LED Optimized Drivers

150 Watt - LD150W Series

CONSTANT VOLTAGE OR CONSTANT CURRENT LED DRIVER WITH DIMMING

150W LD150W Series DIMMING

Model: LD150W Series

- Drive Mode: Constant Current or Constant Voltage
- Technology: PFC Corrected 2-Stage Switch Mode
- Output Power: 150W Max.
- Input Voltage: 90 to 305VAC, 47- 63Hz
- Number of Outputs: One
- Output Voltages: 8VDC - 428VDC
- Output Currents: 350mA - 6250mA
- Optional 0-10V or PWM Positive Dimming 10% ~ 100%

Environmental

1. Operating temperature: Tc 90C Maximum. Reference -30 to +60°C ambient
2. Storage temperature range: -40 to +85°C
3. Humidity (non-condensing): 5% - 95%RH
4. Cooling: Convection
5. Vibration Frequency: 5-55Hz/2g, 30 minutes
6. Impact resistance: 1g/s
7. MTBF@ 40°C: 260,000 hours @ Full Load per MIL-217F Notice 2.

Safety and Compliance

1. UL8750, EN61347, CSA 22.2 safety compliant
2. FCC, 47CFR Part 15 Class B compliant
3. Water resistant and Dust Proof Design: IP66, NEMA6, for Dusty, Dry, Damp & Wet Locations.
4. Compact, Lightweight Design.
5. Safety Isolation between Primary and Secondary
6. Meets EN61000-3-2 & EN61000-3-3 Class C
7. Protection: output over-voltage, output over-current, output short circuit, auto-recovery.
8. EN61000-4-5: 2kV/4kV 8/20 µsec surge protection.

Electrical Specifications at 25°C

- Input voltage range: 90 to 305VAC
- Frequency: 47- 63HZ
- Power Factor: ≥ 0.90 at ≥ 60% Load, 120Vac/230Vac/277Vac 50/60Hz
- THD%: ≤ 20% at ≥ 60% Load, 120Vac/230Vac/277Vac 50/60Hz
- Inrush current: <60A at 25C, 277Vac, cold start, Full Load
- Input current: 0.75A Max @ 230Vac, 1.41A Max @ 120Vac, Full load
- Efficiency: Up to 92% typical at 230Vac Full Load
- Line regulation accuracy: ± 3%
- Load regulation accuracy: ± 4%
- Leakage current: 700uA typical; Hold up time: half cycle

c UL us E325626 CE FC IP66 RoHS Compliant

Constant Current Versions

Part Number (2)(5)	Output Voltage Range	Output Constant Current	Current Accuracy	Output Power Maximum	Typical Efficiency (1)
LD150W-428-C0350	142 - 428 VDC	350 mA	± 5%	150W	92%
LD150W-333-C0450	111 - 333 VDC	450 mA	± 5%	150W	92%
LD150W-283-C0530	95 - 283 VDC	530 mA	± 5%	150W	91%
LD150W-214-C0700	72 - 214 VDC	700 mA	± 5%	150W	91%
LD150W-142-C1050	48 - 142 VDC	1050 mA	± 5%	150W	91%
LD150W-107-C1400	36 - 107 VDC	1400 mA	± 5%	150W	91%
LD150W-85-C1750	29 - 85 VDC	1750 mA	± 5%	150W	90%
LD150W-71-C2100	24 - 71 VDC	2100 mA	± 5%	150W	90%
LD150W-61-C2450	21 - 61 VDC	2450 mA	± 5%	150W	90%
LD150W-53-C2800	18 - 53 VDC	2800 mA	± 5%	150W	90%
LD150W-48-C3150	16 - 48 VDC	3150 mA	± 5%	150W	89%
LD150W-42-C3500	14 - 42 VDC	3500 mA	± 5%	150W	89%
LD150W-35-C4200	12 - 35 VDC	4200 mA	± 5%	150W	89%
LD150W-30-C4900	10 - 30 VDC	4900 mA	± 5%	150W	88%
LD150W-24-C6250	8 - 24 VDC	6250 mA	± 5%	150W	88%

Notes

1. Typical efficiency measured at 230VAC input, full load
2. For dimmable versions add appropriate designator to the end of the part number: For Example: LD150W-24-C6250-RD is 0-10V or resistance dimmable version, LD150W-24-C6250-PD is PWM dimmable version.
   -RD 0-10V & Resistance dimmable version comes with an extra two wires +Purple/-Grey on the output side.
   -PD PWM Dimmable version comes with an extra two wires +Purple/-Grey on the output side.
3. -RD 0-10V Dimming is compatible with most quality 0-10V wall dimmers and direct 0-10V analog signal. See page 3 for details.
4. -PD PWM version is PWM Dimmable via a positive 10% to 100% Duty Cycle, 200Hz to 1KHz, 0-10V Pulse. See page 4 for details.
5. All models are UL & cUL Isolated Non-Class 2 Output.

