power-one®
Changing the Shape of Power

RoHS Compliant

Applications

- Telecom, datacom
- Networking
- Industrial
- Consumer
- Gaming

Features

- RoHS compliant for all six substances
- Typical 80-85% efficiency
- Quasi-resonant ZVS topology with synchronous rectification
- Compact size of 2” x 4” x 1.30”
- 65 Watts with only 4-5 CFM forced-air cooling
- 60 Watts with convection cooling
- 90-264 VAC wide-range input
- FCC & CISPR 22, Class "B" – Conducted EMI
- Height meets 1U chassis constraints
- Two-year limited warranty
- Safety Agency pending to UL60960-1, CSA 22.2 No. 60950-1-03, and TUV EN60950/IEC 60950-1
- Compliance with EN 61000-4-2 level 4 (ESD), EN 61000-4-3 (RF), EN 61000-4-4 level 3 (Fast Transient/Burst), EN 61000-4-5 class 3 (Surge)

Description

The SBLP65 is a compact and efficient series of AC-DC power supplies suited for telecom, datacom, and many other applications. The SBLP65 Series meets the international information technology safety standards with the CE-Mark for the European Low Voltage Directive (LVD). Its high efficiency allows a very minimal power loss in end equipment, resulting in higher reliability, ease of thermal management, and regulatory approvals for an environmentally friendly end product.

Single-Output Model Selection

Model	Nominal Output Voltage (VDC)	Min-Max Output Current (Amps), Convection	Min-Max Output Current (Amps), Forced Air [1]	Peak Output Current (Amps) [2]	Total Regulation (%) [3]	Ripple & Noise mV pk-pk % [4]
SBLP65-1003G	3.3	0 - 11	0 - 11	19	±2	1.5
SBLP65-1005G	5	0 - 11	0 - 11	12	±2	1.0
SBLP65-1012G	12	0 - 5	0 - 5.4	6.25	±2	1.0
SBLP65-1015G	15	0 - 4	0 - 4.3	5	±2	1.0
SBLP65-1024G	24	0 - 2.5	0 - 2.7	3.1	±2	1.0
SBLP65-1048G	48	0 - 1.25	0 - 1.35	1.56	±2	1.0

[1] 4 CFM or 105 LFM (average measurement of six equally-distributed points through a 3.5" x 1.6" (9 cm x 4 cm cross-sectional area) with power supply mounted on a 0.25" (6.35 mm) standoffs. Recommended airflow direction is from the AC input to the DC output.
[2] Peak current duration for less than 30 seconds with a maximum duty cycle of 10%. During peak loading, output may exceed total regulation limits.
[3] At 25 °C ambient including voltage set point tolerance, line and load regulation
[4] Maximum peak-to-peak noise at 20 MHz bandwidth measured at the end of a twisted pair cable across a bypass capacitor.

Model numbers highlighted in yellow or shaded are not recommended for new designs.

ELECTRICAL SPECIFICATIONS

Input Specifications

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
AC Input Voltage Range	Continuous voltage range	90	100 - 250	264	VAC
DC Input Voltage Range	For DC input applications, please consult factory.				VDC
Frequency	AC Input	47	50 - 60	63	Hz
Power Factor	Complies with EN61000-3-2 Standard for Line Current Harmonics with input power less than 75 Watts, at <60W output power				
Input current	At 90 VAC input and max rating		1.5		Amps rms
Inrush current	115 VAC, Max power, 25 °C 230 VAC, Max power, 25 °C			30 60	A pk A pk
Input fuse	Non-user serviceable internally located AC input line fuse is provided.				A
Efficiency	At maximum power, 110 VAC Single output models above 24V output Single output 12V model Single output models below 12V		 85 84 80		 % % %

