

Features

- Leading Edge and Trailing Edge AC Dimmable
- Constant Current Output
- High Efficiency (Up to 84%)
- Active Power Factor Correction (Up to 0.95)
- All-Around Protection: OLP, SCP, and No Load Protection
- SELV Output



Description

The LHC-024SxxxRSP series operates from a 176 ~ 264 Vac input range. They are designed to be highly efficient and reliable. Features include dimming control with leading edge and trailing edge, open lamp, short circuit protections.

Model List

Output Current	Input Voltage Range	Output Voltage Range	Max. Output Power	Typical Efficiency (1)	Power Factor (1)	Model Number
350 mA	176 ~ 264 Vac	34-68 Vdc	24 W	86%	0.95	LHC-024S035RSP
500 mA	176 ~ 264 Vac	24-48 Vdc	24 W	85%	0.95	LHC-024S050RSP
700 mA	176 ~ 264 Vac	17-34 Vdc	24 W	84%	0.95	LHC-024S070RSP
1050 mA	176 ~ 264 Vac	12-23 Vdc	24W	83%	0.95	LHC-024S105RSP

Note: (1) Measured in 220 Vac input at full load.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	176 Vac	-	264 Vac	
Input Frequency	-	50 Hz	-	
Leakage Current	-	-	0.5 mA	220Vac/50Hz
Input AC Current	-	-	0.2 A	Measured at full load and 220 Vac input.
Inrush Current(I ² t)	-	-	0.002 A ² s	At 220Vac input, 25°C cold start, duration = 60 us, 10%lpk-10%lpk. See Inrush Current Waveform for the details.
Power Factor	0.90	-	-	At 176Vac-264Vac, 75%load-100%load (18W~24W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Io	-	5%Io	At full load condition
No load output voltage Io = 350 mA Io = 500 mA Io = 700 mA Io = 1050 mA	- - - -	- - - -	75V 54V 38V 27V	Measured at full load and 220 Vac input with full conduction angle.
Startup Overshoot Current	-	-	10%Io	Full load condition
Line Regulation	-	-	±2%	Input voltage from 200Vac to 264Vac
	-	-	±30%	Input voltage from 176Vac to 200Vac
Load Regulation	-	-	±5%	Input voltage from 200Vac to 264Vac
	-	-	±20%	Input voltage from 176Vac to 200Vac
Turn-on Delay Time	-	0.6 s	1.0 s	Measured at 220Vac input, 75%load-100%load
Dimming Range	0%Io	-	100%Io	Conduction Angle 30° ~ 180°
Temperature Coefficient of Iomax	-	-	0.03%/°C	Case temperature = 0°C ~Tc max

Note: All specifications are typical at 25°C unless otherwise stated.

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 220 Vac input: Io = 350 mA Io = 500 mA Io = 700 mA Io = 1050 mA	83% 83% 82% 81%	84% 84% 83% 82%	- - - -	Measured at full load and 220 Vac input with full conduction angle and steady-state temperature in 25°C ambient.
No Load Power Dissipation	-	-	5 W	
MTBF	-	330,000 Hours	-	Measured at 220Vac input, 80%load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	85,000 Hours	-	Measured at 220Vac input, 80%Load and 60°C case temperature; See life time vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-20 °C	-	+90 °C	
Operating Case Temperature for Warranty Tc_w	-20 °C	-	+65 °C	Humidity: 10% RH to 100% RH.
Storage Temperature	-20 °C	-	+85 °C	Humidity: 5% RH to 100% RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	4.73 × 1.65 × 1.20 120 × 42 × 30.5			
Net Weight		265 g		

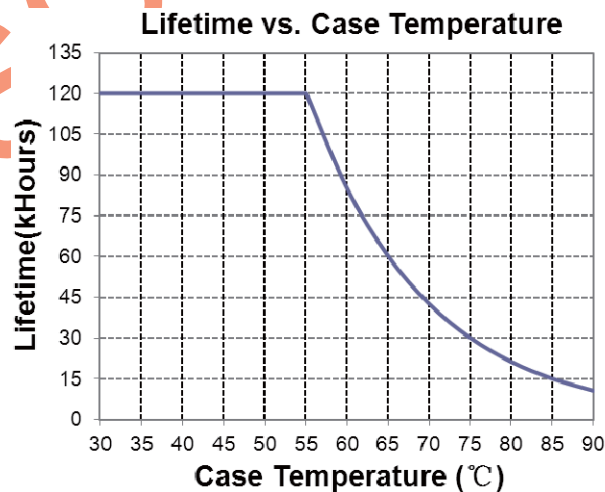
Note: All specifications are typical at 25°C unless otherwise stated.

