

## 12 Watt — LT12W 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: LT12W120 series
- Technology: Active PFC 1-Stage Switch Mode.
- Input Voltage: 100 to 277 VAC, 50/60Hz, no dimmer  
120 VAC, With 120V AC Dimmer
- Output Power: 12 Watt Max.
- AC Dimmer: Trailing Edge & Leading Edge AC Dimmer
- Dimming Range: Smooth & Continuous Dimming from 10% to 100%.
- Efficiency: Up to 86%.
- 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.

### 12W 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	LT12W120-48-C0250	108-132V	Yes	Yes	32~48Vdc	25-250mA	±5%	0.90	12W	85%
2	LT12W120-43-C0280	108-132V	Yes	Yes	28~43Vdc	28-280mA	±5%	0.90	12W	84%
3	LT12W120-36-C0350	108-132V	Yes	Yes	24~36Vdc	35-350mA	±5%	0.90	12W	84%
4	LT12W120-28-C0430	108-132V	Yes	Yes	18~28Vdc	43-430mA	±5%	0.90	12W	83%
5	LT12W120-24-C0500	108-132V	Yes	Yes	16~24Vdc	50-500mA	±5%	0.90	12W	83%
6	LT12W120-20-C0600	108-132V	Yes	Yes	13~20Vdc	60-600mA	±5%	0.90	12W	82%
7	LT12W120-17-C0700	108-132V	Yes	Yes	11~17Vdc	70-700mA	±5%	0.90	12W	82%
8	LT12W120-12-C1000	108-132V	Yes	Yes	8~12Vdc	100-1000mA	±5%	0.90	12W	80%



Enclosure



Size	Unit	Inch	Millimeter
Case Length		3.36	85.50
Case Width		1.40	35.50
Case Height		0.90	23.00

## 12W 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	LT12W120-48-C0250	100-277V	Yes	Yes	32~48 Vdc	250 mA	±5%	0.90	12W	86%
2	LT12W120-43-C0280	100-277V	Yes	Yes	28~43 Vdc	280 mA	±5%	0.90	12W	85%
3	LT12W120-36-C0350	100-277V	Yes	Yes	24~36 Vdc	350 mA	±5%	0.90	12W	85%
4	LT12W120-28-C0430	100-277V	Yes	Yes	18~28 Vdc	430 mA	±5%	0.90	12W	84%
5	LT12W120-24-C0500	100-277V	Yes	Yes	16~24 Vdc	500 mA	±5%	0.90	12W	84%
6	LT12W120-20-C0600	100-277V	Yes	Yes	13~20 Vdc	600 mA	±5%	0.90	12W	83%
7	LT12W120-17-C0700	100-277V	Yes	Yes	11~17 Vdc	700 mA	±5%	0.90	12W	83%
8	LT12W120-12-C1000	100-277V	Yes	Yes	8~12 Vdc	1000 mA	±5%	0.90	12W	81%

## Input Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Input Voltage	100 Vac	---	277 Vac	120, 230, 277 Vac Nominal Values.
Input Frequency	47 Hz	50/60 Hz	63 Hz	50/60 Hz Nominal.
Input AC Current	---	---	0.14 A	Measured at 120 Vac / 60Hz Input, Output Full Load.
	---	---	0.08 A	Measured at 230 Vac / 50Hz Input, Output Full Load.
	---	---	0.07 A	Measured at 277 Vac / 60Hz Input, Output Full Load.
Inrush Current ( Peak )	---	1.6 A / 0.6uS	1.9 A / 1.0uS	Measured at 120 Vac / 60Hz Input, Output Full Load.
Leakage Current	---	---	300 $\mu$ A	Measured at 120 Vac / 60Hz Input, Output Full Load.
	---	---	700 $\mu$ A	Measured at 277 Vac / 60Hz Input, Output Full Load.
THD	---	---	20%	Measured at 120, 230, 277 Vac Input, $\geq$ 60% Load.
Power Factor ( PF )	0.90	---	---	

## Output Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
DC Output Voltage	8V	---	48V	Measured at 120, 230, 277 Vac Input, The voltage is DC+ to DC-.
Output Power	---	---	12W	Measured at 120, 230, 277 Vac Input.
Flickering Index ( Ipk-pk )	---	---	30%	20MHz BW, Full load output in parallel with 0.1uF & 10uF 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	---	500 ms	1000 ms	From VAC turn-on until output current reaches 10% of nominal value. Output Full Load.
Turn-off Delay	---	---	1000 ms	LED's not lit, No die glow.
Output Overshoot	-5%	---	+10%	Measured at 120, 230, 277 Vac Input, When power on or off.

