



Preliminary

Xenerqi LED Driver

75W Constant Current

Customer:	Cooper Lighting	Version:	A.03
Customer P/N:		P/N:	XEL-A075A-C3X26-ZA01
Product Name:	LED Driver	Date:	5 / Feb / 2012

Designed by	Confirmed by	Verified by
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Upon receipt of signed document approval by customer of both specification and final samples, Xenerqi will issue the final version (non preliminary) of this document.

	" ✓ "	Customer's Signature	Comments
Full Approval			
Conditional Approval			

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Revision History

Rev	Date	Revision Description	Modified By
A.01	17 / Oct / 2012	First edition	P. Qin
A.02	15 / Dec / 2012	Updated to new output current level, surge rating, label, Tc information, RSET value table and dimming curve.	P. Qin
A.03	5 / Feb / 2013	Dimming curve revised, label information revised	P. Qin



XEL-A075CA-3X13-ZA01 LED Driver Specification

1. Description

The XEL-A075CA-3X13-ZA01 is a switching mode power supply designed to be used as an LED Driver in lighting applications. This unit is designed as a single output unit with a constant current. The value of the output current can be set by an external resistor connected to the RSET lines. The total output power of the unit is approximately 75W.

2. AC INPUT

2.1 Input AC Voltage

Rated Voltage:	120 – 277Vac
Input Range:	108 – 305 Vac
Nominal Input Voltages:	120/230/240/277 Vac

2.2 Input AC Frequency

The input frequency range will be 47 to 63 Hz.

2.3 Input AC Current

1.0A max at 120Vac.
0.5A max at 277Vac.

2.4 Inrush Current

After AC power is applied to the power supply (cold start), any initial inrush current surge or spike of 10msec or less shall not exceed the values listed below:

Inrush (IPeak)	Condition
5A	120Vac at 25°C and full load
7A	240Vac at 25°C and full load
9A	277Vac at 25°C and full load
15A	305Vac at 25°C and full load

2.5 Efficiency

Typical unit efficiency at the nominal input of 120V and 100% of rated power is **88%**. For details on efficiency at other nominal values and where the load is $\geq 75\%$ please see table:

Efficiency	Input Voltage (Vac)	Load
$\geq 85\%$	120	$\geq 75\%$
$\geq 87\%$	220/240	$\geq 75\%$
$\geq 88\%$	277	$\geq 75\%$

2.6 Power Factor Correction

Input Power Factor is ≥ 0.90 at nominal input voltages and at full load.

2.7 THD (Total Harmonic Distortion)

Compliance to EN61000-3-2 Class C Standards, THD $\leq 20\%$ with DC output at full load and nominal input voltages.



3. DC Output Requirements

3.1 DC Output Voltage and Current (Constant Current Output)

Max Output Voltage	Nominal Output Current	Output Voltage Range	Output Current Tolerance: $\pm 5\%$
23.0V	3.26A	18.0V ~ 23.0V	1.8A ~ 3.26A

If no external resistor is applied to RSET, the output current will default to 3.26A

3.2 Ripple and Noise

Differential ripple and noise of the power supply shall be as shown below when measured under nominal load, with an oscilloscope with a bandwidth of 20MHz, and tested by loading DC output side in parallel with a 47uF/EC and 0.1uf/ Ceramic.