Output Specifications

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Output power	With convection cooling	[1]		60	Watts
	With 3 CFM forced-air cooling for single output models	[1]		65	
Output DC voltages	Vo1 output is adjustable -5/+10 % of nominal				
Output DC current				[1]	A
Minimum load	Required to meet total regulation			[1]	A
Leakage current	At 264 VAC/60 Hz			0.75	mA
Output ripple & noise				[1]	mV pk-pk
Overshoot	Vo1 overshoot at turn-on			5	%
Load transient	Vo1 deviation due to a 50 to 100% load change at a rate of 1A/µs			±5	%
Turn-On & Turn-Off characteristics	Outputs turn ON monotonically at minimum output current or at full load. Outputs turn OFF monotonically at minimum output current or at full load.				
Turn-on Delay	Time required for output within regulation after initial application of AC input @ 90 VAC.			3	Sec
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.			20	ms
Hold-up Time	Time Vo1 is required to stay within 95% regulation after removal of AC measure from the last peak of the AC line at 120 VAC and max power.	16			ms
Remote Sense	Maximum compensation.			500	mV
Control loop stability	Phase margin.	45			Degrees
	Gain margin.	10			dB

[1] See Model Selection table.

Fault Protection

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Current Limit Protection	Protection is provided.				
Short-circuit Protection	Provided with auto-recovery.				ADC
OVP Trip	Vo1, 3.3 V Vo1, 5 V Vo1, 12 V Vo1, 24 V Vo1, 48 V	3.6 5.6 14 29 55	3.75 6.2 15.35 31.6 57.5	3.95 6.9 16.7 34.2 60	VDC

Isolation Requirements

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input-to-Chassis		2121			VDC
Input-to-Output		4242			VDC
Output-to-Chassis		500			VDC

EMC Immunity

Parameter	Conditions/Description
ESD	EN 61000-4-2 Level 2.
RF Susceptibility	EN 61000-4-3 Level 3.
Fast Transient/Burst	EN 61000-4-4 Level 3.
Surge	EN 61000-4-5 Class 3.
RF Immunity	EN 61000-4-6. Class 3.
Magnetic Fields	EN 61000-4-8.
Voltage Interruptions	EN 61000-4-11.

EMC Emmisions

Parameter	Conditions/Description
FCC Part 15	Conducted Class B, Radiated Class A.
CISPR 22	Conducted Class B, Radiated Class A.

Environmental Specifications

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Cooling	Rated for convection and forced-air cooling.				
Audible Noise				0	dBA
Operating Temp	-10 ºC to 50 ºC with linear derating to 50% at 70 ºC. Unit will start up at -10 ºC, but will not meet all published specifications.	-10	50	70	ºC
Altitude	Operating. Non-Operating.			10K 50K	ASL ft ASL ft
Storage Temp		-40		85	ºC
Humidity	95% relative humidity @ 40 ºC, non-condensing				
Vibration	Operating: Random vibration; 5 to 500 Hz (10 minutes, each axis). Non-Operating: Random vibration; 5 to 500 Hz (10 minutes, each axis).			2.4 6	Grms Grms
Shock	Operating: half-sine, 11 ±3 ms, 3-axis. Non-Operating: half-sine, 11 ±3 ms, 3-axis.			15 40	G G

Regulatory & Safety Approvals

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
UL60950-1	3.3V and 5V single-output models are pending.				
CSA-C22.2, No. 60950-1-03	3.3V and 5V single-output models are pending.				
EN 60950-1 /IEC 60950-1	3.3V and 5V single-output models are pending.				
CE Mark for LVD	3.3V and 5V single-output models are pending.				
CB Approval	3.3V and 5V single-output models are pending.				
Ground Continuity	At 12 VAC.			40	A

