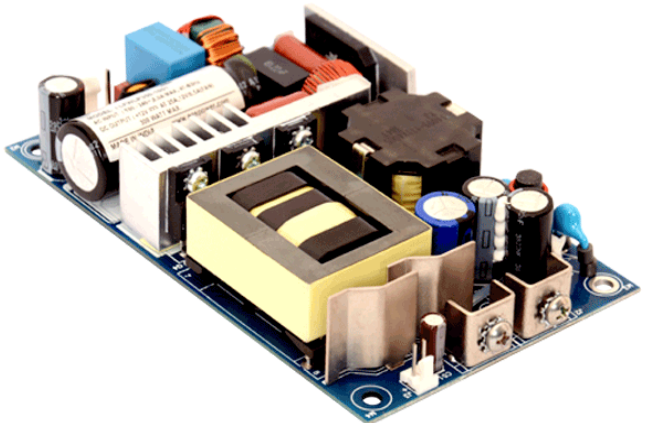
MWLP350 Medical



Features

- 5 x 3 x 1 Inches Form factor
- 350 Watts with Forced Air Cooling & 200 Watts Convection Cooling
- Efficiencies upto 94%
- -40 to 70 degree operating temperature*
- 12V / 0.5A Fan Output, Thermal Shut-Down feature
- 2.56m Hours, Telcordia -SR332-issue 3 MTBF
- No Load Power < 0.5W
- 7 Year Extended Warranty Option
- Medical (BF) Safety Approvals
- Meets standard IEC60601-1-2 : 2014 (4th Edition)

Electrical Specifications

Input Voltage	90-264 VAC/390 VDC, Universal (Derate from 100% at 100V AC to 90% at 90V AC)
Input Frequency	47–63 Hz
Input Current	115 VAC: 3.6 A max. 230 VAC: 1.8 A max.
No Load Power	less than 0.5W typical
Inrush Current	115 VAC – 25 A, 230 VAC – 45 A, 264 VAC – 75 A
Leakage Current	300 uA Typical Touch current <100uA
Efficiency	94%(48V,58V), 93%(24V,30V), 92%(12V,15V)
Hold-up Time	Full Load > 8 ms typical Convection Load > 14 ms typical
Power Factor	exceeds 0.95 with Full Load
Output Power	upto 350W with 375 LFM, upto 200W Convection
Output Voltage Adjustability	+/-3%
Line Regulation	+/-0.5%
Load Regulation	+/-1%
Transient Response	50-100% step load change, at 0.1A/uS slew rate, 50% duty cycle, 50Hz=5% , recovery time < 5 ms
Rise Time	55 ms typical
Set Point Tolerance	+/–1%
Over Current Protection	>110%, Hiccup mode / Auto Recovery
Over Voltage Protection	110 to 140%, Hiccup mode / Auto Recovery
Short Circuit Protection	Hiccup mode / Auto Recovery
Switching Frequency	PFC – 70 to 130 KHz ,PWM – 50-80 KHz
Operating Temperature	–40 to +70°C, * –40 to 0°C startup is guaranteed with spec deviation (ref note 6)
Storage Temperature	–40 to +85°C
Relative Humidity	5% to 95%, noncondensing
Altitude	Operating: 16,000 ft.; Nonoperating: 40,000 ft.
MTBF	2.56m Hours, Telcordia -SR332-issue 3
Isolation Voltage	Input to Output – 4000 VAC medical applications.
	Input to GND - 1500 VAC , Output to GND- 1500VAC for type BF , 500 VAC for type B
Cooling	350W with 375 LFM forced air cooling at 100 to 264VAC 200W with natural convection cooling at 100 to 264VAC.

Please read our datasheet & drawing disclaimer here.

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Model Number	Description	Voltage	Max. Load (Convection)	Max. Load (375 LFM)	Min. Load	Ripple[1]
LFMWLP350-1001	with Screw Terminal	12V	15A	25A	0.0A	1%
LFMWLP350-1301	with Molex Connector	12V	15A	18.75A	0.0A	1%
LFMWLP350-1002	with Screw Terminal	15V	12A	21.67A	0.0A	1%
LFMWLP350-1302	with Molex Connector	15V	12A	18A	0.0A	1%
LFMWLP350-1003	with Screw Terminal	24V	8.33A	14.60A	0.0A	1%
LFMWLP350-1303	with Molex Connector	24V	8.33A	14.60A	0.0A	1%
LFMWLP350-1004	with Screw Terminal	48V	4.17A	7.30A	0.0A	1%
LFMWLP350-1304	with Molex Connector	48V	4.17A	7.30A	0.0A	1%
LFMWLP350-1005	with Screw Terminal	30V	6.67A	11.67A	0.0A	1%
LFMWLP350-1305	with Molex Connector	30V	6.67A	11.67A	0.0A	1%
LFMWLP350-1006	with Screw Terminal	58V	3.45A	6.04A	0.0A	1%
LFMWLP350-1306	with Molex Connector	58V	3.45A	6.04A	0.0A	1%
LFWLP350-CK metal cover kit accessory						
To order the extended warranty product please add the suffix –EX to your required part number For Example - MWLP350-1001-EX (See Note 7)						

