

# 39W LED Driver

## Specification

**Features:**

- Suitable for LED lighting application
- UL8750, UL1310 Class 2
- For use in Dry and Damp Locaion
- Full-protection provided: OCP/OLP/OTP/SCP
- Sink & Source Dimming Control
- 5-years warranty



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## 1. Introduction

### 1-1. Introduction

This specification defines the input, output, performance characteristics, environmental, noise and safety requirements for 39W Down Light LED Driver.

### 1-2. Parameter Description

Unless otherwise stated, all parameters must be met specifications below.

## 2. Input Requirements

### 2-1. General Input Requirements

No.	Item	Min	Typ	Max	Unit	Remark
1	Nominal Input Voltage	120		277	Vac	
2	Maximum Input Current			0.34	Arms	@120Vac
3	Maximum Input Watt			44	W	
4	Nominal Input Frequency	50		60	Hz	
5	Input Configuration		3			Live, Neutral, Ground
6	Power Factor (PF)	0.9				1)
7	Total Harmonic Distortion (THD)			20	%	1)
8	Inrush Current	Meets NEMA 410				1) 2)
9	Earth Leakage Current			1000	μA	1)
10	Insulation Resistance	100			MΩ	500Vdc between Input & Output

1) Test Condition:

120/277Vac 50/60Hz Input, Max Output Voltage, Ambient Temperature 25°C

2) Cold start

### 2-2. Dielectric Withstand Voltage Specification

No.	Item	Min	Typ	Max	Unit	Remark
1	Dielectric Withstand Voltage	Input to Ground	1554	1)		apply for 1 minute 2)
		Input to Case	1554	1)	Vac	
		Output to Case	500	1)	Vdc	

1) Determined by Paragraph 34.1.1, UL1310 or Table 8.3, UL8750, assuming input voltage is 277Vac.

2) Determined by Paragraph 34.1.2, UL1310 or Paragraph 8.4.2, UL8750

### 3. Output Requirements

#### 3-1. Rated Output Specification

No.	Item	Min	Typ	Max	Unit	Remark
1	Output Configuration		2			LED+, LED-
2	LED Output Voltage	20		56	Vdc	
3	LED Output Current	200		700	mA	±10%
4	OPEN LED Protection			60	Vdc	
5	Max Output Power			39	W	
6	Ripple and Noise			10	%	20MHz Bandwidth, 1)
7	Electrical Efficiency	84			%	2)

1) Test Condition: 120/277Vac 50/60Hz Input, LED Load, Ambient Temperature 25°C

2) Efficiency Test Condition: 240Vac Input, 2hr Aging, LED Load 40V, Ambient Temperature 25°C

#### 3-2. Dimming Features

No.	Item	Min	Typ	Max	Unit	Remark
1	Dimming Control Configuration		2			Dim+(Sink&Source), Dim-
2	Dimming Ratio w/Source Dimming	10		100	%	
3	Dimming Ratio w/Sink Dimming	10		100	%	1)

1) Tested dimmers: LUTRON DDTV, LUTRON NTFTV, LEVITON IP710-DLZ

#### 3-3. FAN Features

No.	Item	Min	Typ	Max	Unit	Remark
1	FAN Output Voltage		12		V	FAN+, GND
2	FAN Output Current			200	mA	

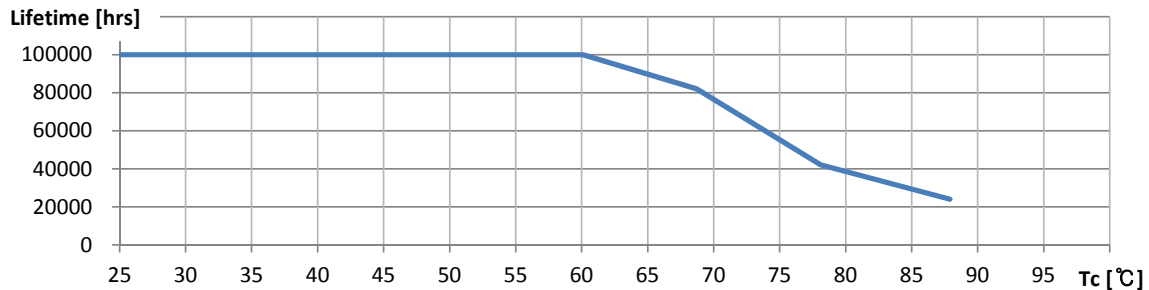
#### 3-3. Protection Features

No.	Item	Min	Typ	Max	Unit	Remark
1	Output Short Circuit Protection	-	-		-	Auto-recovery
2	Output Open Circuit Protection	-	-	60	Vdc	Auto-recovery
3	Over-temperature Protection	105			°C	Case Temperature, Auto-recovery

