SL POWER
LB240 SERIES

240 Watts Single Output
LED Grade

Industrial

LED/AV

Advanced Energy's SL Power LB240 family is the latest offering in high density single output open-frame AC/DC power supplies. Approved to EN/CSA/IEC/UL 62368-1, the LB240 family is ideal for industrial and dimming applications where power density and cost are critical. The LB240 operates at universal input rang of 90 to 264 VAC and wide temperature range -10°C to +70°C, devering full rated output power up to +50°C.

AT A GLANCE

Total Power

240 Watts

Input Voltage

90 to 264 VAC

# of Outputs

Single

RoHS CE

SPECIAL FEATURES

- 3"W x 5"L x 1.3"H Size
- 240 W w/air, 130 W @ 70°C Conduction Cooled
- 240 W @ 50°C Ambient Operation With 300 LFM
- 160 W @ 70°C Ambient Operation With 200 LFM
- EN55015 Class B Conducted EMI
- Meets IEC61000-3-2 Class C for 0% to 100% LED Dimming Application (1 Watt Input Power to Full Load)
- ROHS Compliant

SAFETY

- EN/CSA/IEC/UL 62368-1

ELECTRICAL SPECIFICATIONS

Input	
Input Range	90 to 264 VAC, 47 to 63 Hz, 1Ø
Inrush Current	<55 A, 264 VAC, cold start, turn on at AC zero crossing
Input Current	115 VAC: 2.6 A, 230 VAC: 1.3 A
Input Fuses	5 A, 250 VAC fuses provided in both line & neutral
Earth Leakage Current	<500 µA @ 264 VAC, 60 Hz, NC
Efficiency	92 to 94% typical at 120 VAC / 240 VAC, 25ºC
Isolation Voltage	Input/Ground: 3000 VAC Input/Output: 1800 VAC Output/Ground: 1500 VAC
Output	
Maximum Output Power	240 W continuous with 300 LFM airflow
Ripple and Noise	1% pk-pk, 0.5% rms
Total Regulation	+/-3% combined line, load and initial setting
Minimum Load	Not required
Switching Frequency	PFC: Fixed, 65kHz. Main converter: variable 35 to 200kHz, 65 to 70kHz at full load
Transient Response	For 50% to 100% or 100% to 50% load change: < 1 mSec, return to 1% of nominal, di/dt < 0.2A/uS. Max voltage deviation = 3%
Reliability	
MTBF	438.54K hrs at 115 VAC / 110 VAC, 25ºC telcordia SR-332 issue 3. Level: 0/1; Environment: Ground, fixed, controlled
Protection	
Overvoltage Protection	Latch off, requires AC power cycle to reset
Short Circuit Protection	Hiccup mode. A direct hard short may latch off the converter, auto recovery, requires AC power cycle to reset
Thermal Protection	Sensing transformer temperature, 165ºC latching type, requires AC power cycle to reset
Overload Protection	Hiccup mode

SYSTEM TIMING SPECIFICATIONS

Parameter	Min	Typ	Max	Unit
Turn On Time - 115 VAC @ 100% load	-	-	3000	ms
Hold Up Time - 115 VAC @ 60 Hz	12	-	-	ms

EMI/EMC COMPLIANCE

Conducted Emissions	EN55015/22: Class B, FCC Part 15, Subpart B, Class B
Radiated Emissions	EN55011/22: Class B, FCC Part 15, Subpart B, Class A
Line Harmonic Emissions	EN61000-3-2, Class A, For Class C from 1W input power to full load
Voltage Fluctuations & Flicker	EN61000-3-3, Complies (dmax<6%)
Static Discharge Immunity	EN61000-4-2, 6 kV Contact, 8 kV Air Discharge
Radiated RF EM Immunity	EN61000-4-3, 3 V/m
Electrical Fast Transients / Bursts	EN61000-4-4, 2 kV/5 KHz
Surges Line to Line (DM) and Line to Ground (CM)	EN61000-4-5, 1kV DM, 2kV CM
Conducted Disturbances Induced by RF Fields	EN61000-4-6, 3 Vrms
Power Frequency Magnetic Fields Immunity	EN61000-4-8, 3 A/m
Voltage Dips	IEC61000-4-11, 100% dip for 10mS, 30%, 500ms; 60%, 100ms; Performance Criteria A, A, & A at 58% load