Connectors		
J1	Pin 1	AC LINE
	Pin 2	NOT FITTED
	Pin 3	AC NEUTRAL
J2 Option 1 (Screw Terminal)	Pin 1	V1 +VE
	Pin 2	V1 -VE
J2 Option 2 (Molex Connector)	Pin 1,2,3,4	V1 +VE
	Pin 5,6,7,8	V1 -VE
J3	Pin 1	FAN +VE
	Pin 2	FAN -VE

Notes

1. Ripple is peak to peak with 20 MHz bandwidth and 10 µF (Electrolytic capacitor) in parallel with a 0.1 µF capacitor at rated line voltage and load ranges.
2. Combined output power of main output, fan supply shall not exceed max. Power rating.
3. Fan supply output voltage tolerance including set point accuracy, line and load regulation is +/-10% and Ripple and noise is less than 10%.
4. Specifications are for nominal input voltage, 25°C unless otherwise stated.
5. Thermal shutdown feature : The power supply goes in hiccup mode when the temperature of PCB exceeds 110 °C (+/-10 °C).
6. Output ripple can be more than 10% of the output voltage.
7. The extended warranty period is 7 years from the date of manufacture and will continue for 6 months thereafter to allow for transport and stock holding prior to end customer receipt. The extended warranty is a "return to base" warranty and does not imply a guarantee of 7 year operation. The standard EOS warranty T&C's apply for the extended warranty period. Refer to your local EOS representative for further details.
8. When used in Cover Kit, de-rate output power to 70 % under all operating condition
9. Class II version available, Add "-II" suffix at the end of the Model Number.

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Mechanical Specifications

AC Input Connector (J1)	Molex: 26–60–4030 Mating: 09–50–3031; Pins: 08–50–0106
Earth (J4)	Molex: 19705-4301 Mating: 19003-0001
DC Output Connector (J2) Option 1 (Screw Terminal)	6-32 inches Screw Pan HD Mating: Designed to accept Ring Tongue Terminal AMP : 8-31886-1, wherein one 16 AWG(max) wire can be crimped. Note : One Ring Tongue Terminal with 16 AWG is recommended for current upto 11A only. Use multiple tongue terminals with wire for more current.
DC Output Connector (J2) Option 2 (Molex Connector)	Molex: 26-60-4080 Mating: 09-50-3081; Pins: 08-50-0106
Aux (Fan) Output(J3)	AMP :640456-2 Mating: 640440-2
Dimensions	5 x 3 x 1 inches (127 x 76.2x 25.4 mm)
Weight	300 gm approx

EMC

Parameter	Conditions/Description	Criteria
Conducted Emissions	EN 55011-B,CISPR22-B, FCC PART15-B	Pass
Radiated Emissions	EN 55011 A	Pass Level B with external core (King core K5B RC 25x12x15-M in input cable)
Input Current Harmonics	EN 61000-3-2	Class D
Voltage Fluctuation and Flicker	EN 61000-3-3	Pass
ESD Immunity	EN 61000-4-2	Level 4, Criterion A
Radiated Field Immunity	EN 61000-4-3	Level 3, Criterion A
Electrical Fast Transient Immunity	EN 61000-4-4	Level 3, Criterion A
Surge Immunity	EN 61000-4-5	Level 4, Criterion A
Conducted Immunity	EN 61000-4-6	Level 3, Criterion A
Magnetic Field Immunity	EN 61000-4-8	Level 4, Criterion A
Voltage dips, interruptions	EN 61000-4-11	Criterion B