Custom designs available. Please consult with the factory.

Specifications subject to change without notice

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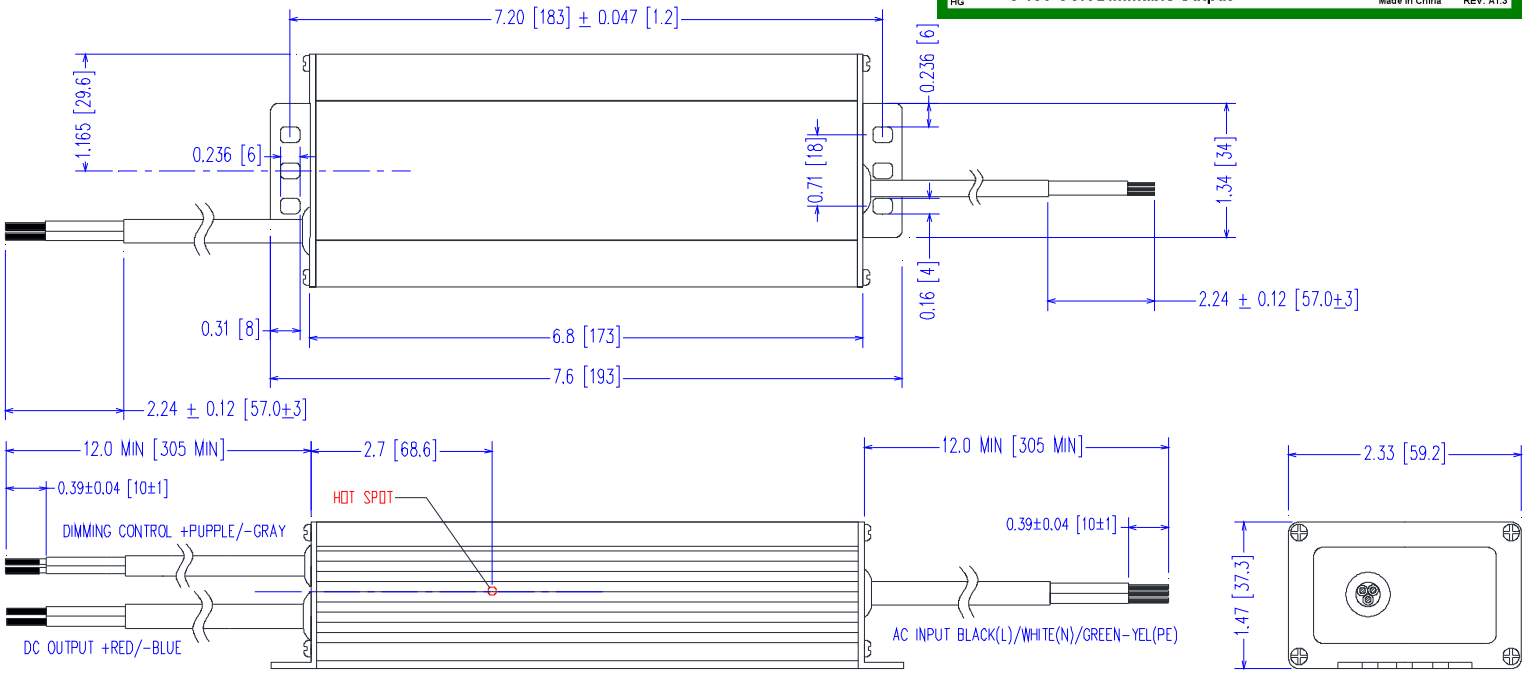
Constant Voltage Versions

Part Number [5]	Output Constant Voltage	Output Current Range	Voltage Accuracy	Output Power Maximum	Typical Efficiency [1]
LD150W-428	428 VDC	88 - 350 mA	± 5%	150W	92%
LD150W-333	333 VDC	113 - 450 mA	± 5%	150W	92%
LD150W-283	283 VDC	133 - 530 mA	± 5%	150W	91%
LD150W-214	214 VDC	175 - 700 mA	± 5%	150W	91%
LD150W-142	142 VDC	263 - 1050 mA	± 5%	150W	91%
LD150W-107	107 VDC	350 - 1400 mA	± 5%	150W	91%
LD150W-85	85 VDC	438 - 1750 mA	± 5%	150W	90%
LD150W-71	71 VDC	525 - 2100 mA	± 5%	150W	90%
LD150W-61	61 VDC	613 - 2450 mA	± 5%	150W	90%
LD150W-53	53 VDC	700 - 2800 mA	± 5%	150W	90%
LD150W-48	47 VDC	788 - 3150 mA	± 5%	150W	89%
LD150W-42	42 VDC	875 - 3500 mA	± 5%	150W	89%
LD150W-35	35 VDC	1050 - 4200 mA	± 5%	150W	89%
LD150W-30	30 VDC	1225 - 4900 mA	± 5%	150W	88%
LD150W-24	24 VDC	1563 - 6250 mA	± 5%	150W	88%