SAFETY

EN	EN 62368-1
CSA	CSA 62368-1
IEC	IEC 62368-1
UL	UL 62368-1

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-10°C to +70°C, turn on temperature is -40°C
Storage Temperature	-40°C to +85°C
Relative Humidity	5% to 95%, non-condensing
Altitude	Operating: -457 to 3000 m. Non-operating: -457 to 12.192 Km
Shock	Half-sine, 40 gpk, 10 mS duration, +/- in each of 3 axes, 6 shocks total
Vibration	Operating: 0.003 g/Hz, 1.5 grms overall, 3 axes, 1 hr/axis Non-Operating: 0.026 g/Hz, 5.0 grms overall, 3 axes, 10 min/axis
Dimensions	W: 3.0" x L: 5.0" x H: 1.3"; "H" option: 3.0" x 6.0" x 1.5"
Weight	370 g, typical, "H" option: TBD

ORDERING INFORMATION

Model Number[1]	Output Voltage	Maximum Output Current	Minimum Load	Efficiency		Ripple & Noise[2]	Total Regulation	OVP Threshold
				115 VAC	230 VAC			
LB240S56K	56 V	4.29 A	0 A	90%	92%	1%	+/-3%	66 ± 4 V
LB240S48K	48 V	5.00 A	0 A	90%	92%	1%	+/-3%	56 ± 3 V
LB240S24K	24 V	10.0 A	0 A	88%	90%	1%	+/-3%	29 ± 2.5 V

Notes:
1. For cold plate cooling, add option H. Consult the factory for model number availability
2. Ripple is 800mV pk-pk @ -10°C

