

Down Light Datasheet



Features :

- Fully Integral Design
- Low Power Consumption
- Long Life
- Various Color Temperature (3000K/4000K/6000K)



Table of Contents

General Information.....	3
Product Dimensions.....	3
Product Information.....	4
Technical Data	6
Assembly Instructions and Recommended Driver Specification	7
Installation Instruction.....	8
Applications	9
Package Information.....	10
Revision History	11
About Edison Opto	11

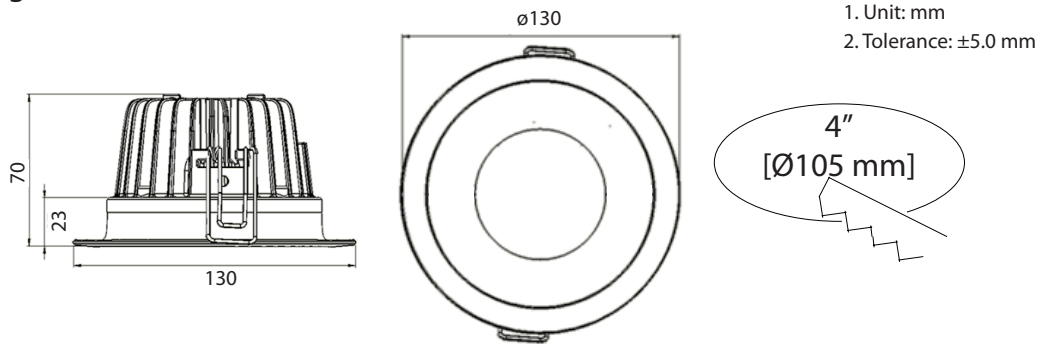
General Information

Introduction

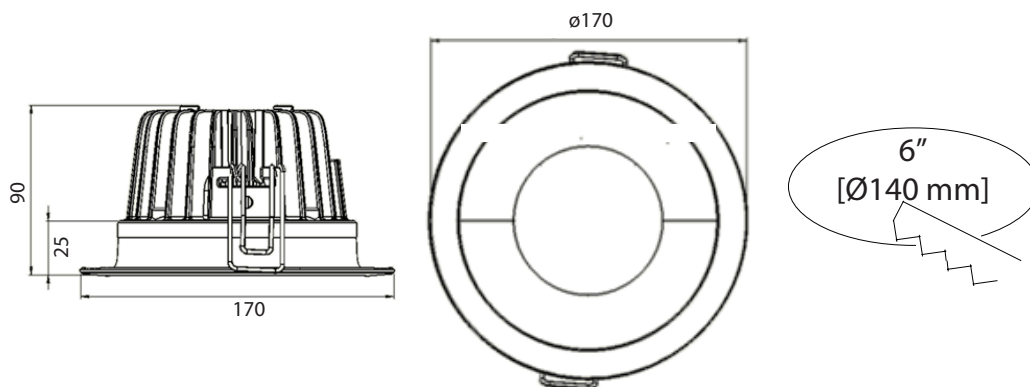
Utilizing Edison Opto's most advanced high power LEDs, Downlight integrates thermal, electrical, mechanical and optical aspects at the same time to achieve the compact design. Downlight is built specifically to use in restricted spaces where the traditional fixture is too tall to fit in. Downlight can adapt to ceiling plywood as thick as 25mm.

