120W, Corona-free, 20kV Isolation Voltage DC-DC Converter
DIO 120 Series

- 20kVac isolation input/output, output/chassis
- Corona free at 10kVac
- Rugged, industrial quality
- Convection cooled - no fan
- Single output
- Fully electronic protection

This series of DC-DC converters was developed for very high operating isolation voltage. The unit has a feedback system on the primary side which does not use any optical components to ensure high reliability. The transformer, which is engineered with ABSOPULSE's field-proven proprietary technology, is tested for corona (partial discharge) extinction at a minimum of 10kVac and Hi-Pot tested for 20kVac isolation. The typical operating voltage potential between primary and secondary is 2-5kVac. This value depends on the specific application, contamination class and is limited by the creepage distance of 76mm (3.0") on the PCB. Full electronic protection, low component count, large design headroom, and the use of components with established reliability result in a high MTBF. It is a lower cost version of the DIO 122 Series with single output - the encapsulated output chamber is not included in this design. The unit is manufactured at our plant under strict quality control. Customized versions are available.

SPECIFICATIONS

Input Voltage (Operating Range)
24Vdc (22-28V)
48Vdc (44-56V)
Other inputs available on request

Input Protection
Inrush current limiting
Varistor
Reverse polarity protection by crowbar diode
Internal safety fuse
Lower voltage than the specified minimum will not damage the unit

Isolation
1.5kVdc input to chassis
20kVac input to output
76 mm (3.0") spacing
20kVac output to chassis
Corona extinction 10kVac minimum for the transformer

Standards
Designed to meet EN60950-1 and related UL & CSA standards

EMI
EN 55032 Class A with margins

Switching Frequency
80kHz ±5kHz

Output Voltages
12V, 15V or 24Vdc at 5A max
Other outputs available on request

Redundancy diode
Not installed
Available as option

Line/Load Regulation
±4% combined from 10% load to full load

Dynamic Response
Max 5% voltage deviation for 10% to 50% load step

Output Ripple/Noise
Better than 60mVrms or 300mV peak to peak (20MHzBW)

Overload Protection
Rectangular current limiting with short circuit protection.

Output Over-voltage Protection
Transzorb on output

Efficiency
Min 82% at full load

Operating Temperature
-20°C to 50°C for full specification without de-rating

Temperature Drift
0.03% per °C over operating temperature range

Cooling
By convection

Environmental Protection
Basic ruggedizing

Shock/Vibration
IEC61371 Cat 1 A&B

Humidity
5 - 95% non-condensing

MTBF
130,000 hours at 45°C
Demonstrated MTBF is significantly higher.

Indicators
Green "Output ON" LED

Control Input
None

Alarm Output
None

Package Dimensions
Open board: 102 x 305mm (4" x 12")
Component height: 70mm (2.3")

Weight
0.68kg (1.5 lb)

Connections
Input:
3-pole barrier-type terminal block with 3/8" spacing
Output:
2-pole barrier type terminal block

RoHS Compliance
Compliant

Warranty
Two years subject to application within good engineering practice

Terminal Block Pin-out

DC INPUT			DC OUTPUT	
VIN	RTN	GND ⏚	V+	0V
1	2	3	1	2

Please note that ABSOPULSE power supplies are designed and built to customer specifications. The specifications on this data sheet are generic and will vary depending on input/output configuration and other customer requirements. Generic specifications are subject to change

Designer and manufacturer of quality converters, inverters, UPS systems, complete rack mount systems and DC-input fluorescent lamp inverters since 1982. Custom or standard. ABSOPULSE is a BABT-approved Facility

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