#### 3-4. Case Surface Temperature

No.	Item	Min	Typ	Max	Unit	Remark
1	Case Temperature (Tc)			85	°C	

#### 4. Lifetime



Remark) LED Driver has a rated lifetime of 50,000 hours @ Tc ≤ 75°C

#### 5. Environmental Specification

No.	Item	Min	Typ	Max	Unit	Remark
1	Storage Temperature	-40		85	°C	
2	Operating Temperature	-40		50	°C	1)
3	Case Temperature			85	°C	
4	Humidity			90	%	
5	Vibration			3	G	

1) Driver may not meet turn-on delay and output ripple current specification under -30°C

#### 6. Safety Test Requirements

##### 6-1. EMI/EMC Specification

This driver meets FCC Part 15, Class A requirements.

##### 6-2. Surge Specification

No.	Item	Min	Typ	Max	Unit	Remark
1	Differential Mode (Line to Line)			4	kV	1)
2	Common Mode (Line to Ground)			6	kV	1) 2)

1) Surge Specification above is higher than IEC 61000-4-5 Level 4 (Differential 2kV, Common 4kV)

2) The metal case of the LED driver must be connected with F.G

##### 6-3. Electrostatic Discharge (ESD) Specification

No.	Item	Min	Typ	Max	Unit	Remark
1	Contact Discharge Test Voltage	-4		4	kV	1)
2	Air Discharge Test Voltage	-8		8	kV	1) 2)

1) ESD Specification above meets IEC 61000-4-2 Requirements (Contact Level 2, Air Level 3)

2) The metal case of the driver should be grounded.

## 7. Safety Standards

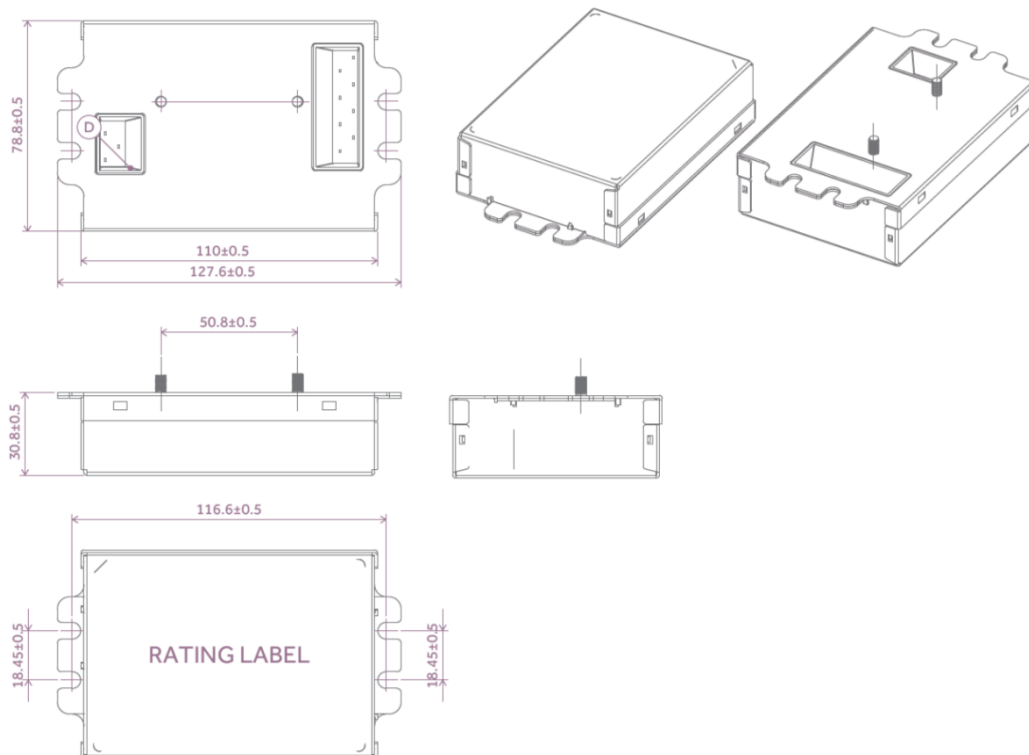
Including safety requirements above, the LED driver complies with the following safety standards:

No.	Item	Description
1	UL1310, UL8750, UL1012	UL Safety Standards (Class 2, Dry and Damp Location)
2	FCC Part 15, Class A	Conducted and Radiated Emission Test
3	IEC 61000-3-2	Harmonic current emissions: Class C
4	IEC 61000-3-3	Voltage Fluctuations and Flicker
5	IEC 61000-4-2	Electrostatic Discharge (ESD): Contact Level 2, Air Level 3
6	IEC 61000-4-3	Radio-frequency Electromagnetic Fields
7	IEC 61000-4-4	Electrical Fast Transients (EFT)
8	IEC 61000-4-5	Surges: Level 4
9	IEC 61000-4-6	Injected Currents
10	IEC 61000-4-8	Power Frequency Magnetic Fields
11	IEC 61000-4-11	Voltage Dips and Short Interruptions

