

Features

- High Efficiency (Up to 91%)
- Active Power Factor Correction (0.95 @347Vac)
- Constant Current Output
- Dimming Function
- All-Around Protection: OVP, SCP, OTP
- Waterproof (IP67) and Damp & Wet Location
- Surge Protection Level: 4kV differential mode, 6kV common mode



Description

The ETC-150SxxxDT(ST) series operates from a 312 ~ 528 Vac input range. They are designed to be highly efficient and highly reliable. Features include dimming control, over voltage protection, short circuit protection and over temperature protection.

Models

Output Current (1)	Input Voltage Range	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Name (3)
					347Vac	480Vac	
580 mA	312 ~ 528 Vac	129~258Vdc	150 W	91%	0.95	0.90	ETC-150S058DT(ST)
700 mA	312 ~ 528 Vac	107~214Vdc	150 W	91%	0.95	0.90	ETC-150S070DT(ST)
1050 mA	312 ~ 528 Vac	71~142 Vdc	150 W	90%	0.95	0.90	ETC-150S105DT(ST)
1400 mA	312 ~ 528 Vac	53~107 Vdc	150 W	90%	0.95	0.90	ETC-150S140DT(ST)
2100 mA	312 ~ 528 Vac	35~71 Vdc	150 W	90%	0.95	0.90	ETC-150S210DT(ST)
2800 mA	312 ~ 528 Vac	27~54 Vdc	150 W	90%	0.95	0.90	ETC-150S280DT(ST)
3500 mA	312 ~ 528 Vac	21~43 Vdc	150 W	89%	0.95	0.90	ETC-150S350DT(ST)
4200 mA	312 ~ 528 Vac	18~36 Vdc	150 W	89%	0.95	0.90	ETC-150S420DT(ST)

Notes: (1) The output current can be adjusted during production at our factory between 50% to 100% of the standard product.

(2) Measured at full load and 347 Vac input.

(3) A suffix -xxxx may be added to denote variations or modifications to the standard product, where x can be any alphanumeric character or blank.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	312 Vac	-	528 Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	1 mA	At 480Vac 60Hz input
Input AC Current	-	-	0.7 A	Measured at full load and 347 Vac input.
	-	-	0.42 A	Measured at full load and 480 Vac input.

Specifications are subject to changes without notice.

Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Inrush Current	-	15 A	20 A	At 480Vac input 25°C cold start, duration=1.5 ms, 10%Ipk-10%Ipk.
Inrush Current(I ² t)	-	-	0.15 A ² s	
Power Factor	0.90	-	-	Measured at 347 Vac-480 Vac input, 75%load-100%load
THD	-	-	20%	Measured at 347 Vac input, 75%load-100%load
	-	-	20%	Measured at 480 Vac input, 75%load-100%load

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%		5%	
Output Voltage with No Load				
I _O = 580 mA	-	-	270 V	
I _O = 700 mA	-	-	225 V	
I _O = 1050 mA	-	-	155 V	
I _O = 1400 mA	-	-	120 V	
I _O = 2100 mA	-	-	85 V	
I _O = 2800 mA	-	-	65 V	
I _O = 3500 mA	-	-	50 V	
I _O = 4200 mA	-	-	42 V	
Line Regulation	-	-	± 1%	
Load Regulation	-	-	± 3%	
Turn-on Delay Time	-	-	1 s	Measured at 347Vac input.
	-	-	1 s	Measured at 480Vac input.
Output Overshoot / Undershoot	-	-	10%	When power on or off.
Temperature coefficient	-	-	0.03%/°C	Case temperature = 0°C ~T _c max

Note: All specifications are typical at 25 °C unless stated otherwise.

Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Temperature Protection-T _c	-	105 °C	-	Case temperature. The output current halves when OTP is triggered. The LED driver returns to normal operation after the case temperature becomes normal.
Short Circuit Protection	No damage shall occur due to any output operating in a short circuit condition.			

