

50 Watt — LT50W Series VER A0

CONSTANT CURRENT WITH TRIAC/ELV DIMMABLE LED DRIVER

High-Performance TRIAC dimmable LED driver

US & CN, LED Driver Class 2

LT series driver is a high-performance TRIAC dimmable LED driver that provides smooth, continuous <10% dimming for virtually any LED fixture. It is the most versatile LED driver offered today due to its compatibility with a wide variety of LED arrays, for almost all of trailing edge & leading edge AC dimmer.

Key Features

- Drive Mode: LT50W230 series
- Technology: Active PFC 1-Stage Switch Mode.
- Input Voltage: 220 to 277 VAC, 50/60Hz, no dimmer
230 VAC, With 230V AC Dimmer
- Output Power: 50 Watt Max.
- AC Dimmer: Trailing Edge & Leading Edge AC Dimmer
- Dimming Range: Smooth & Continuous Dimming from 10% to 100%.
- Efficiency: Up to 89%.
- Warranty: 5 years.

Special Features

- Continuous dimming from 10% to 100%.
- Triac or phase cut dimming.
- Safety isolation between primary and secondary.
- A rated lifetime of 50,000 hours @ Tc = 80°C.
- Safety: UL8750, UL1310 Class 2, CSA22.2.
- EMC: FCC Part 15 Class B.
- Inrush Current Limiting Circuitry: AC Power Line: line to line 2 kV, eliminates circuit breaker tripping, switch arcing and relay failure.
- Plastic shell, Used with silicone potting.
- Meet the RoHs directive.
- IP65, NEMA4 compliant for Dry. Damp location.
- 100% performance tested with CHROMA 8000 system at YG factory.
- 100% burned in with program-control test system at YG factory, at 50 degrees ambient temperature.



Enclosure



Size	Unit	Inch	Millimeter
Case Length		7.65	194.30
Case Width		1.78	45.30
Case Height		1.10	28.00

50W Triac Dimming Part List

No.	Part Number	Input Voltage (with dimmer)	US Class 2	CN Class 2	Output Voltage Range	Output Constant Current Range	Current Accuracy	Power Factor	Output Power	Max. Eff.
1	LT50W230-142-C0350	220-230V	No	No	95~142Vdc	35-350mA	±5%	0.90	50W	87%
2	LT50W230-100-C0500	220-230V	No	No	66~100Vdc	50-500mA	±5%	0.90	50W	87%
3	LT50W230-72-C0700	220-230V	No	No	48~72Vdc	70-700mA	±5%	0.90	50W	86%
4	LT50W230-54-C0910	220-230V	Yes	Yes	36~54Vdc	90-910mA	±5%	0.90	50W	86%
5	LT50W230-48-C1050	220-230V	Yes	Yes	32~48Vdc	100-1050mA	±5%	0.90	50W	85%
6	LT50W230-42-C1190	220-230V	Yes	Yes	28~42Vdc	119-1190mA	±5%	0.90	50W	85%
7	LT50W230-36-C1400	220-230V	Yes	Yes	24~36Vdc	140-1400mA	±5%	0.90	50W	85%
8	LT50W230-29-C1750	220-230V	Yes	Yes	18~29Vdc	170-1750mA	±5%	0.90	50W	84%
9	LT50W230-24-C2120	220-230V	Yes	Yes	16~24Vdc	210-2120mA	±5%	0.90	50W	84%

