

## 150W, Opto-less, Long Life, Wide Input Range, Industrial Quality, DC/DC Converter DHR 150-F1T

- No optocouplers, low component count
- Rugged industrial quality construction
- Conformal coating
- Excellent EMI performance
- High input/output isolation
- Conduction/convection cooled
- Operation up to 70 °C
- Full electronic protection
- Customized versions available



This rugged, industrial quality DC/DC converter is designed for an operating life extending to 30 years. By eliminating optocouplers in the feedback loop and significantly reducing the component count, the MTBF of the unit is greatly improved over conventional designs. All heat generating components are installed on aluminum heat-sink blocks which are cooled via baseplate to a heat-sinking surface and by natural convection. Conformal coating provides additional environmental protection. Large design headrooms and the use of components with established reliability also contribute to the long operating life of the unit. Customized versions are available. The unit is manufactured at our plant under strict quality control.

### SPECIFICATIONS

#### Input Voltage

20-60Vdc  
43-101Vdc  
60-154Vdc  
90-360Vdc  
Other inputs available 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

2250VDC input to chassis  
5000VDC input to output  
12mm spacing  
500VDC output to chassis

#### Standards

Designed to meet EN 60950-1 and corresponding UL and CSA standards

#### EMI

EN55022 Class B

#### Switching Frequency

40-150kHz, load and input voltage dependent

#### Hold Up Time

Minimum 20ms at 150Vdc and higher

#### Output Voltages

12V, 24V, 48V or 125Vdc  
150W continuous  
The output is floating, either terminal can be grounded  
Other outputs on request.

#### Redundancy Diode

Not installed  
Available as option

#### Line/Load Regulation

Better than 1% from no load to full load.  
Max 1.5% combined from no load to full load

#### Dynamic Response

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

#### Output Ripple/Noise

Less than 80mV RMS or 400mV peak to peak (20MHz BW)

#### Output Overload Protection

Rectangular current limiting with short-circuit protection

#### Output Overvoltage Protection

Transzorb clamp on the output

#### Efficiency

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

#### Operating Temperature Range

0 °C to 70 °C for full specification  
Extended temperature ranges available on request

#### Temperature Drift

0.03% per °C over operating temperature range

#### Cooling

Conduction to customer heat-sink or chassis and natural convection

#### Environmental Protection

Ruggedizing  
Conformal coating

#### Shock/Vibration

IEC 61373 Cat 1 A&B

#### Humidity

5 – 95% non-condensing

#### MTBF

170,000 hours @ 45 °C  
Demonstrated MTBF is significantly higher

#### Indicators

Green "Output ON" LED visible through the cooling slots

#### Control Input

None

#### Alarm Output

Not installed on standard version

#### Package/Dimensions (W x H x L)

F1: 114 x 51 x 201 mm (4.5" x 2" x 7.9") including terminal block and flanges  
Mounting holes are clear

#### Weight

0.8 kg (1.8 lbs)

#### Connections

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

#### RoHS Compliance

Fully compliant

#### Warranty

Two years subject to application within good engineering practice

#### Terminal Block Pin-out

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



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