SL POWER
LB115S SERIES

115 Watts Single Output
LED Grade

LED/AV

Advanced Energy's SL Power LB115S is designed to meet global lighting requirements and has a built-in EMI filter to meet EN55015. All models are CE marked to low voltage directive and approved to safety standard EN60950 2nd edition and UL8750. The versatility of the thermal design of the LB240 offers significant advantages over standard convection or force air cooling alone. The conduction cooled surface provides additional power handling capability while taking advantage of system enclosures as a means to extract heat from the power supply.

AT A GLANCE

Total Power

115 Watts

Input Voltage

90 to 264 VAC

# of Outputs

Single

SPECIAL FEATURES

- Small Size of 2" x 4" x 1.3"
- Universal Input 90 to 264 VAC
- 75 W Convection Cooled / 115 W With 200 LFM
- Meets IEC61000-3-2 Class C For Less Than 1 Watt to Full Power
- Meets EN55015 Conducted EMI
- Level V Efficiency Compliant
- -40°C Start Up
- -20°C to 70°C Operating Temperature Range
- 3 Years Warranty
- Optional LED Indicator for Power-On

SAFETY

- EN/CSA/IEC/UL62368-1
- EN/CSA/IEC 60950-1, 2nd

ELECTRICAL SPECIFICATIONS

Input	
AC Input Voltage	90 to 264 VAC, single phase
AC Input Frequency	47 to 63 Hz
AC Input Current	115 VAC: 2 A, 230 VAC: 1 A
Inrush Current	65 A maximum @ 25°C
Leakage Current (Input to Earth)	<350 µA @ 264 VAC, 60 Hz, NC
Input Fuse	F1: 4 A, 250 VAC
Efficiency (Typical @ 25°C, Full Load) LB115S12K LB115S24K LB115S48K LB115S56K	 89% @ 230VAC, 86.5% @ 115VAC 89% @ 230VAC, 87.0% @ 115VAC 90% @ 230VAC, 88.0% @ 115VAC 90% @ 230VAC, 88.0% @ 115VAC
Insulation Safety Rating	Input-Ground: Basic insulation Input-Output: Double/Reinforced
Electric Strength Test Voltage	Input-Output: 3000 VAC Input-Ground: 1900 VAC Output-Ground: 500 VAC
Output	
Hold-up Time	12 ms minimum from loss of AC input at 115 VAC
Output Power	Max of 75 W for convection cooled Max of 115 W for fan cooled (48 & 56 V models) Maximum 108 W for 12 V output -20°C to 50°C ambient
Turn on Time	< 2 s @ 115 VAC (< 3 s for 12 V output), < 5 s @ 115 VAC for -20°C ambient
Ripple and Noise	0.5% RMS, 1% pk-pk for all models (20 MHz bandwidth, differential mode measured with noise probe directly across output terminals and load terminated with 0.1 µF ceramic and 10 µF low ESR capacitors)
Transient Response	500 µs typ. response time for return to within 0.5% of final value for a 50% load change, Δi/Δt< 0.2 A/µs Max voltage deviation is 3.5% (Measured @ 25°C)
Total Regulation	±2% for all models (Total regulation is the maximum deviation from nominal voltage for all loading conditions)
Minimum Load	Not required
Cooling	Convection; Forced air of 200 LFM
Overshoot	5% overshoot at turn-on, 5% overshoot at turn-off, under all conditions (6% for 12 V output)
Reliability	
MTBF	574K hours, 25°C ambient, full load. Calculation is done based on Telcordia. Reports for each model is available
Warranty	3 years limited
HALT Data	Per Advanced Energy's SL Power halt procedure. Report is available
Protection	
Overtemperature Protection	Automatic power shutdown. Thermistor temperature is 130°C
Overload Protection	120% to 180% of rated output current value, Hiccup mode. For 12 V output, it is 110 to 180%
Short Circuit Protection	Short across the output terminals will not cause damage to the unit. Hiccup mode
Overvoltage Protection	OVP firing reduces output voltage to <50% of nominal in <50 ms. See "Ordering Information" for trip range

ORDERING INFORMATION

Model Number	Output Voltage	Output Current		Ripple & Noise[1]	Total Regulation	OVP Threshold
		Convection	Forced air (200 LFM)			
LB115S12K	12 V	6.25 A	9.00 A (108 W)	0.5%RMS, 1.5% pk-pk	±2%	14.0 ± 1.1V
LB115S24K	24 V	3.13 A	4.58 A (110 W)	0.5%RMS, 1% pk-pk	±2%	28.0 ± 2.5V
LB115S48K	48 V	1.56 A	2.40 A (115 W)	0.5%RMS, 1% pk-pk	±2%	55.0 ± 4.0V
LB115S56K	56 V	1.34 A	2.05 A (115 W)	0.5%RMS, 1% pk-pk	±2%	63.0 ± 4.0V

Note 1 - At -20°C, the noise and ripple is 2% of the output.

