

## LED Driver

# Indoor 40W Driver Programmable Driver

SI-OU1424001WW (UL Type TL)  
SI-OU1424002WW (UL Class P)



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

### Features & Benefits

- Output Current Range: 400 ~ 1400 mA (Adjust through Programming tool)
- Output Voltage Range: 20 ~ 54 Vdc
- Output Power Range: Max. 40 W
- Dimming Control: 0 ~ 10 Vdc
- Input Voltage: 120 ~ 277 Vac, 50 / 60 Hz
- Safety: UL 8750
- EMI: FCC Part 15 Class A
- Protections: Short Circuit, Over Voltage, Over Temperature
- $t_a$  Range: -35 ~ +55 °C
- Expected lifetime: 50,000 hours at  $t_c < 75$  °C
- Environmental Compliance: RoHS
- Environmental Rating: Damp & Dry
- Long lasting & high reliability
- Metal housing

### Applications

- Indoor lighting



## Table of Contents

1.	Characteristics	-----	3
2.	Typical Characteristics Graphs	-----	5
3.	Protection	-----	7
4.	Dimming Specification	-----	8
5.	Reliability& standard	-----	9
6.	Outline Drawing & Dimension	-----	10
7.	Label Structure	-----	11
8.	Packing Structure	-----	11
9.	Precautions in Handling & Use	-----	12

## 1. Characteristics

Article	Symbol	Specification			Unit	Note
		Min.	Typ.	Max.		
<b>INPUT SPECIFICATIONS</b>						
Nominal Voltage	Vin	120 ~ 277			Vac	
Voltage Range		108		300		
Nominal Frequency	Fin	50 / 60			Hz	
Frequency Range		47		63		
Input Current	At 120 Vac	Iin			A	100% load
	At 277 Vac			0.5		
Input Power		Pin			W	Vin = 120~277Vac, 100% load
Total Harmonic Distortion		THD			%	Vin = 120Vac, load = 35~100% Vin = 277Vac, load = 63~100% (700~1400mA) load condition
Power Factor		PF	0.9			-
Efficiency*	At 120 Vac	η	83	85	%	100% load
	At 277 Vac		86	88		
Standby Power		Pstd			W	
In-rush Current		Iinrush			A <sub>pk</sub>	Vin = 300Vac, 25°C Cold start, Duration=300us(measured at 50%Ipk).
<b>OUTPUT SPECIFICATIONS</b>						
Output Voltage	Vo	20			Vdc	
Max. Output Voltage	Vpk			54		Open circuit, No-load protection
Output Current	Io	400			mA	Refer to note.1
				1400		When R_set and LED-(or Dim-) are connected, Iout will be set to 700mA.
Output Current Ripple	I <sub>r</sub>			700		I <sub>r</sub> = I <sub>pk</sub> -I <sub>av</sub>
Output Peak Current	I <sub>pk</sub>			140		
Output Power	Po			1610	W	
Turn-on Delay Time	Td			40	s	

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

Note.1 Output current can be programmable referring the 'Application Guide for Programmable LED Driver Rev.03'.