Mechanical Dimensions: Inches [mm]

Material: Black Aluminum Housing
Fully Encapsulated
Weight: 690 grams (24.4 oz) Typical

Labeling Example



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150 Watt - LD150W Series

CONSTANT VOLTAGE OR CONSTANT CURRENT LED DRIVER WITH DIMMING

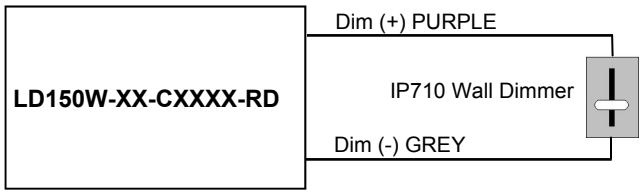
-RD 2-Wire 0-10V CCR Dimming Scheme

Parameters	Minimum	Typical	Maximum
Source Current out of 0-10V Purple Wire	0mA	—	2mA
Absolute Voltage Range on 0-10V (+) Purple Wire	-2.0V	—	+15V
Sink Current into 0-10V Purple Wire	0mA	—	1.2mA

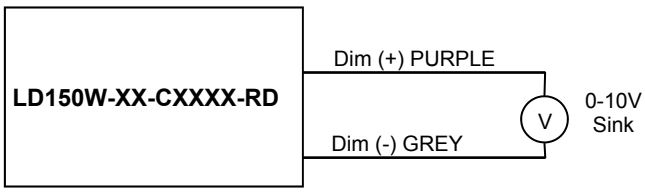
Notes

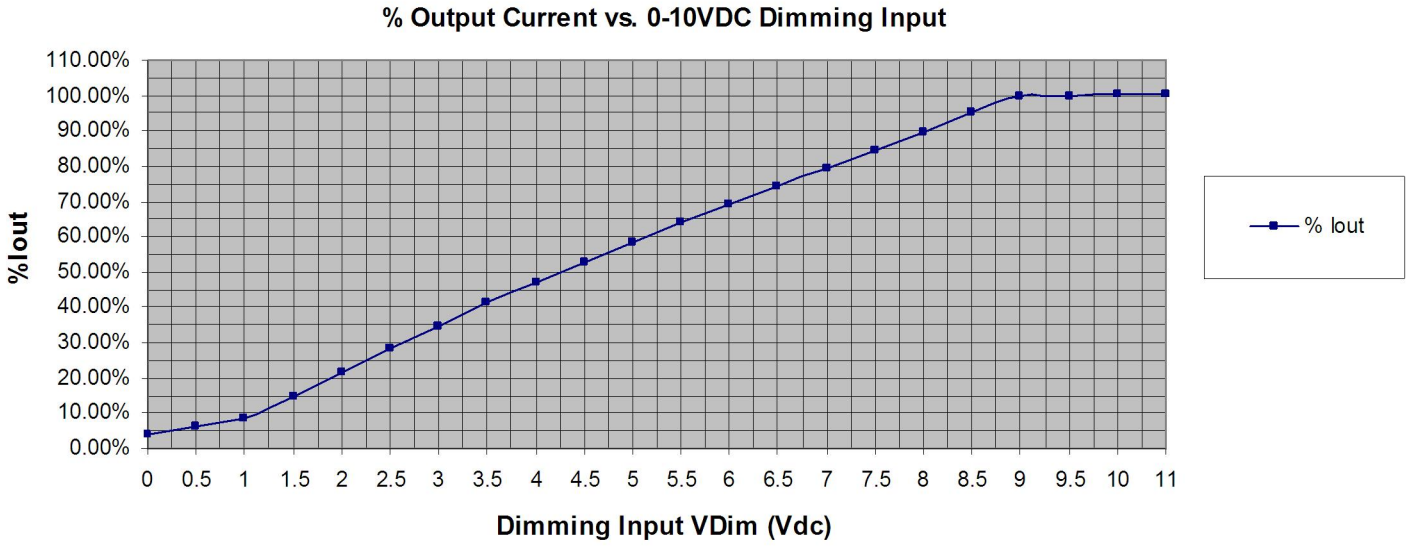
1. -RD 0-10V dimmable version comes with an extra two wires +Purple/-Grey on the output side.
2. -RD version is compatible with most 0-10V Wall Slide dimmers and direct 0-10V analog signal. Recommended wall slide dimmer is Leviton IP710 or equivalent
3. -RD 0-10V dimmable version is not intended to dim below about 5% @ 0V or 10% @ 1.0V
4. -RD 0-10V dimmable version output will be 100% with Purple/Grey open and minimum with Purple/Grey Shorted.