Safety & EMC Compliance

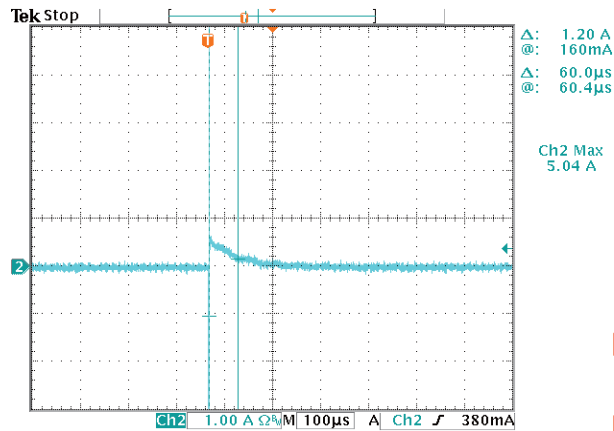
Safety Category	Standard
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655
EMI Standards	Notes
EN55015 ⁽¹⁾ /CISPR15	Conducted Emission Test & Radiated Emission Test
EN 61000-3-2	Harmonic Current Emissions
EN 61000-3-3	Voltage Fluctuations & Flicker
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge Level 3, Criteria A
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-5	Surge Immunity Test: AC Power Line: Line to Line 1 kV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test
EN 61000-4-8	Power Frequency Magnetic Field Test
EN 61000-4-11	Voltage Dips
EN 61547	Electromagnetic Immunity Requirements Applies to Lighting Equipment

Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

Lifetime vs. Case Temperature

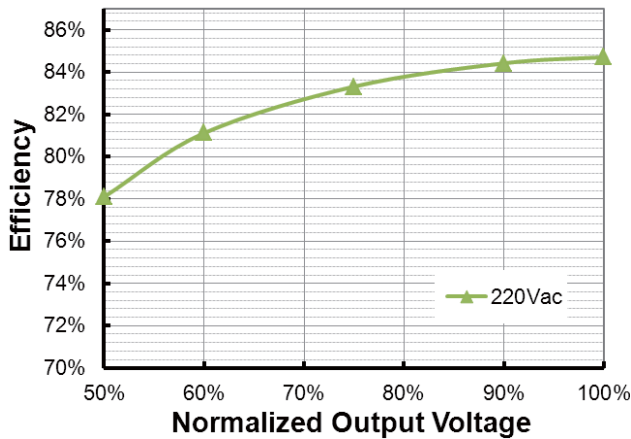


Inrush Current Waveform

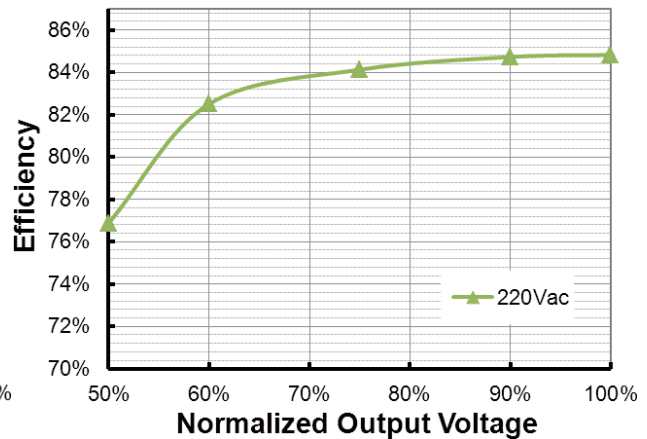


Efficiency vs. Load

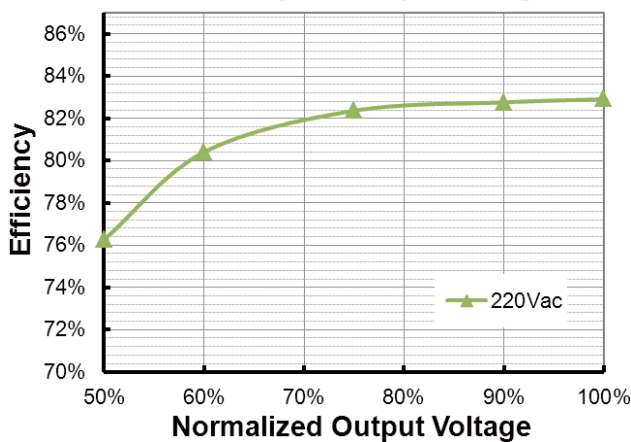
LHC-024S035RSP
Efficiency vs. Output Voltage



