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## LED Driver

# 30W Slim Driver

SI-CU1023001WW (UL Class P)  
SI-CU1023002WW (UL Type TL)



## Constant Current LED Driver Deep Dimming up to 1%

### Features & Benefits

- Output Current Range: 350 ~ 800 mA (Adjustable through R-set)
- Output Voltage Range: 15 ~ 54 Vdc
- Output Power Range: Max. 30 W
- Dimming Control: 0 - 10 Vdc
- Input Voltage: 120 ~ 277 Vac, 50 / 60 Hz
- Safety: UL / cUL (UL 8750)
- EMI: FCC Part 15 Class B
- Protections: Short Circuit, Open Load Voltage, Over Temperature
- $t_a$  Range: -20 ~ +50 °C
- Expected lifetime: 50,000 hours at  $t_c < 88$  °C
- Environmental Compliance : RoHS
- Long lasting & high reliability
- Metal housing



### Applications

- Indoor lighting

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## 1. Characteristics

Article	Symbol	Specification			Unit	Note
		Min.	Typ.	Max.		
<b>INPUT SPECIFICATIONS</b>						
Nominal Voltage	Vin	120~277			Vac	
Voltage Range		108		305		
Nominal Frequency	Fin	50 / 60			Hz	
Frequency Range		47		63		
Input Current	Iin			0.35	A	At 120 Vac, 100% load
				0.15		At 277 Vac, 100% load
Total Harmonic Distortion	THD			20	%	At 120-277 Vac
Power Factor	PF	0.9			-	At 120-277 Vac
Efficiency	η	83	86		%	At 120 Vac
		85	87			At 277 Vac
Standby Power	Pstd			0.5	W	At 120 Vac, Vdim < 1Vdc
				1		At 277 Vac, Vdim < 1Vdc
In-rush Current				20	A <sub>pk</sub>	Cold start at 277 Vac .
<b>OUTPUT SPECIFICATIONS</b>						
Output Voltage	Vo	15		54	Vdc	
Max. Voltage	Vp			57	Vdc	No-load condition
Output Current	Io	350		800	mA	
Ripple Current	Iripple	-30		30	%	For 37V/0.8A LED load mode
Nominal Power	Po			30	W	
Turn-on Delay Time	Td			0.5	s	@ Ambient Temperature Time to 90% of rated current

1) The PF, THD can meet the electrical performance above 60% of maximum output power.

2) Measured the unit is thermally stabilized after half an hour, ta=25°C.

Article	Symbol	Specification			Unit	Note
		Min.	Typ.	Max.		

#### DIMMING SPECIFICATIONS

Dimming Range		1		100	%	See 4)Dimming Specification section
Dim. Min.			1		Vdc	
Dim. Max		8		10	Vdc	
I <sub>SOURCE</sub>				0.6	mA	

- Recommend for compatible dimmer : IP710-DL, NTSTV-DV, DVSTV

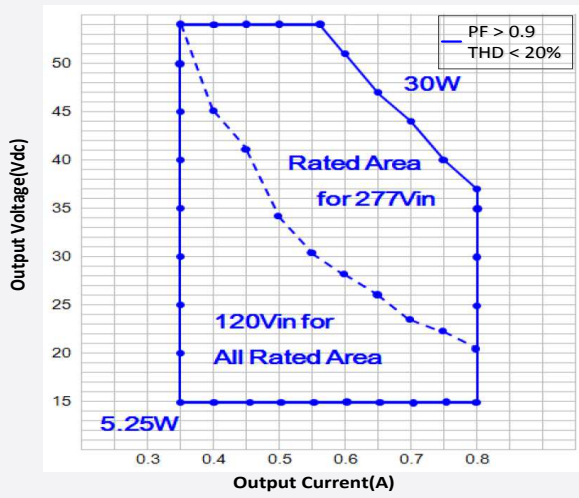
#### ENVIRONMENTAL SPECIFICATIONS

Ambient Temperature	t <sub>a</sub>	-20		50	°C	
Case Temperature	t <sub>c</sub>			88	°C	Measured at tc point as indicated on the product label
Storage Temperature	t <sub>s</sub>	-25		80	°C	
Ambient Humidity		10		90	%	Not condensing
Lightning Surge	L / N	±1			kV	According to IEC/EN 61000-4-5
	LN / GND	±2				
IP Rating			Damp & Dry		-	Suitable for indoor environment
Expected Lifetime (e-cap)		50,000			h	At tc < 88 °C, ta = -20 ~ 50 °C
MTBF			100,000		h	
Dimensions	L x W x H		300 x 30 x 21		mm	
Net Weight			259		g	±10 %