## 8. Mechanical Specification

### 8-1. Mechanical Drawing

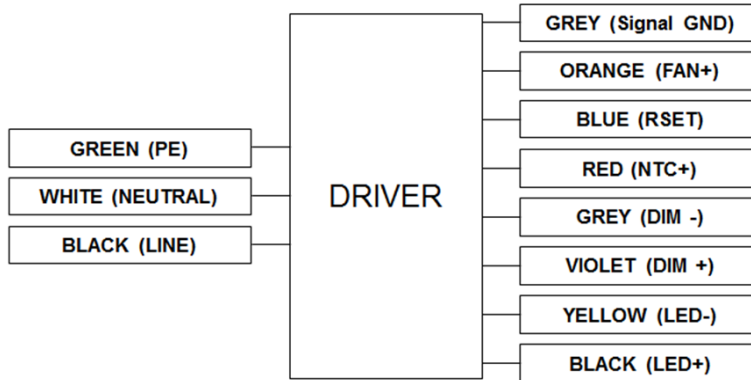
L\*W\*H (mm) : 127.6\*78.8\*30.8



**8-3. Product Weight**

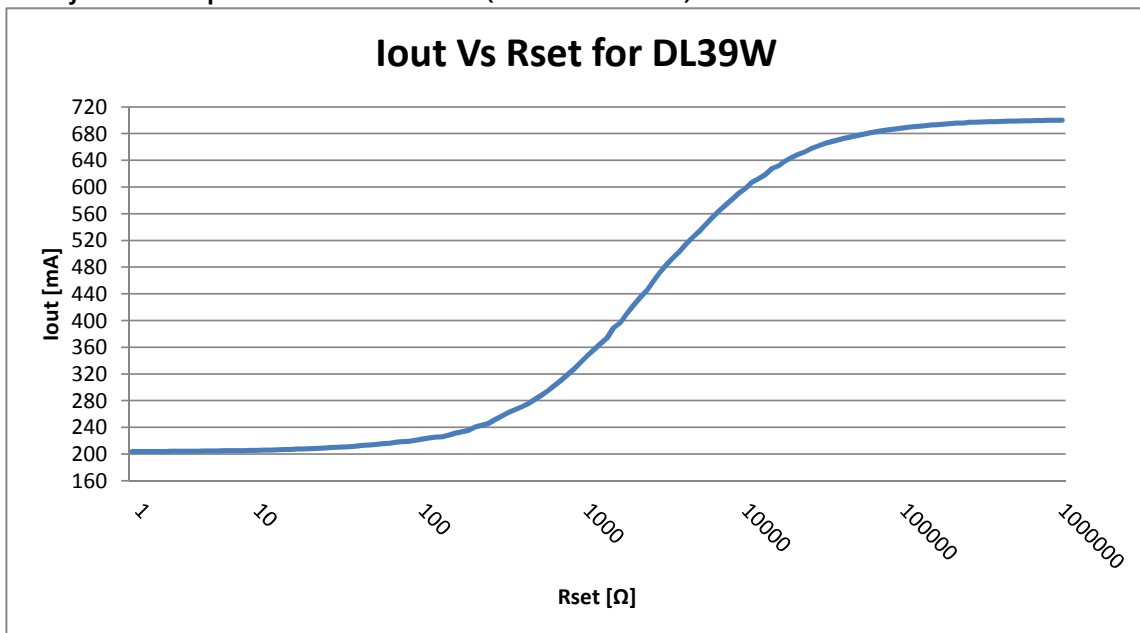
Weight: 360g ± 36g

**8-4. Wiring Diagram**



※ The case of the driver must be connected to Earth ground when installed in the end-use application.