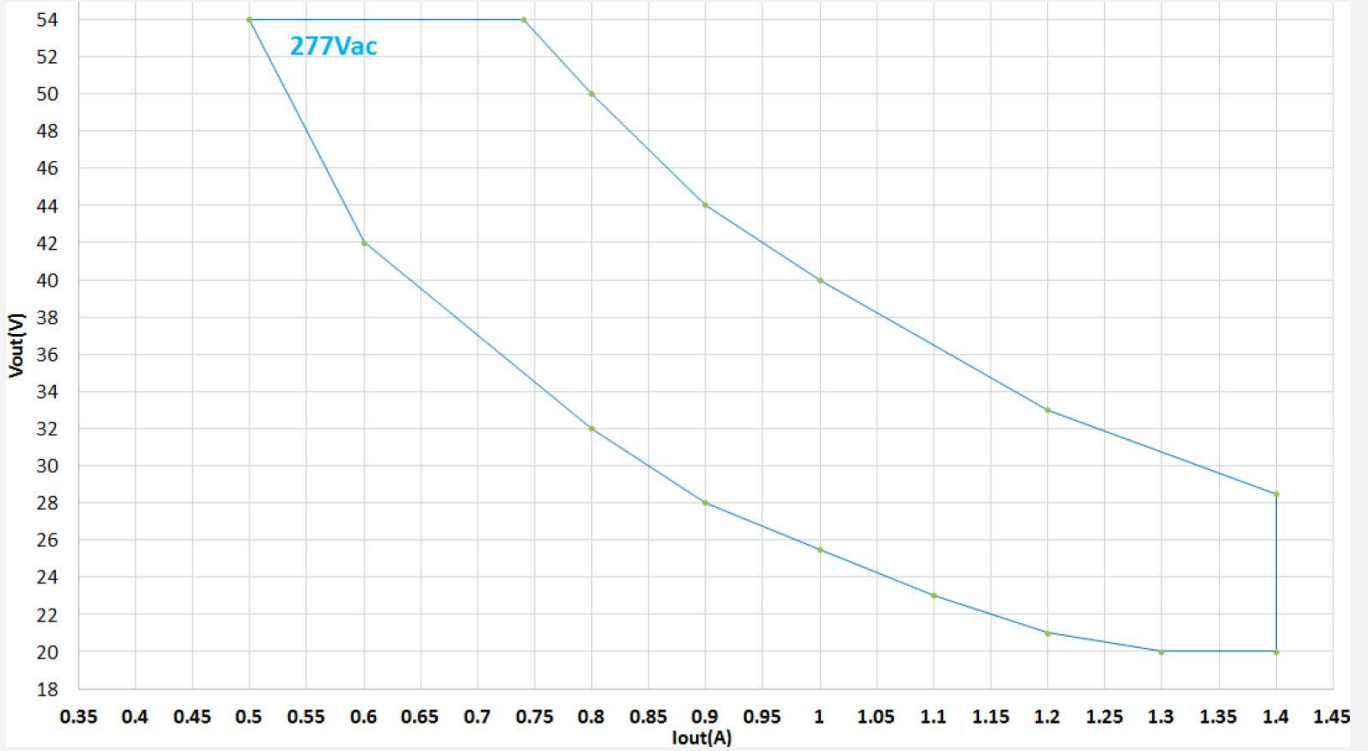
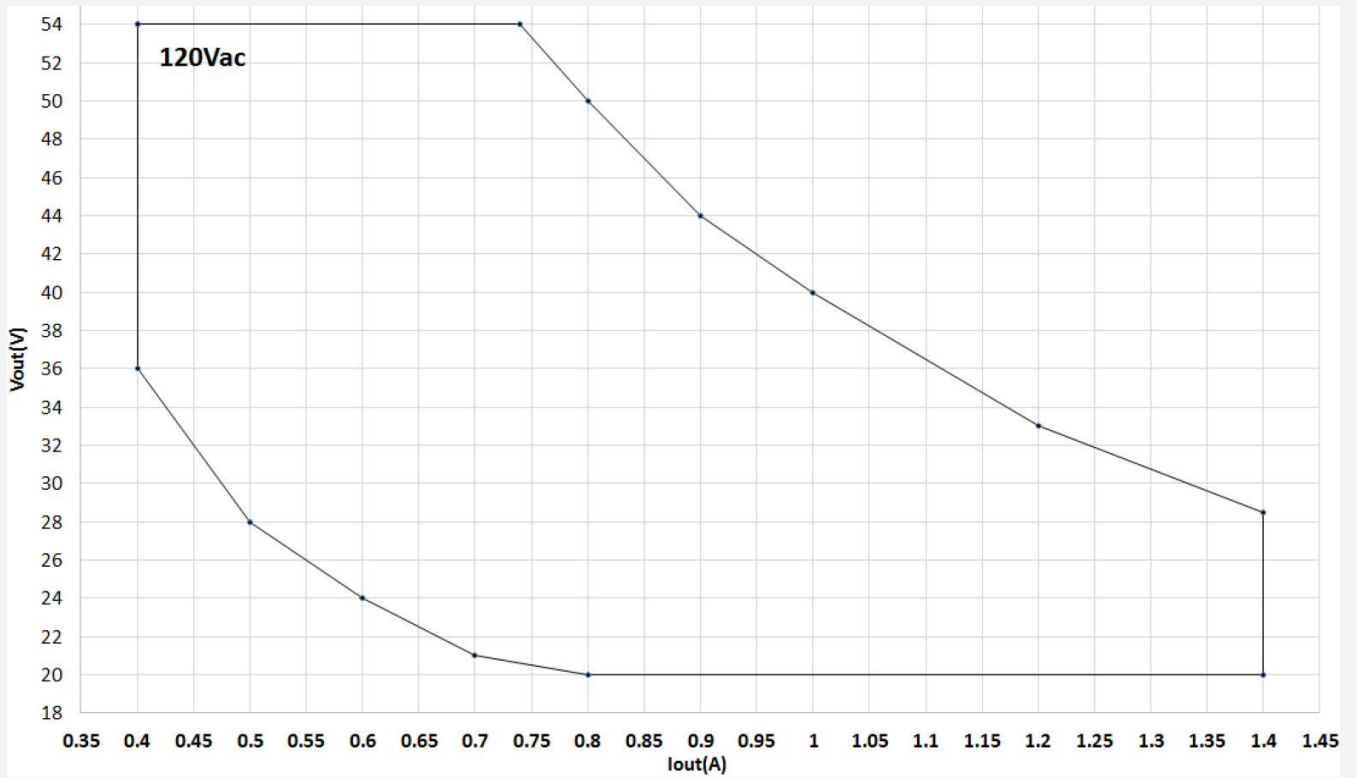
<http://www.samsung.com/global/business/led/support/tools/quick-downloads>