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency				
Io = 580 mA	89%	90%	-	Measured at full load, 480Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 1% lower, if measured immediately after startup.
Io = 700 mA	89%	90%	-	
Io = 1050 mA	88%	89%	-	
Io = 1400 mA	88%	89%	-	
Io = 2100 mA	88%	89%	-	
Io = 2800 mA	88%	89%	-	
Io = 3500 mA	87%	88%	-	
Io = 4200 mA	87%	88%	-	
Efficiency				
Io = 580 mA	90%	91%	-	Measured at full load, 347Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 1% lower, if measured immediately after startup.
Io = 700 mA	90%	91%	-	
Io = 1050 mA	89%	90%	-	
Io = 1400 mA	89%	90%	-	
Io = 2100 mA	89%	90%	-	
Io = 2800 mA	89%	90%	-	
Io = 3500 mA	88%	89%	-	
Io = 4200 mA	88%	89%	-	
MTBF	-	250,000 hours	-	Measured at 480Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Life Time	-	145,700 hours	-	Measured at 480Vac input, 80%Load and 60°C Case temperature; See life time vs. Tc curve for the details
Case Temperature	-	-	90°C	
Dimensions				
Inches (L x W x H)	7.40 x 3.70 x 1.72			
Millimeters (L x W x H)	188 x 93.9 x 43.5			
Net Weight	-	1300 g	-	

Note: All specifications are typical at 25 °C unless stated otherwise.

Environmental Specifications

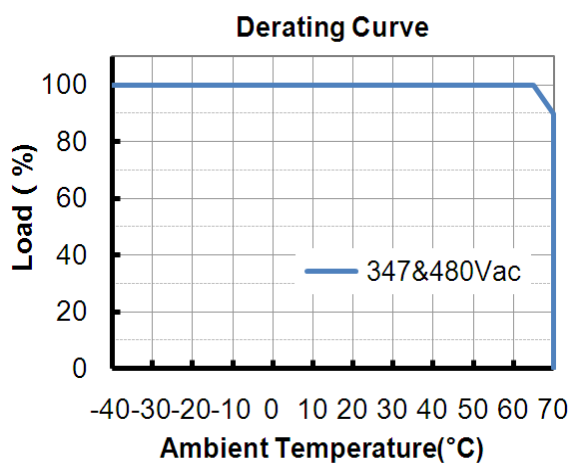
Parameter	Min.	Typ.	Max.	Notes
Operating Ambient Temperature	-40 °C	-	+70°C	Humidity: 10% RH to 100% RH See Derating Curve for more details
Operating Case Temperature	-40 °C	-	+ 90°C	Full load condition. Humidity: 10% RH to 100% RH
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 100% RH

Safety & EMC Compliance

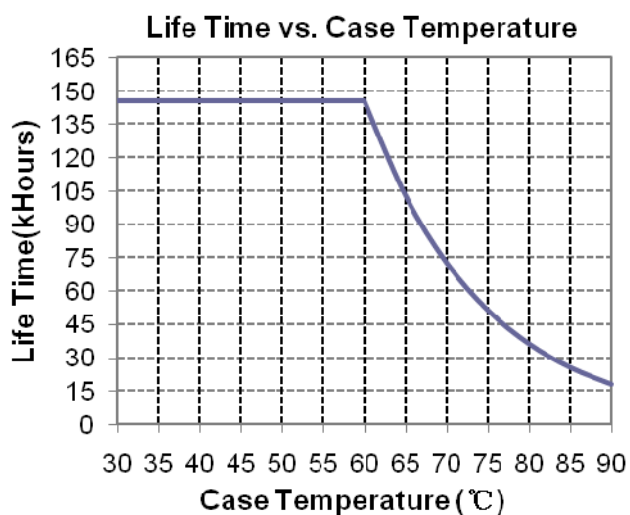
Safety Category	Standard
UL/CUL	UL8750, UL1012, CSA-C22.2 No. 107.1-01,
EMI Standards	Notes
FCC Part 15	ANSI C63.4:2009 Class B

Specifications are subject to changes without notice.