-RD 2-Wire Resistance Dimming Scheme



-RD 2-Wire 0-10V Analog Dimming Scheme





150 Watt - LD150W Series

CONSTANT VOLTAGE OR CONSTANT CURRENT LED DRIVER WITH DIMMING

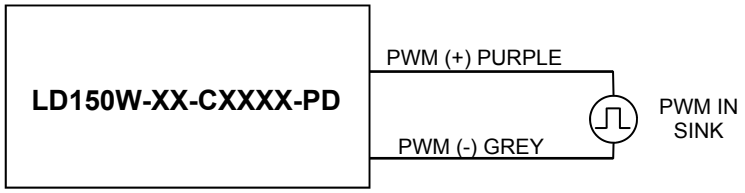
-PD 2-Wire CCR PWM Positive Dimming Scheme

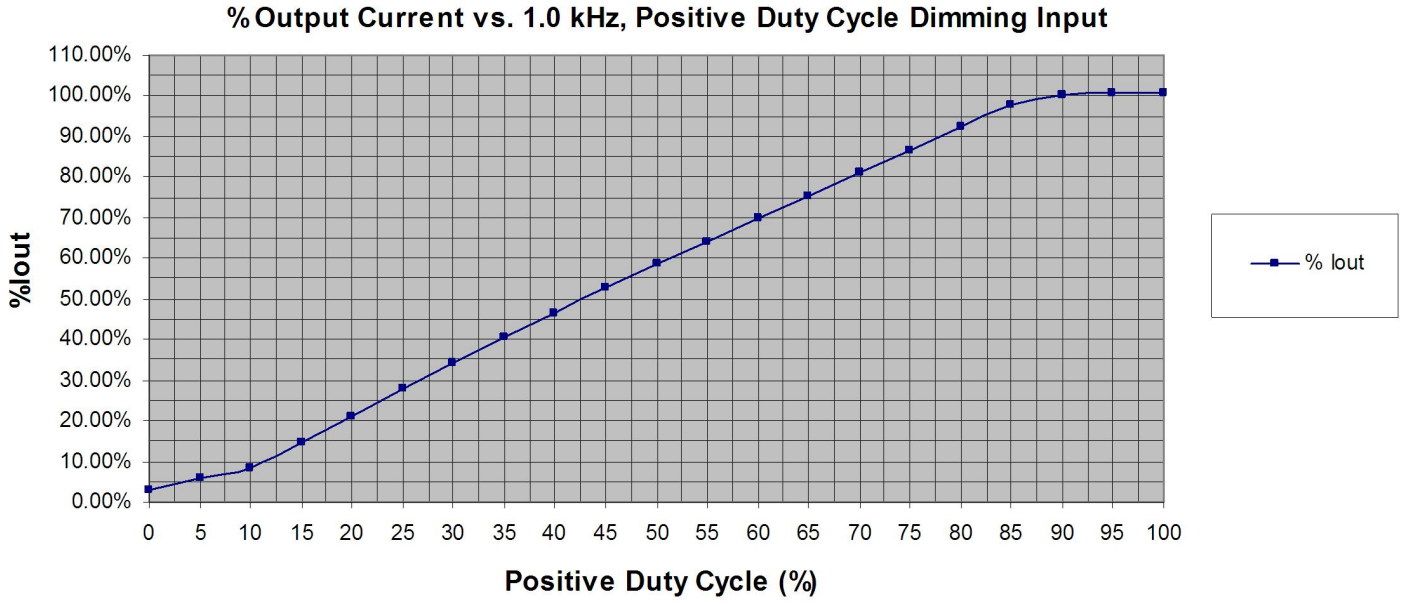
Parameters	Minimum	Typical	Maximum
Absolute Maximum Voltage Range on PWM Input (Purple Wire)	-2.0V	10V	+15V
Input LOW Level Voltage Range (Purple Wire)	-2.0V	0V	+5.5V
Input HIGH Level Voltage Range (Purple Wire)	+9.0V	10V	+15V
Current into PWM Input (Purple Wire)	0mA	—	1.2mA
Source Current out of PWM Input (Purple Wire)	0mA	—	2mA
PWM Input Signal Frequency	500Hz	—	1500Hz
PWM Input Signal Positive Duty Cycle	0%	10-90%	100%

Notes

1. -PD PWM Dimmable version comes with an extra 2 wires +Purple/-Grey on the output side.
2. -PD PWM Dimmable version is not intended to dim below about 5% @ 0% Duty Cycle or 10% @ 10% Duty Cycle
3. -PD PWM dimmable version output will be 100% with Purple/Grey open and minimum with Purple/Grey Shorted.

