LED Optimized Drivers

12 Watt- LD12W Series

CONSTANT CURRENT LED DRIVER WITH DIMMING & DIM TO ZERO

12W LD12W Series DIMMING

Model: LD12W Series

- Drive Mode: Constant Current
- Technology: Advanced PFC Off-Line Switch Mode
- Output Power: 12W Max.
- Number of Outputs: One
- Output Voltages: 6VDC - 48VDC
- Output Currents: 250mA - 1000mA
- Optional 0-10V Linear Dimming 1% to 100%
- Dims to Zero @ ≤1.0V, Standby Power ≤0.5W

Environmental

1. Operating temperature: Tc 90C Maximum. Reference -40 to +60°C ambient
2. UL Recognized, UL Type HL
3. Storage temperature range: -40 to +85°C
4. Humidity (non-condensing): 5% - 95%RH
5. Cooling: Convection
6. Vibration Frequency: 5-55Hz/2g, 30 minutes
7. Impact resistance: 1g/s
8. MTBF@ Tc = 80°C: 550,000 hours @ Full Load per MIL-HDBK-217F Notice 2

Safety and Compliance

1. UL8750, EN61347, CSA 22.2 safety recognized, UL Type HL
2. FCC, 47CFR Part 15 & EN55015 compliant.
3. Water resistant and Dust Proof Design: IP66, NEMA4, for Dry & Damp Locations.
4. Compact, Lightweight Design.
5. Safety Isolation between Primary, Secondary & 0-10V Dim
6. Meets EN61000-3-2 & EN61000-3-3 Class C
7. Protection: output over-voltage, output over-current, output short circuit, over temperature, auto-recovery.
8. EN61000-4-5: 2kV L-N, 8/20 µsec surge protection.

Electrical Specifications at 25°C

- Input voltage range: 120 to 277Vac (Full Range 100 to 305VAC)
- Frequency: 47- 63HZ
- Power Factor: ≥ 0.90 at 120/230/277Vac ≥ 50% Load
- THD%: ≤ 20% at 120/230/277Vac ≥ 50% Load
- Inrush current: <20A at 25C, 277Vac, cold start, Full Load
- Input current: 0.13A Maximum at 120Vac, 60Hz, Full Load
- Efficiency: 80% typical 230Vac Full Load
- Line regulation accuracy: ± 3%
- Load regulation accuracy: ± 4%
- Leakage current: 277Vac, 700uA maximum

c UL us E325626 | TYPE HL | CE | FC | IP66 | RoHS Compliant

Constant Current Versions

Part Number	US Class 2	CN Class 2	Output Voltage Range	Output Constant Current	Current Accuracy	Output Power Maximum	Typical Efficiency (1)
LD12W-48-C0250	YES	YES	24 - 48 VDC	250 mA	± 5%	12W	84%
LD12W-48-C0220	YES	YES	24 - 48 VDC	220 mA	± 5%	10.6W	82%
LD12W-48-C0150	YES	YES	24 - 48 VDC	150 mA	± 5%	7.2W	81%
LD12W-48-C0125	YES	YES	24 - 48 VDC	125 mA	± 5%	6W	81%
LD12W-36-C0350	YES	YES	18 - 36 VDC	350 mA	± 5%	12.6W	81%
LD12W-36-C0250	YES	YES	18 - 36 VDC	250 mA	± 5%	9W	80%
LD12W-24-C0500	YES	YES	12 - 24 VDC	500 mA	± 5%	12W	80%
LD12W-16-C0800	YES	YES	8 - 16 VDC	800 mA	± 5%	12.8W	80%
LD12W-16-C0700	YES	YES	8 - 16 VDC	700 mA	± 5%	11.2W	79%
LD12W-12-C1000	YES	YES	6 - 12 VDC	1000 mA	± 5%	12W	78%

Notes

1. Typical efficiency measured at 230VAC input, full load
2. For 0-10V dimmable version add -RD designator to the end of the part number: For Example: LD12W-36-C0350-RD
   -RD 0-10V & Resistance 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.

Custom designs available. Please consult with the factory.