Article	Symbol	Specification			Unit	Note
		Min.	Typ.	Max.		
<b>DIMMING SPECIFICATIONS</b>						
Dimming Voltage Range		0		10	Vdc	See Dimming Specification section
Dimming Voltage		1		8		Adjust the dimming curve
<b>ENVIRONMENTAL SPECIFICATIONS</b>						
Operating Temperature	t <sub>a</sub>	-35		55	°C	
Case Temperature	t <sub>c</sub>			89		
Storage Temperature	t <sub>s</sub>	-40		80		
Storage Humidity	Hstg	10		95	%	
Operating Humidity	Hop	20		95		
Lightning Surge	L / N	±1			kV	EN 61000-4-5
	LN / GND	±2				
IP Rating			20		-	UL Damp & Dry
Expected Lifetime (e-cap)		50,000			h	<sup>1)</sup> At t <sub>c</sub> < 75°C,
MTBF			300,000			MIL-HDBK-217F(25°C)
Dimensions	L x W x H	125.6 x 61.1 x 27.5			mm	Screw mount hall : 115mm
		4.3" X 2.4" X 1.2"			Inch	
Net Weight			250		g	± 10g

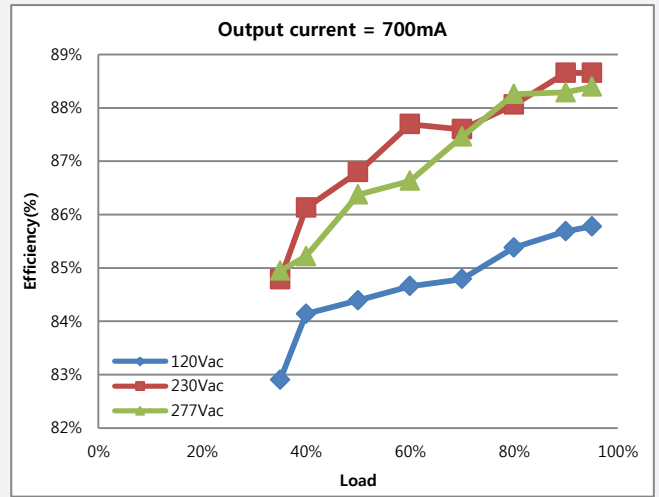
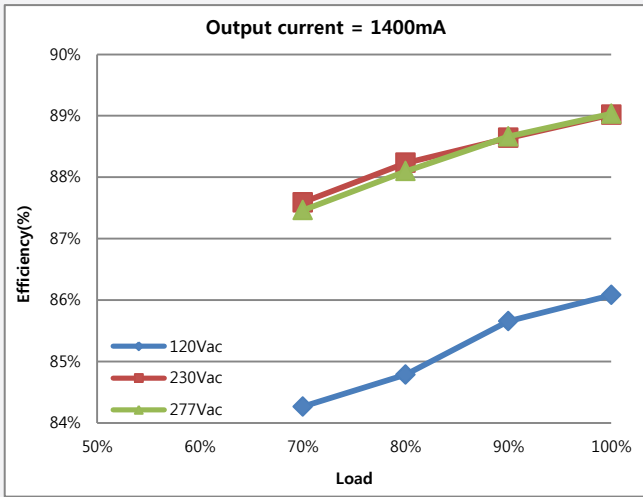
1) User can check how much time the driver works by RBT function ( Record Burning Time )