-PD 2-Wire PWM Positive Dimming Scheme





150 Watt - LD150W Series

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Input Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Input Voltage	90 Vac	——	305 Vac	120, 230, 240, 277 Vac Nominal Values
Input Frequency	47 Hz	——	63 Hz	50/60Hz Nominal
Input AC Current	——	——	1.41 A	Measured at 120Vac/60Hz Input, Output Full load.
	——	——	0.75 A	Measured at 230Vac/60Hz Input, Output Full load.
Inrush Current (Peak)	——	48A	60A	Measured at 277Vac/60Hz Input, Output Full Load, Ta 25^{O}C, Cold Start 50% Ipeak duration ~750 µsec (1/2*Ip^{2}*t)
Inrush Current (I^{2}t)	——	——	1.35 A^{2}s	
Leakage Current	——	——	0.68mA	Measured at 120Vac/60Hz Input, Output Full load.
	——	——	0.75mA	Measured at 277Vac/60Hz Input, Output Full load.
THD	——	——	20%	Measured at 120, 230, 277Vac Input, Output ≥60% Load, See Graphs
Power Factor (PF)	0.90	——	——	Measured at 120, 230, 277Vac Input, Output ≥60% Load, See Graphs

Output Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
DC Output Voltage	Per Table	——	Per Table	Per Tables on Page 1
DC Output Constant Current	-5%	Per Table	+5%	Per Tables on Page 1
Output Power	——	——	Per Table	Per Tables on Page 1
Ripple & Noise (Vpk-pk)	——	——	5% Vo	20 MHz BW, Full load output in parallel with 0.1 µF ceramic & 10 µF Electrolytic. 120 Hz component (Flicker Free)
Ripple (Ipk-pk)	——	——	5% Io	20 MHz BW, Full load output in parallel with 0.1 µF ceramic & 10 µF Electrolytic. 120 Hz component (Flicker Free)
Start-up Time	——	150 mS	1000 mS	Measured at 120Vac/60Hz Input, Output Full load.
Hold-up Time	——	30 mS	——	Typical @ 277Vac Input, Output Full load.

Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Case Temperature (Tc)	-30 ^{O}C	——	+90 ^{O}C	Measured at location specified on case.
Operating Temperature (Ta)	-30 ^{O}C	——	+60 ^{O}C	This is a reference range. Tc controls temperature range.
Storage Temperature (Ts)	-40 ^{O}C	——	+85 ^{O}C	Non operating temperature range.
Operating Humidity	——	——	95% RH	Relative Humidity, non-condensing.
Vibration	5 Hz	——	55 Hz	2G, 10 minutes/1 cycle, period 30 minutes, each along X, Y, Z axis.
MTBF	280,000 Hours	——	——	MIL-HDBK-217F Notice 2, Ta = 40C, Output Full Load.

Protection Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Output Short Circuit (SCP)	——	——	——	No Damage, Auto recovery after short is removed.
Output Over Current (OCP)	——	——	+10% Io	Constant Current Limiting circuit.
Output Over Voltage (OVP)	——	——	120% Vo	No Damage, Auto recovery after fault is removed.