Product Dimensions

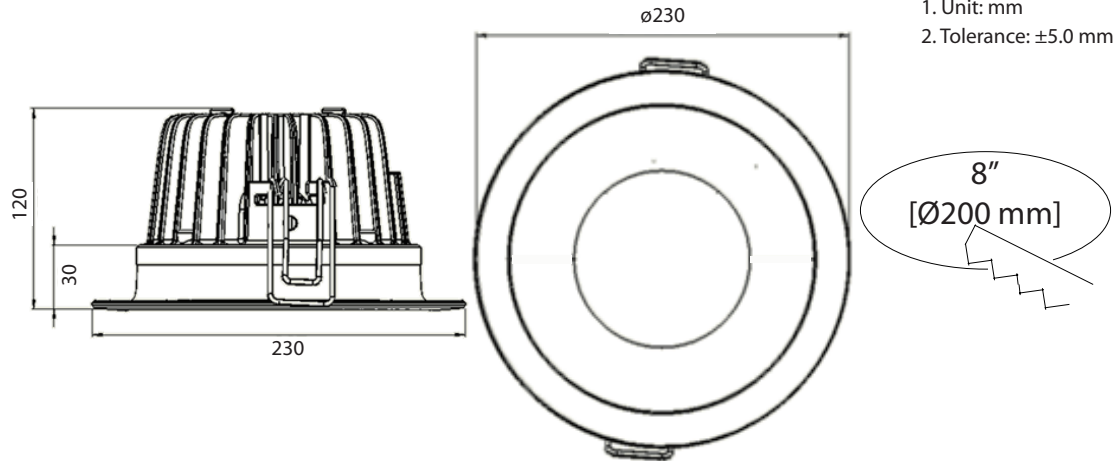
4" Downlight



6" Downlight



8" Downlight



Downlight dimensions.

Product Information

Product Type	Product Order Code
15W 4" Down Light	7-DL04-01

Product Description													
ES_WALT		ES_COLOR		ES_ANGLE		ES_DRIVER		ES_EMITTER		ES_COVER		ES_GLASS	
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type
15	15W	60	CW (6000K)	6	60~69	0	No Driver	EP1	EdiPower II	W0	White	1	Clear Glass
		40	NW (4000K)	F	> 70	A	100V~240V			S0	Silver	2	Mist Diffuser
		30	WW (3000K)										

Note:

Available selection of color, angle, driver, cover and glass.

Product Type	Product Order Code
25W 6" Down Light	7-DL06-01

Product Description													
ES_WALT		ES_COLOR		ES_ANGLE		ES_DRIVER		ES_EMITTER		ES_COVER		ES_GLASS	
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type
25	25W	60	CW (6000K)	6	60~69	0	No Driver	EP1	EdiPower II	W0	White	1	Clear Glass
		40	NW (4000K)	F	> 70	A	100V~240V			S0	Silver	2	Mist Diffuser
		30	WW (3000K)										

Note:

Available selection of color, angle, driver, cover and glass.

Product Type	Product Order Code
50W 8" Down Light	7-DL08-01

Product Description													
ES_WALT		ES_COLOR		ES_ANGLE		ES_DRIVER		ES_EMITTER		ES_COVER		ES_GLASS	
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type
50	50W	60	CW (6000K)	6	60~69	0	No Driver	EP1	EdiPower II	W0	White	1	Clear Glass
		40	NW (4000K)	F	> 70	A	100V~240V			S0	Silver	2	Mist Diffuser
		30	WW (3000K)										

Note:

Available selection of color, angle, driver, cover and glass.

Technical Data

Parameter	Symbol	Size	Rating / Value	Units
Power Consumption	--	4"	15	W
		6"	25	
		8"	50	
Color Temperature	--		6000/4000/3000	K
Color	--		Cool White Neutral White Warm White	--
CRI	--		68/75/80	--
Weight	--	4"	380± 5	g
		6"	760± 5	
		8"	1650± 5	
AC Input Voltage	V		100~240	V
Operating Temperature	T _{opr}		-20 ~ +40	°C
Storage Temperature	T _{stg}		-40 ~ +60	°C

Notes:

1. Power consumption has 10% tolerance.
2. The operating temperature is based on the ambient temperature to the heatsink in 5 cm distance.

Clear Glass

Power Consumption (W)	Size	Beam Angle	Color	Typ. Lux @1m (lx)	Typ. Flux (lm)
15W	4inch	60°	Cool White	1000	1100
			Neutral White	800	900
			Warm White	650	750
		100°	Cool White	450	1000
			Neutral White	410	850
			Warm White	330	680
25W	6inch	60°	Cool White	1800	1650
			Neutral White	1600	1550
			Warm White	1300	1200
		100°	Cool White	650	1500
			Neutral White	550	1300
			Warm White	450	1050
50W	8inch	60°	Cool White	3200	3100
			Neutral White	2600	2550
			Warm White	2200	2100
		100°	Cool White	1550	2850
			Neutral White	1300	2400
			Warm White	1100	2000

Downlight illuminance and beam angles.