## 2. Typical Characteristics Graphs

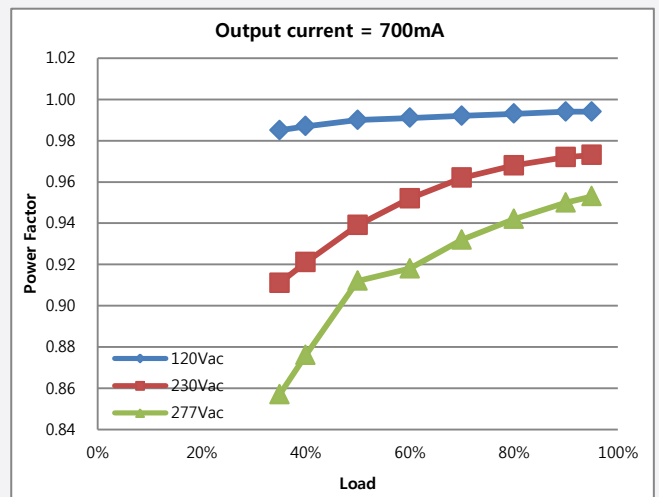
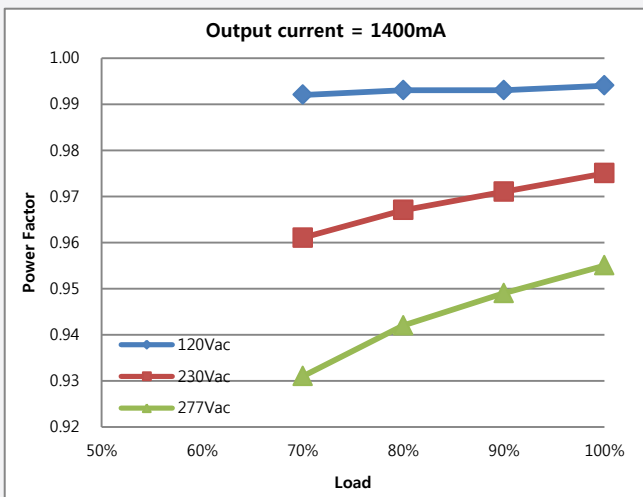
### a) Operating Area



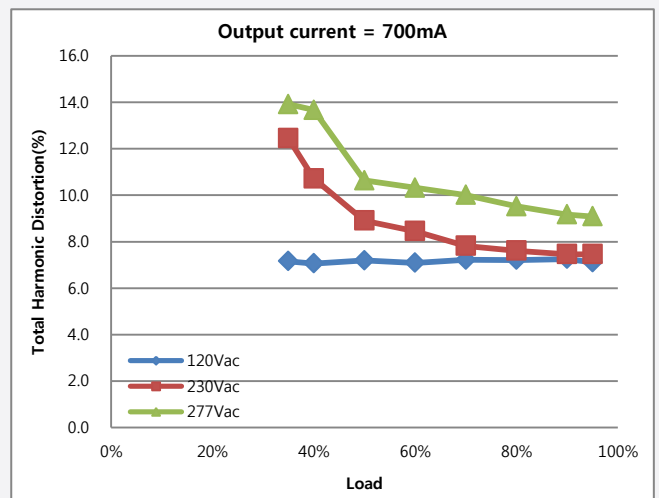
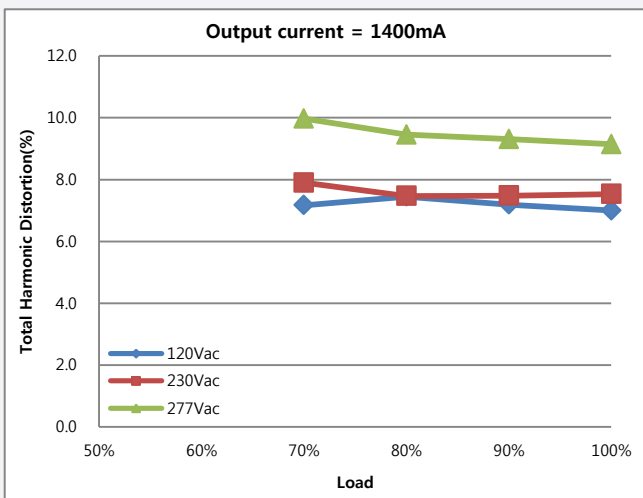
b) Efficiency vs. Load