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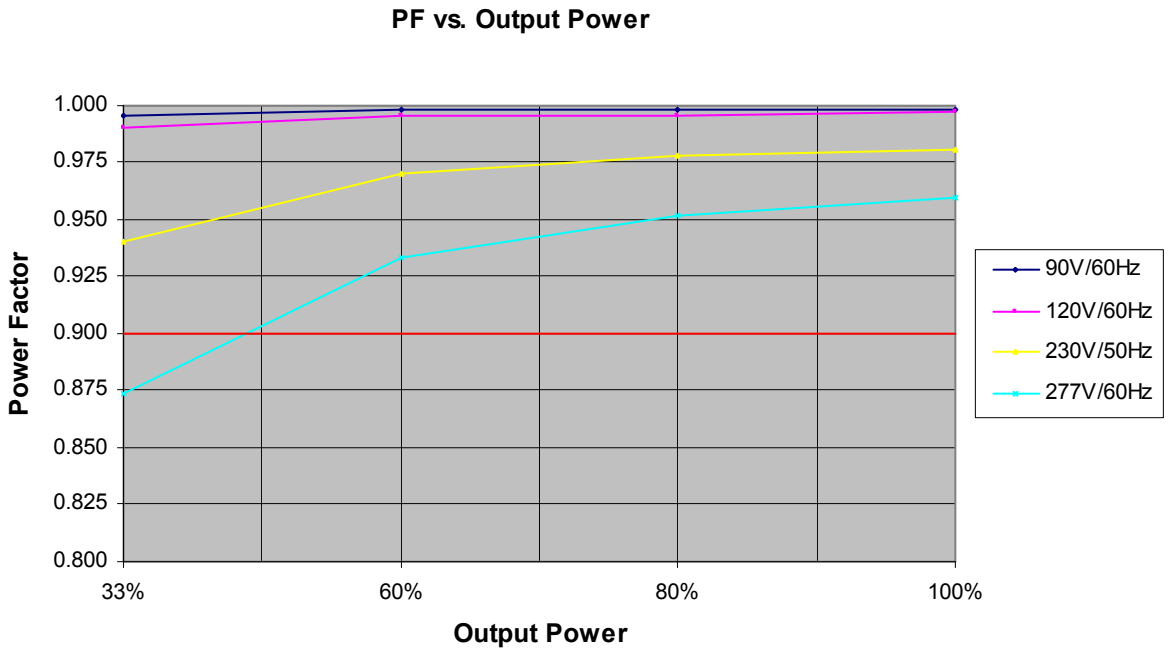
Safety Compliance

Safety	Notes/Standards
UL/CUL	UL8750 & CAN/CSA-22.2 No. 250.13-12, UL1310 & CAN/CSA-22.2 No. 223-M91 for Class 2, UL1012/CSA-C22.2 No. 107.1 for Non Class 2
CE	EN61347-1, EN61347-2-13
Withstand Voltage	Input to Output: 3750 Vac. Parts use a GDT. Hipot cannot be done with Case or GND connected.
Isolation Resistance	Input to Output: >100 MΩ, 500VDC @ 25 ^{O}C, 70 % RH
Dimming Circuit	Dim+ Purple/Dim- Grey are considered part of the secondary circuit.

EMC Compliance

Standard	Notes/Conditions
FCC, 47CFR Part 15	Class B
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment.
EN 61000-3-2	Part 3-2: Limits for harmonic current emissions Class C, ≥80% Rated Power
EN 61000-3-3	Part 3-3: Limitation of voltage changes, voltage fluctuations and flicker.
EN 61000-4-5	Part 4-5: Surge Immunity test, 2 kV L-N, 4 kV L-FG & N-FG
Energy Star	Energy Star transient protection: Ballast or driver shall comply with ANSI/IEEE C62.41.1-2002 and ANSI/IEEE C62.41.2-2002, Category A operation. The line transient shall consist of seven strikes of a 100 kHz ring wave, 2.5 kV level, for both common mode and differential mode.

Power Factor Curves (Typical)



