# mail

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# Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832 Email & Skype: info@chipsmall.com Web: www.chipsmall.com Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# **LED** Driver

# Indoor75W Dimmable SI-EPF007040WW



#### **Features & Benefits**

•	Output Current Range:	1.0 ~ 2.1 A (adjustable via Rset)
•	Output Voltage Range:	22 ~ 52 Vdc
•	Output Power Range:	22 ~ 75 W
•	Dimming Control:	0-10 V
•	Input Voltage:	120 ~ 277 Vac, 50/60 Hz
•	Safety:	UL / cUL (UL 60950 + UL 8750)
•	EMI:	FCC Part 15 Class B
•	Protections:	Short Circuit, Open Load Protection
•	t <sub>a</sub> Range:	-20 ~ +50 °C
•	Expected lifetime:	50,000 hours at $t_a$ = 50 °C, $t_c$ = 90 °C
•	Environmental Compliance:	RoHS
•	Long lasting & high reliability	
•	Slim metal housing	

#### **Applications**

- Ambient Lighting (Linear and Area) and other Indoor Lighting Applications
- Office Industry Shop





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#### 1. Characteristics

Articlo		Cumbol	Specification		L locit	Noto	
Article		Symbol	Min.	Тур.	Max.	Onic	Note
INPUT SPECIFICATIONS							
Nominal Voltage		Vin		120 ~ 277		Vac	Full input range, no range switching
Voltage Range			108		305	Vac	
Nominal Frequency		fin		50 / 60		Hz	
Frequency Range			47		63	Hz	
Input Current	At 120 Vac	lin			0.88	А	At full load
input Current	At 277 Vac	lin			0.44	А	At full load
Total Harmonic Distortion		THD			20	%	At 120-277 Vac
Power Factor		PF	0.9			-	At 120-277 Vac
Efficiency		η	83	88		%	At full load, 120 Vac, 60 Hz
Stand-by Power					1	W	At <1 V dimming voltage, 120-277 Vac
Protection Class				2		-	
In-rush Current					20	A <sub>pk</sub>	Cold or hot start ( $t_{width}$ = 300 µs measured at 50 % lpk) at 277 Vac
OUTPUT SPECIFICAT	TIONS						
Nominal Voltage		Vo		22 ~ 52		Vdc	±2 %; at lo = 1.0-2.1 A
Max. Voltage					56	Vdc	Open circuit, No-load protection
Nominal Current		lo		1.0 ~ 2.1		А	±5 % (2.1 A), ±10 % (1.0 A)
Nominal Power		Po		22 ~ 75	75	W	At Io = 1.0-2.1 A, Vo = 22-52 V
Turn-on Delay Time		Td			1.5	S	At full load, 120 Vac input

1) The rated area shows the load condition to meet the PF, THD performance.

2) During the transient of AC input 120 ~ 277Vac, Driver can enter the latch mode.



			Specification					
Article		Symbol		Specification		Unit	Note	
			Min.	Тур.	Max.			
DIMMING SPECIFICATI	ONS							
Dimming Control				0-10 V			See Dimming Specification section	
ENVIRONMENTAL SPECIFICATIONS								
Ambient Temperature		ta	-20		50	°C		
Case Temperature		t <sub>c</sub>			90	°C	Tref max/ Measured Tref 90/85°C	
Storage Temperature		ts	-25		80	Ωō	Cool down before operating	
Relative Humidity			20		90	%	Not condensing	
Surge Transient	L/N				±1	kV	According to IEC/EN 61547	
Protection	LN / GND				±2	kV		
IP Rating				20		-	Suitable for indoor environment	
Expected Lifetime (e-cap)			50,000			h	At $t_a = 50 ^{\circ}\text{C}$ , $t_c = 90 ^{\circ}\text{C}$ , full load, 120-277 Vac	
MTBF			100,000			h	At $t_a = 25 \ ^{\circ}C$ , full load, 230 Vac	
Dimensione		1		14.1 x 1.2 x 1.0		inch		
Dimensions		LXWXH		359 x 30 x 26.5		mm		
Net Weight				395		g	± 40 g	



#### 2. Typical Characteristics Graphs

#### a) Operating Window



#### c) PF Vs Output power



#### b) Efficiency vs. Load



#### d) THD Vs Output power



#### e) Ta Vs Load de-rating



#### f) Tcase Vs Lifetime





The output current can be adjusted using Rset resistor:

- Disconnect Rset resistor to set full load at 2.1 A / 35 V condition
- Connect Rset resistor to set output current (see below table and curve); for Rset = 3.9 kOhm, the output is full load at 1.42 A / 52 V condition
- The unit has minimum output current at ... 1A when the Rset is less than 1kOhm
- The output voltage is limited by maximum output power (if the output current is set at 2.1 A, the maximum output voltage will be 35 V; if the output current is set at 1.42 A, the maximum output voltage will be 52 V)