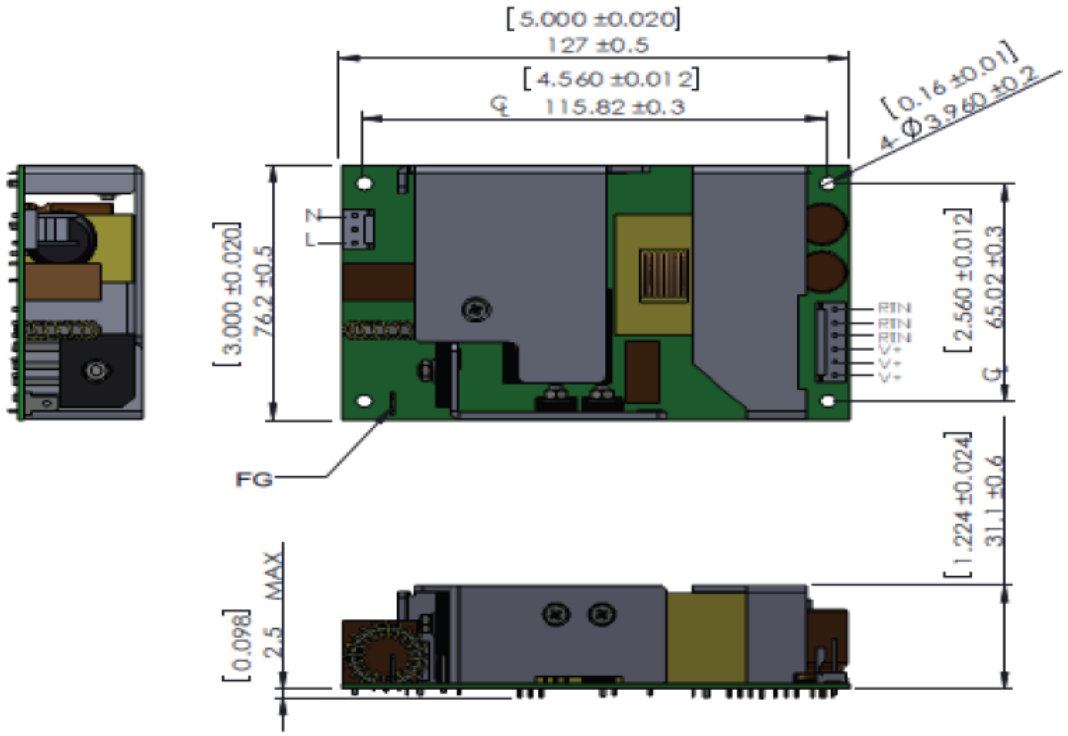
POWER DERATING

Ambient	Cooling Method	Output Power (Watts)
50°C	Forced Air, 300 LFM	240
60°C	Forced Air, 200 LFM	190
70°C	Forced Air, 200 LFM	160
70°C with Max. temperature of primary heat-sink to be held under 85°C	Conduction	130
50°C	Convection	160
40°C with “H” option, Max. temperature of cold plate to be held under 60°C	Conduction	200

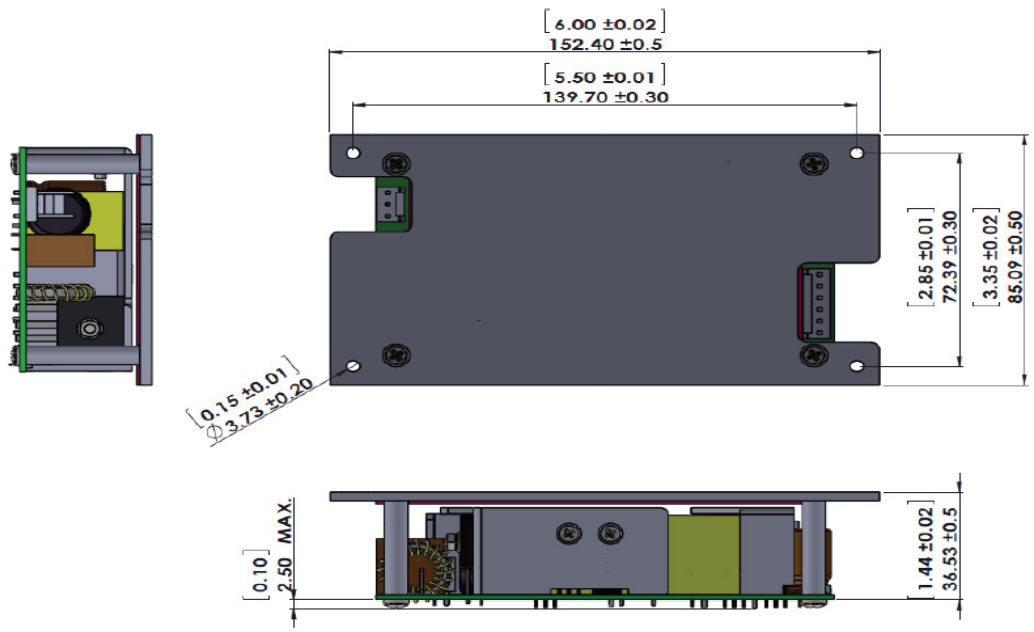
CONNECTOR INFORMATION

Type	Connector	Pin #	Assignment	Mating Connector
INPUT	J100	1	AC Line	AMP: TE-Connectivity 640250-3 Pin: TE-Connectivity 640252-2
		2	Empty	
		3	AC Neutral	
OUTPUT	J300	1	-Vout	AMP: TE-Connectivity 640250-6 Pin: TE-Connectivity 640252-2
		2	-Vout	
		3	-Vout	
		4	+Vout	
		5	+Vout	
		6	+Vout	
GROUND(FG)	0.25" FASTON TAB			Molex 190020001

MECHANICAL DRAWING



H Option:



Notes:

1. All dimensions in inches (mm), tolerance are mentioned for each measurement
2. Mounting holes should be grounded for EMI purposes
3. FG is safety ground connection
4. The power supply requires mounting on metal standoffs min of 0.20” (5mm) in height

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

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