Nominal Output Voltage	Maximum Peak to Peak Ripple and Noise
+23.0VDC	300mVp-p

3.3 The ripple of output current

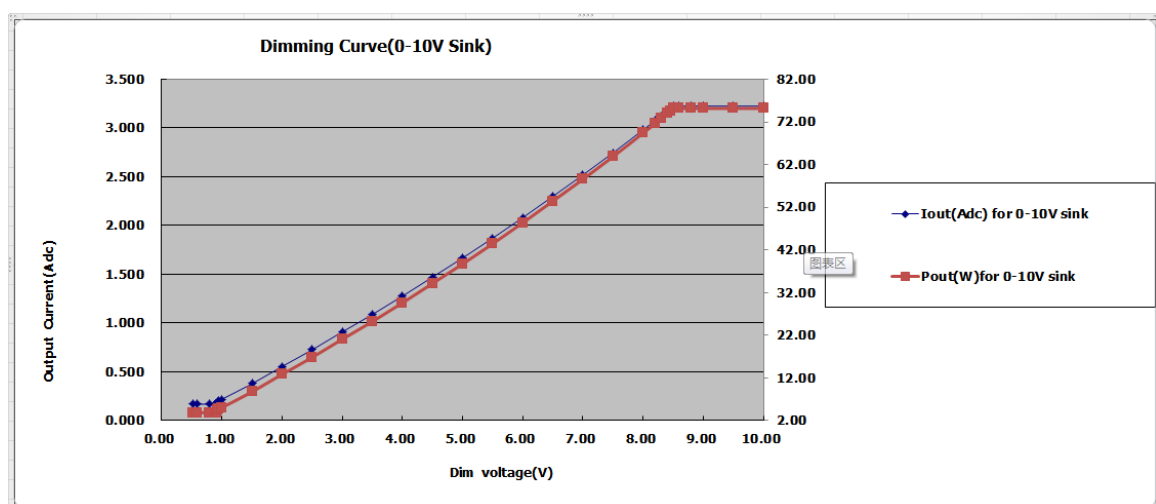
The ripple of output current < 50%

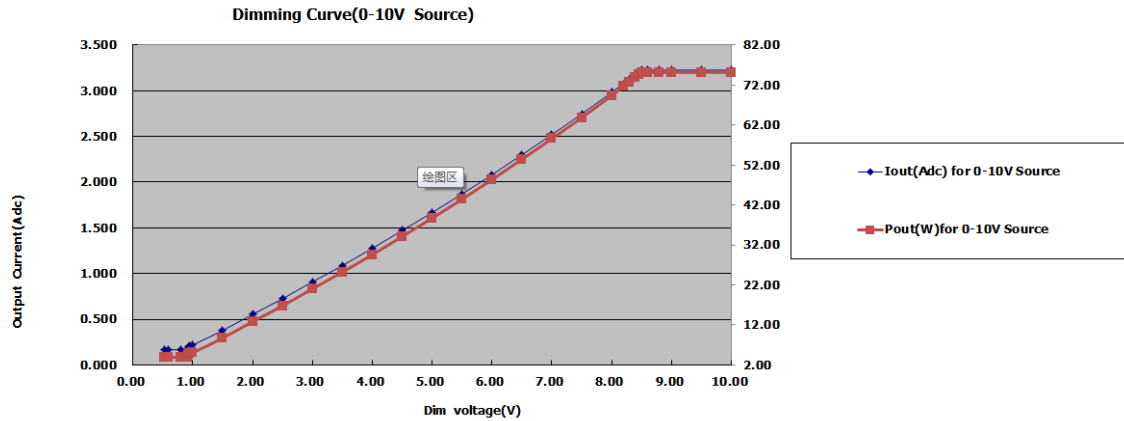
3.4 Turn-ON Delay

The output must be up and within regulation limits and stabilized at full current and voltage in no more than 500 ms after a nominal input voltage is applied. The actual turn-on time as defined by full output voltage and at least 50% of the output current is less than 500 ms after a nominal input voltage is applied.

3.5 Dimming Control

The unit has an input that can receive a 0-10V DC voltage to control the duty cycle of the output to achieve dimming, thus changing the brightness of LEDs. If the wires (DIM + and DIM -) are left open, output is 100%. If the input of the dimmer is between 0-1V, the unit will have an output of 7% -11%. Please see the dimming curve below as a reference.





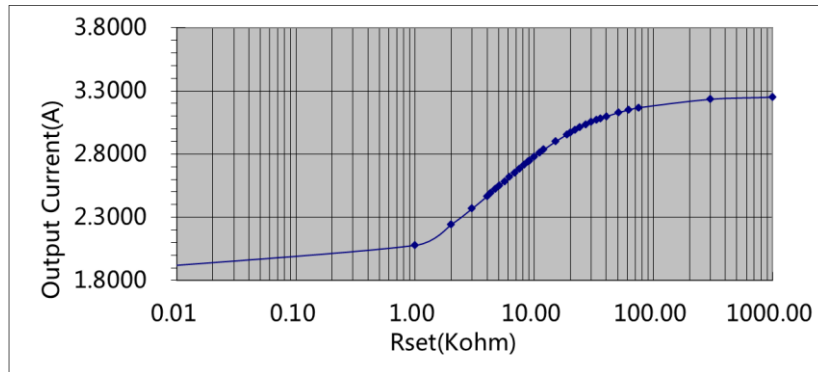
3.6 Temperature Controls

If temperature at Tc (the surface temperature of the case)is >85°C, the light should automatically dim to 5%- 10% light output. Then if the temperature drops below 70°C-78°C, the unit should go back to 100% automatically.

3.7 Adjustable Output Current

This unit has a feature that allows the user to configure the maximum output current as needed. To use this feature a resistor must be placed between the two RSET wires. The table below has a summary of the expected maximum output current as a function of the value of the resistor across RSET and the figure further below outlines the expected behavior.