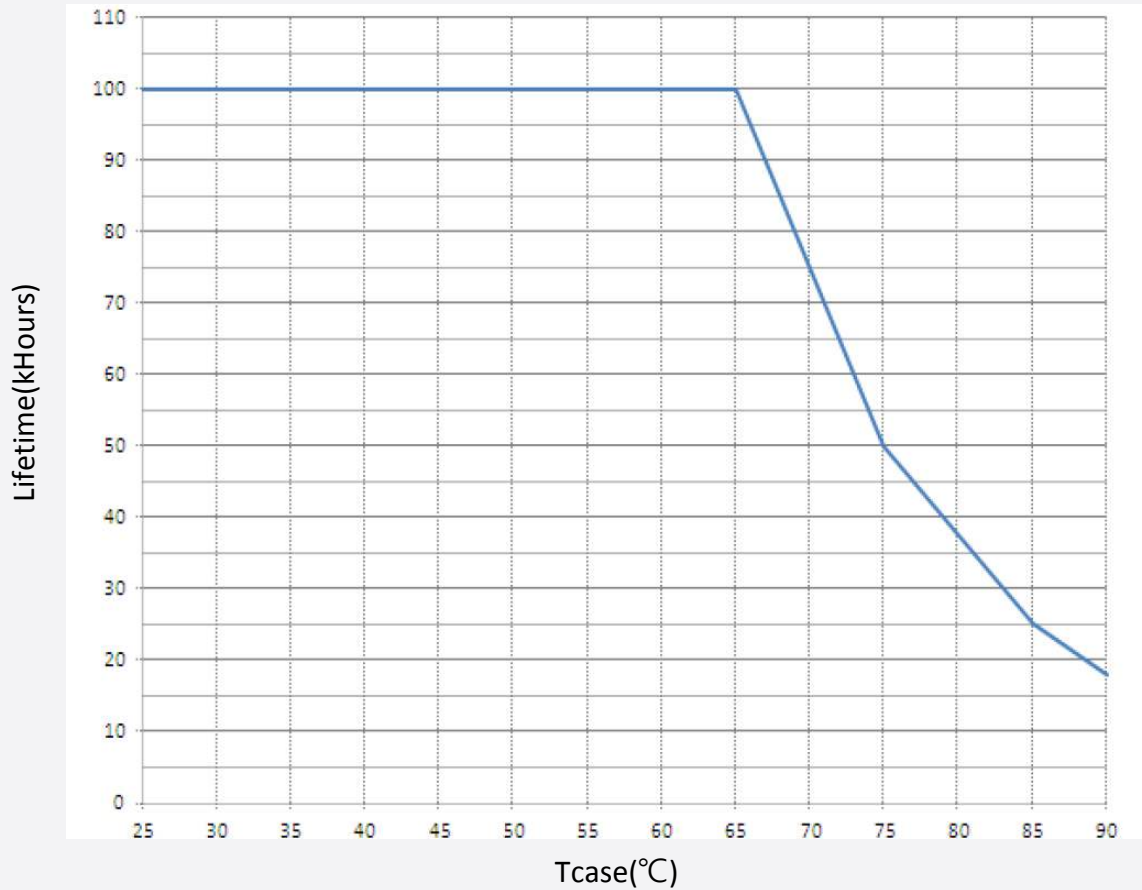
c) Power Factor vs. Load



d) Total Harmonic Distortion vs. Load



## e) Lifetime vs. Tc



## 3. Protection

Protection Specification	Protection Mode	Condition
Output Short Protection	No output(Auto-Recovery)	(1) AC turn on then output short (2) Output short then AC turn on
Output Open Protection	V <sub>out</sub> < 60Vdc	(1) AC turn on then output open (2) Output open then AC turn on
Output Temperature Protection	50%I <sub>o</sub>	At t <sub>sensor</sub> =115°C(typical)

## 4. Dimming Specification

The programmable driver can be programmed by using special PC software and the programming tool.

