

## 80W CONVECTION COOLED

AC-DC POWER SUPPLIES

With an excellent power density, constant voltage and constant current operation, harmonic currents class C for loads of 50W and above, low power source approval, class I & class II operation and a wide input voltage range of 90 to 305VAC, the convection cooled 80W LCE80 4" x 2" open frame power supply meeting the latest environmental legislation provides a solution for wide ranging applications in lighting, display, industrial electronics and ITE applications.



### Features

- 80W convection cooled
- 4" x 2" footprint
- Constant voltage, constant current operation
- Suitable for lighting and display applications
- ITE & lighting safety approvals
- 90 to 305VAC operation
- Class I & class II operation
- Harmonic currents class C
- LPS approval for 12V and above
- Less than 0.5W no load input power
- -40°C to +70°C operating temperature
- 3 year warranty

### Applications



Displays



Industrial Electronics



Lighting



Technology

### Dimensions

4.00" x 2.00" x 1.10" (101.6 x 50.8 x 27.9 mm)

### Models & Ratings

Model Number	Output Voltage	Output Current	Ripple & Noise	Efficiency <sup>(1)</sup>	Power
LCE80PS05	5.0V	12.00A	50mV	85.5%	60W
LCE80PS12	12.0V	6.67A	120mV	88.8%	80W
LCE80PS15	15.0V	5.33A	120mV	87.1%	80W
LCE80PS20	20.0V	4.00A	120mV	88.3%	80W
LCE80PS24	24.0V	3.33A	120mV	88.1%	80W
LCE80PS30	30.0V	2.67A	240mV	88.3%	80W
LCE80PS36	36.0V	2.22A	240mV	88.8%	80W
LCE80PS42	42.0V	1.90A	240mV	89.4%	80W
LCE80PS48	48.0V	1.67A	240mV	88.2%	80W
LCE80PS54	54.0V	1.48A	240mV	89.9%	80W

#### Notes:

1. Minimum average efficiencies measured at 25%, 50%, 75% & 100% of 80W load and 230VAC input.

## Input

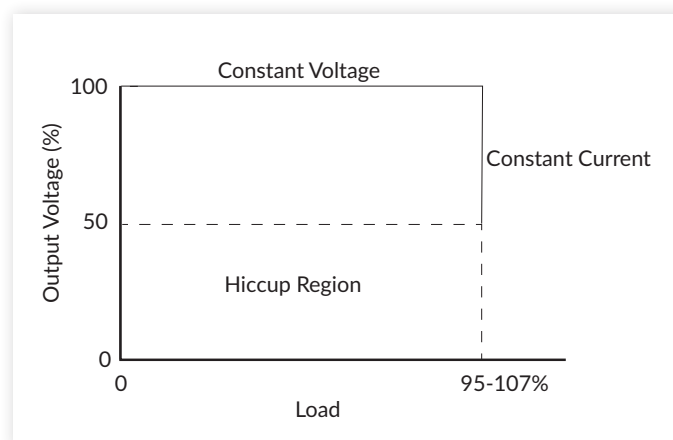
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage - Operating	90	115/230	305	VAC	
Input Frequency	47	50/60	63	Hz	
Input Current - Full Load		0.8/0.42		A	115/230VAC
Inrush Current			70	A	230VAC cold start, 25°C
No Load Input Power			0.5	W	
Earth Leakage Current		140/280	400	μA	115/230VAC/50Hz (Typ), 264 VAC/60Hz (Max)
Input Protection	F3.15 A/250V Internal fuse fitted in line and neutral.				

## Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage - V1	5		54	VDC	See Models and Ratings table
Initial Set Accuracy			±0.5	%	50% load, 115/230VAC
Output Voltage Adjustment	±5	±10		%	
Minimum Load	0			A	No minimum load required
Start Up Delay			2	s	115/230VAC full load.
Hold Up Time	18	20		ms	Min at full load, 115VAC
Drift			±0.02	%	After 20 min warm up
Line Regulation			±1	%	90-264VAC
Load Regulation			±1	%	0-95% load, 5% in constant current mode
Transient Response			4	%	Recovery within 1% in less than 500μs or a 50-75% and 75-50% load step
Over/Undershoot			7	%	Full load
Ripple & Noise			50/120/200	mV pk-pk	5V/12-24V/30-54V, 20MHz bandwidth and 10μF electrolytic capacitor in parallel with 0.1μF ceramic capacitor.
Overvoltage Protection	110		140	%	Vnom, auto recovery
Overload Protection	100		107	% I nom	Constant current down to 50% of nominal voltage. See fig. 1.
Short Circuit Protection					Trip and restart
Temperature Coefficient			0.02	%/°C	

### Output Characteristics

Figure 1



General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		88		%	230VAC (see fig. 2 and 3)
Isolation: Input to Output	3000			VAC	
Input to Ground	1500			VAC	
Output to Ground	1500			VAC	
Switching Frequency	34		95	kHz	Main converter
	68		86		PFC
Power Density			9	W/in <sup>3</sup>	
Mean Time Between Failure		250		khrs	MIL-HDBK-217F, Notice 2 +25°C GB
Weight		0.32 (145)		lb (g)	

Efficiency vs Load

Figure 2, LCE80PS12

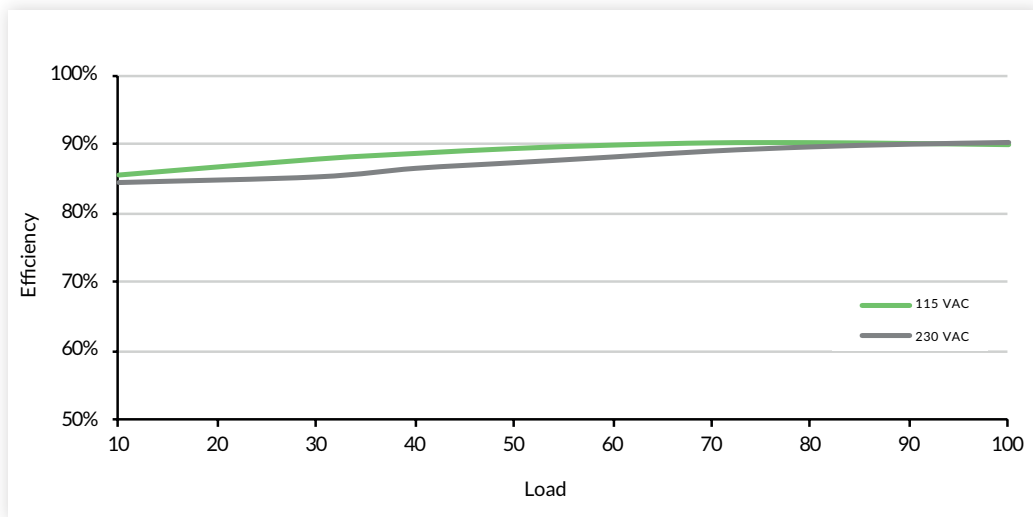
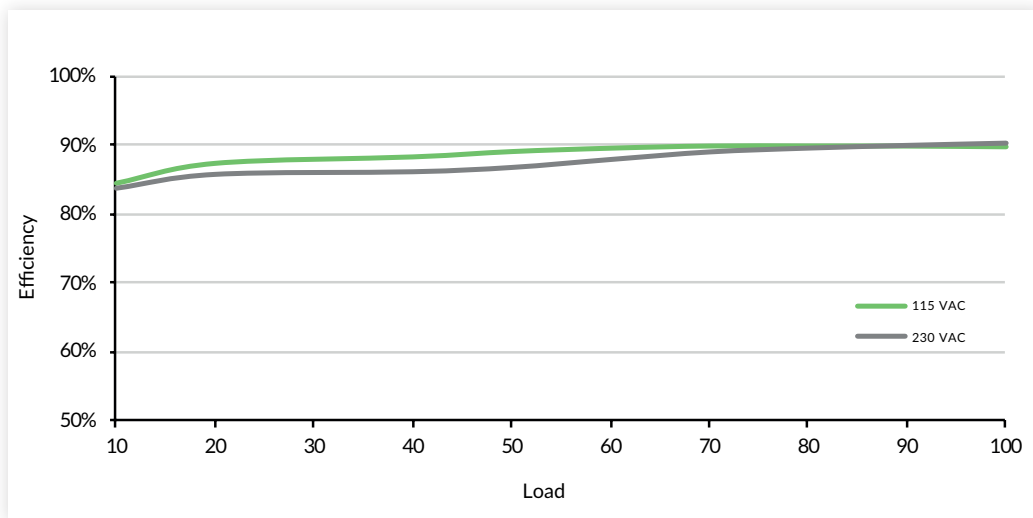


