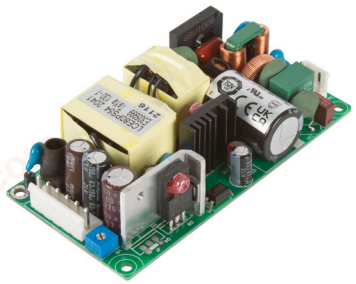
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# LCE80 Series

XP Power

## 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[1] | 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.

# LCE80 Series

AC-DC POWER SUPPLIES

## Input

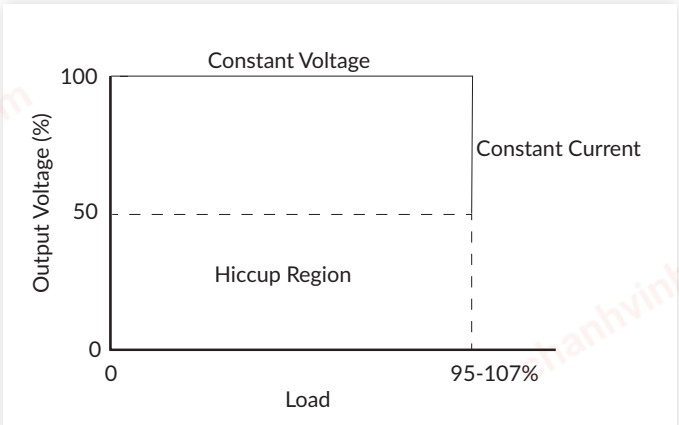
| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---|---|---|---|---|
| Input Voltage - Operating | 90 | 115/230 | 305 | VAC | |
| Input Frequency | 47 | 50/60 | 63 | Hz | |
| Input Current - Full Load | | 0.8/0.42 | | A | 115/230VAC |
| Inrush Current | | | 70 | A | 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/250 V 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



# LCE80 Series

AC-DC POWER SUPPLIES

## 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/in³ | |
| 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

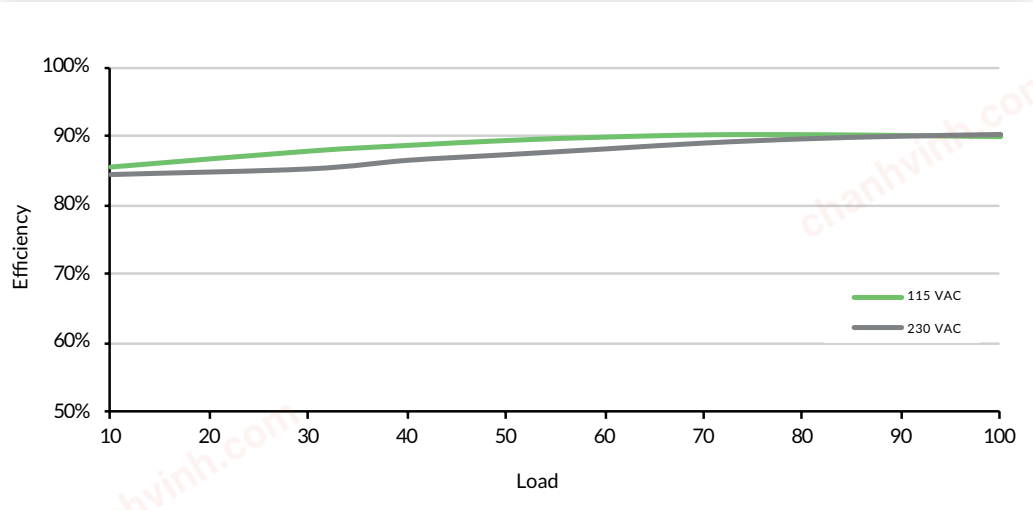
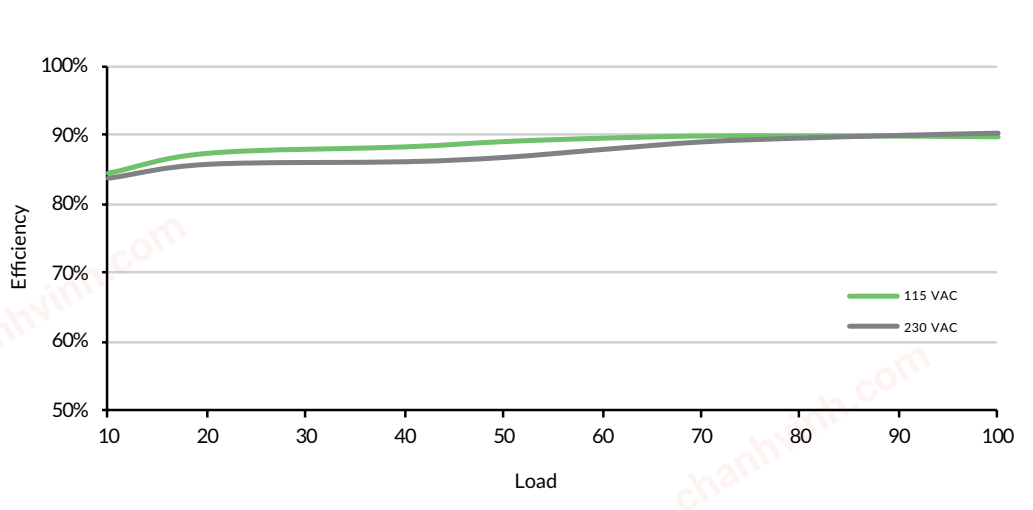