## Protection Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Output Over Voltage ( OVP )	---	---	60V	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			
MTBF	680,000 hours			Measured at 120 Vac input, 100% Load and Tc=80° C (MIL-HDBK-217F).
Life Time	50,000 hours			

## Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Case Temperature ( T <sub>c</sub> )	-30 °C	---	+90 °C	Measured at location specified on case.
Operating Temperature ( T <sub>a</sub> )	-30 °C	---	+55 °C	This is a reference range. T <sub>c</sub> controls temperature range.
Storage Temperature ( T <sub>s</sub> )	-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

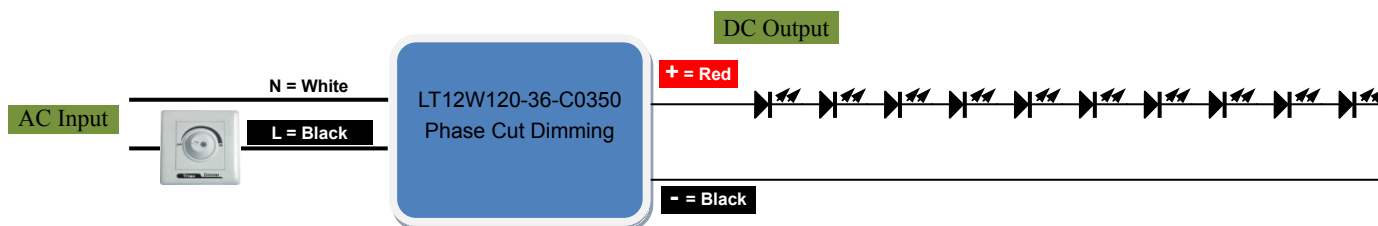
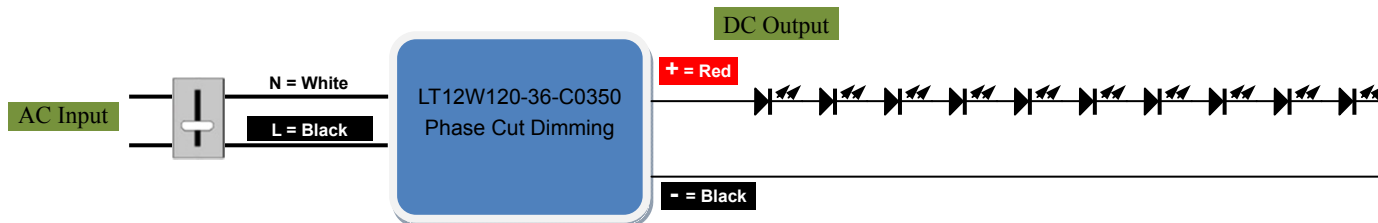
EMI Category	Standards
FCC	FCC 47CFR Part 15 Class B, ANSI C63.4: 2009.
EMS Category	Notes
IEEE Std C62.41.2™-2002	Surge Immunity Test: ANSI C62.41 0.5 μs 100 kHz Ring, 2kV/0.2kA, L-N, L-G, LN-G (10 strikes) 1.2/50μs 8/20μs Combination, 2kV/0.5kA, L-N, L-G, LN-G (10 strikes)

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

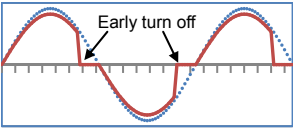
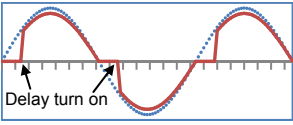
## Typical Applications