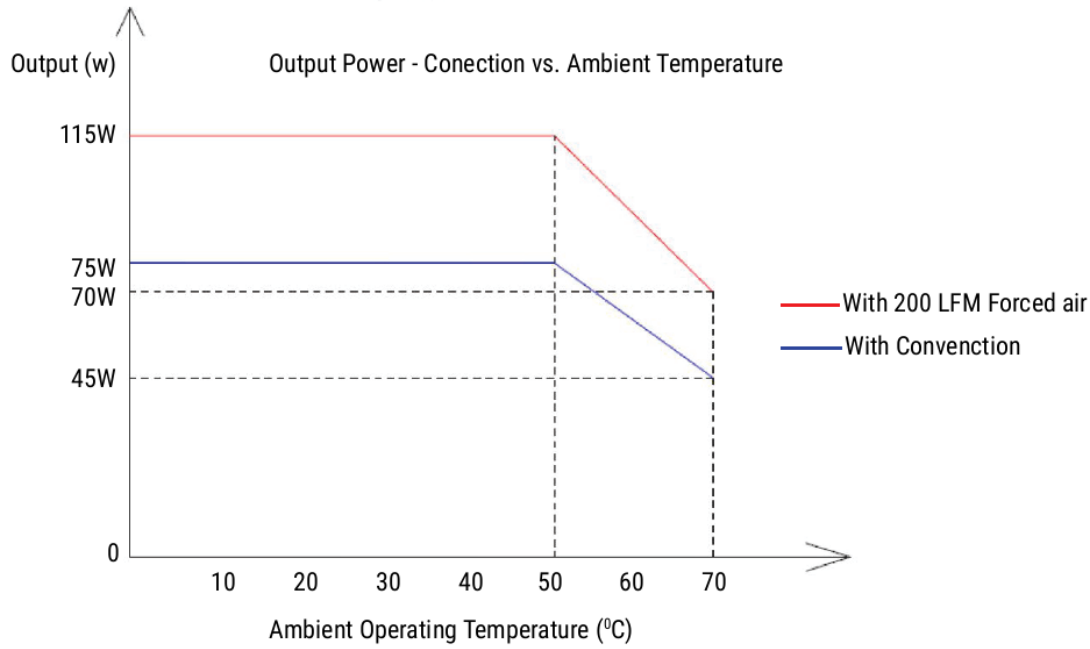
EMI/EMC COMPLIANCE

Conducted Emissions	EN55011/22 Class B; FCC Part 15. EN55015 Class B.
Radiated Emissions	EN55011/22 Class A; FCC Part 15
Harmonic Current Emissions	EN61000-3-2, Class A, B, C & D. Meets Class C from 5 to 115 W. This is based on limits set @ 115 W
Voltage Fluctuationsm & Flicker	EN61000-3-3
Static Discharge Immunity	EN61000-4-2, Level 4: 6 kV contact, 8 kV air, Criteria A
RF Field Susceptibility	EN61000-4-3, Level 3 (3 V/m), Criteria A
Fast Transients/Bursts	EN61000-4-4, Level 3 (PS: 2 kV - 40 A, other lines 1 kV - 20 A), Criteria A
Surge Susceptibility	EN61000-4-5, Installation Class 3 (1 kV diff. mode, 2 kV common mode), Criteria A
Conducted RF Susceptibility	EN61000-4-6, Level 3 (3 Vrms), Criteria A
Power Frequency Magnetic Field Test	EN61000-4-8, Level 3 (3 A/m), Criteria A
Voltage Sags & Surges	EN61000-4-11, 95% dip/0.5 cycle (Criteria A), 60%/5 cycles (Criteria B), 30%/25 cycles (Criteria A) Loading is 70% of 100 w with 100 VAC input