RSET (kΩ)	Output Current (A)	RSET (KΩ)	Output Current (A)
OPEN	3.2600	11.00	2.8086
0.00	1.8489	12.00	2.8348
1.00	2.0781	15.00	2.8977
2.00	2.2432	18.70	2.9534
3.00	2.3678	20.00	2.9691
4.02	2.4668	22.00	2.9904
4.30	2.4903	24.00	3.0087
4.70	2.5215	27.00	3.0319
5.10	2.5502	30.00	3.0511
5.60	2.5831	33.00	3.0673
6.20	2.6188	36.00	3.0811
6.80	2.6508	40.20	3.0974
7.50	2.6844	51.00	3.1281
8.20	2.7145	62.00	3.1492
8.87	2.7404	75.00	3.1667
9.09	2.7484	300.00	3.2333
10.00	2.7790	1000.00	3.2498



Please note that when the maximum output current is set by the value of RSET, the dimming will be proportional to the maximum output value set (i.e. if the max output current is set for 2A and the dimmer input is 5V, the expected current output value would be $2A \times 0.5 = 1A$).

4. Protection

4.1 Input Protection

The input power line will be fused with a non-resettable fuse rated for **6.3A / 300Vac**.

4.2 Short Circuit Protection

The output will withstand a short circuit across the outputs. After the short circuit condition has been corrected the unit will auto-recover.

4.3 Over Voltage Protection

The unit has over voltage protection circuitry that will limit the output voltage at **30V DC Max**. Once the unit goes into fault condition, the self protection circuitry will disable the unit. Once the fault condition has been removed, a power cycle is required to resume normal operation.

5. Environment

5.1 Ambient Temperature

Operation: -40 to 70 °C

Storage: -40 to 85 °C

The unit operates up to a Tcase = 85C

5.2 Ambient Humidity

Operation: 20 to 90%

Storage: 5 to 95%

This unit is rated for UL Dry and/or Damp location use

5.3 Hazardous Material Compliance

This LED Driver is RoHS compliant

6. EMC and Safety

6.1 EMI

Power Supply complies with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR Part 15 Non-Consumer (Class A) for EMI/RFI (conducted and radiated) at full load.

6.2 Safety



This unit is designed to meet or exceed the requirements

Meets UL60950-1

Meets UL8750

Meets UL1310 Class 2

6.3 Leakage Current

The power supply leakage current will not exceed 250uA at input voltage 120Vac 50/60Hz.

6.4 Dielectric Strength (HI-POT) TEST

Withstand AC 1800V for 60 sec (cut off current 10mA), Primary to Secondary.

6.5 Insulation resistance

Insulation resistance is more than 100MΩ at 500VDC between input and output plug and case.

6.6 Sound rating

The unit complies with Class A sound rating of Energy Star.

6.7 Line Transient

LED Driver complies with ANSI/IEEE C62.41-1991, Class A operation. The line transient model consists of seven strikes of a 100 kHz ring wave, 4 kV level, for both common mode and differential mode.

7. Reliability

7.1 Vibration Test

The unit has been designed to withstand the typical vibration encountered during transportation and final fixture assembly. The unit has been tested and 10 ~ 500Hz, 5G 12min./cycle, period for 72min. each along X, Y, Z axes.

7.2 Design Lifetime

This unit is designed with a life time > 50,000 hours at Tcase ≤ 85°C with a nominal input voltage.

7.3 Burn-in

During production, 100% of units are burn-in for 4 hours at an ambient temperature of 35~45°C.

7.4 Warranty

This unit has a 5 year warranty when used under normal operating conditions of up to 85°C case temperature and at a nominal input voltage.

Note: Please see the specific warranty details in the product warranty document.

8. Compatible Dimmer List

This unit is designed to be compatible with 0-10V dimmers. Full dimmer performance has been verified against the following dimmers:

Manufacturer	Model
Leviton	IllumaTech IP710-DL(120/277 Volt AC 60Hz)
Watt Stopper	ADF-120277 (120/277 Volt AC 60Hz)
Lutron	DVTV-WH

9. Mechanical

9.1 Physical

Case material: Metal shell



9.2 Terminal Block

Input: Color: Black (Line) / White (Neutral) / Green (GND)
GND line is for optional use. Unit passes EMI and operates normal without it.

Output: Color: Blue (Negative) / Red (Positive)

Dimming: Color: Violet (Dim+)/ Gray (Dim-)

RSET: Color: Yellow / Yellow

9.3 Weight

430g±20g

9.4 Case Size

(L)424 mm X (W)31 mm X (H)26 mm

9.5 Unit Label

SIZE:(L)320mm X (W)25 mm



Label picture shown is not to scale.



9.6 Mechanical Dimensions