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

### ■. Driver Phase Cut Dimming

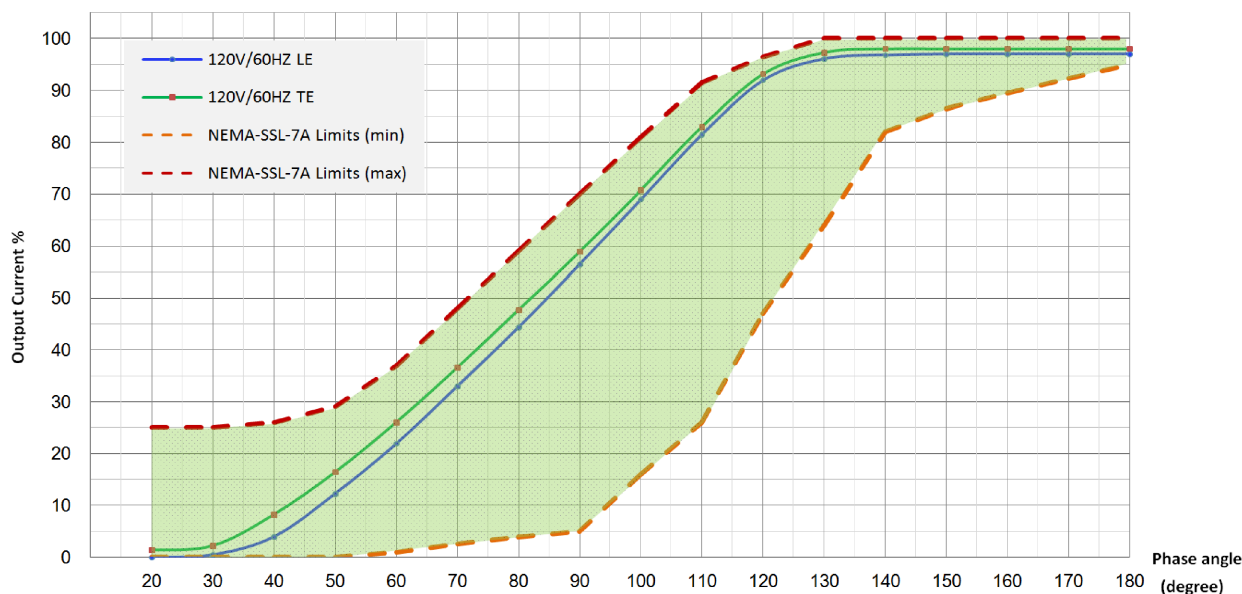


### ■. About Phase cut dimmer

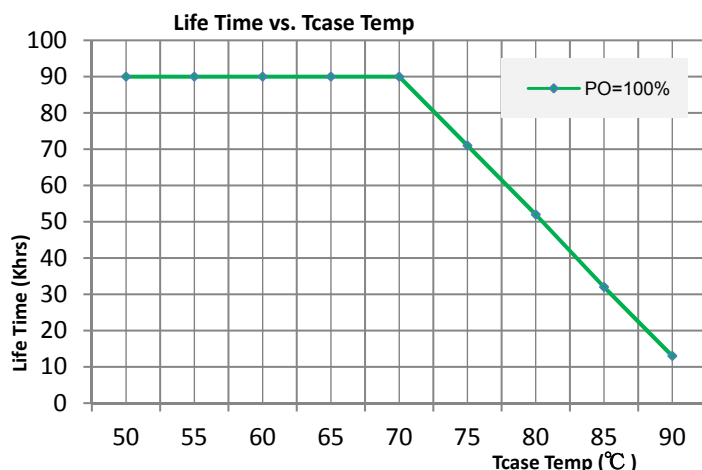
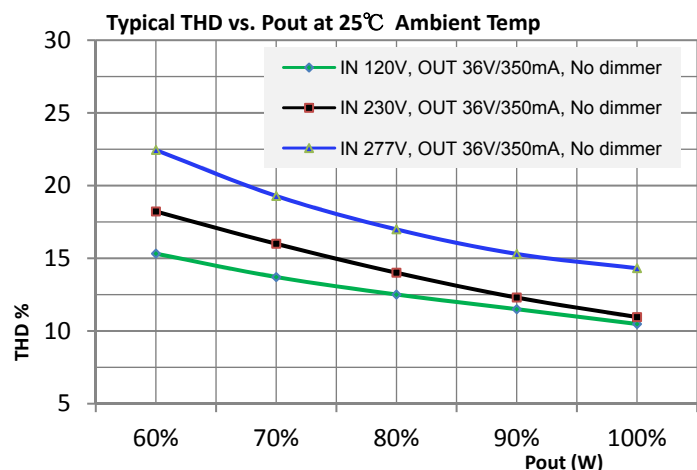
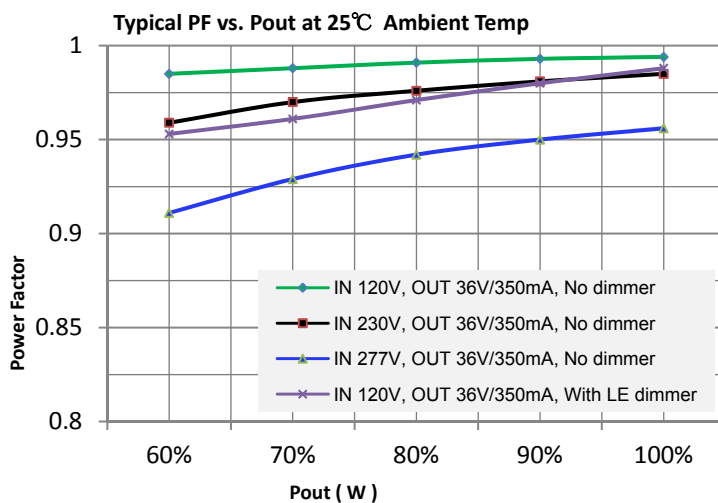
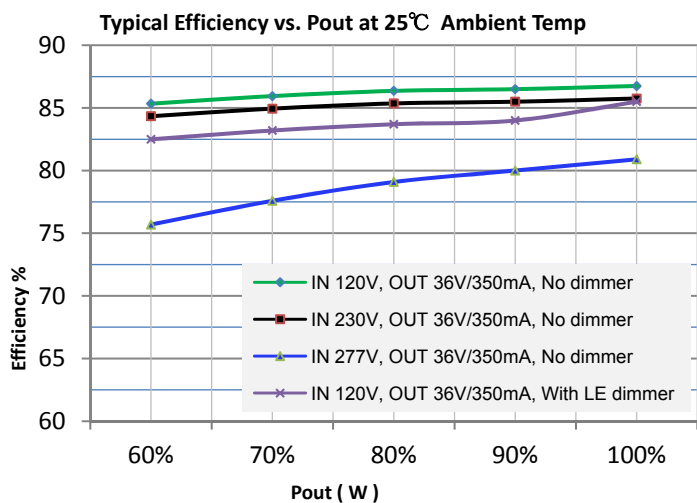
ELV dimmer	<ul style="list-style-type: none"> <li>▶ Electronic Low Voltage dimmer.</li> <li>▶ Trailing Edge phase dimmer.</li> <li>▶ Reverse phase control dimming.</li> </ul>		Reverse phase be cut	<ul style="list-style-type: none"> <li>▶ high stability.</li> <li>▶ low noise.</li> <li>▶ highest cost.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

