

MECHANICAL DRAWING - OPEN MODULE



MECHANICAL DRAWING - BASEPLATE MODULE



UNIT: mm [inch] BOTTOM VIEW: pin on upside L = 3.80 mm
TOLERANCE: X.X mm ± 0.5 mm [X.X inch ± 0.02 inch]
x.xx mm ± 0.25 mm [X.X inch ± 0.01 inch]

ORDERING INFORMATION

Model number	Input voltage	Output voltage set point	Output current	Efficiency
ADQ500-48S12-6L	36 - 75 Vdc	12 Vdc	42 A	94.5% (full load)
ADQ500-48S12B-6L	36 - 75 Vdc	12 Vdc	42 A	94.5% (full load)
ADQ500-48S12-6LI	36 - 75 Vdc	12 Vdc	42 A	94.5% (full load)
ADQ500-48S12B-6LI	36 - 75 Vdc	12 Vdc	42 A	94.5% (full load)

B = Baseplate
I = PMBus interface version

PIN ASSIGNMENTS

Pin #	Name	Funtion
1	+Vin	Positive input voltage
2	Remote On/Off	Remote control
3	-Vin	Negative input voltage
4	-Vo	Negative output voltage
5	-Sense	Remote sense negative
6	Trim	Voltage adjustment
7	+Sense	Remote sense positive
8	+Vo	Positive output voltage
9	C2	Digital
10	Sig_Gnd	Digital
11	Data	Digital
12	SMBAlert	Digital
13	Clock	Digital
14	Addr1	Digital
15	Addr0	Digital

Device code suffix	L
-4	4.8 mm ± 0.5 mm
-6	3.8 mm ± 0.5 mm
-8	2.8 mm ± 0.25 mm
None	5.8 mm ± 0.5 mm

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE

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