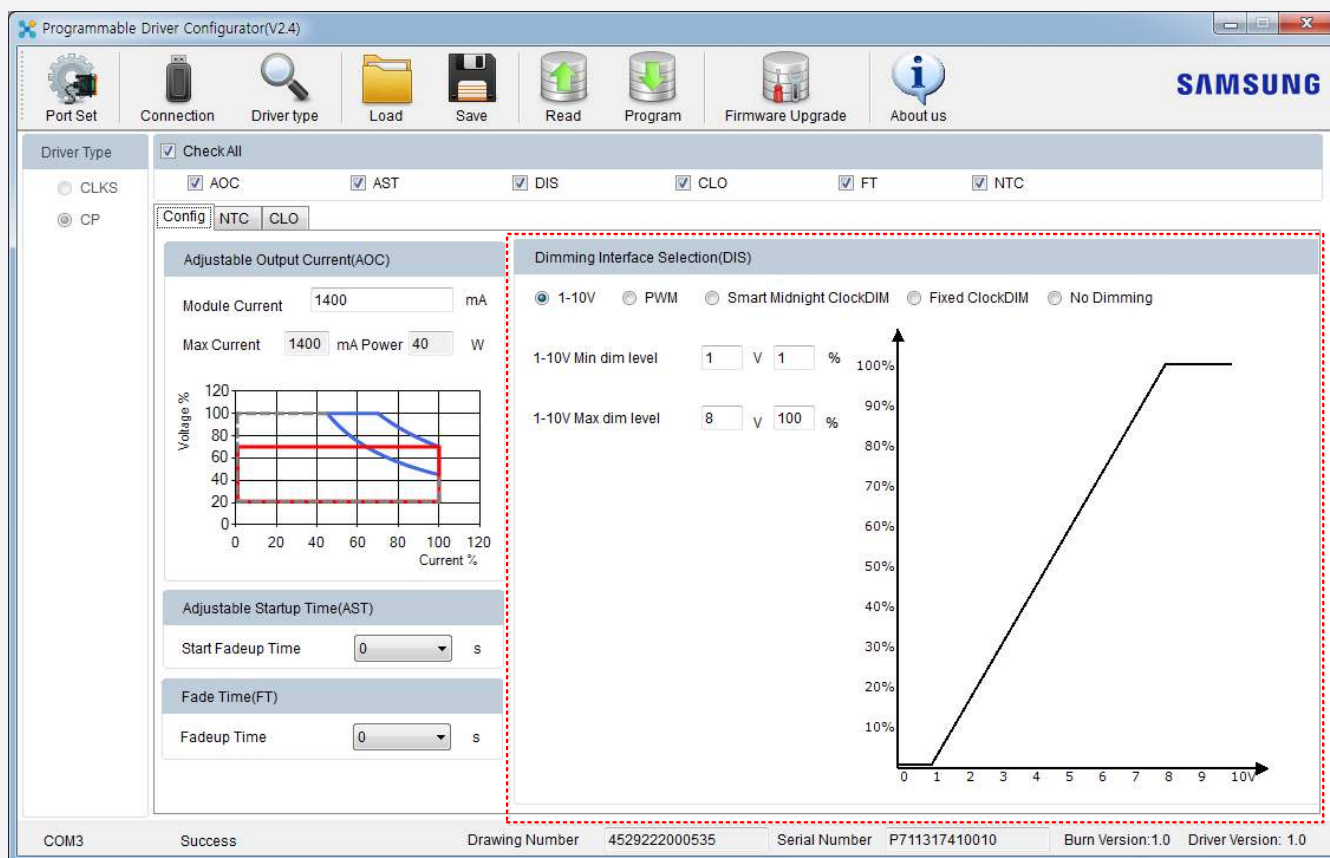
Users can download PC software from linked website.

[http://www.samsung.com/global/business/business-images/led/file/product/products/201712/Programming\\_Tool.zip](http://www.samsung.com/global/business/business-images/led/file/product/products/201712/Programming_Tool.zip)

Allow users to set the max and min output current and corresponding output voltage to clarify the 1-10V dimming curve.

Input a 0~10Vdc signal from the dimming interface.

**Default: Input  $\leq 1V$ , Output current 1%; Input  $\geq 8V$ , Output current 100%.**



Also the PC software provides AOC(Adjustable Output Current), AST(Adjustable Startup Time) and FT(Fade Time) functions.