Notes:

1. LED is a dynamic and constantly evolving technology. The final lux output of your Downlight may vary.
2. Angle has ±5° tolerance.

Mist Diffuser

Power Consumption (W)	Size	Beam Angle	Color	Typ. Lux @1m (lx)	Typ. Flux (lm)
15W	4inch	80°	Cool White	510	910
			Neutral White	450	800
			Warm White	350	620
25W	6inch	90°	Cool White	870	1400
			Neutral White	750	1200
			Warm White	630	1000
50W	8inch	75°	Cool White	2700	2700
			Neutral White	2250	2250
			Warm White	1900	1900

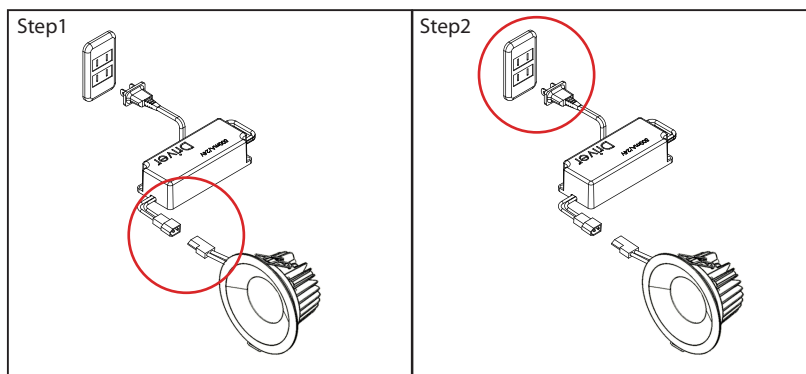
Downlight illuminance and beam angles.

Notes:

1. LED is a dynamic and constantly evolving technology. The final lux output of your Downlight may vary.
2. Angle has $\pm 5^\circ$ tolerance.

Assembly Instructions and Recommended Driver Specification

Size	Input Voltage	Output Voltage	Operating Current (Constant)	Rated Power
4"	AC 100~240V	DC12~15V	1000mA	> 15W
6"	AC 100~240V	DC15~18V	1300mA	> 25W
8"	AC 100~240V	DC21~26V	2000mA	> 50W



Assembly instructions:


1. Connect the Downlight to the DC driver shown as step 1.
2. Plug the driver to AC outlet shown as step 2.


Caution:


Never plug the driver to AC outlet before the Downlight is properly connected, otherwise it may damage the LEDs permanently.


Downlight Assembly Instructions.


Installation Instruction




Step 1.  1. Remove the Downlight out of package box and hold it up side down.

Step 2.  2. Slide the Downlight in to the open hole. Put the shorter spring in the front of the ceiling hole, and longer spring on the back of the ceiling hole.

Step 3.  3. Push one side first and then the other side until the bottom springs are flush completely with the ceiling.

Step 4.  4. Finish the installation.



Downlight Installation Instructions.