Figure 3, LCE80PS24

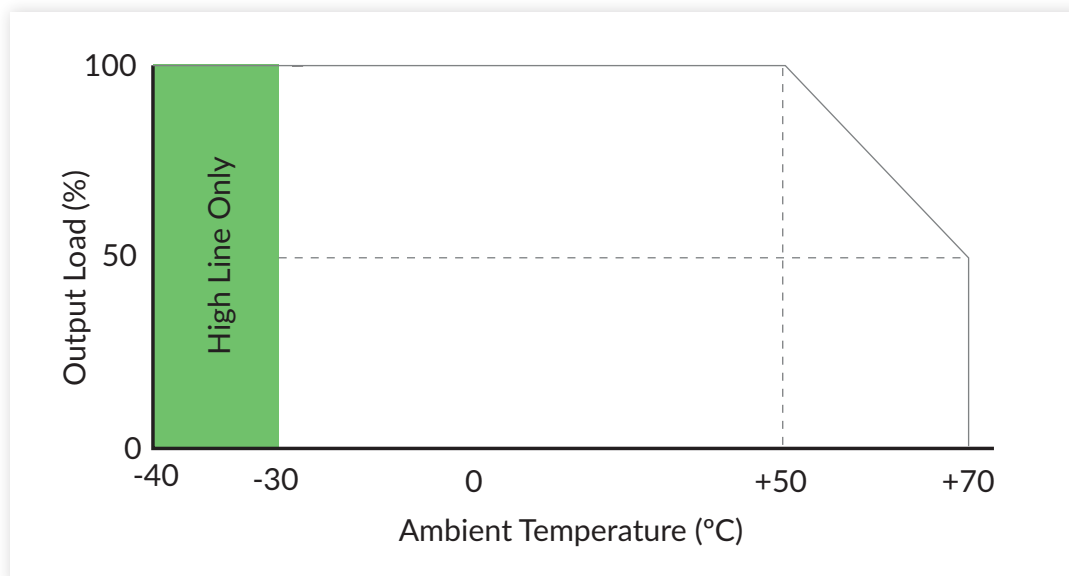


Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+70	°C	
Storage Temperature	-40		+85	°C	
Cooling	Convection cooled				
Humidity	5		95	%RH	Non-condensing
Operating Altitude			5000	m	
Shock	±3 x 30g shocks in each plane, total 18 shocks. 30g = 11ms (+/- 0.5msecs), half sine. Conforms to EN60068-2-27				
Vibration	Single axis 10-500 Hz at 2g sweep and endurance at resonance in all 3 planes. Conforms to EN60068-2-6				

Temperature Derating Curve

Figure 4



## EMC: Emissions

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
Conducted	EN55032, EN55015	Class B		
Radiated	EN55032, EN55015	Class B		
Harmonic Current	EN61000-3-2	Class A, C		Class C for 50W load and above
Voltage Functions	EN61000-3-3			