Derating Curve

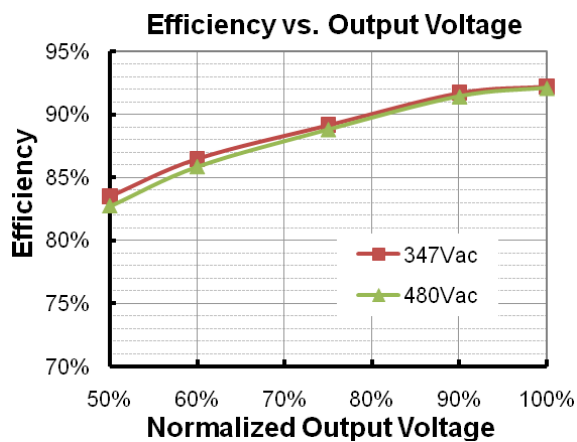


Life Time vs. Case Temperature Curve

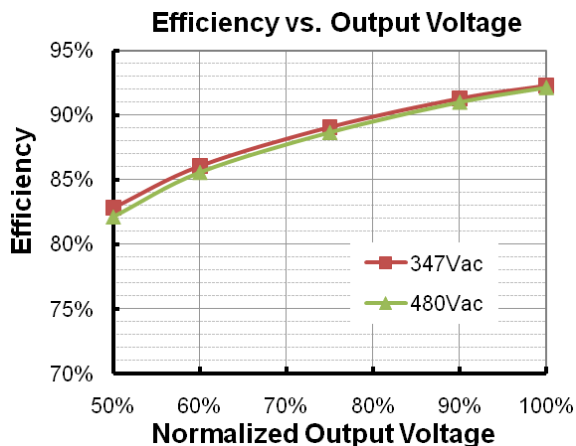


Efficiency vs. Load

ETC-150S058DT(ST)



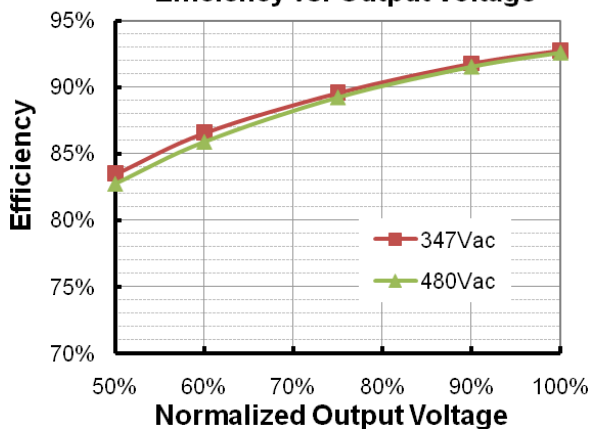
ETC-150S070DT(ST)



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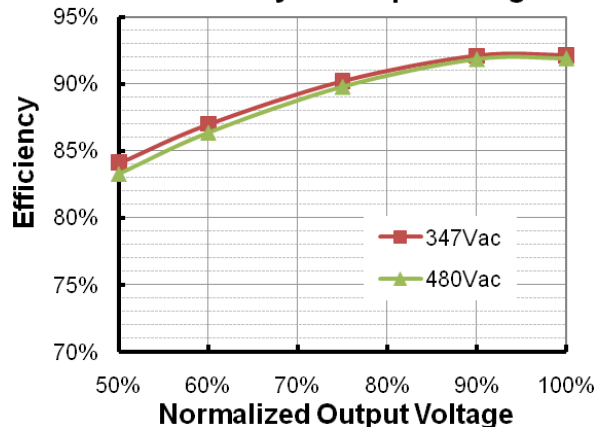
ETC-150S105DT(ST)