Bset	Output Current	Current	MAX	Open Load
(0)	(A)	Tolerance	Output Voltage	Voltage
()	(, , ,	(%)	(V)	(V)
1K	1.0000		52	55
1.3K	1.0146		52	55
1.5K	1.0575		52	55
1.6K	1.0746		52	55
2K	1.1722	+10	52	55
2.4K	1.2336	10	52	55
2.7K	1.2763		52	55
3.3K	1.3475		52	55
3.9K	1.4188		52	55
4.3K	1.4633		51	55
4.7K	1.5080		50	54
5.6K	1.5528		48	53
6.2K	1.5972		47	51
6.8K	1.6243		46	50
7.5K	1.6679	+7	45	49
8.2K	1.6941	±Λ	44	48
9.1K	1.7394		43	47
10K	1.7574		42	46
11K	1.7850		42	45
13K	1.8290		41	44
15K	1.8736		41	44
20K	1.9199		39	42
22K	1.9455		39	42
24K	1.9470		39	41
30K	1.9913	+5	38	41
33K	2.0144	C⊥	37	41
43K	2.0337		37	40
51K	2.0618		36	40
82K	2.0780		36	39
110K	2.1000		35	39



#### 3. Protection

#### a) Output Short Circuit Protection

The PSU should be protected when the output short and do not result in a fire hazard, shock hazard, or damage to the PSU. **The protection is latch mode.** The test procedure is setup at LED mode and short V+ to GND, after the fault condition removed, it needs to repower on to recover the PSU.

#### b) Output Over Voltage Protection

When output open occurs before AC turn on, the PSU should clamp Open Load Voltage, and it will work normally when output reload. But when AC power on then output open, it will trigger the latch protection and not to damage the PSU, and it needs to repower on to recover the PSU. The Open Load Voltage can adjust by Rset resistor which is referring from following curve.



#### c) Protection tables

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 Brotestian	Clamp Open Load Voltage	(1)AC turn on then output open		
Output Open Protection	(refer to the OLP curve)	(2)Output open then AC turn on		
ACTransient Protection	Auto-recovery	120 ~ 277Vac range switching		



## 4. Dimming Specification

The unit has Analog Dimming (AD) function, using 0-10 Vdc. The typical dimming curve is shown below: (the current of LED module is 2.1 A at full load condition)



	Symbol	Unit	Min	Түр	Max	Remark
	Range	V	0		10	
	Dim off	V	0		1	
Dimming	Dim. Min.	V	1			
	Dim Max.	V	8		10	
	Isource	mA			0.6	

Compatible Dimmer : IP710-DL, NTSTV-DV, DVSTV Ж



# 5. Reliability

#### **Test Items and Conditions**

Test Item		Specification	Condition	
Leakage Current		< 0.7 mA	According to IEC/EN 60950	
Earth Continuity		< 0.5 Ω	According to IEC/EN 61347 100 % tested in production line	
Li Det	Input – Output	3000 Vac, 60 s, cut-off current 10 mA	100 % tested in production line	
F)-F01	Input – Case	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 $\mbox{M}\Omega$	100 % tested in production line	
	Input - Case	500 Vdc, 60 s, insulation resistance 2 $\mbox{M}\Omega$	100 % tested in production line	
Surgo	L/N	±1 kV	According to IEC/EN 61547	
Suige	LN / GND	±2 kV		
ESD	Contact	±4 kV	According to IEC 61000.4.0	
ESD	Air	±8 kV	According to IEC 61000-4-2	



## 6. Outline Drawing & Dimension

#### a) Dimension (mm)





#### 7. Label Structure

	4		280.00 г	mm			
25.00 mm	0 ACL 0 ACL 0 ACN 0 ACN 0 €	LED Power Supply Model: SI-EPF007040WW UP/NE075S001L INPUT: 120-277 V= 0.88A 50/60Hz PF>0.9 OUTPUT: 22-52V = 1-2.1A 75W MAX AD:0-10 V Dimming Maximum Ambient Temperature: 50 °C.	0.51.5° ⊢?25.mm 75W 0-10 SI-ЕРF007040W	CRUUS FC E470825 W LP91-10020A Type 1 Trefm	LPS Class 2 ( L ax/ Measured Tref values:	<b>SAMSUNG</b> 190/85°C	LED + 0 LED + 0 LED + 0 AD + 0 AD + 0 LED +
		UL VENDOR COD	E				

#### 8. Packing Structure

Packing material	May guantity (pcc)	Dimension (mm)			
r acking material	Max. qualitity (pcs)	Length	Width	Height	
Outer Box	32	483	385	148	
Pallet	1152 (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 antielectrostatic working process
  - People handing 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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Samsung Electronics Co., Ltd. 95, Samsung 2-ro Giheung-gu Yongin-si, Gyeonggi-do, 446-711 KOREA

www.samsungled.com