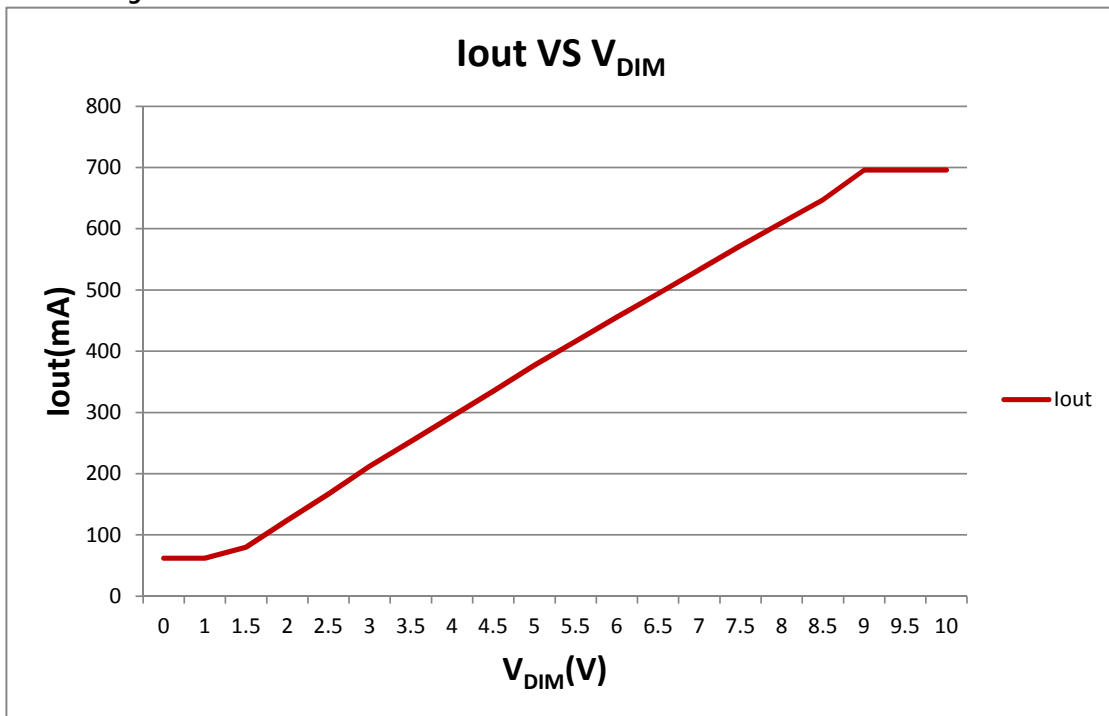
**8-5. Adjustable Output Current Information (200mA ~ 700mA)**



**Relation between output current and Rset ( ± 10% variation )**

Rset [Ω]	Iout [mA]	Rset [Ω]	Iout [mA]	Rset [Ω]	Iout [mA]	Rset [Ω]	Iout [mA]	Rset [Ω]	Iout [mA]
0.0	203.740	30	209.500	430	275.220	7500	573.530	130000	691.599
1.0	203.896	33	210.030	470	281.368	8200	581.780	150000	692.873
1.1	203.904	36	210.610	510	287.815	9100	590.999	160000	693.450
1.2	203.932	39	211.160	560	294.696	10000	598.082	180000	694.315
1.3	203.942	40	211.690	620	302.660	11000	607.349	200000	695.036
1.5	203.974	48	212.860	680	310.308	12000	612.800	220000	695.605
1.7	204.009	53	213.690	750	318.956	13000	618.547	230000	695.810
1.8	204.031	57	214.270	820	327.390	15000	627.920	280000	696.870
2.4	204.118	62	215.418	910	337.050	16000	631.790	300000	697.140
2.9	204.136	66	216.060	1000	347.058	18000	638.653	330000	697.522
3.6	204.310	74	217.820	1100	356.264	20000	644.213	360000	697.763
4.3	204.470	78	218.580	1200	365.580	22000	648.842	390000	698.060
5.0	204.730	80	218.960	1300	373.632	24000	652.693	430000	698.408
5.4	204.745	91	220.801	1500	389.146	27000	657.670	470000	698.715
6.1	204.851	100	222.200	1600	396.440	30000	661.790	510000	698.930
6.7	204.944	110	223.980	1800	410.250	33000	665.102	560000	699.132
7.7	205.153	113	225.271	2000	422.920	36000	667.851	620000	699.373
8.2	205.260	118	225.940	2200	434.188	39000	670.282	680000	699.548
9.3	205.490	133	228.170	2400	444.561	43000	673.037	750000	699.705
10.0	205.622	150	231.308	2700	458.851	47000	675.224	820000	699.906
11.0	205.833	160	233.160	3000	471.851	51000	677.268	910000	700.034
12.0	206.012	166	235.492	3300	483.556	56000	679.280	1000000	700.152
13.0	206.130	200	240.480	3600	493.808	62000	681.328		
15.0	206.560	220	243.200	3900	503.519	68000	683.043		
16.0	206.740	230	245.540	4300	514.890	75000	684.735		
18.0	207.415	270	251.540	4700	524.930	82000	686.076		
20.0	207.740	300	256.473	5100	533.673	91000	687.502		
22.0	207.917	330	261.902	5600	544.058	100000	688.806		
24.0	208.280	360	266.040	6200	554.765	110000	689.895		
27.0	208.953	390	270.560	6800	564.136	120000	690.790		

8-6. Dimming Curve



8-7. Output current level with R<sub>NTC</sub>