Mechanical Specifications

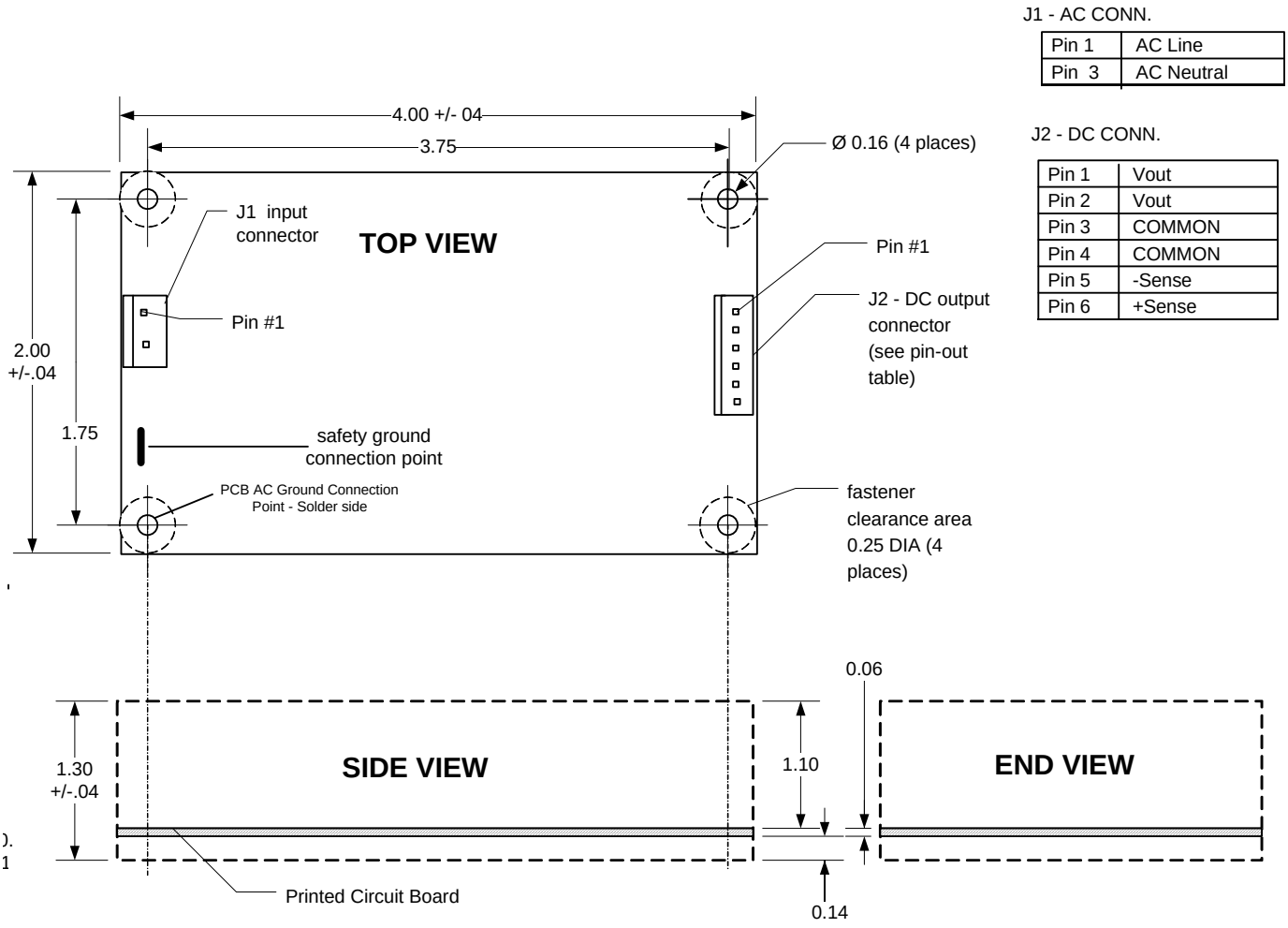
Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Dimensions	Length			101.6	mm
	Width			50.8	mm
	Height, including component or component lead protrusion on the bottom of the PCB.			33.02	mm
Power Density	With forced-air cooling.			4.81	W/cu in
Mounting	(Location/Hardware); see Outline Drawing.				
Input	(Location/Connector); J1 - Molex 41791 series or equivalent				
Output	(Location/Connector); J2 - Molex 41791 series or equivalent				
Remote Sense	Combined into J2, pins 5 & 6 for single-output models.				
Outline Drawing Pins/Functions	See Mechanical Drawing.				
Weight			0.115		kg
Connector kit	Consult factory				
Mounting distance	Distance from the bottom of the components or component leads (solder side) or top of the components (component side) to the customer's metal chassis	2.87			mm

Reliability

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Calculated MTBF		250,000			Hours
Demonstrated MTBF		550,000			Hours

Mechanical Drawing

SBLP65 Single-Output Drawing:



J1 - AC CONN.

Pin 1	AC Line
Pin 3	AC Neutral

J2 - DC CONN.

Pin 1	Vout
Pin 2	Vout
Pin 3	COMMON
Pin 4	COMMON
Pin 5	-Sense
Pin 6	+Sense