Specifications subject to change without notice

 Los Angeles, California T: 800 643-0688 E: Sales@EPtronics.com www.EPtronics.com Rev F - 03/16/2021

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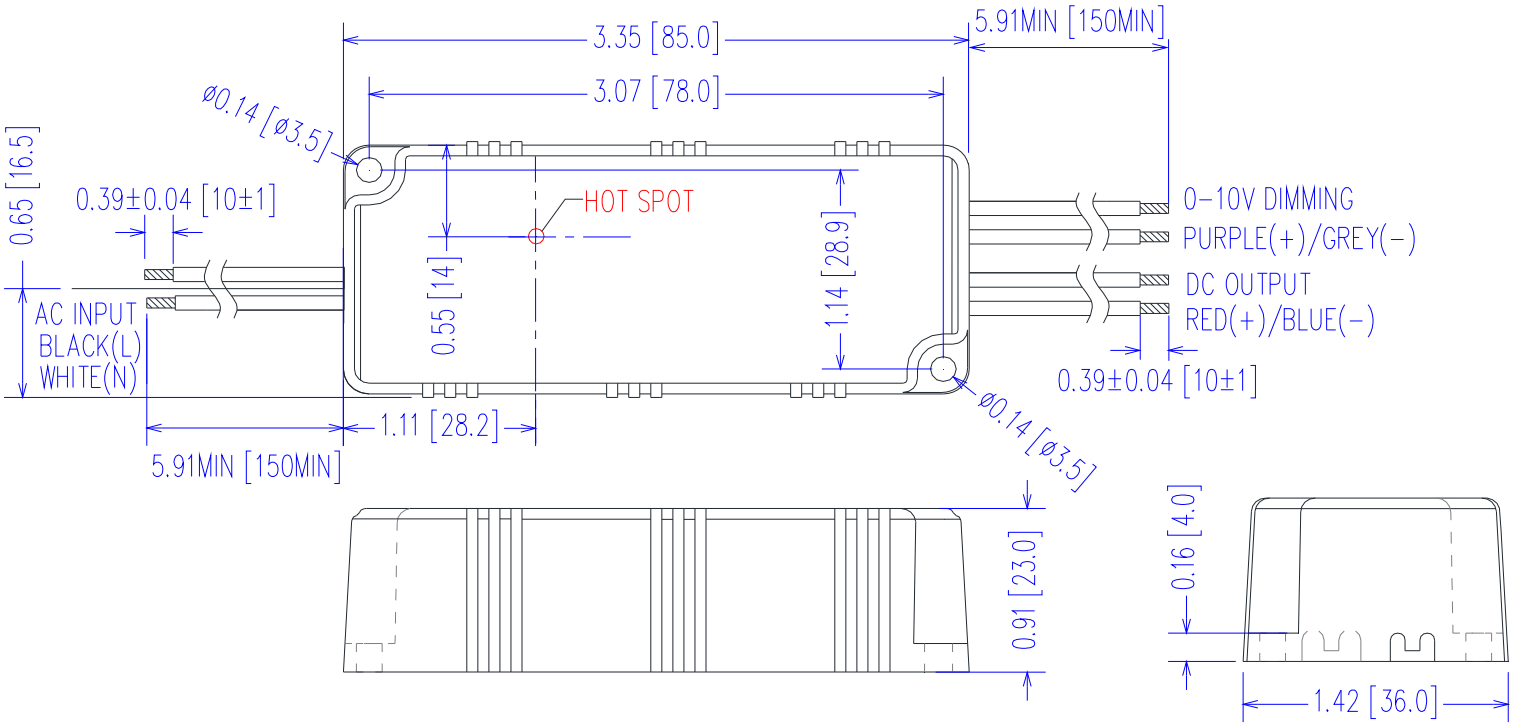
Mechanical Dimensions: Inches [mm]

Material: Black PC ABS Plastic Case
Fully Encapsulated
Weight: 128 grams (4.5 oz) Typical

Labeling Example



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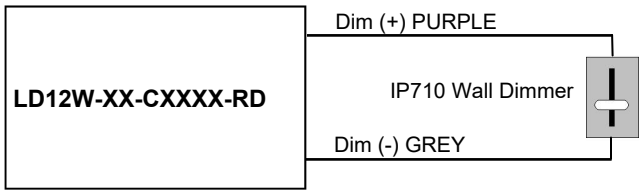
-RD 2-Wire 0-10V CCR Dimming Scheme

Parameters	Minimum	Typical	Maximum
Source Current out of 0-10V Purple Wire	0mA	—	1.0mA
Absolute Voltage Range on 0-10V (+) Purple Wire	-2.0V	—	+15V

