

250W, Fully Encapsulated DC-DC Converters with Convection Cooling by Heatsink Assembly Fins for Heavy-duty Industrial Applications PDC 250-HSA-P59 Series



- Rugged, field-proven design
- Fully encapsulated module installed on heatsink assembly
- Convection cooling via heatsink assembly
- Full electronic protection
- Wide temperature range
- Wide input ranges
- DIN-rail mounting available

This fully encapsulated, industrial quality, DC-DC converter uses field-proven technology to generate the required output power. It is a mature product with a track-record in numerous applications. The converter is entirely potted with a thermally conductive MIL-grade silicon rubber compound to provide immunity to shock, vibration and humidity. Encapsulation ensures heat dissipation throughout the module. Convection cooling is achieved by installing the unit on a heatsink assembly block which is specifically designed for the unit. The heatsink assembly also allows for mounting on uneven and thermally non-conductive surfaces. Full electronic protection, low component count, large design headroom, and the use of components with established reliability ensure high MTBF. The unit is suitable for transportation, mining, oilrigs, military and other harsh environments. The converter is manufactured at our plant under strict quality control. DIN-rail mounting is available on request. Versions that are designed to meet EN50155 railway specifications are also available.

SPECIFICATIONS

Input Voltage

24Vdc (21V-30V)
48Vdc (42V-60V)
125Vdc (95V-140V)
Consult factory for other voltages and ranges, including for railway

Input Protection

Inrush current limiting
Varistor
Internal safety fuse
Lower voltage than the specified minimum input will not damage the unit

Isolation

According to input/output voltage, but minimum of:
1000VDC input to chassis
1500VDC input to output
500VDC output to chassis

Standards

Designed to meet EN60950-1 and corresponding UL and CSA standards

EMI

EN 55032 Class A with margins

Switching Frequency

55kHz \pm 3kHz

Output Voltages

12Vdc, 24Vdc, 36Vdc, 48Vdc or 72Vdc
Output is floating; either terminal can be grounded.
Consult factory for other voltages

Redundancy Diode

Not installed
Available on custom versions

Line/Load Regulation

\pm 1% combined from zero load to full load

Dynamic Response

Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time

Output Ripple / Noise

Better than 1% of output voltage peak to peak or 0.2% Vrms (20MHz BW)

Output Overload Protection

Rectangular current limiting with short-circuit protection (no hiccup)
Thermal shutdown with automatic reset in case of insufficient cooling

Output Overvoltage Protection

Second regulator loop

Efficiency

Output is voltage dependent.
Typically 80% at full load

Operating Temperature Range

-40°C to 70°C cold plate temperature for full specification

Temperature Drift

0.03% per °C over operating temperature range

Cooling

Convection cooled via heatsink assembly block.
DIN-rail version: convection on the DIN-rail via heatsink fins

Environmental Protection

Full encapsulation with thermally conductive silicon potting compound with UL94V-0 flammability rating.

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5 - 95% non-condensing

MTBF

150,000 hours @ 45 °C
Demonstrated MTBF is significantly higher

Indicators

None

Control Input

None

Alarm Output

None

Dimensions W x H x L

P59 enclosure installed on HSA-P59 heatsink assembly
Overall dimensions of HSA-P59: 127 x 97 x 231 mm (5" x 3.8" x 9.1") including flanges, excluding terminal block.
Mounting holes are clear

Weight

2.2 kg (5.9 lbs)

Connections

9-pole barrier-type terminal block, 3/8" spacing

RoHS Compliance

Compliant

Warranty

Two years subject to application within good engineering practice

DC OUTPUT						DC INPUT		
-	-	+	+	NOT USED	NOT USED	GND	-	+
1	2	3	4	5	6	7	8	9

ABSOPULSE power supplies are designed and built to customer requirements. The specifications on this data sheet are generic guidelines only and are subject to change.

OEM of industrial and railway quality DC-DC converters, AC-DC power supplies and battery chargers, DC-AC sine-wave inverters, phase and frequency converters, DC-output UPS systems and complete power systems in 19" and 23" racks since 1982. Custom or standard. ABSOPULSE is a BABT-approved Facility.



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