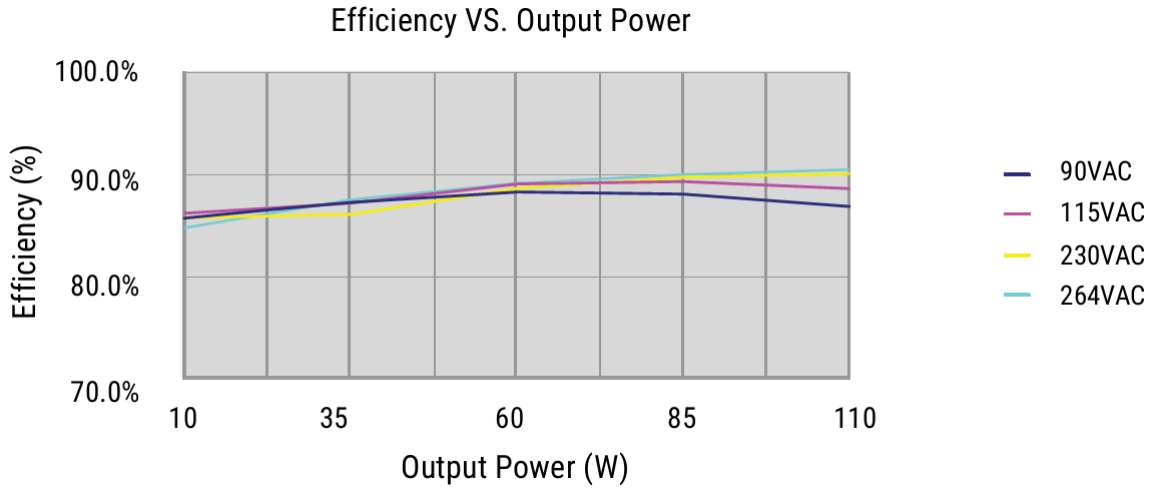
Note 1 - Specifications subject to change without notice.
Note 2 - Specifications are for convection rating at factory settings with 115 Vac input and 25°C ambient unless otherwise stated.
Note 3 - Performance criteria are defined as following:
A – Normal performance during and after the test
B – Temporary degradation, self-recoverable
C – Temporary degradation, operator intervention required to recover the operation