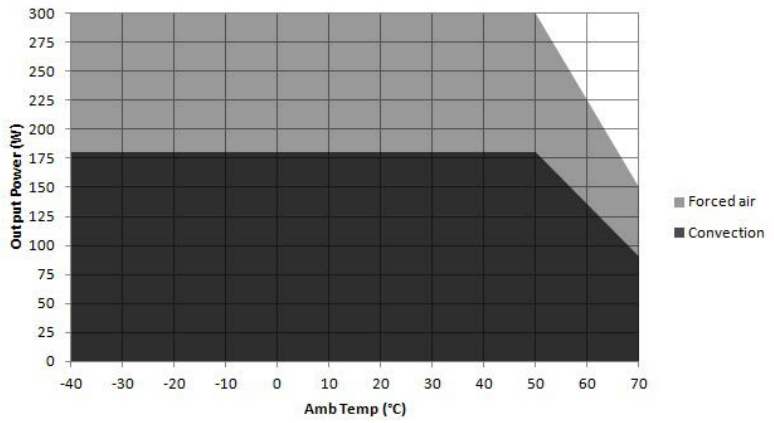
Safety

CE Mark	Complies with LVD Directive
Approval Agency	Nemko, UL, C-UL
Safety Standard(s)	EN60601-1, IEC 60601-1 (ed.3), ANSI / AAMI ES 60601 - 1, CSA C22.2 No. 60601-1
Safety File Number(s)	Class-I：UL: Certificate Number 20150302-E173812,Nemko: Certificate No.P15219413, CB Certif. No.: NO85143 Class-II：Nemko: Certificate No.P15219458, CB Certif. No.: NO85357