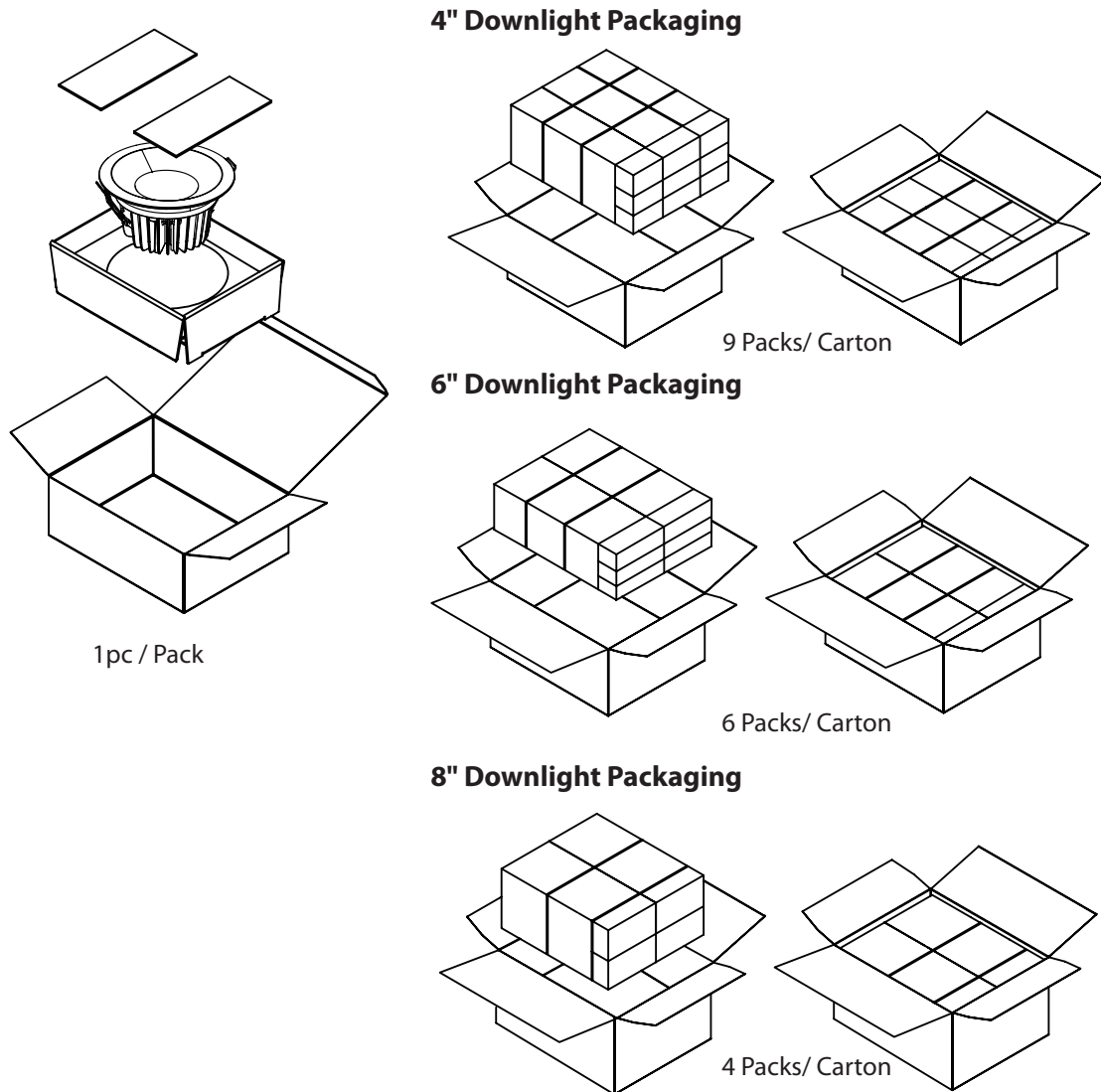
Applications

The compact and integral design of the Downlight make it ideal for a wide variety of lighting applications, including retail store spot light, ceiling downlight, and many other accent lightings.



Downlight application pictures.

Package Information



Item	Product	Product Size	Quantity	Dimension(mm)
Pack	Downlight	4"	1 pc	200*145*110
		6"	1 pc	240*185*127
		8"	1 pc	244*290*176
	Driver	4"	1 pc	135*55*30
		6"	1 pc	175*60*38
		8"	1 pc	175*75*45
Carton	Downlight and Driver	4"	9 packs	615*506*150
		6"	6 packs	570*555*169
		8"	4 packs	594*576*217

Downlight package.