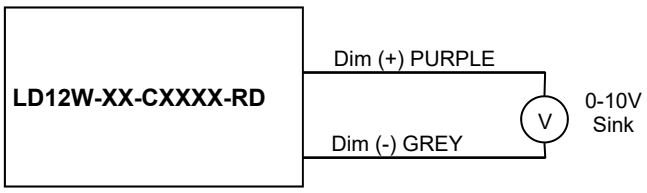
Notes

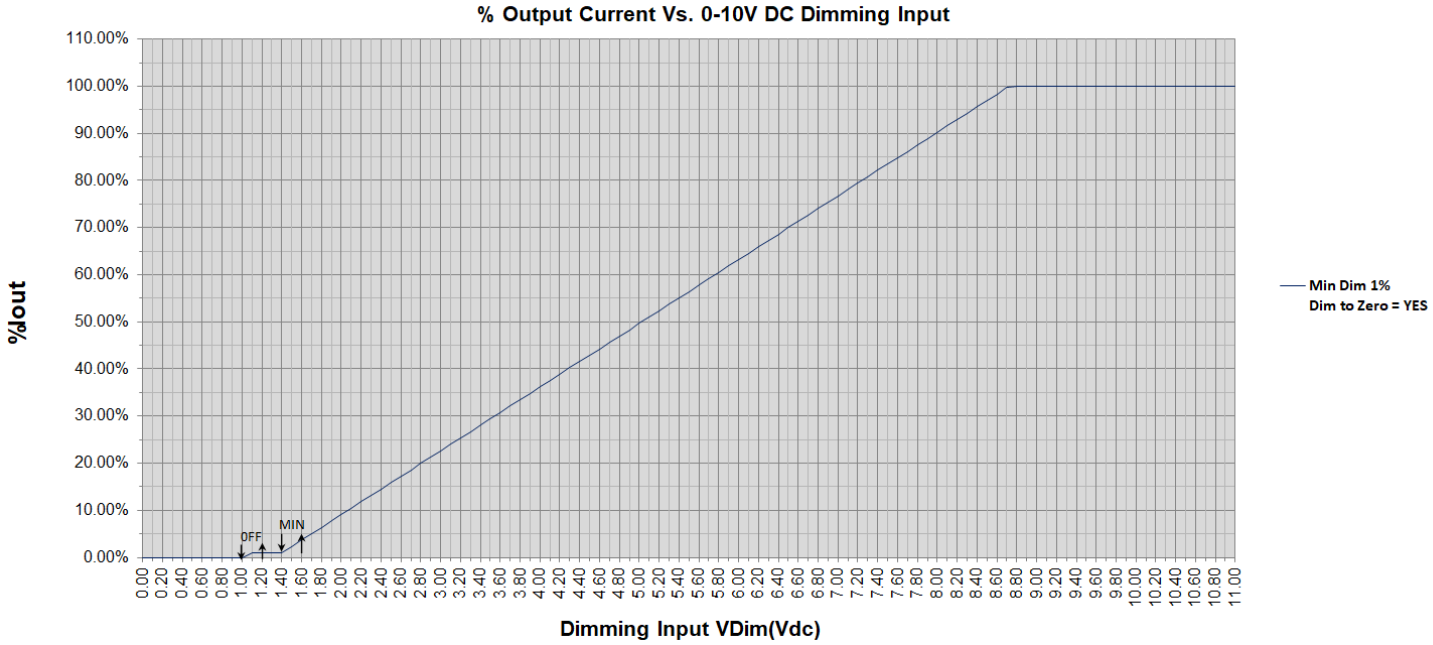
1. -RD 0-10V dimmable version comes with an extra two wires +Purple/-Grey on the output side.
2. -RD version is compatible with most 0-10V Wall Slide dimmers and direct 0-10V analog signal. Recommended wall slide dimmer is Leviton IP710 or equivalent
3. -RD 0-10V dimmable version is Dim to Zero @ ~1.00V and 1% Min Dim.
4. -RD 0-10V dimmable version output will be 100% with Purple/Grey open and minimum with Purple/Grey Shorted.
5. Dimming wires +Purple/-Grey must not touch any other wires or damage to LED Driver can occur.

