

DHF080 Series | ITE & Medical Safety

80W/110W Peak

- 2" x 4" x 1.12" compact size
- Models for Class I and Class II installations
- 5,000 meter operating altitude
- -40°C to 70° convection cooling operation
- Up to 10,000uF loading start-up
- Lifetime Warranty



GREEN POWER

Description

The **DHF080 Series** is an 80W, open-frame, Level VI compliant power supply that is a compact 2.0" x 4.0" x 1.18" in size. In addition to being an eco-friendly design, the series has an expanded, -40°C to +70°C, operating temperature range and is rated to an operating altitude of 5,000 meters. The DHF080-xH Models are designed for class II, home healthcare-type installations and meet Class B EMI requirements. The series is has a 110W Watt Peak-power rating making it ideal for motor-starting/in-rush currents for ITE and Medical equipment, including MOOP and 2xMOPP, applications and is supported by a LIFETIME warranty.

Specifications

Input

Input Voltage	• 90 VAC to 264 Vac
Input Frequency	• 47 Hz to 63 Hz
Inrush Current	• 30/60A at 115/230 Vac, cold start, 25°C
Power Factor	• > 0.9
Input Protection	• Internal T3.15A / 250 Vac fuse in line
No Load Input Power	• < 0.5W (< 1.5W for "A" and "H" versions)
Input Current	• 3A _{rms} max/115 Vac, 1.5 A _{rms} max/230Vac
Earth Leakage Current	• <300µA, TouchCurrent <100 µA

Output

Output Voltage	• See tables on page 2
Initial Set Accuracy	• See tables on page 2
Minimum Load	• No minimum load required
Start Up Rise Time	• 2 ms typical
Hold Up Time	• > 16 ms typical
Line Regulation	• ±0.5% typical
Load Regulation	• ±1.0% typical
Ripple & Noise	• < 1% pk-pk typical, 20MHz Bandwidth
Over-voltage Protection	• latch off
Over-load Protection	• auto recovery
Short Circuit Protection	• auto recovery

Environmental

Operating Temperature	• -40°C to 70°C derating: 2.5% / °C > 50°C
Cooling	• 80W free air convection 110W 18CFM forced air
Operating Humidity	• 5-95% RH, non-condensing
Storage Temperature	• -40°C to +85°C
Altitude	• 0 to 5000 m

General

Efficiency	• 85% ("A" and "H" versions 84%) typical
Energy Saving	• Energy Star, Level VI, std. (non "A") version
Isolation	• 4000 Vac Input to Output, 2xMOPP 1500 Vac Input to Ground, 1xMOPP 1500 Vdc Output to Ground, 1xMOPP
Isolation Resistance	• 50 MΩ
Switching Frequency	• 120 kHz typical
MTBF	• >TBD kWhrs to MIL-HDBK-217F at 50°C

EMC & Safety

Safety Approvals:	• UL/CSA/EN 60950-1, 2nd edition (ITE) • ANSI/AAMI/CSA/EN 60601-1, ed. 3.1 +A1 +11 +12 • CE Mark and CB report
Harmonic Currents	• EN 61000-3-2 class A
EMI	• EN 55022/CISPR 22 Class B, EN55011 Class B, EN 61000-3-3, -2 Class A, FCC Docket 20780 Curve B
ESD Immunity	• EN 61000-4-2, 8kV/contact, 15kV/air • ("H" Model) 6kV/contact, 6kV/air
Radiated Immunity	• EN 61000-4-3, 10V/m with 80% AM
EFT Burst	• EN 61000-4-4, 2kV (100kHz)
Surge	• EN 61000-4-5, 2kV/L-L, 4kV/L-G
Conducted Immunity	• EN 61000-4-6, 10V with 80% AM
Magnetic Fields	• E61000-4-8, 10A/m
Dips & Interruptions	• EN 61000-4-11, 100% dips 10ms, 100% dips 20ms, 30% dips 500ms, 60% dips 200ms, 100% dips 5000ms

Warranty

Manufacturer's Warranty	• Lifetime. Call Tri-Mag or go to tri-mag.com for details.
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Output Specifications

Model No.	Application	Output Voltage	Load (@ 50°C)				Initial Accuracy	Ripple Noise	Line Reg.	Load Reg.	Eff. @ 100% Load
			Min	Rated	Max	Peak					
DHF080-7	ITE/Med. Class I	+12V	0A	6.66A	8.33A	9.20A	$+11.8V \leq V_{out} \leq +12.2V$	<1%	< $\pm 0.5\%$	< $\pm 1\%$	>84%
DHF080-7A	ITE/Med. Class I			(80W)	(100W)	(110W)					
DHF080-7H	ITE/Med. Class II										
DHF080-8	ITE/Med. Class I	+15V	0A	5.33A	6.66A	8.00A	$+14.8V \leq V_{out} \leq +15.2V$	<1%	< $\pm 0.5\%$	< $\pm 1\%$	>87%
DHF080-8A	ITE/Med. Class I			(80W)	(100W)	(120W)					
DHF080-8H	ITE/Med. Class II										
DHF080-9	ITE/Med. Class I	+24V	0A	3.33A	4.60A	5.30A	$+23.8V \leq V_{out} \leq +24.2V$	<1%	< $\pm 0.5\%$	< $\pm 1\%$	>87%
DHF080-9A	ITE/Med. Class I			(80W)	(100W)	(127W)					
DHF080-9H	ITE/Med. Class II										

Notes

1. **Output Load:**

Rated (convection cooling): 80W; Max (18 CFM forced-air cooling): DHF080-7_: 90W, DHF080-8_: 100W, DHF080-9_: 110W

2. **Peak Load Duration:**

120W peak rating for durations up to 5 secs. Ideal for motor-starting/in-rush conditions.

3. **Engineering Specification:**

Contact Tri-Mag for full engineering specification for the specific part number used in your design application.

4. **Standby Power Consumption with System:**

This is required by ENERGY STAR in U.S. and ErP regulation in Europe for appliances such as computers and displays. The latest requirement is measured input power to be less than 0.5W with system.

5. **Audible Noise:**

For the DHF080-x energy saving series, achieving level VI (<0.3W) standby power consumption is accomplished through burst mode operation of the controller. The burst operation frequency is dependent on load conditions and is approx. 114Hz, within the audible frequency range.

6. **Model Ordering Table:**

Safety/Application	w/o Audible Noise	Energy Saving	Class II
ITE & Medical	DHF080-xA	DHF080-x	DHF080-xH

Mechanical Specifications

Notes

1. Mechanical drawing dimensions in mm, Tolerance: ± 0.4 mm

2. Size: 50.8 x 101.6 x 30.0 Max. (mm)
 2.0 x 4.0 x 1.18 Max. (inches)
 Net Weight: approx. 160g/unit
 80 units/carton, approx. 15kg/carton

3. Connections: AC Input: PCB Header: JST B2P3-VH or equivalent
 Mating Connector: JST VAR-2, VHR-3N or equivalent
 DC Output: PCB Header: JST B4P-VH or equivalent
 Mating Connector: JST VHR-4N or equivalent

4. RoHS Compliant