Figure 3, LCE80PS24



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# LCE80 Series

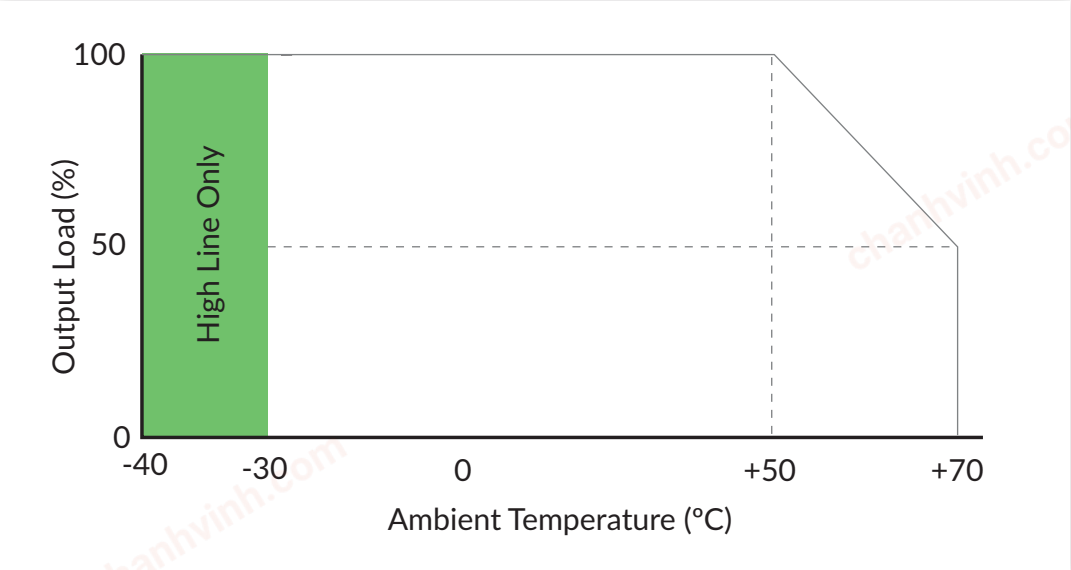


## Environmental

| 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



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# LCE80 Series



## 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 | |

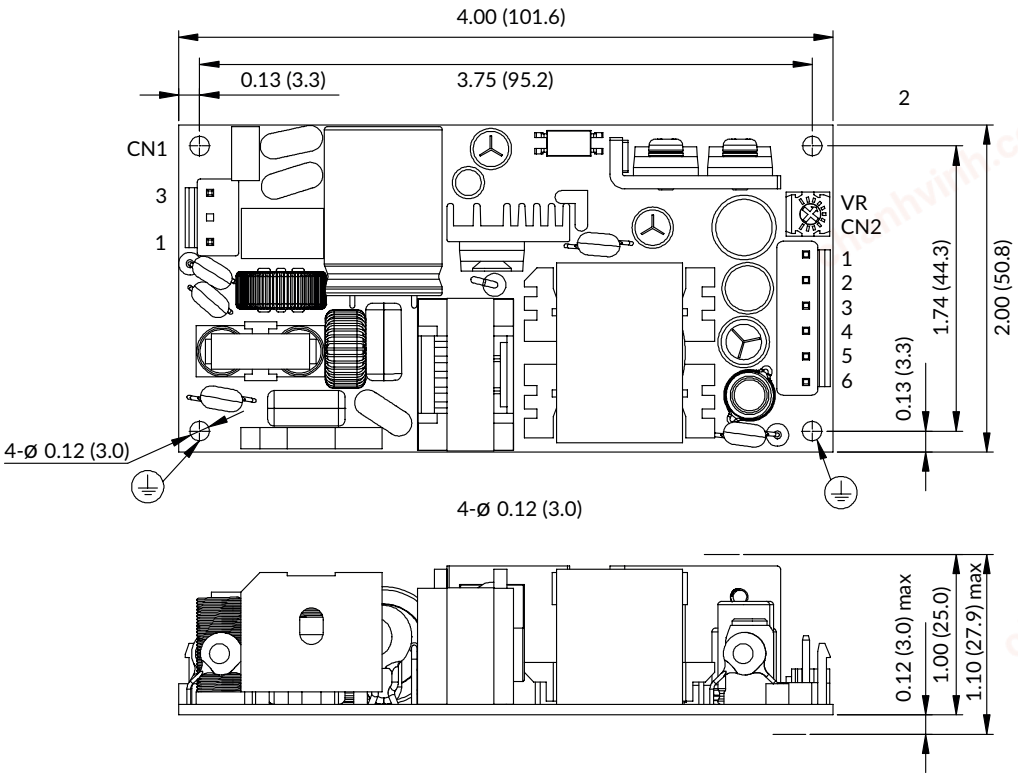
## Safety Approvals

| Safety Agency | Standard | Notes & Conditions |
|---|---|---|
| CB Report | IEC60950-1-1, IEC62368-1 | Information Technology |
| UL | UL62368-1, UL8750 | Information Technology & Lighting |
| TUV | EN62368-1, EN61347-1 | Information Technology & Lighting |

# LCE80 Series

AC-DC POWER SUPPLIES

## 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 ⏚ 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: ±0.02 (0.5)
2. Weight: 0.32lbs (145g) approx.