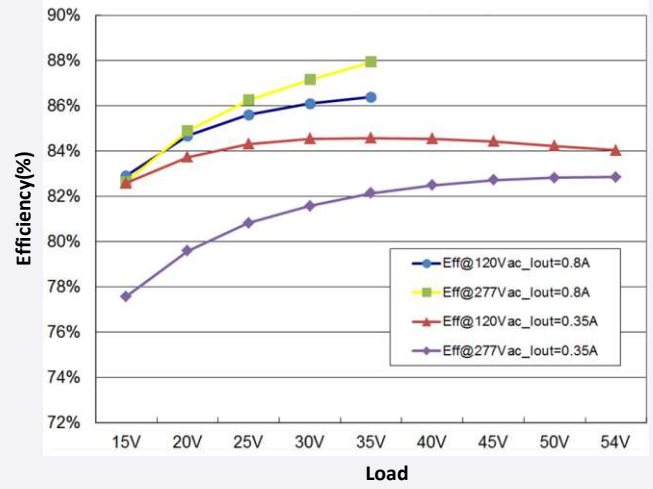


## 2. Typical Characteristics Graphs

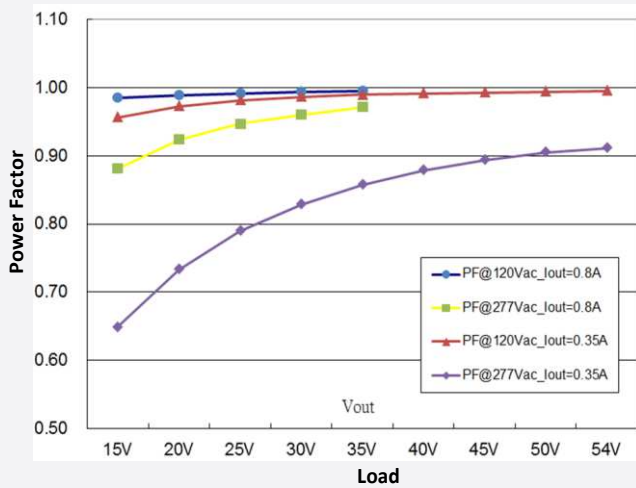
a) Operating Window



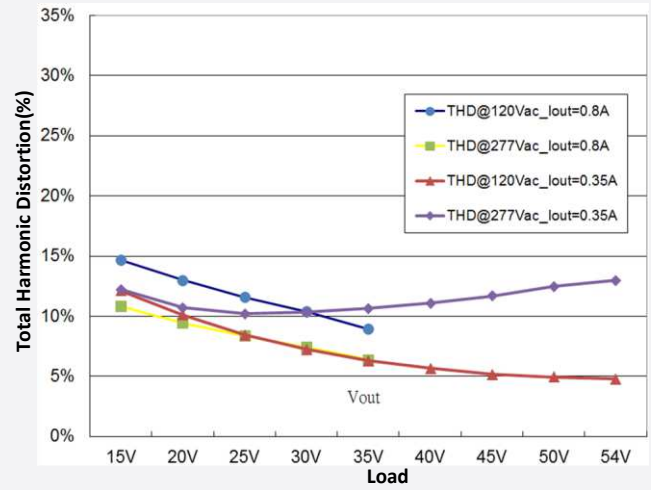
b) Efficiency vs. Load



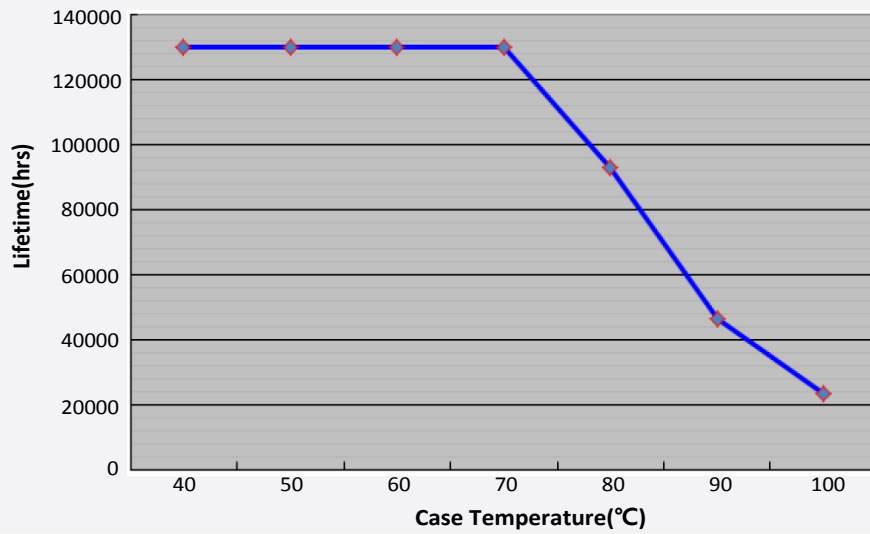
c) PF vs. Load



d) THD vs. Load



e) Lifetime vs. tc



## f) Installation Instruction for R-set Setting

1. Power OFF the driver.
2. Choice a resistance from Rset table. Use lead type resistor for easy to connect(Recommend).
3. Forming the resistor.
4. Connection.

### Step.1

Remove the cable from input side as below



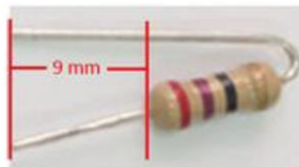
### Step.2

Recommended to use a resistor with lead wire  
(Requirement:  $\geq 0.25W$  and  $\geq 20V$ )



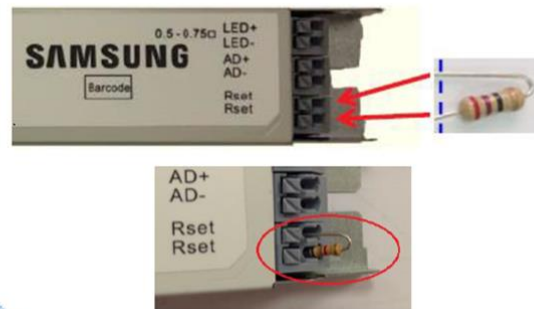
### Step.3

Bend a lead  
Cut the wires as the length below



### Step.4

Insert the resistor to the Rset connector