50W Constant Current Part List

No.	Part Number	Input Voltage (no dimmer)	US Class 2	CN Class 2	Output Voltage Range	Output Constant Current	Current Accuracy	Power Factor	Output Power	Max. Eff.
1	LT50W230-142-C0350	220-277V	No	No	95~142Vdc	350mA	±5%	0.90	50W	89%
2	LT50W230-100-C0500	220-277V	No	No	66~100Vdc	500mA	±5%	0.90	50W	89%
3	LT50W230-72-C0700	220-277V	No	No	48~72Vdc	700mA	±5%	0.90	50W	88%
4	LT50W230-54-C0910	220-277V	Yes	Yes	36~54Vdc	910mA	±5%	0.90	50W	88%
5	LT50W230-48-C1050	220-277V	Yes	Yes	32~48Vdc	1050mA	±5%	0.90	50W	87%
6	LT50W230-42-C1190	220-277V	Yes	Yes	28~42Vdc	1190mA	±5%	0.90	50W	87%
7	LT50W230-36-C1400	220-277V	Yes	Yes	24~36Vdc	1400mA	±5%	0.90	50W	87%
8	LT50W230-29-C1750	220-277V	Yes	Yes	18~29Vdc	1750mA	±5%	0.90	50W	86%
9	LT50W230-24-C2120	220-277V	Yes	Yes	16~24Vdc	2120mA	±5%	0.90	50W	86%

Input Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Input Voltage	220 Vac	---	277 Vac	220, 230, 277 Vac Nominal Values.
Input Frequency	47 Hz	50/60 Hz	63 Hz	50/60 Hz Nominal.
Input AC Current	---	---	0.30 A	Measured at 230 Vac / 50Hz Input, Output Full Load.
	---	---	0.29 A	Measured at 277 Vac / 60Hz Input, Output Full Load.
Inrush Current (Peak)	---	40 A	50 A	Measured at 277 Vac / 60Hz Input, Output Full Load.
Leakage Current	---	---	700 μ A	Measured at 277 Vac / 60Hz Input, Output Full Load.
THD	---	---	20%	Measured at 220, 230 Vac Input, \geq 60% Load. 277 Vac Input, \geq 70% Load.
Power Factor (PF)	0.90	---	---	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
DC Output Voltage	16V	---	142V	Measured at 220, 230, 277 Vac Input. The voltage is DC+ to DC-.
Output Power	---	---	50W	Measured at 220, 230, 277 Vac Input.
Flickering Index (Ipk-pk)	---	---	30%	20MHz BW, Full load output in parallel with 0.1 μ F & 10 μ F CAP. Flickering Index is defined as $[(I_{max}-I_{min})/(I_{max}+I_{min})] * 100\%$.
Line Regulation	-5%	---	+5%	Maximum over entire range of input voltage / output loads (any combination), and temperature range.
Load Regulation	-5%	---	+5%	
Turn-on Time	---	500ms	1000ms	From VAC turn-on until output current reaches 10% of nominal value. Output Full Load.
Turn-off Delay	---	---	1000ms	LED's not lit, No die glow.
Output Overshoot	-5%	---	+10%	Measured at 220, 230, 277 Vac Input, When power on or off.

Protection Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Output Over Voltage (OVP)	---	---	170V	No Damage. Auto recovery when the leads are open.
Output Short Circuit (SCP)	---	---	---	No Damage. Auto recovery after short is removed.

Dimming Specifications

Items	Parameter	Min.	Typ.	Max.	Notes / Conditions
Phase cut Dimming	Turn-on Time	---	1000 ms	3000 ms	At 10% dim level. This time is AC input to the DC 10% output current. Less than 1000ms, for most dimmer.
	Flickering Index	---	---	30%	Flickering Index is defined as $[(I_{max}-I_{min})/(I_{max}+I_{min})] * 100\%$.
	Output Current Range	10%	---	100%	CCR output.
	Shimmer	---	---	7%	Long Term Current Stability (Average can't vary by more than X% over 10s period).
	Dimming Curve Type		Similar to Log		Dim curve between max/min.
	Acoustic Noise	---	---	22 dB	Not to exceed at 1 ft at any dim level.

General Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Cooling	Convection			Measured at 230 Vac input, 100% Load and Tc=80° C (MIL-HDBK-217F).
MTBF	530,000 hours			
Life Time	50,000 hours			

Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Case Temperature (T _c)	-30 °C	---	+90 °C	Measured at location specified on case.
Operating Temperature (T _a)	-30 °C	---	+55 °C	This is a reference range. T _c controls temperature range.
Storage Temperature (T _s)	-40 °C		+90 °C	Non operating temperature range.
Operating Humidity	---	---	95% RH	Relative Humidity. Non-condensing.
Vibration	5 Hz	---	55 Hz	1G, 10 minutes / 1 cycle, period 30 minutes, each along X, Y, Z axis.