Notes:

1. Downlight and driver as one pack for carton packaging.
2. Figures not shown to scale.

Revision History

Versions	Description	Release Date
1	Establish order code information	2012/12/13

About Edison Opto

Edison Opto is a leading manufacturer of high power LED and a solution provider experienced in LDMS. LDMS is an integrated program derived from the four essential technologies in LED lighting applications- Thermal Management, Electrical Scheme, Mechanical Refinement, Optical Optimization, to provide customer with various LED components and modules. More Information about the company and our products can be found at www.edison-opto.com

Copyright©2012 Edison Opto. All rights reserved. No part of publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photo copy, recording or any other information storage and retrieval system, without prior permission in writing from the publisher. The information in this publication are subject to change without notice.

www.edison-opto.com

For general assistance please contact:
service@edison-opto.com.tw

For technical assistance please contact:
LED.Detective@edison-opto.com.tw



■ Features :

- Universal AC input / Full range (up to 295VAC)
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit with adjustable OCP level
- Fully isolated plastic case with IP64 level
- Built-in active PFC function
- Pass LPS
- Class II power unit, no FG
- Class 2 power unit
- 100% full load burn-in test
- High reliability
- Suitable for LED lighting and moving sign applications (Note.2)
- Compliance to worldwide safety regulations for lighting
- 2 years warranty



