DT060AF Series | ITE & Medical Safety

60W/90W Peak

- Level VI energy compliant
- No load input power < 0.15W
- Average efficiency > 89%
- Eco-friendly design
- UL/CSA/EN 60950-1, 2nd edition
  ANSI/AMMI/CSA/EN 60601-1, 3rd edition
- 10 year warranty

GREEN POWER

Description

The **DT060AF Series** is a 60W external power supply (EPS) designed for both medical and ITE applications. The eco-friendly design is compliant with the new DOE Energy Conservation Standards for External Power Supplies. With a 150% (90W) peak power rating, operating efficiencies > 89% and no-load input power < 0.15W, the DT060AF Series is ideal for ITE and medical equipment designs, including MOOP and 2xMOPP, that are compliant with 2016 conservation standards.

Specifications

Input

Input Voltage	85 VAC to 264 VAC
Input Frequency	47 Hz to 63 Hz
Inrush Current	< 40/80A at 115/230 VAC, cold start, 25°C
Input Protection	Internal T3.15A / 250 VAC fuse in line
No Load Input Power	< 0.15W
Input Current	$2A_{rms}$ max/115 VAC, 1 A_{rms} max/230VAC

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	±3.0% 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	-20°C to 60°C derating: 2.5% / °C > 40°C
Cooling	72W, free air convection
Operating Humidity	10-95% RH, non-condensing
Storage Temperature	-40°C to +80°C
Altitude	0 to 5000 m

General

Efficiency	89% typical
Energy Saving	DOE: EPS efficiency Level VI ErP: EC Code of Conduct Ver. 5 (Tier 2/2016)
Isolation	4000 VAC Input to Output, 2 x MOPP 1500 VAC Input to Ground, 1 x MOPP 1500 VDC Output to Ground, 1 x MOPP
Isolation Resistance	50 MΩ
Switching Frequency	120 kHz typical
MTBF	> 200 kHrs to MIL-HDBK-217F at 50°C

EMC & Safety

Safety Approvals:	UL/CSA/EN 60950-1, 2nd edition ANSI/AMMI/CSA/EN 60601-1, 3rd edition CE Mark
Harmonic Currents	EN 61000-3-2 class A
EMI	EN 55022/CISPR 22 Class B, EN 61000-3-3
ESD Immunity	EN 61000-4-2, 6kV/contact, 8kV/air
Radiated Immunity	EN 61000-4-3, 10V/m with 80% AM
EFT Burst	EN 61000-4-4, 2kV
Surge	EN 61000-4-5, 1kV/L-L, 2kV/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, 30% dips 500ms, 60% dips 200ms, 100% dips 10ms, 100% dips 20ms, 100% dips 5000ms

Warranty

Manufacturer's Warranty	10 years. Call Tri-Mag or go to www.Tri-Mag.com for details.

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Output Specifications

Model No.	Output Rail	Load				Initial Accuracy	Step Efficiency			Avg. Eff.
		Min	Rated	Max	Peak		@20% Load	@50% Load	@100% Load	
DT060AF-5	+12V	0A	5A	-	7.5A	+11.4V~+12.6V	90%	91%	88%	89%
DT060AF-8	+15V	0A	4.0A	-	6.0A	+14.25V~+15.75V	90%	91%	88%	89%
DT060AF-6	+24V	0A	2.5A	-	3.75A	+22.8V~+25.2V	90%	91%	88%	89%
DT060AF-14	+48V	0A	1.25A	-	1.87A	+45.6V~+50.4V	90%	91%	88%	89%

Notes

1. **Output Load:**
   Rated 60W for convection cooling.
2. **Peak Load Duration:**
   90W peak rating for durations up to 5 sec. 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 Cosumption with System:**
   New external power supply (EPS) efficiency requirements have been established by the U.S. DOE (EPS) and the European ErP regulations. The no-load power consumption requirements are < 0.21W and < 0.15W respectively.
5. **Audible Noise:**
   For the DT060AF-x energy saving series, achieving level VI (<0.15W) 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. **Step Efficiency and Average Efficiency:**
   Test conditions in step efficiency are referred to 3.2.2 IPS (Internal Power Supply) of ENERGY STAR program requirements for computers. ENERGY STAR required for efficiency @ 20%, 50%, 100% load is 90%, 91%, 89%; average efficiency is the average of step efficiency.
7. **Model Ordering Table:**

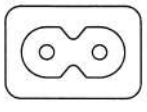
Safety/Application	Energy Saving
ITE & Medical	DT060AF-x

Mechanical Specifications

Notes

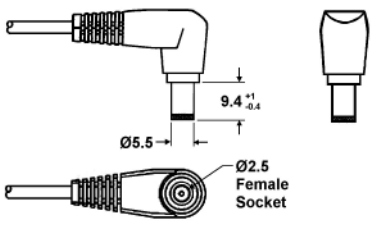
1. Dimensions shown in mm. Tolerance: ±1 mm (excluding cable).
2. Size: 65 X 135 X 40 (mm)
   2.56” X 5.31” X 1.57”
   Net weight: 350 g approx./unit
3. Connectors:

INPUT

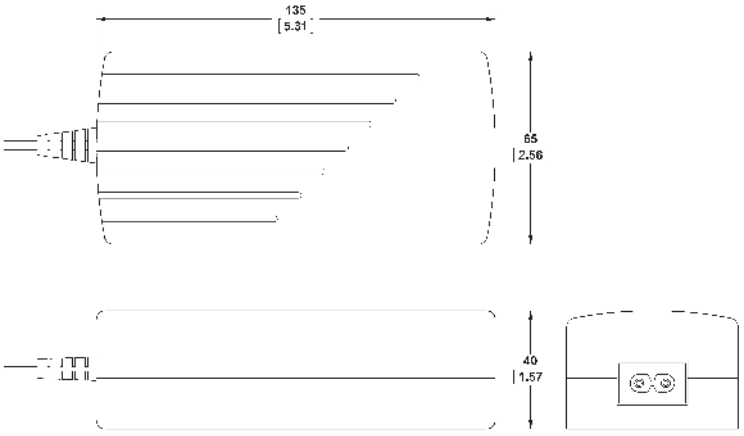


IEC 320 C8

OUTPUT



ø2.5 Power Jack



4. Box Color: Black
5. RoHS Compliant

2014-10