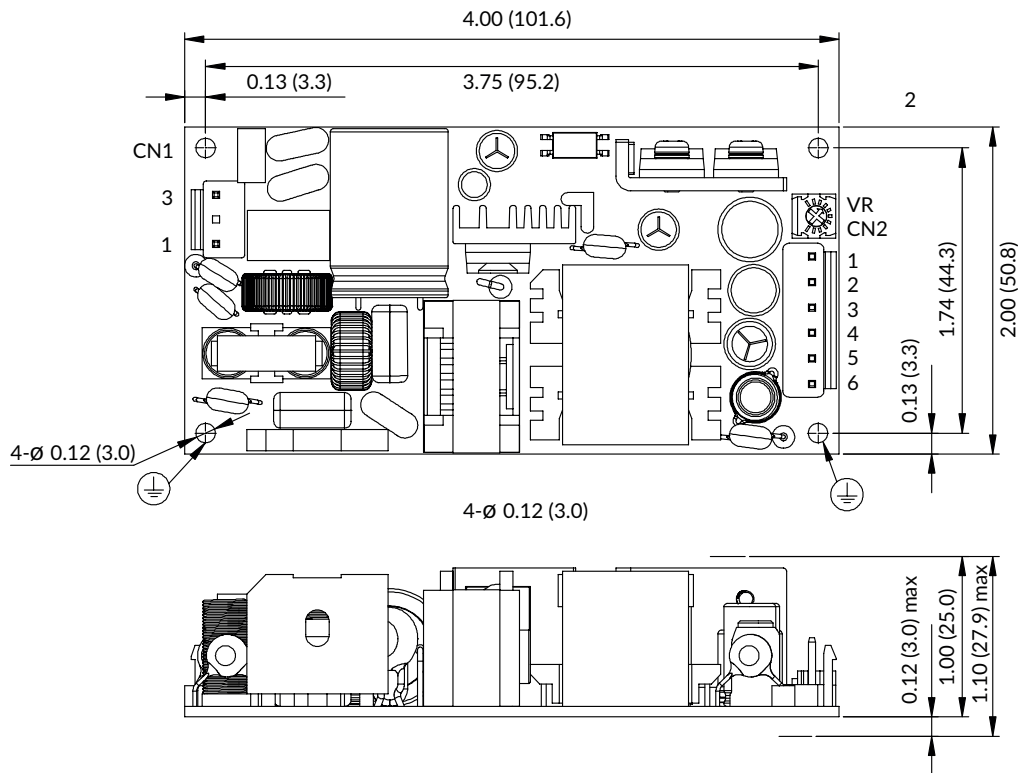
## EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
Low Voltage PSU EMC	EN55035, EN61547		as below	
ESD Immunity	EN61000-4-2	3	A	
Radiated Immunity	EN61000-4-3	3	A	
EFT	EN61000-4-4	3	A	
Surge	EN61000-4-5	Installation class 4	A	
Conducted	EN61000-4-6	3	A	
Magnetic Fields	EN61000-4-8	3	A	
Dips and Interruptions	EN61000-4-11 (100VAC)	Dip >95% (0VAC), 8.3ms	A	
		Dip 30% (70VAC), 416ms	A	
		Dip >95% (0VAC), 4160ms	B	
	EN61000-4-11 (240VAC)	Dip >95% (0VAC), 10.0ms	A	
		Dip 30% (168VAC), 500ms	A	
		Dip >95% (0VAC), 5000ms	B	

## Safety Approvals

Certification	Standard	Notes & Conditions
CB Report	IEC60950-1-1, IEC62368-1	Information Technology
UL	UL62368-1, UL8750	Information Technology & Lighting
EN	EN62368-1, EN61347-1	Information Technology & Lighting
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

## Mechanical Details



CN1	
Pin	Function
1	AC-L
3	AC-N

CN2	
Pin	Function
1	+Vo
2	+Vo
3	+Vo
4	-Vo
5	-Vo
6	-Vo

Input and output connectors (CN1 & CN2) mate with JST housing VHR series and JST SVH-21/41T-P1.1 series crimp terminal or equivalent.

Mounting holes marked with  $\oplus$  must be connected to safety earth in Class I applications or connected together in Class II application.

### Notes:

1. All dimensions are in inches (mm). Tolerance:  $\pm 0.02$  (0.5)
2. Weight: 0.32lbs (145g) approx.