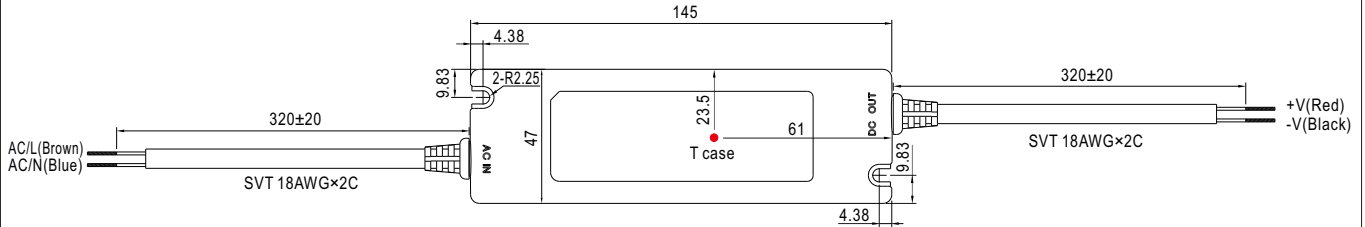
SPECIFICATION

MODEL	PLN-30-9	PLN-30-12	PLN-30-15	PLN-30-20	PLN-30-24	PLN-30-27	PLN-30-36	PLN-30-48	
OUTPUT	DC VOLTAGE	9V	12V	15V	20V	24V	27V	36V	48V
	CONSTANT CURRENT REGION Note.6	6.3 ~ 9V	8.4 ~ 12V	10.5 ~ 15V	14 ~ 20V	16.8 ~ 24V	18.9 ~ 27V	25.2 ~ 36V	33.6 ~ 48V
	RATED CURRENT	3.3A	2.5A	2A	1.5A	1.25A	1.12A	0.84A	0.63A
	CURRENT RANGE	0 ~ 3.3A	0 ~ 2.5A	0 ~ 2A	0 ~ 1.5A	0 ~ 1.25A	0 ~ 1.12A	0 ~ 0.84A	0 ~ 0.63A
	RATED POWER	29.7W	30W	30W	30W	30W	30.24W	30.24W	30.24W
	RIPPLE & NOISE (max.) Note.2	2.6Vp-p	2Vp-p	2.6Vp-p	2.6Vp-p	2.6Vp-p	2.3Vp-p	4.5Vp-p	3.7Vp-p
	VOLTAGE ADJ. RANGE Note.5	-5% ~ 10%. Can be adjusted by internal potentiometer SVR1							
	CURRENT ADJ. RANGE Note.5	3% ~ -25%. Can be adjusted by internal potentiometer SVR2							
	VOLTAGE TOLERANCE Note.3	±10%							
	LINE REGULATION	±3.0%							
LOAD REGULATION	±5.0%								
SETUP TIME	500ms / 230VAC 3000ms / 115VAC at full load								
INPUT	VOLTAGE RANGE Note.4	90 ~ 295VAC		127 ~ 417VDC					
	FREQUENCY RANGE	47 ~ 63Hz							
	POWER FACTOR (Typ.)	PF>0.95/115VAC, PF>0.9/230VAC, PF>0.9/277VAC at full load (Please refer to "Power Factor Characteristic" curve)							
	TOTAL HARMONIC DISTORTION	THD< 20% when output loading≥75% at 115VAC/230VAC input and output loading≥80% at 277VAC input							
	EFFICIENCY (Typ.)	80%	82.5%	83.5%	84%	84%	84.5%	85%	85.5%
	AC CURRENT (Typ.)	0.4A/115VAC		0.2A/230VAC		0.15A/277VAC			
	INRUSH CURRENT (Typ.)	COLD START 35A(twidth=25µs measured at 50% Ipeak) at 230VAC							
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	64 units (circuit breaker of type B) / 64 units (circuit breaker of type C) at 230VAC							
LEAKAGE CURRENT	<0.5mA / 240VAC								
PROTECTION	OVER CURRENT	100 ~ 110%							
	SHORT CIRCUIT	Protection type : Constant current limiting, recovers automatically after fault condition is removed							
	OVER VOLTAGE	10 ~ 14V	14 ~ 17V	17 ~ 22V	23 ~ 26V	27 ~ 34V	31 ~ 35V	40 ~ 50V	53 ~ 63V
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover							
ENVIRONMENT	WORKING TEMP.	-30 ~ +50°C (Refer to "Derating Curve")							
	WORKING HUMIDITY	20 ~ 95% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH							
	TEMP. COEFFICIENT	±0.06%/°C (0 ~ 50°C)							
	VIBRATION	10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes							
SAFETY & EMC	SAFETY STANDARDS	UL879, UL1310, CSA C22.2 No. 207-M89(except for 48V), TUV EN61347-1, EN61347-2-13, GB19510.1, GB19510.14, EAC TP TC 004, IP64, J61347-1, J61347-2-13 approved							
	WITHSTAND VOLTAGE	I/P-O/P: 3.75KVAC							
	ISOLATION RESISTANCE	I/P-O/P: 100M Ohms / 500VDC / 25°C / 70% RH							
	EMC EMISSION	Compliance to EN55015, EN61000-3-2 Class C (pin≥25W), Class D (>70% load) ; EN61000-3-3; GB17743 and GB17625.1, EAC TP TC 020							
OTHERS	EMC IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, EN55024, EN61547, light industry level, criteria B; EAC TP TC 020							
	MTBF	621.4Khrs min. MIL-HDBK-217F (25°C)							
	DIMENSION	145*47*30mm (L*W*H)							
NOTE	PACKING	0.22Kg; 60pcs/14.2Kg/1.25CUFT							
		<ol style="list-style-type: none"> All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor. Tolerance : includes set up tolerance, line regulation and load regulation. Derating may be needed under low input voltage. Please check the static characteristics for more details. Output voltage can be adjusted through the SVR1 on the PCB; limit of output constant current level can be adjusted through the SVR2 on the PCB. Please refer to "DRIVING METHODS OF LED MODULE". The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-quality EMC Directive on the complete installation again. Direct connecting to LEDs is suggested, but is not suitable for using additional drivers. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power supply can only be used behind a switch without permanently connected to the mains. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). For any application note and IP water proof function installation caution, please refer our user manual before using. https://www.meanwell.com/Upload/PDF/LED_EN.pdf 							

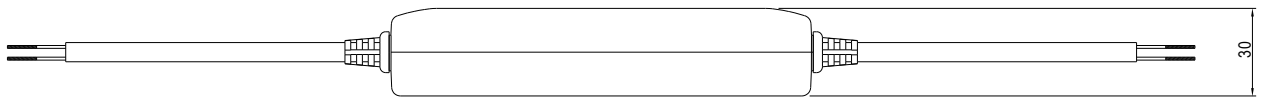
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor.
 3. Tolerance : includes set up tolerance, line regulation and load regulation.
 4. Derating may be needed under low input voltage. Please check the static characteristics for more details.
 5. Output voltage can be adjusted through the SVR1 on the PCB; limit of output constant current level can be adjusted through the SVR2 on the PCB.
 6. Please refer to "DRIVING METHODS OF LED MODULE".
 7. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-quality EMC Directive on the complete installation again.
 8. Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.
 9. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power supply can only be used behind a switch without permanently connected to the mains.
 10. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).
 11. For any application note and IP water proof function installation caution, please refer our user manual before using.
https://www.meanwell.com/Upload/PDF/LED_EN.pdf