-RD 2-Wire Resistance Dimming Scheme



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





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Input Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Input Voltage	100 Vac	——	305 Vac	120, 230, 240, 277 Vac Nominal Values
Input Frequency	47 Hz	——	63 Hz	50/60Hz Nominal
Input AC Current	——	——	0.13 A	Measured at 120Vac/60Hz Input, Output Full load.
	——	——	0.06 A	Measured at 277Vac/60Hz Input, Output Full load.
Inrush Current (Peak) Ipk 10%Pw <50usec	——	——	20A	Measured at 120Vac/60Hz Input, Output Full Load, Ta 25^{O}C, Cold Start
	——	——	25A	Measured at 277Vac/60Hz Input, Output Full Load, Ta 25^{O}C, Cold Start
Leakage Current	——	——	0.50mA	Measured at 120Vac/60Hz Input, Output Full load.
	——	——	0.70mA	Measured at 277Vac/60Hz Input, Output Full load.
THD	——	——	20%	Measured at 120, 230, 277Vac Input, Output ≥50% Load
Power Factor (PF)	0.90	——	——	Measured at 120, 230, 277Vac Input, Output ≥50% Load
Standby Power (Dim to Zero)	——	——	0.5W	Measured at 120/230/277Vac, Dimmed to Zero (Vdim ≤0.9V)

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)	——	——	20% Vo	20 MHz BW, Full load output in parallel with 0.1 µF ceramic & 10 µF Electrolytic.
Ripple (Ipk-pk)	——	——	50% Io	20 MHz BW, Full load output in parallel with 0.1 µF ceramic & 10 µF Electrolytic. 120 Hz component
Start-up Time	——	——	500 mS	Measured at 120Vac/60Hz Input, Output Full load, VDim = 10.0V
Output Overshoot	-5%	——	+10%	Measured at 120Vac/60Hz Input, Output Full load @ AC Power ON

Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Case Temperature (Tc)	-40 ^{O}C	——	+90 ^{O}C	Measured at location specified on case.
Operating Temperature (Ta)	-40 ^{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	——	550,000 Hours	——	MIL-HDBK-217F Notice 2, Tc = 80C, 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)	——	——	+20% Vo	No Damage, Auto recovery after fault is removed.
Over Temp Protection (OTP)	95 ^{O}C	——	100 ^{O}C	Iout Foldback at Tc ≥95C, OFF @ Tc ~110C

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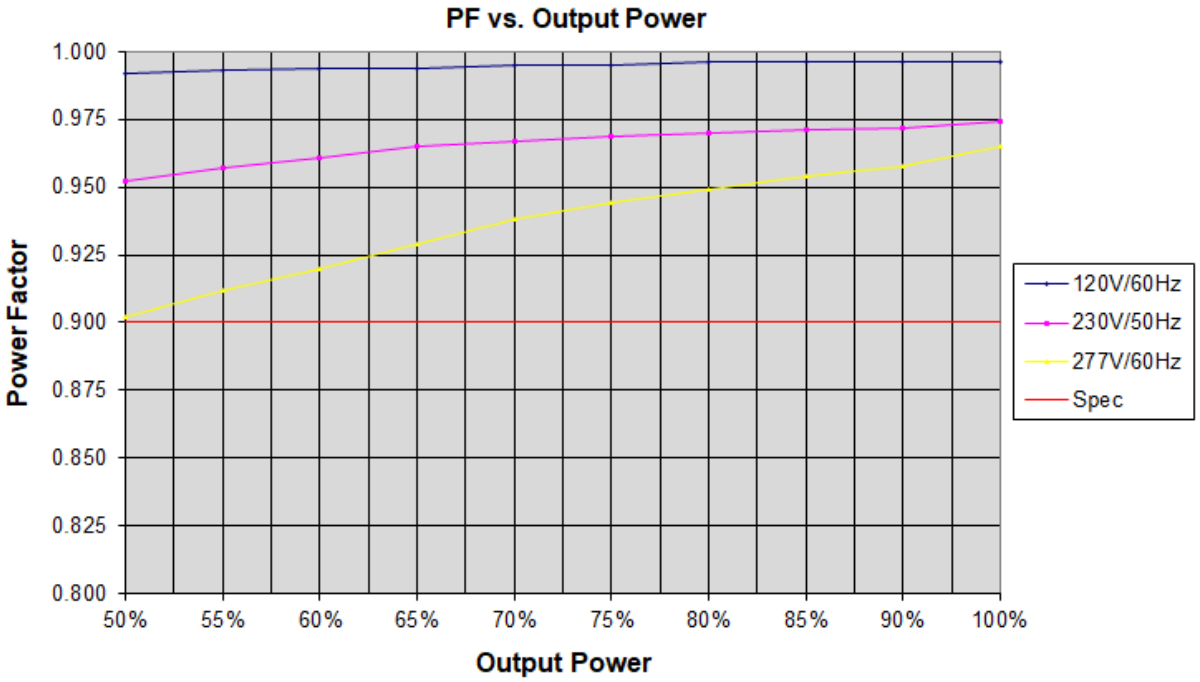
Safety Compliance