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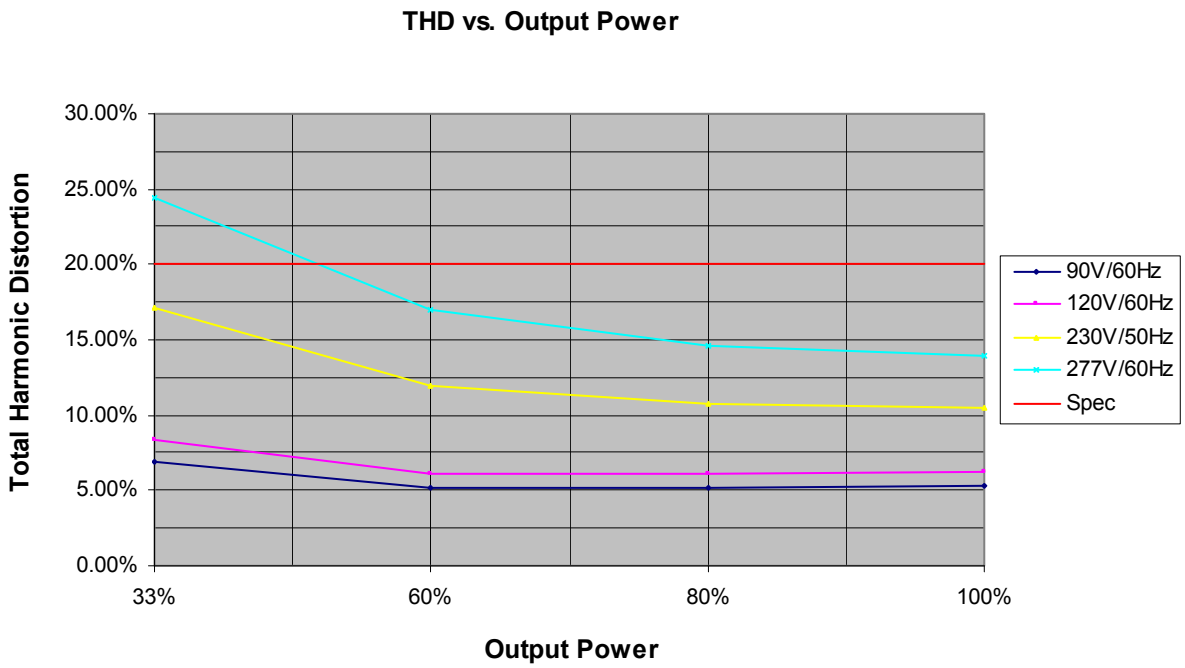
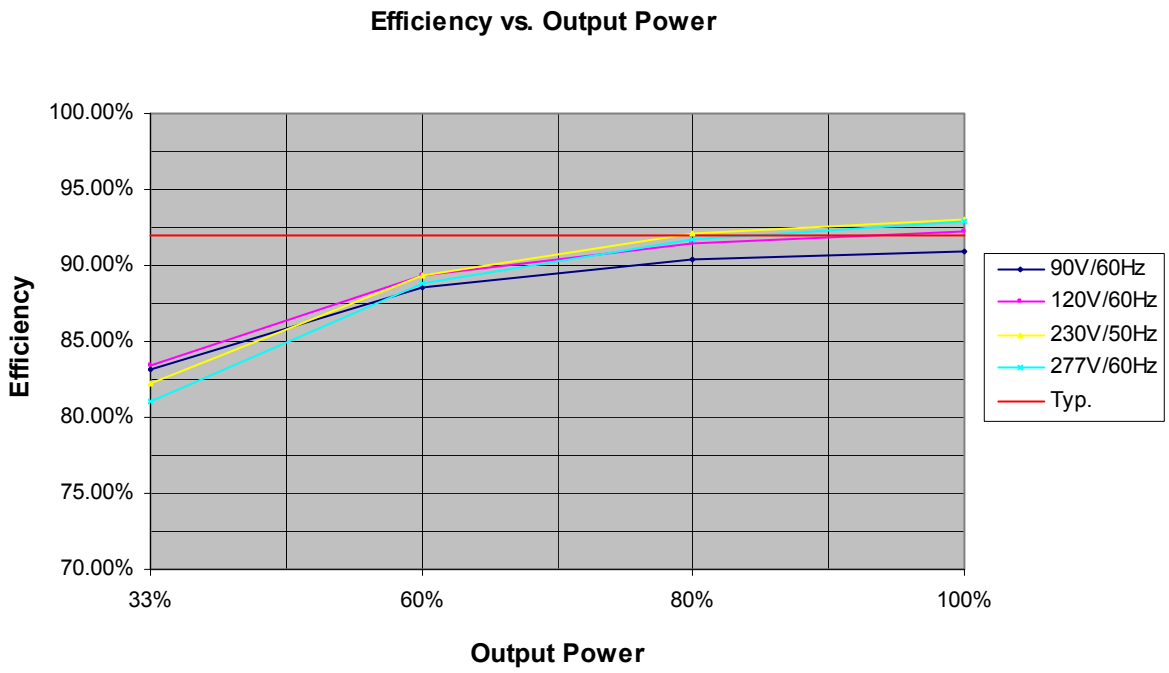
THD Curves (Typical)