## 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  $\Phi 3.5$ 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.

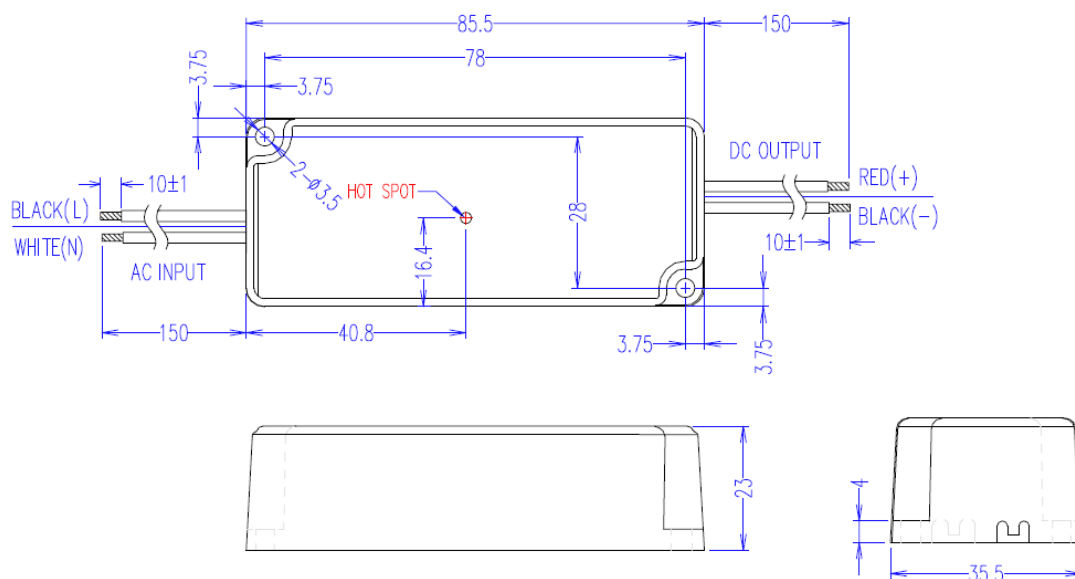
Where: DC+ — Red, DC- — Black.

## Order ID

P/N : LT12W-36-C0350

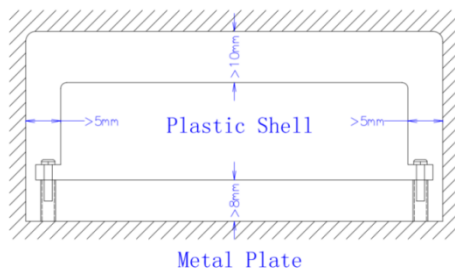
Description: 12W, 36Vdc voltage max, constant current 350mA, phase cut dimming mode.

## Product Size

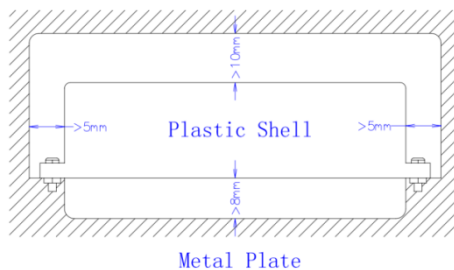


## Application note

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.