CHARACTERISTIC CURVES

OUTPUT POWER VS. TEMPERATURE

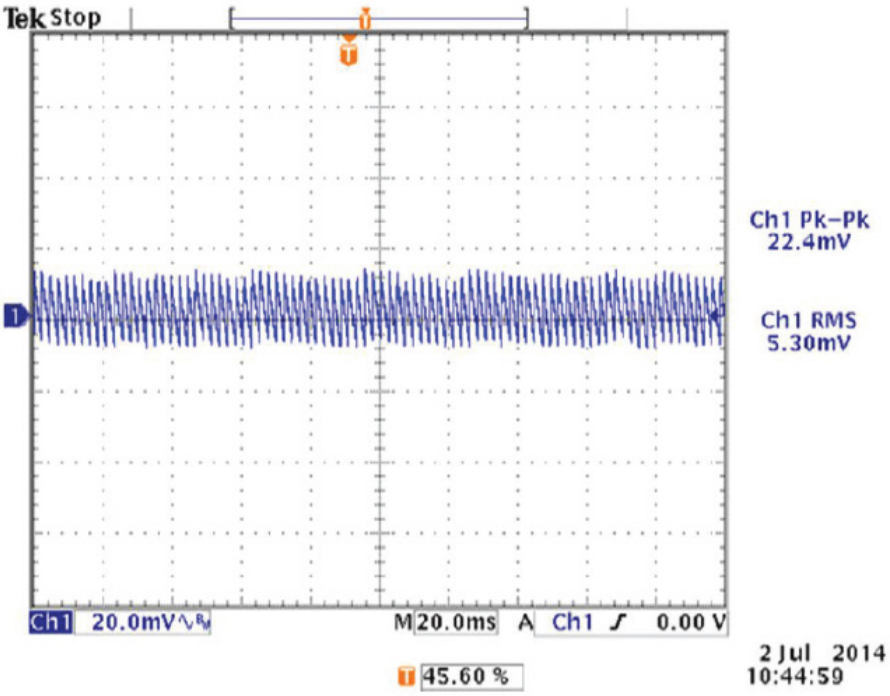


EFFICIENCY VS. LOADING



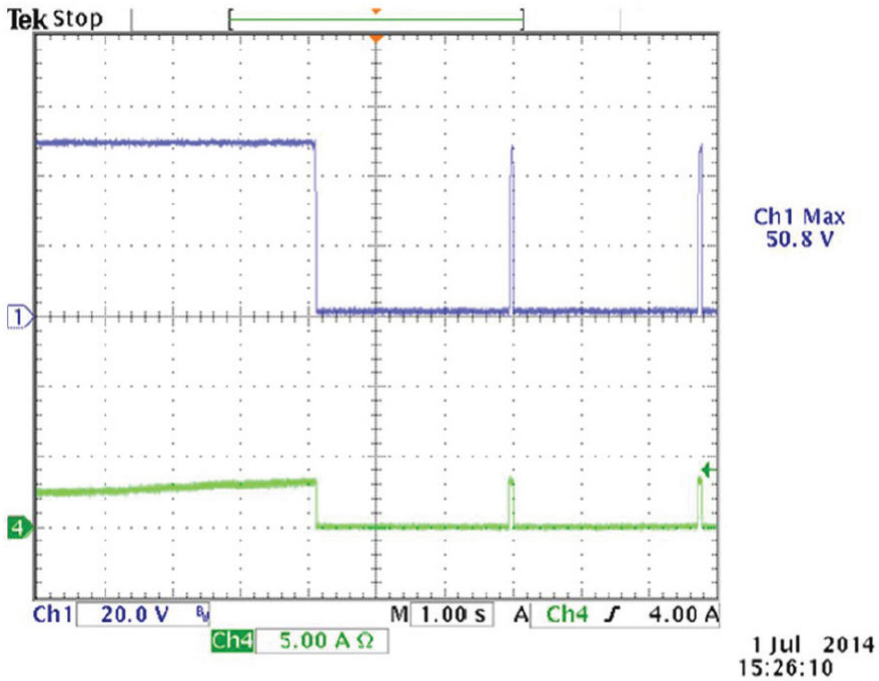
CHARACTERISTIC CURVES

RIPPLE & NOISE



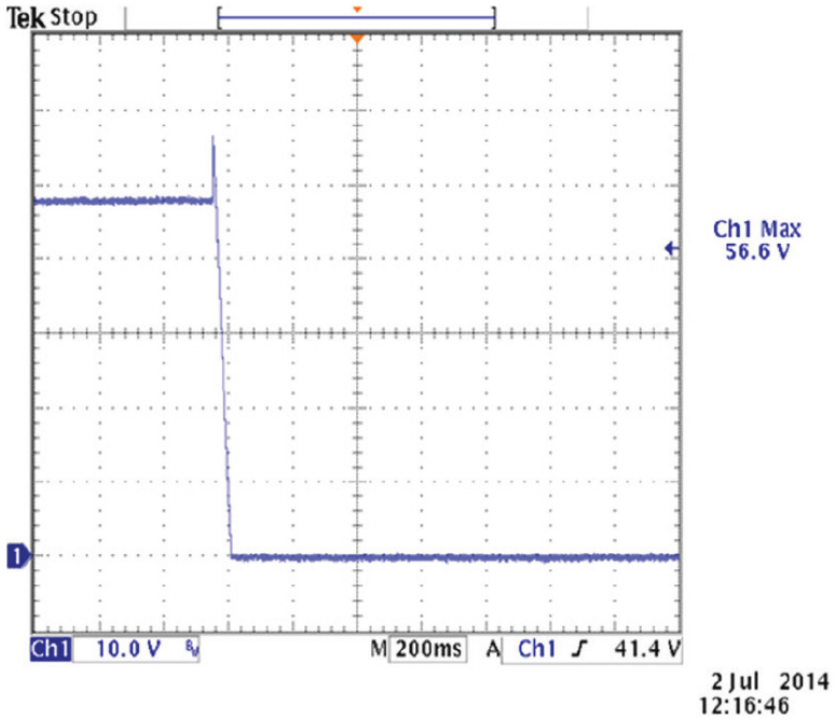
To verify that the output ripple and noise does not exceed the level specified in the product specification, measured using a scope probe socket with 0.1 uF ceramic and a 10 uF electrolytic capacitor connected in parallel across it, 20 MHz BW.