Efficiency vs. Output Voltage



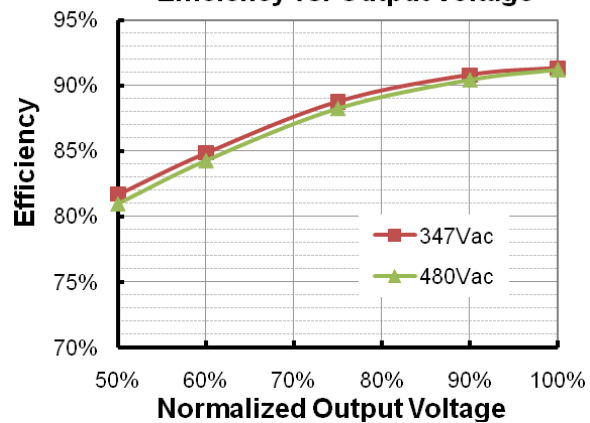
ETC-150S140DT(ST)

Efficiency vs. Output Voltage



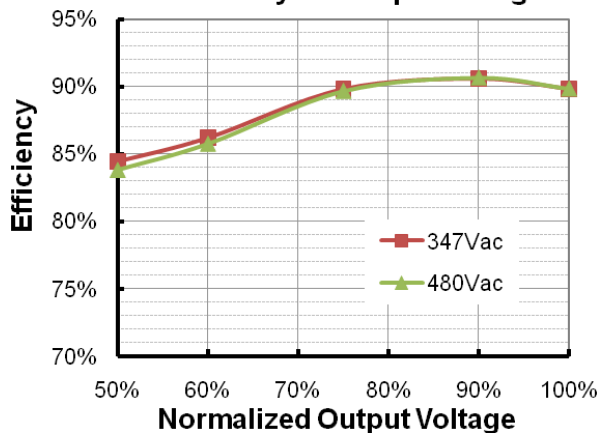
ETC-150S210DT(ST)

Efficiency vs. Output Voltage



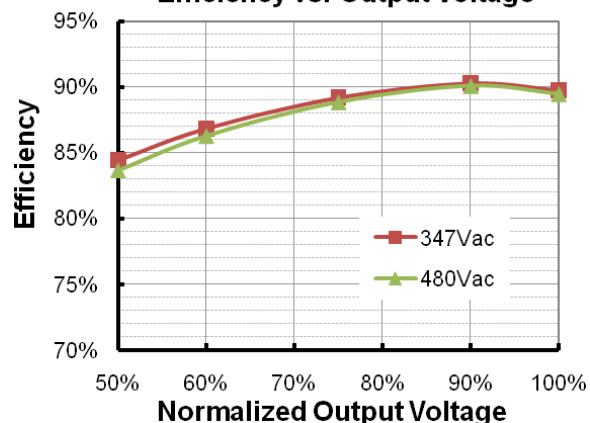
ETC-150S280DT(ST)

Efficiency vs. Output Voltage



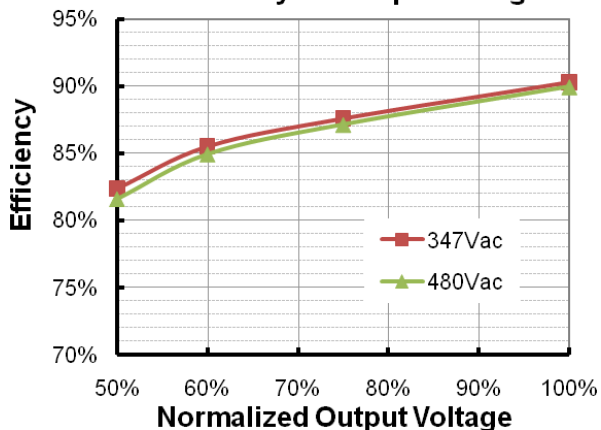
ETC-150S350DT(ST)