## Pin description

Pin	Name	Value	Description
1	Vcc	-	The Vcc port of LED driver is supplied with a voltage from programming tool When LED driver and the programming tool are connected,
2	Dim+ / Program	0-10V	Dimming / Programming input
3	Dim-	-	DC ground



## 5. Reliability& Standards

### Test Items and Conditions

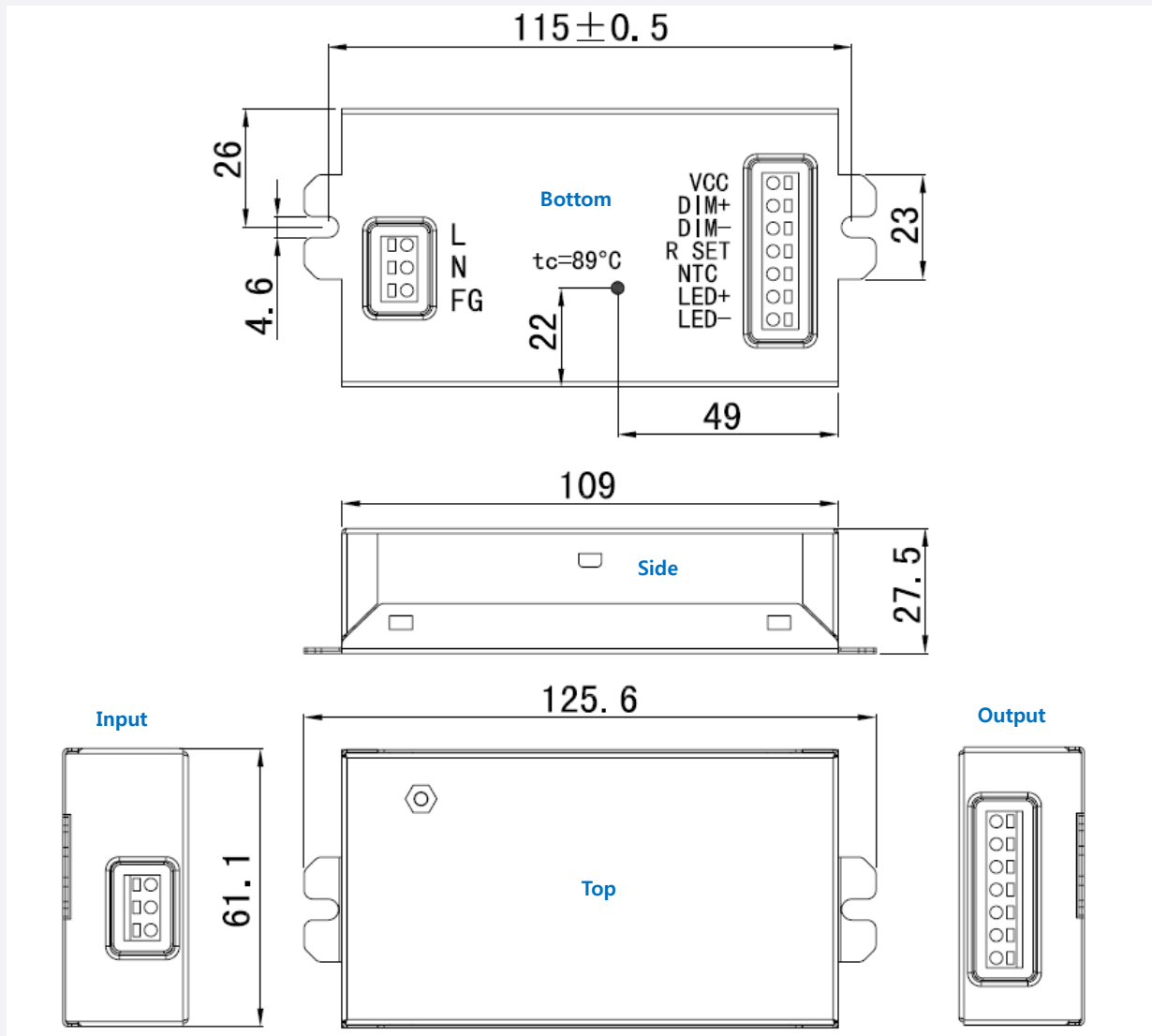
Test Item	Specification	Condition	
Leakage Current	< 0.5 mA		
Earth Continuity	< 0.1 $\Omega$	IEC/EN 61347	
Hi-Pot	Input – Output	3750 Vac, 60 s, cut-off current 10 mA	
	Input – F.G	1875 Vac, 60 s, cut-off current 10 mA	
	Output – F.G	1500 Vac, 60 s, cut-off current 10 mA	
Insulation Resistance	Input – Output	500 Vdc, 60 s, insulation resistance 10 M $\Omega$	
Surge	L / N	$\pm 1$ kV	EN 61547
	LN / GND	$\pm 2$ kV	
ESD	Contact	$\pm 8$ kV	IEC 61000-4-2
	Air	$\pm 15$ kV	

