250W, Rugged, Industrial Quality, Convection Cooled DC-DC Converter
BAP 236-F2TH Series

- Rugged industrial quality
- Field-proven design
- Regulated and adjustable output
- Pure convection cooling by heat-sink fins
- Full electronic protection
- N+1 redundancy available as option

This rugged, industrial quality DC-DC converter uses field-proven topology to generate up to 250W output power. It is a mature design with a track record in numerous applications. Cooling is via heat-sink fins on the top of the unit; installation on a heat-sinking surface is not required. The unit can also be installed on thermally non-conductive surfaces, such as plastic, or on curved, uneven surfaces. An optional built-in redundancy diode allows for paralleling and N+1 operation or back-up battery connected. Additional ruggedizing and conformal coating are available for applications that require higher immunity to shock, vibration and humidity. Full electronic protection, low component count, large design headroom, and the use of components with established reliability result in a high MTBF. The unit is manufactured at our plant under strict quality control. Customized versions are available.

SPECIFICATIONS

Input Voltage
24Vdc (21-30V)
48Vdc (42-60V)
125Vd (105-145V)
Other inputs on request

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

Isolation
According to input and output voltage minimum of:
1500Vdc input to chassis
2250Vdc input to output,
500VDC output to chassis

Standards
Designed to meet EN60950-1 and corresponding standards

EMI
EN 55022 Class B

Switching Frequency
55kHz ±3kHz

Output Voltages
24V, 48V or 125Vdc
12V output at 200W
Output is floating; either terminal can be grounded
Other outputs on request

Redundancy diode
Not included
Available as option

Line/Load Regulation
±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 in case of insufficient cooling (self -resetting)

Output Overvoltage Protection
Double regulator loop. Second loop completely stable and independent of main regulator loop

Efficiency
Typically 85% at full load depending on input/output combination

Operating Temperature Range
-20 °C to + 50°C for full specification
Extended temperature ranges with derating

Temperature Drift
0.03% per °C over operating temperature range

Cooling
Convection by heat-sink fins on top of unit

Environmental Protection
Basic ruggedizing
Heavy ruggedizing and conformal coating as option

Shock/Vibration
IEC 61373 Cat 1 A&B

Humidity
5 - 95% non-condensing

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

Indicators
Green 'Output ON' LED visible through cooling slots

Control Input
None

Alarm Output
None on standard version
Optional output fail, Form C contacts

Package/Dimensions (W x D x H)
Modified F2 with heat-sinks on top:
114 x 114 x 261 mm
(4.5" x 4.5" x 10.3") including terminal block and flanges.
Mounting holes are clear

Weight
1.6 kg (3.5 lb)

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

RoHS Compliance
Fully compliant

Warranty
Two years subject to application within good engineering practice

Terminal Block Pin-out

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

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