※ Resistor wire should be the opposite side of driver metal case.

## g) Installation Instruction for R-set Setting

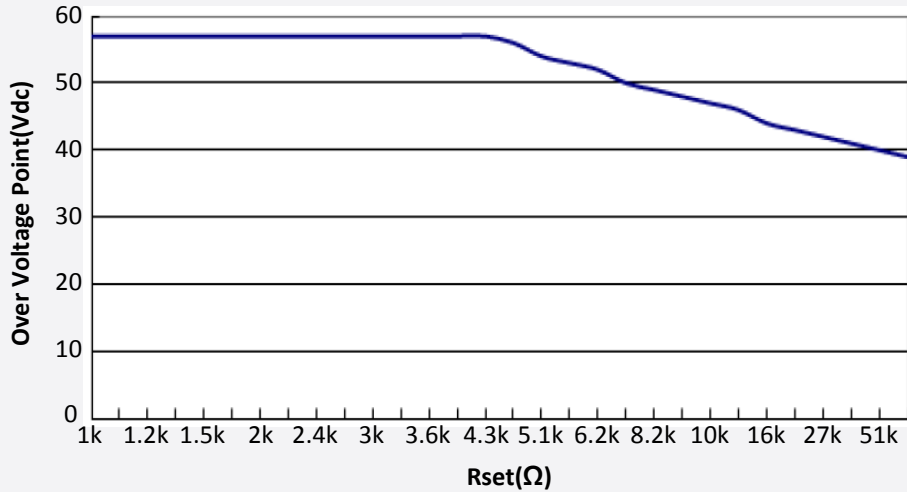
Rset(k $\Omega$ )	Output Current(mA)	Current Tolerance(%)	Output Voltage(V)	Open Load Voltage(V)
1.0	350	$\pm 5$	15 ~ 54	56.9
1.3	375		15 ~ 54	56.9
1.5	392		15 ~ 54	56.9
1.6	402		15 ~ 54	56.9
2.0	438		15 ~ 54	56.9
2.2	446		15 ~ 54	56.9
2.7	482		15 ~ 54	56.9
3.0	501		15 ~ 54	56.9
3.9	537		15 ~ 54	56.9
4.3	564		15 ~ 54	56.9
4.7	573		15 ~ 53	56.9
5.6	591		15 ~ 51	55.3
6.2	610		15 ~ 50	53.3
7.5	636		15 ~ 48	51.7
8.2	646		15 ~ 47	51.0
9.1	655		15 ~ 46	50.3
10	673		15 ~ 45	48.9
11	682		15 ~ 44	48.1
12	690		15 ~ 44	47.4
15	709		15 ~ 43	46.0
18	727		15 ~ 42	44.6
22	736		15 ~ 41	43.4
24	745		15 ~ 41	43.1
30	754		15 ~ 40	42.0
33	764		15 ~ 40	41.6
43	773		15 ~ 39	41.0
51	782	15 ~ 39	40.3	
82	791	15 ~ 38	39.4	
110	800	15 ~ 37	39.0	