### Safety, EMI and EMC

International Standard	Certification
Safety Standards	UL 8750, UL1310 Class 2
Conducted and Radiated Emission Test	FCC Part 15 Class A
Harmonic current emissions: Class C	Comply with IEC/EN 61000-3-2
Voltage Fluctuations and Flicker	Comply with IEC/EN 61000-3-3
Electrostatic Discharge (ESD) Contact 8kV, Air 15kV	Comply with IEC/EN 61000-4-2
Radio-frequency Electromagnetic Fields	Comply with IEC/EN 61000-4-3
Electrical Fast Transients (EFT)	Comply with IEC/EN 61000-4-4
Surges: Differential 1kV, Common 2kV	Comply with IEC/EN 61000-4-5
Injected Currents	Comply with IEC/EN 61000-4-6
Power Frequency Magnetic Fields	Comply with IEC/EN 61000-4-8
Voltage Dips and Short Interruptions ( Class B )	Comply with IEC/EN 61000-4-11

## 6. Outline Drawing & Dimension

Dimension : 125.6 (L) x 61.1 (W) x 27.5 (H) Unit: mm



### Pin map

Pin	Input		Output	
	Name	Feature	Name	Feature
1	L	Live	Vcc	Supply voltage from the programming tool
2	N	Neutral	DIM +	Dimming / Program signal input
3	FG	Frame Ground	DIM -	Signal Ground
4	-	-	R Set	If this pin is connected to LED-(or DIM-), the output current will be set to 700mA.
5	-	-	NTC	A NTC components must be connected between DIM- and NTC port.
6	-	-	LED+	Supply power to LED module
7	-	-	LED-	Power Ground

## 7. Label Structure



For SI-OU1424001WW, UL Type TL

**SAMSUNG**

**LED Driver Energy Saving Solutions**

**Model : SI-OU1424001WW**

● GREEN
● AC/N WHITE
● AC/L BLACK

  
  
**RoHS**

LED-/BLUE ●  
LED+/RED ●  
NTC/BROWN ●  
R\_SET/WHITE ●  
DIM-/GRAY ●  
DIM+/PURPLE ●  
VCC/YELLOW ●

Input Voltage : 120-277 Vac 50/60Hz  
 Input Current : 0.50A  
 Output Voltage : 20-54Vdc  
 Output Current : 400-1400mA  
 Output Power : 40W Max  
 Constant Current : 0-10V Dimmable  
 Dimmable : 100%-1%  
 Class 2 Output  
 Suitable for use in Dry & Damp Locations  
 Type TL : 89/71°C

**MADE IN CHINA**



For SI-OU1424002WW, UL Class P

**SAMSUNG**

**LED Driver Energy Saving Solutions**

**Model : SI-OU1424002WW**

● GREEN
● AC/N WHITE
● AC/L BLACK

  
  
**RoHS**

LED-/BLUE ●  
LED+/RED ●  
NTC/BROWN ●  
R\_SET/WHITE ●  
DIM-/GRAY ●  
DIM+/PURPLE ●  
VCC/YELLOW ●

Input Voltage : 120-277 Vac 50/60Hz  
 Input Current : 0.50A  
 Output Voltage : 20-54Vdc  
 Output Current : 400-1400mA  
 Output Power : 40W Max  
 Constant Current : 0-10V Dimmable  
 Dimmable : 100%-1%  
 Class 2 Output  
 Suitable for use in Dry & Damp Locations  
 For Connections Use Wire Rated For at Least 90°C (194°F)  
 Class P  
 tc: 89°C

**MADE IN CHINA**

## 8. Packing Structure

Packing material	Max. quantity (pcs)	Dimension (mm)		
		Length	Width	Height
Outer Box	48	505	370	170
Pallet	1440	1219	1016	960

## 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

# Legal and additional information.

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