OUTPUT OVERLOAD CHARACTERISTIC

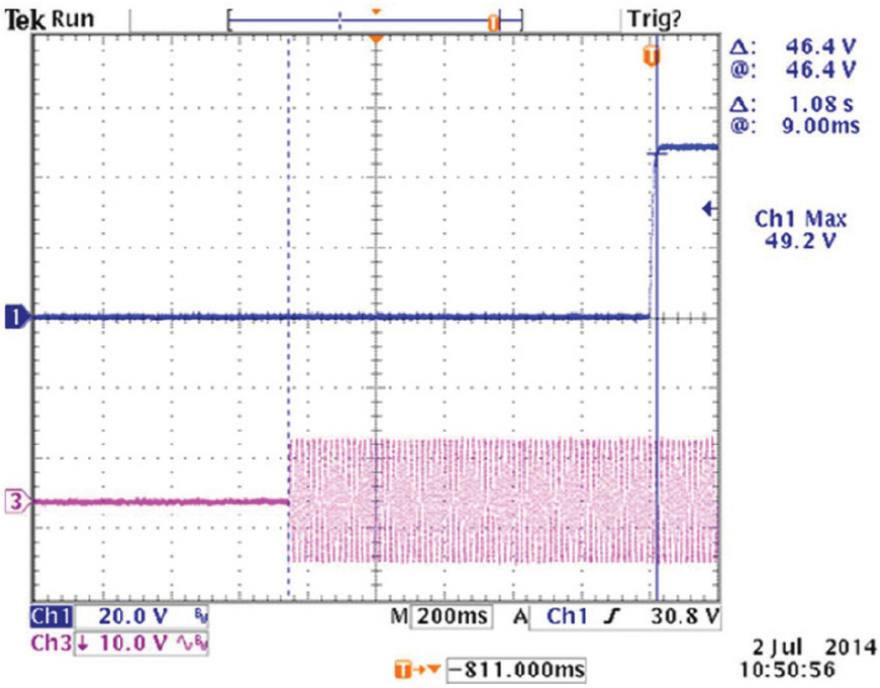


CHARACTERISTIC CURVES

OVERVOLTAGE PROTECTION

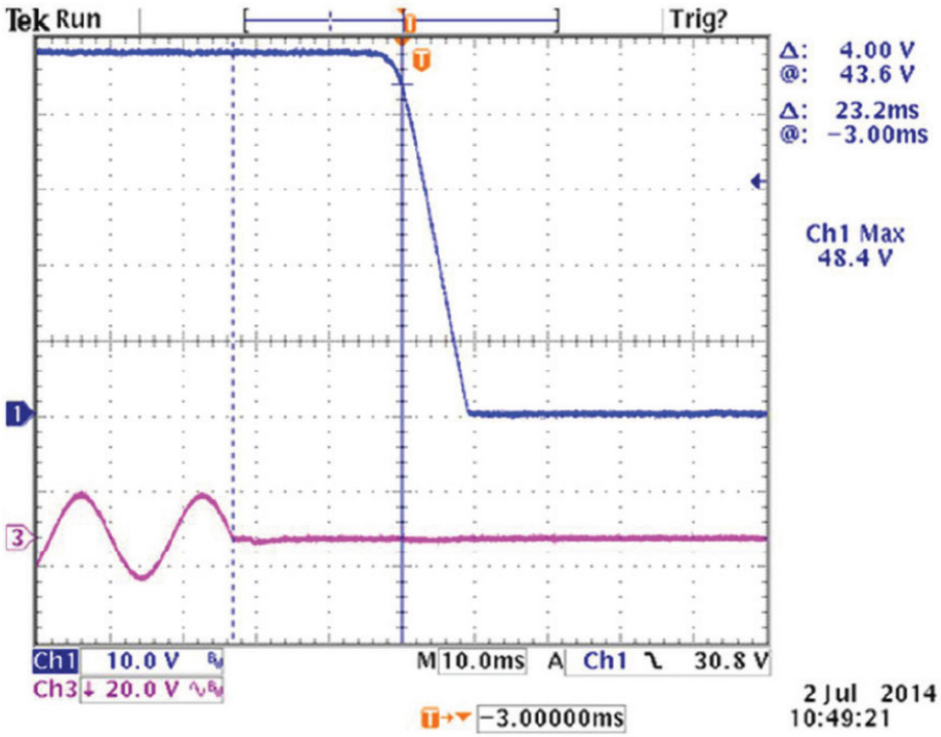


TURN - ON TIME



CHARACTERISTIC CURVES

HOLD UP TIME



Channel	Ch1 : Vout	Ch2: Vin
Test Condition	Vin = 115 VAC	Iout = 2.4 A
Hold-up Time	16ms min.	23.2 ms means