Safety	Notes/Standards
UL/CUL	UL8750 & CAN/CSA C22.2 No. 250.13, UL Type HL
CE	EN61347-1, EN61347-2-13, EN62493
Dielectric Withstand Voltage	Input to Output & Dimming: 3750 Vac (CE,ENEC covers UL 2000V requirement)
	Dimming to Output: 2500 Vac
Isolation Resistance	Input to Output: >100 MΩ, 500VDC @ 25 ^{O}C, 70 % RH
0-10V Class 2 Isolated Dimming Circuit	Dim+ Purple/Dim- Gray are Class 2 Isolated from all other inputs & outputs. 0-10VDC Dimming suitable for Class 1 or Class 2 circuit.
Sound Rating	<24dB Class A @ 1 Meter

EMC Compliance

Standard	Notes/Conditions
FCC, 47CFR Part 15 ANSI C63.4	Class B @120Vac, Class A @ 277Vac
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, ≥50% 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
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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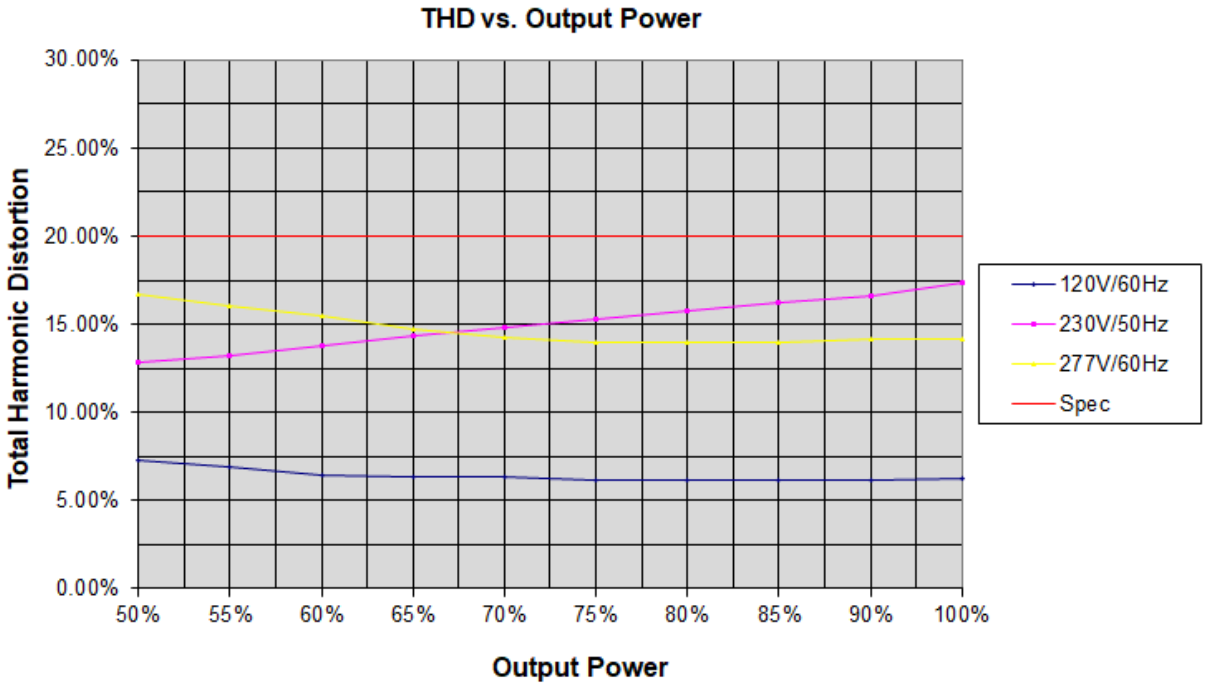
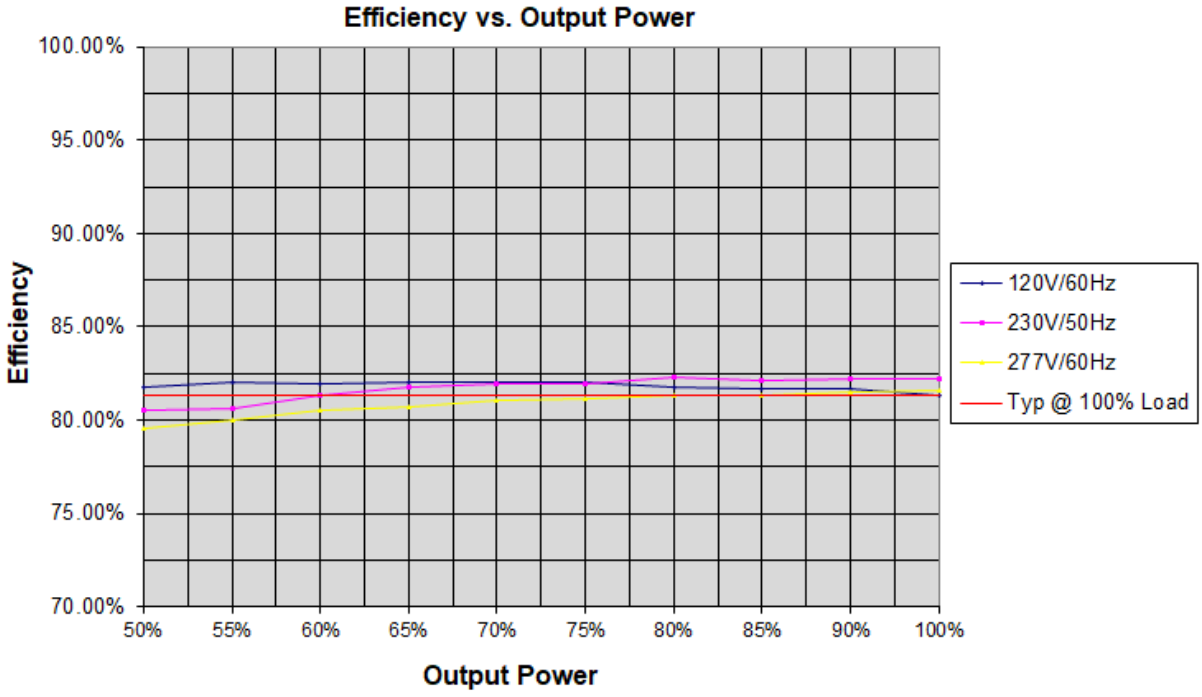
THD Curves (Typical)