Efficiency vs. Output Voltage

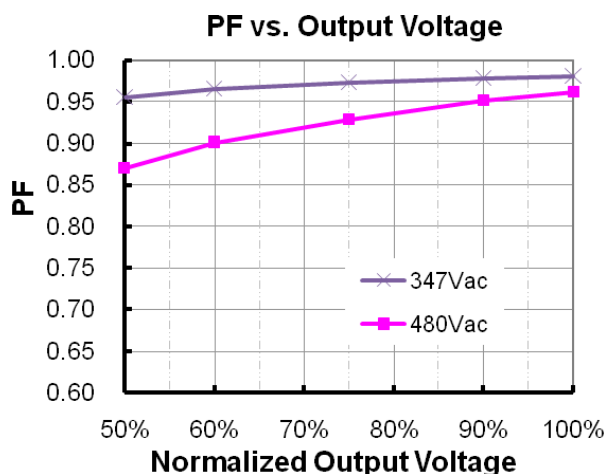


ETC-150S420DT(ST)

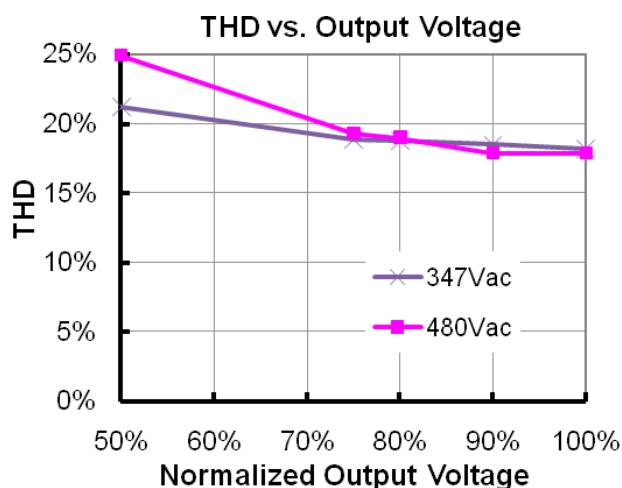
Efficiency vs. Output Voltage



Power Factor Characteristics



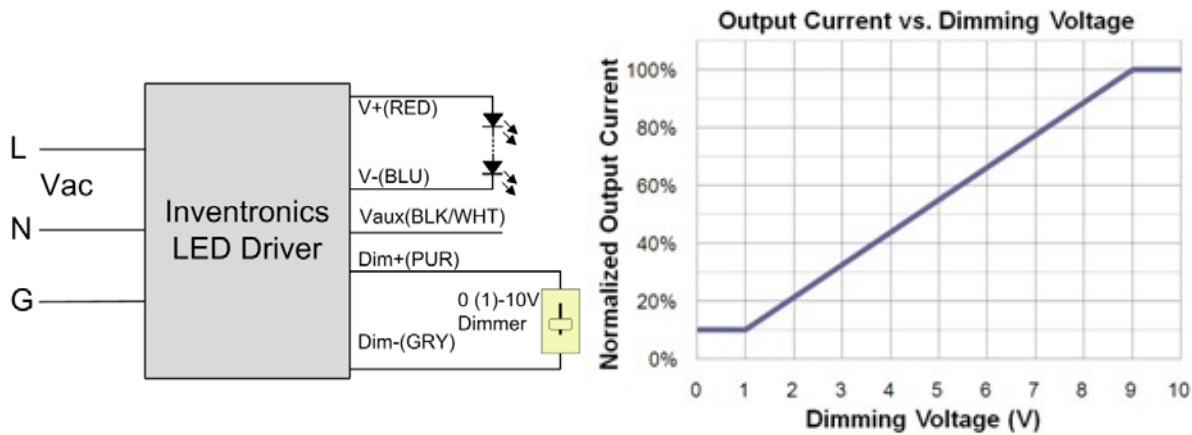
Total Harmonic Distortion Curve



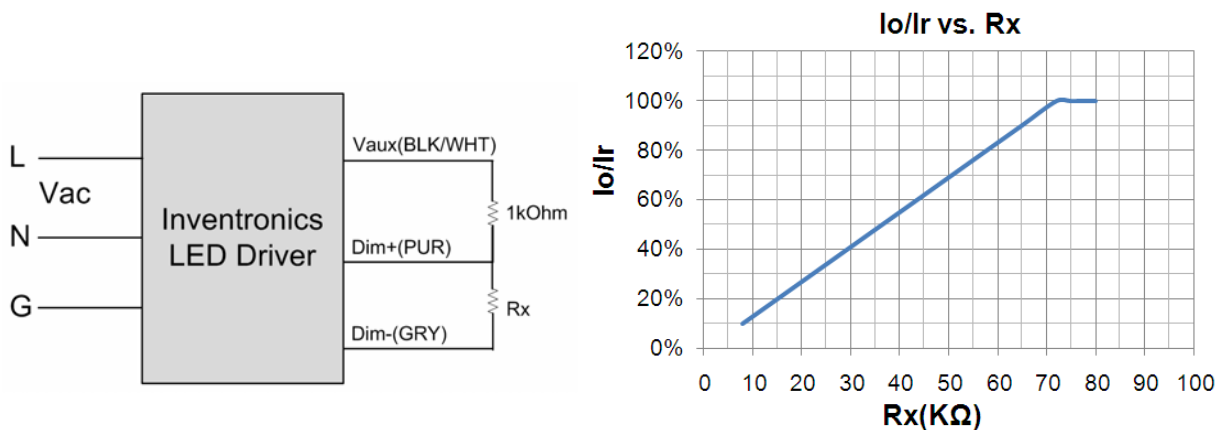
Dimming Control (On secondary side)

Parameter	Min.	Typ.	Max.	Notes
12V output voltage	10.8 V	12 V	13.2 V	