■ Mechanical Specification

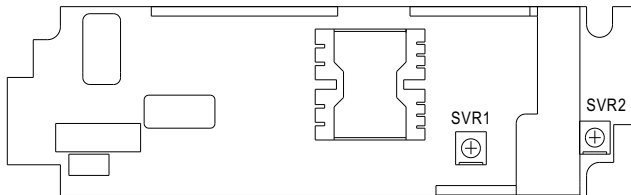
Case No.964A Unit:mm



※ T case: Max. Case Temperature.

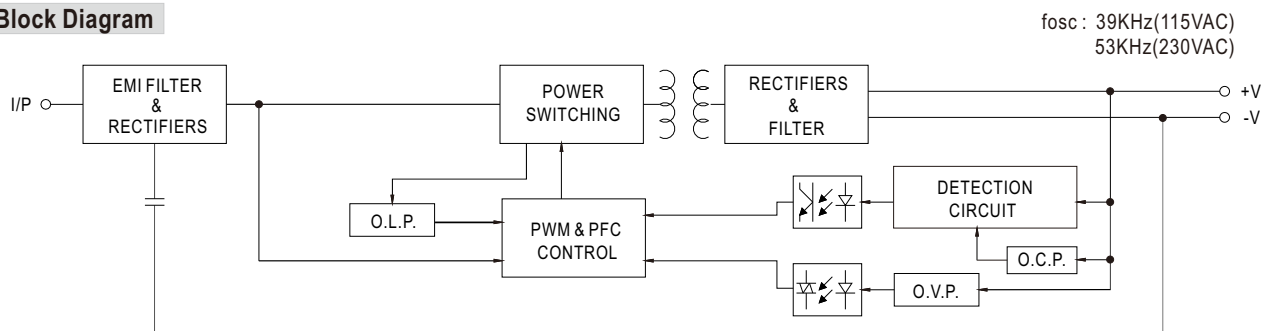


Output voltage and current adjustment : remove the upper case and adjust through SVR1 & SVR2 shown in the diagram.