Safety Compliance

Safety Category	Standards / Notes
UL / cUL	UL8750, UL1310 Class 2, CSA22.2.
Withstand Voltage	Input to Output: 2000 Vac.
Isolation Resistance	Input to Output: >10MΩ, 500Vdc @ 25°C, 70% RH.

EMC Compliance

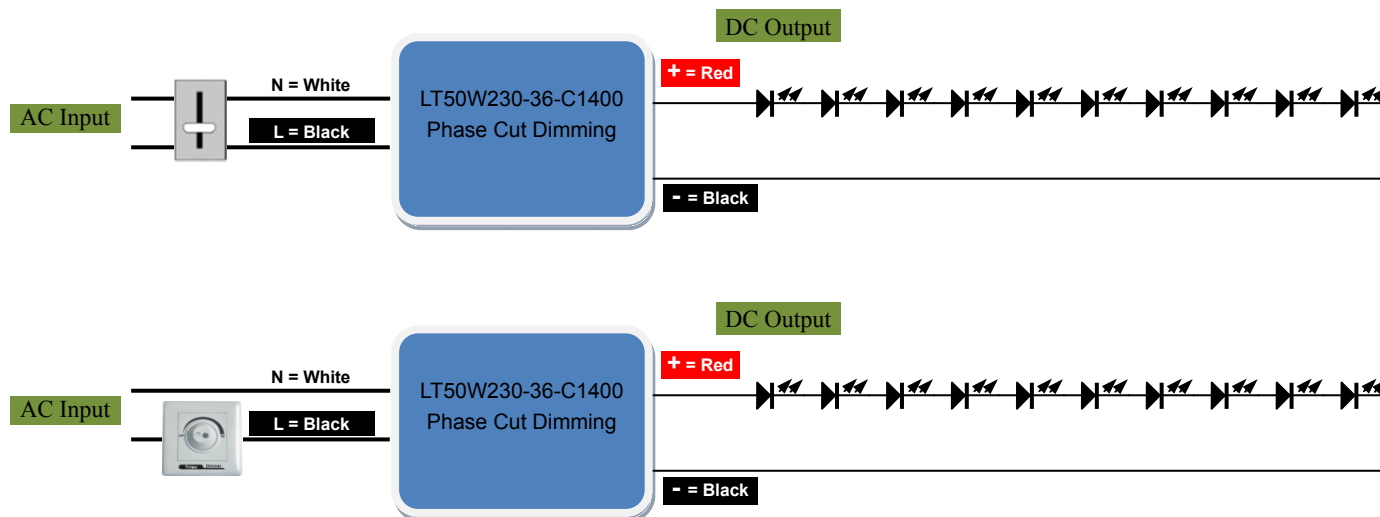
EMI Category	Standards
FCC	FCC 47CFR Part 15 Class B, ANSI C63.4: 2009.
EMS Category	Notes
IEEE Std C62.41.2™-2002	Surge Immunity Test: ANSI C62.41 0.5 μs 100 kHz Ring, 2kV/0.2kA, L-N, L-G, LN-G (10 strikes) 1.2/50μs 8/20μs Combination, 2kV/0.5kA, L-N, L-G, LN-G (10 strikes)

Note: the above test data are in the condition of 25 C ambient temperature, except for the marked temperature.