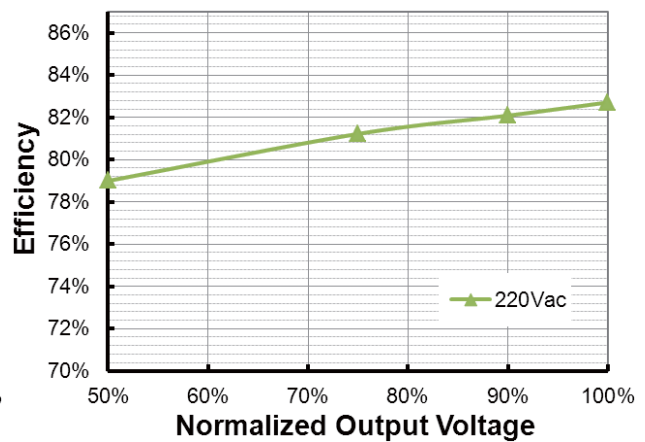
LHC-024S050RSP
Efficiency vs. Output Voltage



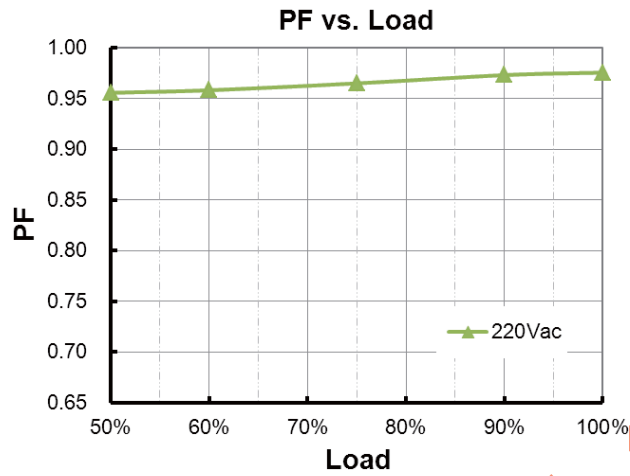
LHC-024S070RSP
Efficiency vs. Output Voltage



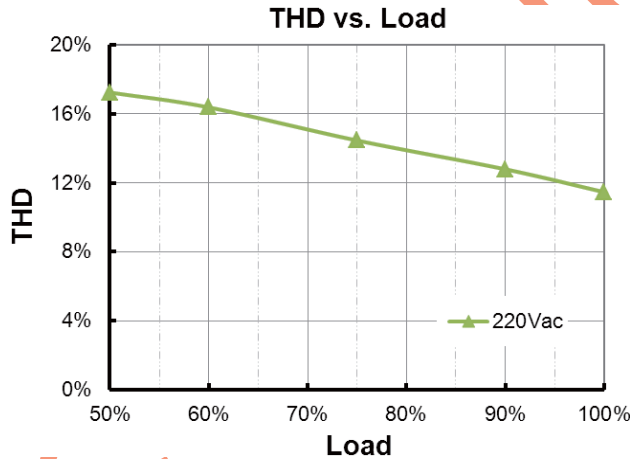
LHC-024S105RSP
Efficiency vs. Output Voltage



Power Factor



Total Harmonic Distortion



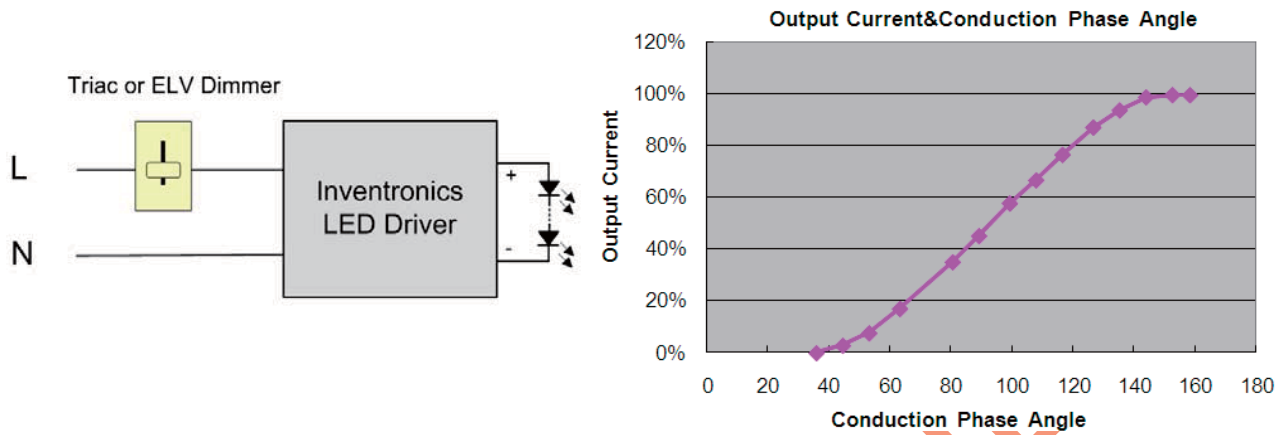
Protection Functions

Parameter	Notes
Short Circuit Protection	Latch mode. The power supply shall return to normal operation only after the short is removed and the power is recycled.