12V output source current	0 mA	-	20 mA	
Absolute maximum voltage on the 0~10V input pin	-20 V	-	20 V	
Source current on 0~10V input pin	100 uA	140 uA	180 uA	

The dimmer control is operated from an input signal of 1 – 10 Vdc. Recommended implementations are provided below.



Implementation 1: DC Input



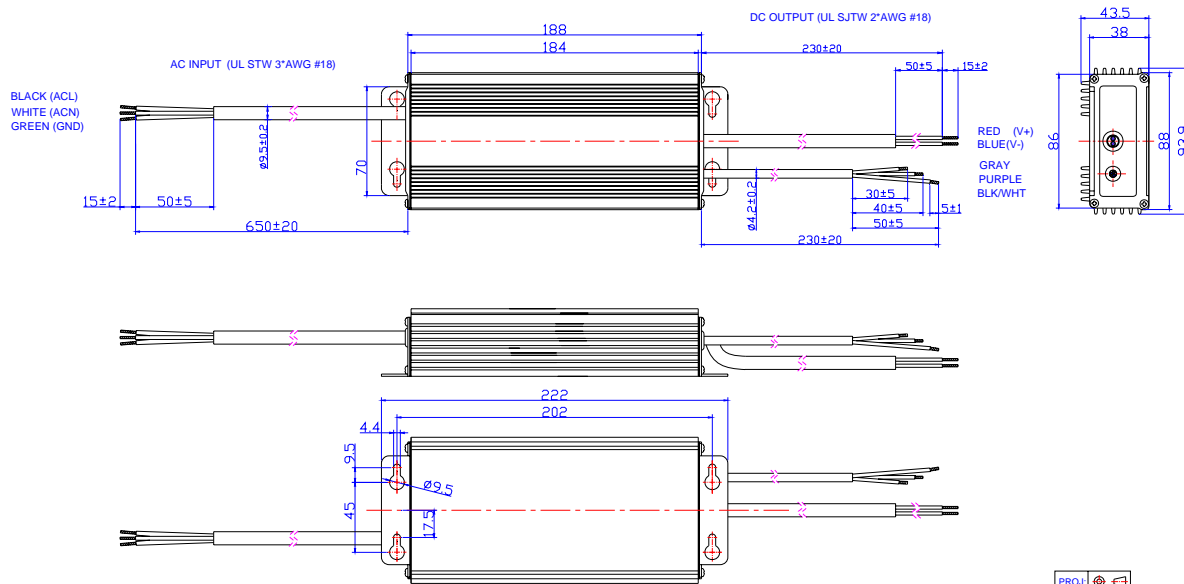
Implementation 2: External Resistor

Notes:

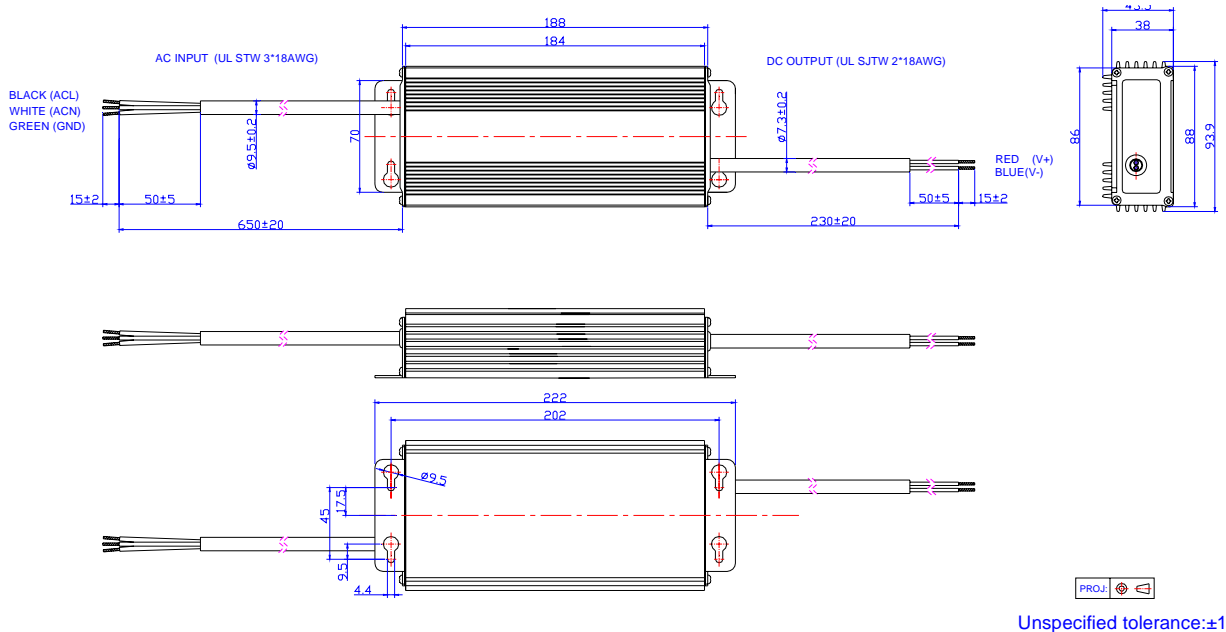
1. I_o is actual output current and I_r is rated current without dimming control.
2. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold (approx. 50% of the max. output voltage for any given model).
3. If the output voltage is maintained above 50% of the maximum output voltage, the dimming control may be operated over the entire 1-10V range with output current varying from 10% to 100% of I_r .
4. The dimming signal is allowed to be less than 1V, however, when it is used between 0-1V, the output current is 10% I_r .
5. Do not connect the GND of dimming to the output; otherwise, the LED driver will not work normally.
6. If 0-10V dimming is not used, Dim + can be either open or connected to Vaux.

Mechanical Outline

ETC-150SxxxDT



ETC-150SxxxST



RoHS Compliance

Our products comply with the European Directive 2011/65/EC, calling for the elimination of lead and other hazardous substances from electronic products.

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2012-12-31	A	Datasheets Release	/	/
2013-03-06	B	Io /Ir vs.Rx Curve	/	Added