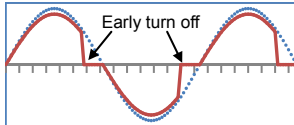
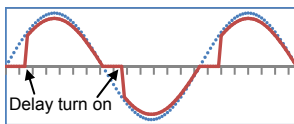
Typical Applications

LED Forward voltage: $V_F = 3.0V \sim 3.5V$

■. Driver Phase Cut Dimming

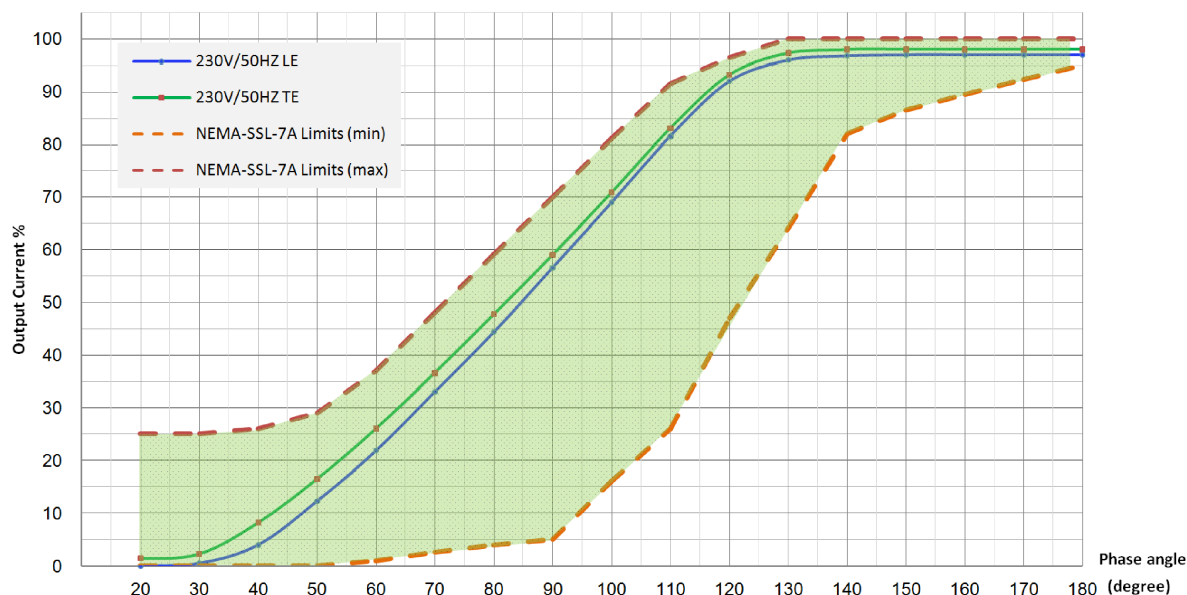


■. About Phase cut dimmer

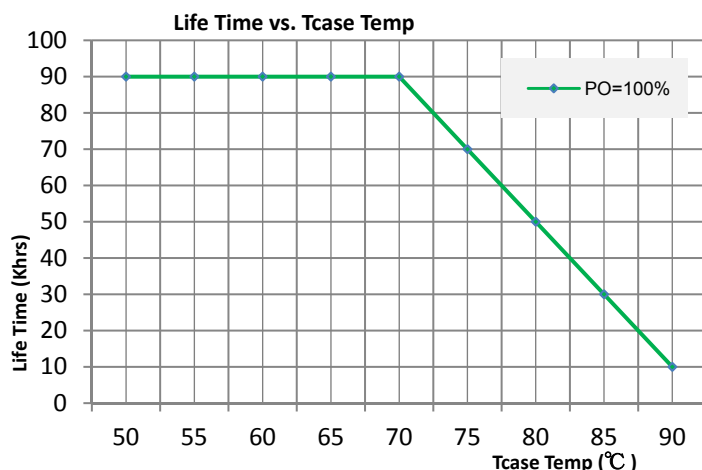
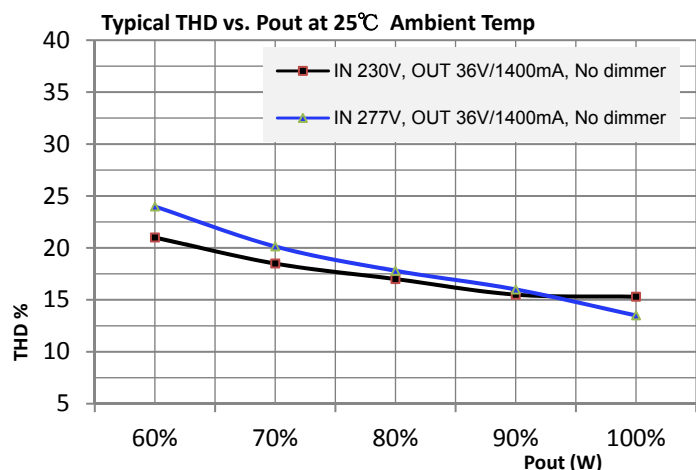
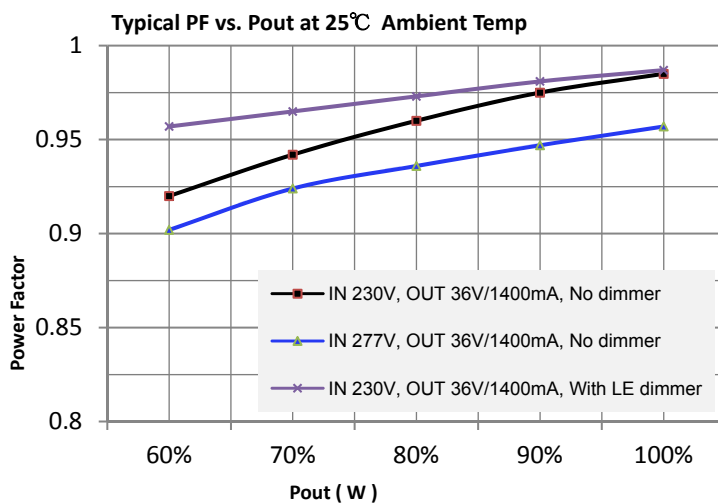
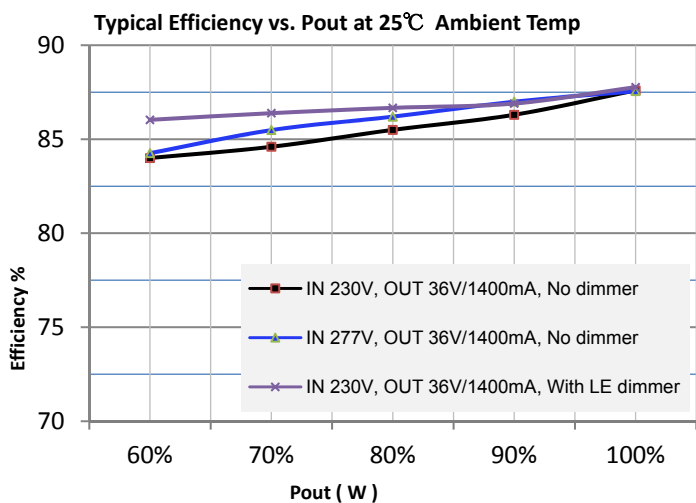
ELV dimmer	<ul style="list-style-type: none"> ▶ Electronic Low Voltage dimmer. ▶ Trailing Edge phase dimmer. ▶ Reverse phase control dimming. 		<ul style="list-style-type: none"> ▶ high stability. ▶ low noise. ▶ highest cost.
TRIAC dimmer	<ul style="list-style-type: none"> ▶ Incandescent phase dimmer. ▶ Leading Edge phase dimmer. ▶ SCR phase dimmer. ▶ Forward phase control dimming. 		<ul style="list-style-type: none"> ▶ little worse stable. ▶ a little noise. ▶ lowest cost.

Dimming Curve

Typical Dimming vs. Turn-on Phase angle of AC Input at 25°C Ambient Temp



Characteristic Curve



Installation

Plastic shell.

This product has two $\Phi 3.7\text{mm}$ mounting holes.

AC input for connection the two core ANSI/UL1015/AWG18 temperature 105 °C core copper wire connection.

Cable Length: 150mm, stripping on the tin: 10mm.

Where: L — Black wire, N — White wire.

DC output for connection the two core ANSI/UL1569/AWG18 temperature 105 °C core copper wire.

Cable Length: 150mm, stripping on the tin: 10mm.