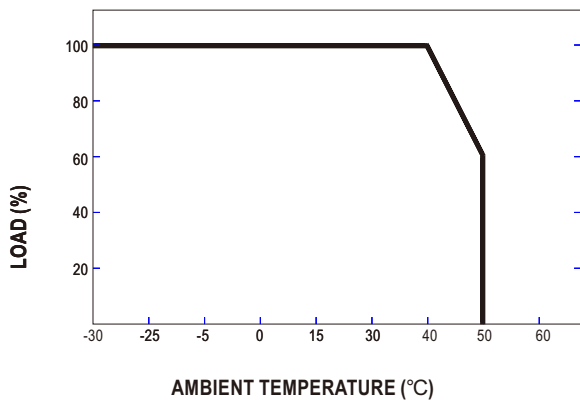


SVR1	Output voltage adjustment
SVR2	Output current adjustment

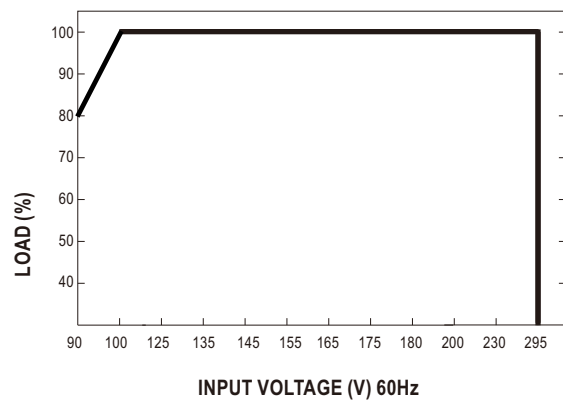
■ Block Diagram



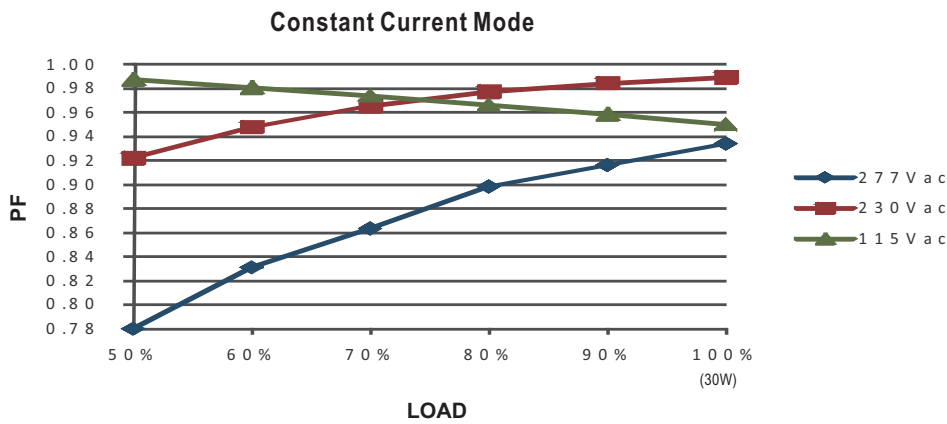
■ Derating Curve



■ Static Characteristics

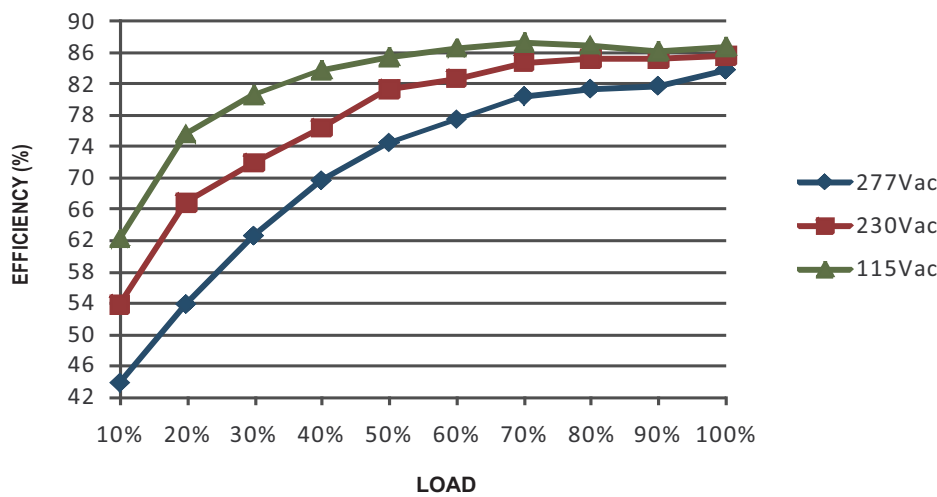


Power Factor Characteristic



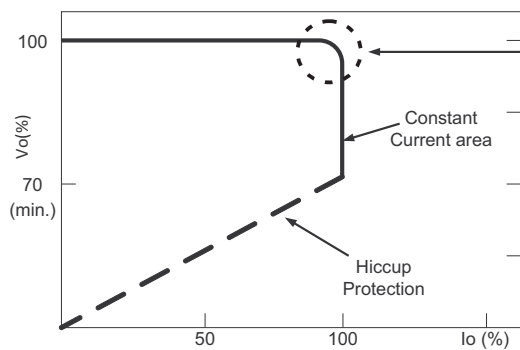
EFFICIENCY vs LOAD (48V Model)

PLN-30 series possess superior working efficiency that up to 85.5% can be reached in field applications.



DRIVING METHODS OF LED MODULE

This LED power supply is suggested to work in constant current mode area (CC) to drive the LEDs.



Typical LED power supply I-V curve

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems. Should there be any compatibility issues, please contact MEAN WELL.