### 3. Protection

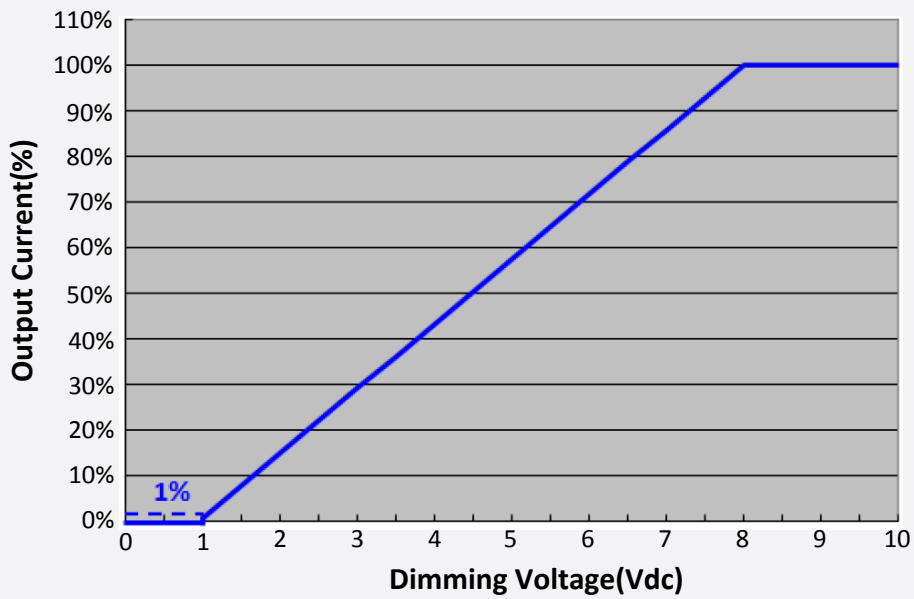
Protection Specification	Protection Mode	Condition
Output Short Protection	Auto-Recovery	(1) AC turn on then output short (2) Output short then AC turn on
Output Open Protection	Clamp Open Load Voltage*	(1) AC turn on then output open (2) Output open then AC turn on
Output Temperature Protection	Latch	to point : $95 \pm 10$ °C
AC Transient Protection	Auto-Recovery	120 ~ 277 Vac range switching

- The open load voltage can be adjusted by Rset resistor setting. Please refer to the below graph.



### 4. Dimming Specification

The unit has Analog Dimming(AD) function, using 0-10 Vdc. The typical dimming curve is shown below.