Dimmer Recommendation

Manufacturer	Type	Applicable Voltage	Power Rating	Notes
Hongyan	KT250	230Vac	250W	
Flexalite	FL6300	230Vac	630W	
SIEMENS	5TG	230Vac	500W	
T&J	60669	230Vac	630W	
Opus	852.390	230Vac	400W	
Bush-Jaeger	2250U	230Vac	600W	

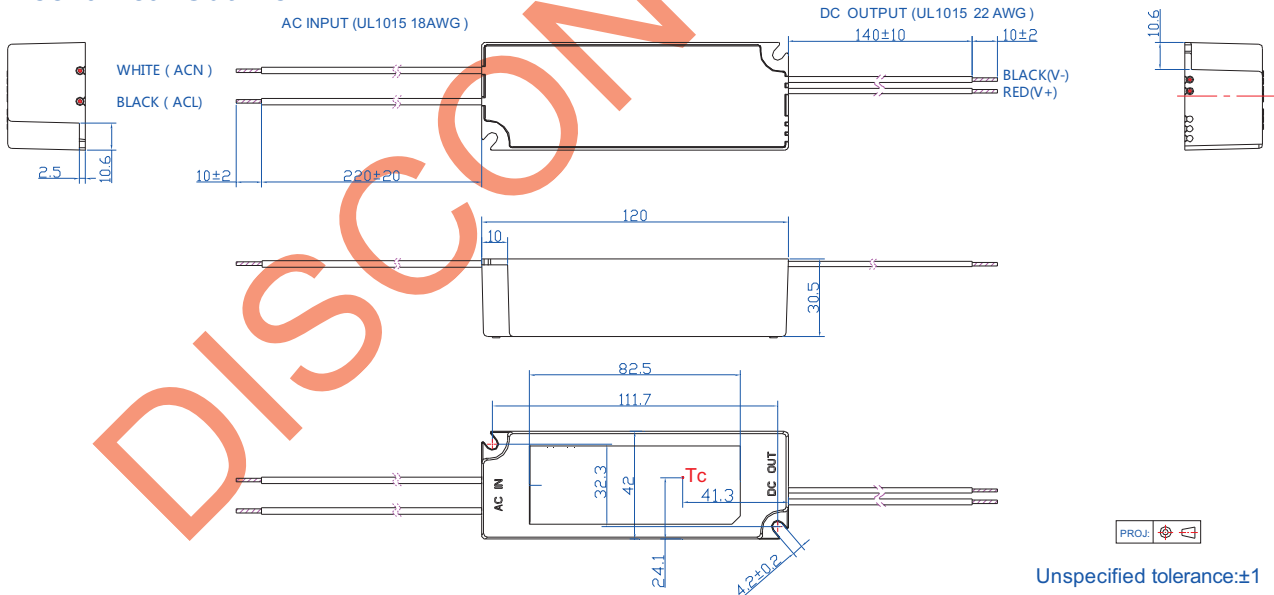
TRIAC Dimming Control



Implementation: Dimming with Triac or ELV Dimmer

Parameter	Min.	Typ.	Max.	Notes
Dimming Range	0%Io	-	100%Io	Measured at 220 Vac input.
Conduction Angle	30°	-	180°	Measured at 220 Vac input.

Mechanical Outline



RoHS Compliance

Our products comply with the European Directive 2011/65/EC, calling for the elimination of lead and other hazardous substances from electronic products.

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2012-10-15	A	Datasheet Release	/	/
2013-04-28	B	Net weight	250g	235g
2014-02-11	C	Mechanical Outline --- Input and Output wires : 20mm reduced	/	Updated
2016-04-18	D	Inrush Current(I ² t)	4.2*10 ⁻⁴ A ² s	0.002 A ² s
		Lifetime	51,000Hours	85,000Hours
		Operating Case Temperature for Warranty Tc_w	/	Added
		Net Weight	235 g	265 g
		Environment Specification	/	Deleted
		KS Certificate Regulation	/	Added
		Note of EMI Standard	/	Added
		Derating Curve	/	Deleted
		Inrush Current Waveform	/	Added
Total Harmonic Distortion vs. Load Curve	/	Added		
2019-08-20	E	Safety & EMC Compliance	/	Updated