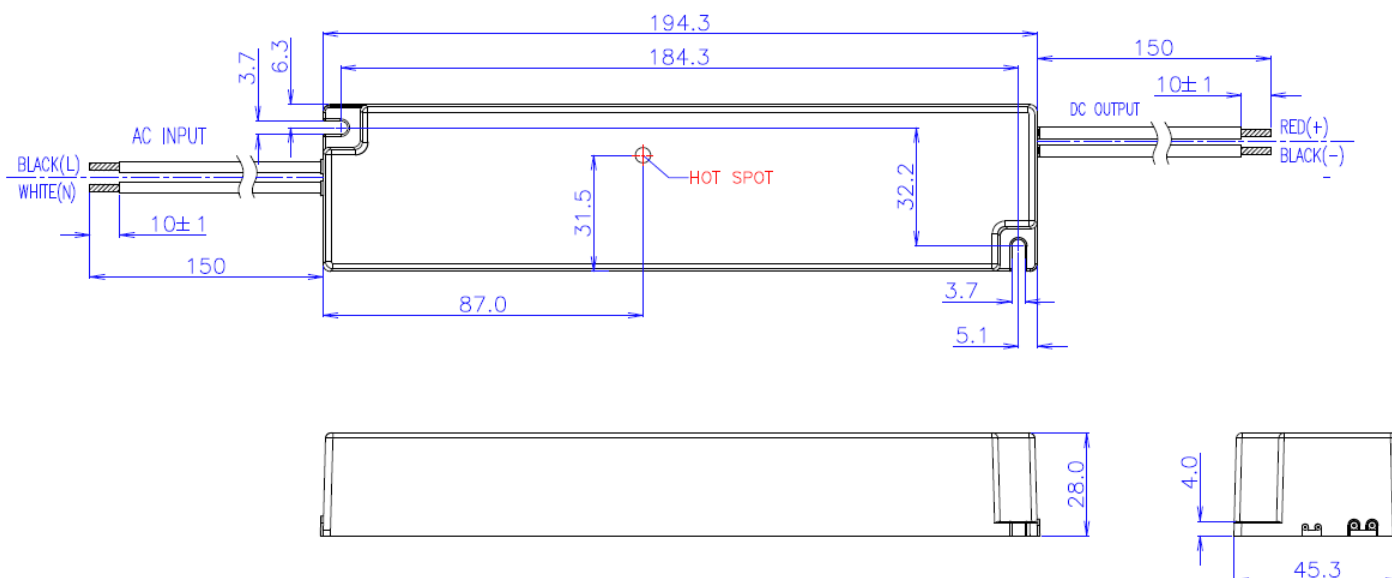
Where: DC+ — Red, DC- — Black.

Order ID

P/N : LT50W230-36-C1400

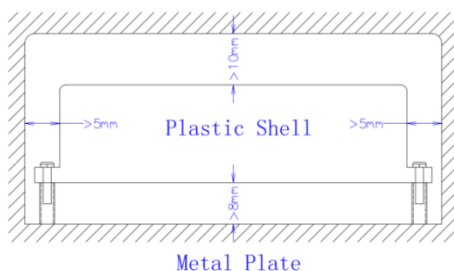
Description: 50W, 36Vdc voltage max, constant current 1400mA, phase cut dimming mode.

Product Size

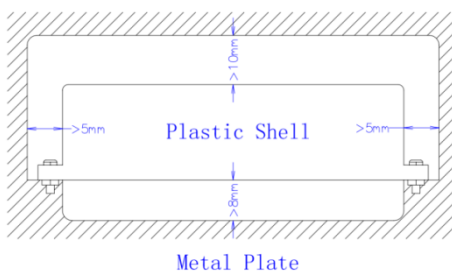


Application note

Picture 1



Picture 2



In Picture 1 and Picture 2, EMC has the best.

Note :

- The independent LED drive conforms to the EMC standard.
But it is not guaranteed to be qualified, when the drive is mounted in the LED lamp.
- Please forgive us for any discrepancy due to the update of the specifications or the upgrade of the product.
If you need the latest information, please contact our marketing department.