## 5. Reliability & Standards

### a) International Standard

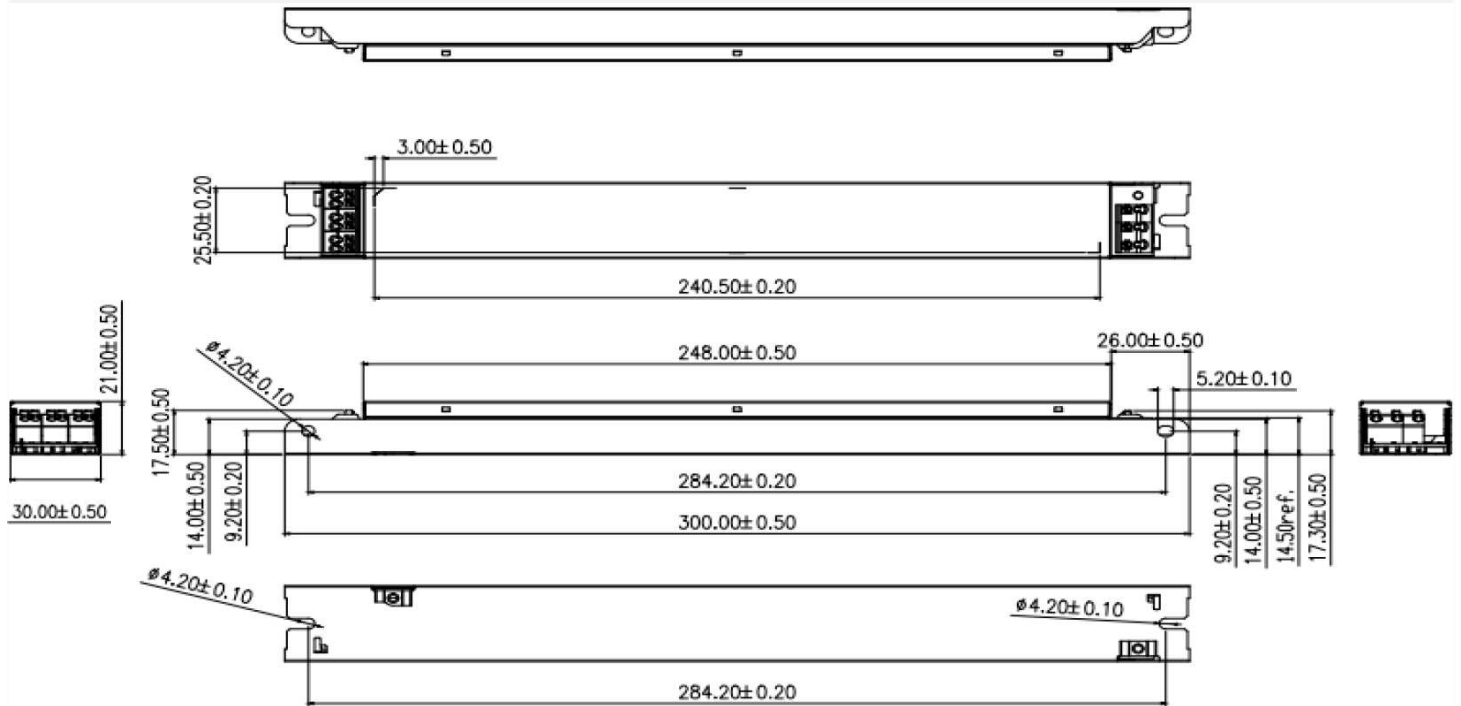
International Standard	Certification
UL Safety Standards (Class 2 Output )	UL 8750
Electro Magnetic Interference	FCC Part 15 Class B
Electrostatic Discharge (ESD): Contact $\pm 4\text{kV}$ , Air $\pm 8\text{kV}$	IEC/EN 61000-4-2
Electrical Fast Transients (EFT)	IEC/EN 61000-4-4
Surge : Differential mode $\pm 1\text{kV}$ , Common mode $\pm 2\text{kV}$	IEC/EN 61000-4-5
Touch Current	IEC/EN 61347

### b) Test Items and Conditions

Test Item	Specification	Condition	
Leakage Current	< 0.7 mA		
Earth Continuity	< 0.5 $\Omega$		
Hi-Pot	Input – Output	3750 Vac, 60 s, cut-off current 10 mA	100 % tested in production line
	Input – F.G	1500 Vac, 60 s, cut-off current 10 mA	100 % tested in production line
Insulation Resistance	Input – Output	500 Vdc, 60 s, Insulation resistance > 4 M $\Omega$	100 % tested in production line
	Input – F.G	500 Vdc, 60 s, Insulation resistance > 2 M $\Omega$	100 % tested in production line
Surge	L / N	$\pm 1$ kV	
	LN / F.G	$\pm 2$ kV	
ESD	Contact	$\pm 4$ kV	
	Air	$\pm 8$ kV	

## 6. Outline Drawing & Dimension

Dimension : 300 (L) x 30 (W) x 21 (H) Unit: mm



Housing material : SGCC

## 7. Label Structure



## 8. Packing Structure

Packing material	Driver Quantity (pcs)	Dimension (mm)		
		Length	Width	Height
Outer Box	28	483	385	148
Pallet	1008 (36 outer boxes)	1220	1020	120

## 9. Precautions in Handling & Use

- 1) To prevent the LED Driver from any defect, please handle and store it with care
  - Do not drop or give shock
  - Do not store in very humid location or at extreme temperature
  - Do not open or disassemble the product
- 2) Static electricity or surge voltage may damage the components inside LED Driver, as such please observe proper anti-electrostatic working process
  - People handling the Driver should be well grounded (e.g. using ESD wrist band) and wear anti-static working clothes and gloves
  - All related devices and instruments in the production line should be well grounded (e.g. working table, measuring equipment, assembly jigs)
- 3) Observe the correct polarity of output terminal
- 4) Avoid input voltage exceeds the maximum rating, which will cause damage to the circuit and result in malfunction

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