Efficiency Curve (Typical)



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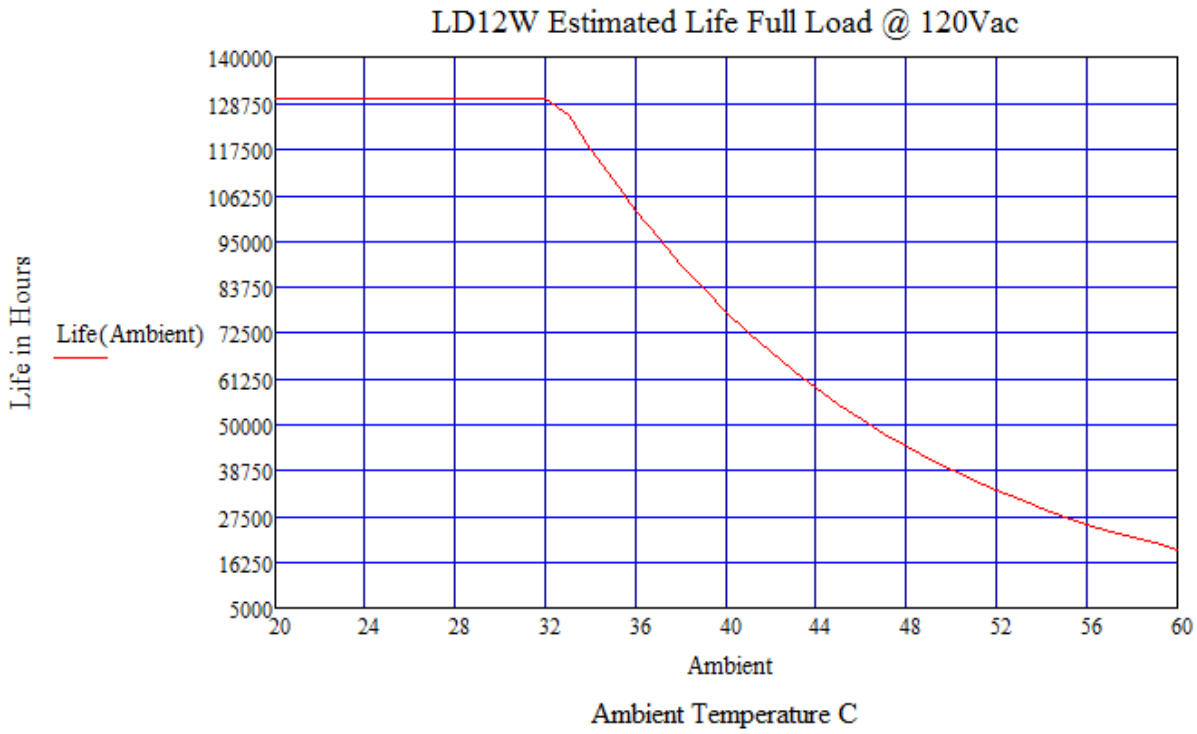
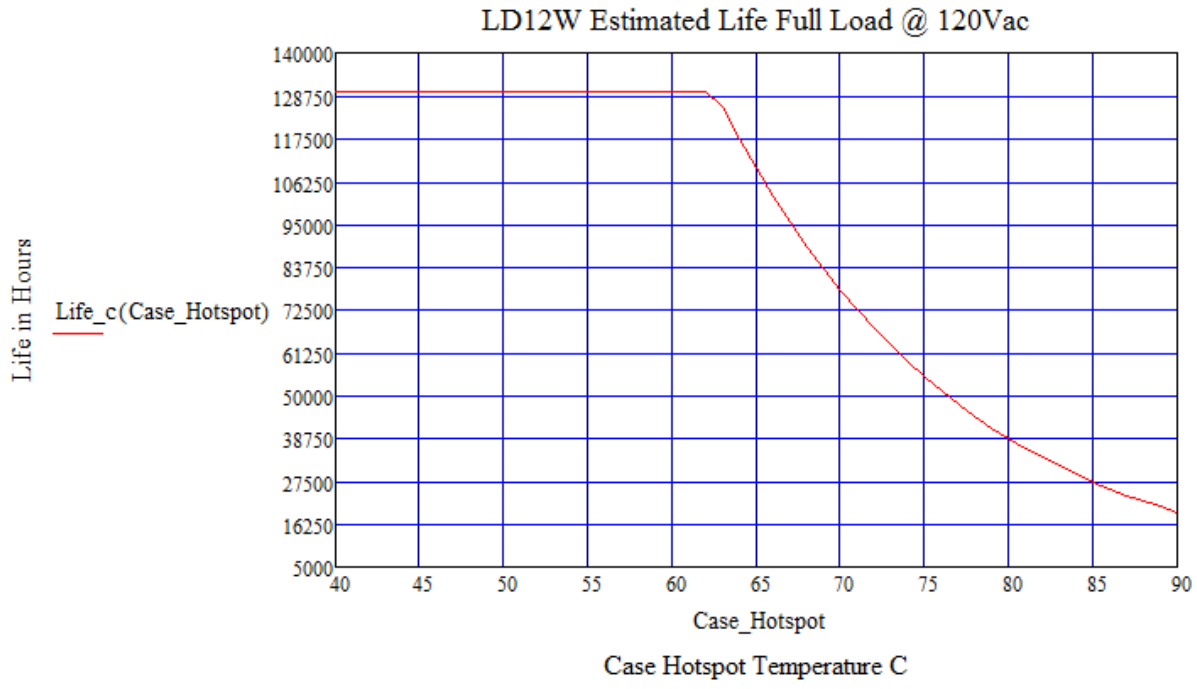
Life vs. Ambient Temperature



Life vs. Case (Tc) Temperature



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Revision History

REV - Change Date	Description of Changes		
	Items	Changed From	Changed To
REV F - 11/01/2020	Initial spec release	REV A1.2	REV F
REV F - 03/16/2021	Dimensions	Inaccurate L, W & H	Corrected. Same as REV E1.2 except hot spot location.