Efficiency Curve (Typical) LD150W-428-C0350-RD



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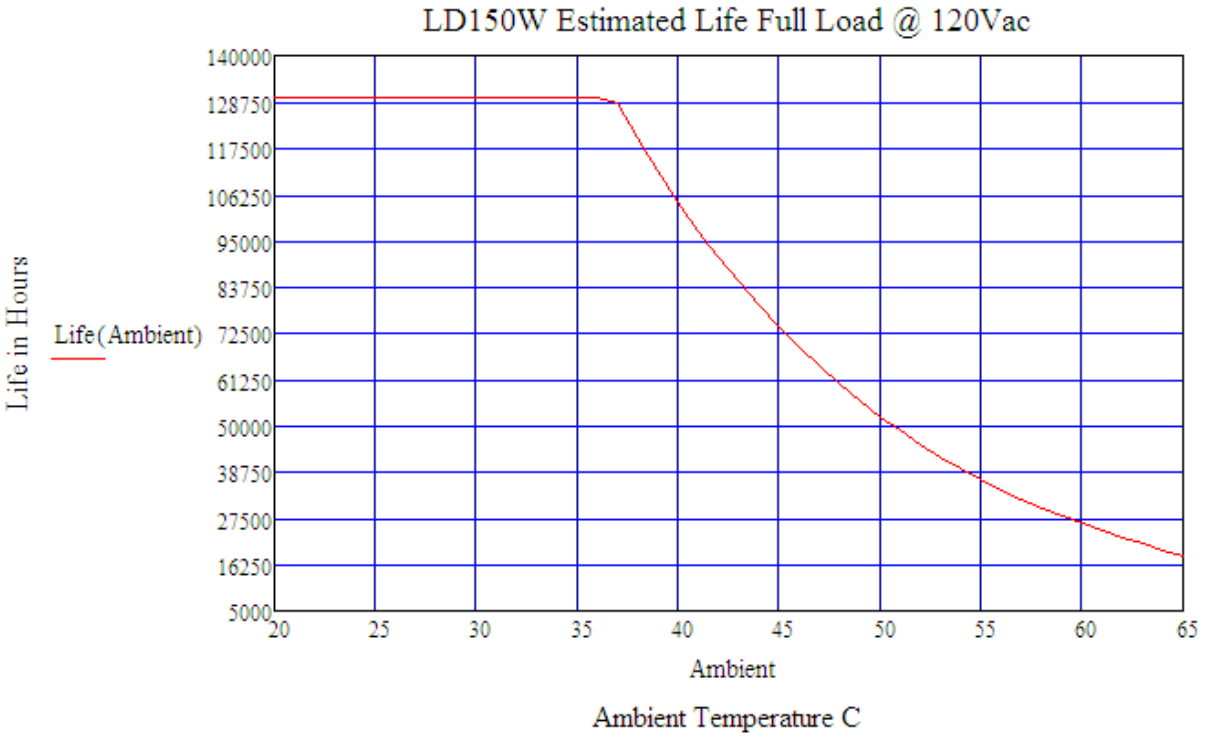
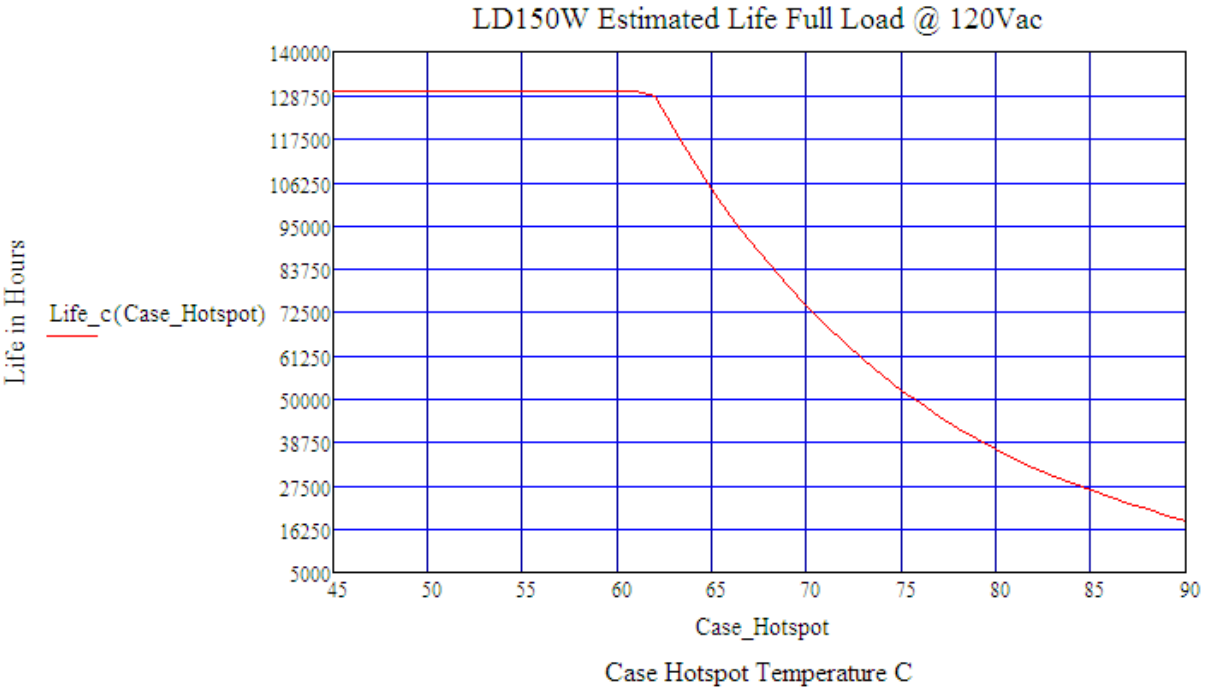
Life vs. Ambient Temperature



Life vs. Case (Tc) Temperature



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