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-20°C to +70°C -40°C startup guaranteed (full load), for 12 V output, the maximum load is 75%
Temperature Derating	60% derating at 70°C
Storage Temperature	-40°C to +85°C
Cooling	Convection/Airflow (75 W convection)
Altitude	Operating: 500 to 3,000 m; Non-operating: 500 to 40,000 ft
Relative Humidity	5% to 95%, Non-condensing
Vibration	Random vibration per MIL-STD-810E, Method 514.4, Cat. 1, Figure 514.4-1, 1 hours in each of three axes
Shock	Non-operating: Half-sine, 40 gpk, 10 ms, 3 axes, 6 shocks total

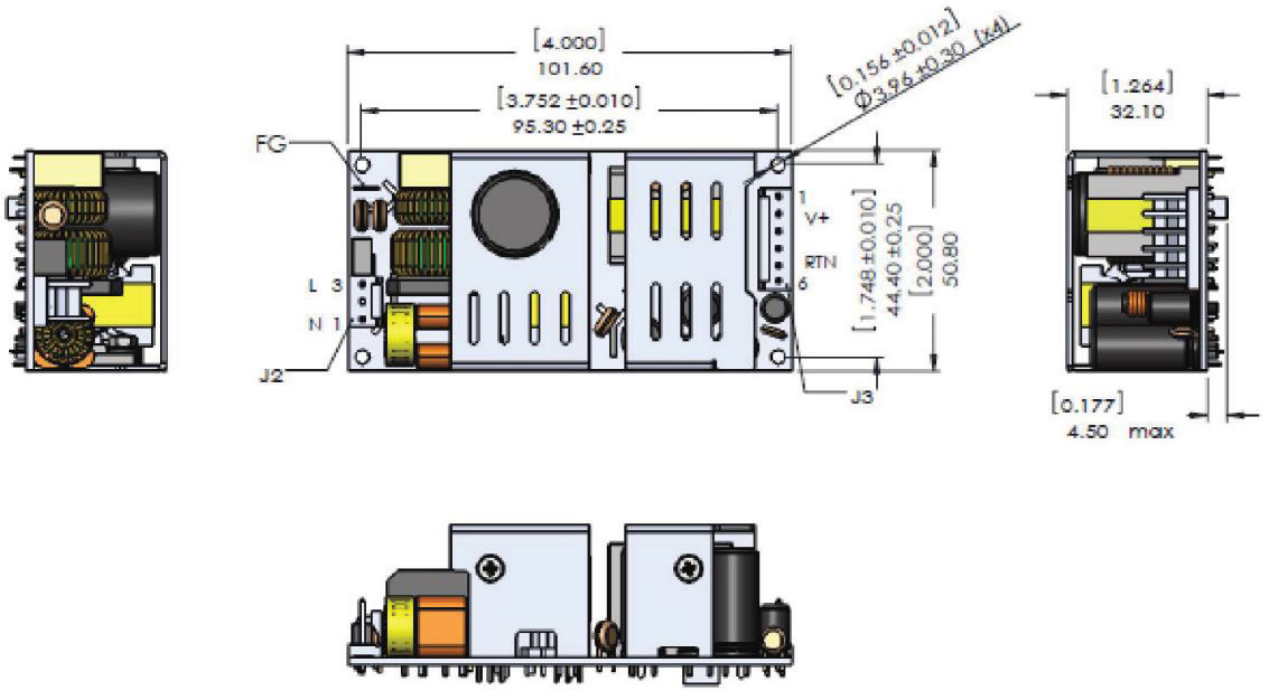
PIN ASSIGNMENTS

Type	Connector	Pin #	Assignment
INPUT	J2	1	AC Neutral
		2	Spare
		3	AC Line
OUTPUT	J3	1	+Vo
		2	+Vo
		3	+Vo
		4	-Vo
		5	-Vo
		6	-Vo
GROUND	J1	-	-

CONNECTORS

Name	Connector	Mating Connector	Mating Pin
J2	-	Tyco/AMP 640250-3	3-640252-1
J3	-	AMP 640250-6	3-640252-1
J1	19-30258-0187 (Keystone 1285) (Zierick 895)(.187*0.020)	Molex 190020005	-

MECHANICAL DRAWING



Notes:

1. All dimensions in mm [inch] undefined tolerance is 0.5mm [±.02"].
2. Mounting holes should be connected together for EMI purpose.
3. FG is safety ground connection.
4. This power supply requires mounting on metal standoffs 0.20" (5mm) min. 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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ENG-LB115S-03.18.23