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Derating Curve

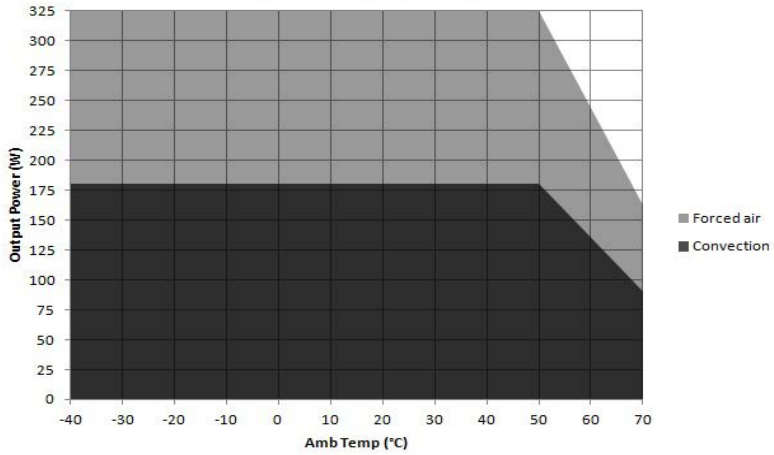
Power de-rating : 12V output



CONVECTION LOAD: 180W UP TO 50 °C
De-rate above 50 °C @ 2.5% per °C

Forced air cooled load : 300W up to 50°C
De-rate above 50 °C @ 2.5% per °C

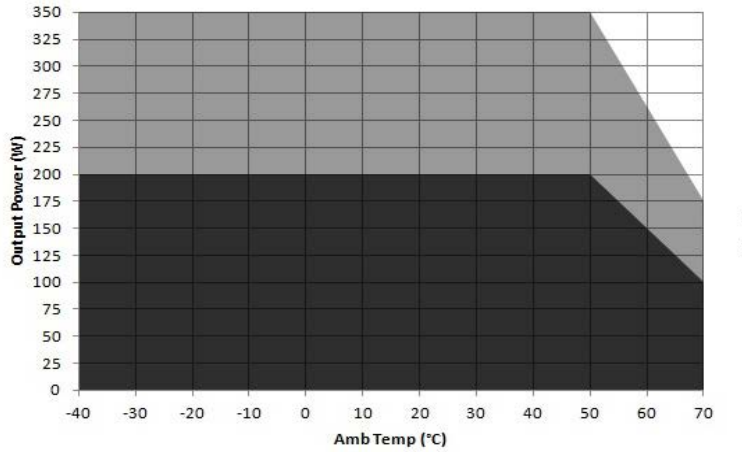
Power de-rating : 15V output



CONVECTION LOAD: 180W UP TO 50 °C
De-rate above 50 °C @ 2.5% per °C

Forced air cooled load : 325W up to 50°C
De-rate above 50 °C @ 2.5% per °C

Power de-rating : 24V, 30V, 48V, 58V



CONVECTION LOAD: 200W UP TO 50 °C
De-rate above 50 °C @ 2.5% per °C

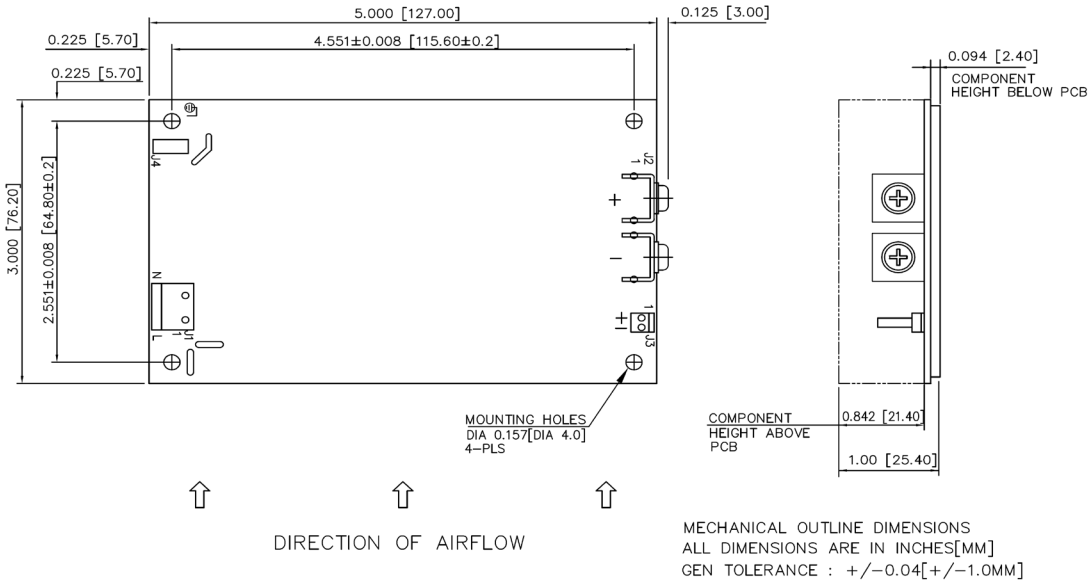
Forced air cooled load : 350W up to 50°C
De-rate above 50 °C @ 2.5% per °C

Derating Curve Note : Between –40 to 0°C startup is guaranteed with spec deviation (ref note 6)

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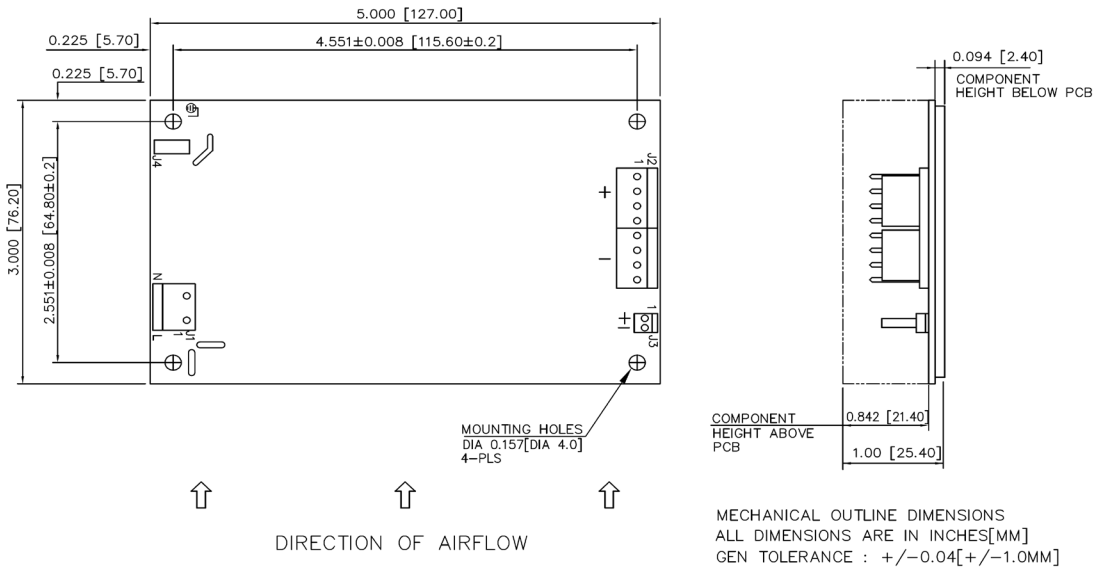
Mechanical Drawing

Option 1
–10XX Suffix.



Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following
1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.

Option 2
–13XX Suffix.



Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following
1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.

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