96 Watt - LP96W-XX-P Series

CONSTANT VOLTAGE

Model: LP96W –XX-PCV Series

- Drive Mode: Constant Voltage
- Technology: PFC Corrected 2-Stage Switch Mode
- Output Power: 96W Max.
- Input Voltage: 120 to 277VAC, 47- 63Hz
- Number of Outputs: One
- Output Voltages: 24VDC - 48VDC
- Minimum Output Current : Per table

Environmental

1. Operating temperature: Tc 90C Maximum. Reference –40 to +60°C ambient
2. UL Type TL (Tref Max/Meas. Tref): UL Class 2 83/54°C
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@ 40^{O}C: 474,000 hours @ Full Load per MIL-217F Notice 2.

Safety and Compliance

1. Class P: UL8750, CSA 22.2 listed, UL Type HL
2. FCC, 47CFR Part 15 & EN55015 compliant
3. Water resistant and Dust Proof Design: IP66, NEMA6, for Dry, Damp, Wet Locations.
4. Compact Miniature, 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: 4kV/6kV 8/20 µsec surge protection.

Electrical Specifications at 25^{O}C

- Input voltage range: 120 to 277Vac (Full Range 100 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: <70A at 25C, 277V, cold start, Max. Load
- Input current: 1.3A Maximum
- Efficiency: 88% typical at 230Vac Full Load
- Line regulation accuracy: ± 3%
- Load regulation accuracy: ± 4%
- Leakage current: 277Vac, 750uA maximum

c UL us LISTED E325626 | CLASS P | TYPE HL | CE | FC | IP66 | RoHS

UL Class P Listed Constant Voltage Versions

Part Number	US Class 2	CN Class 2	UL Types	Output Constant Voltage	Output Current Range	Voltage Accuracy	Output Power Maximum	Typical Efficiency (1)
LP96W-48-P	YES	YES	HL	48 VDC	525 - 2100 mA	± 5%	96W	88%
LP96W-36-P	YES	YES	HL	36 VDC	665 - 2660 mA	± 5%	96W	89%
LP96W-24-P	YES	YES	HL	24 VDC	1000 - 4000 mA	± 5%	96W	85%

Notes

1. Typical efficiency measured at 230VAC input, full load.

Custom designs available. Please consult with the factory.

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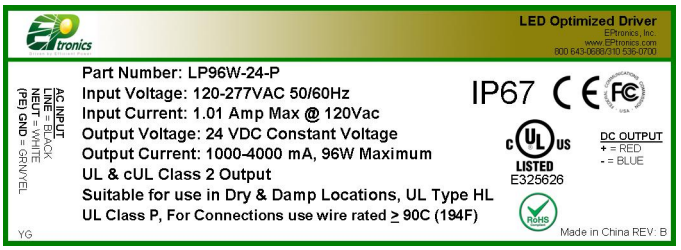
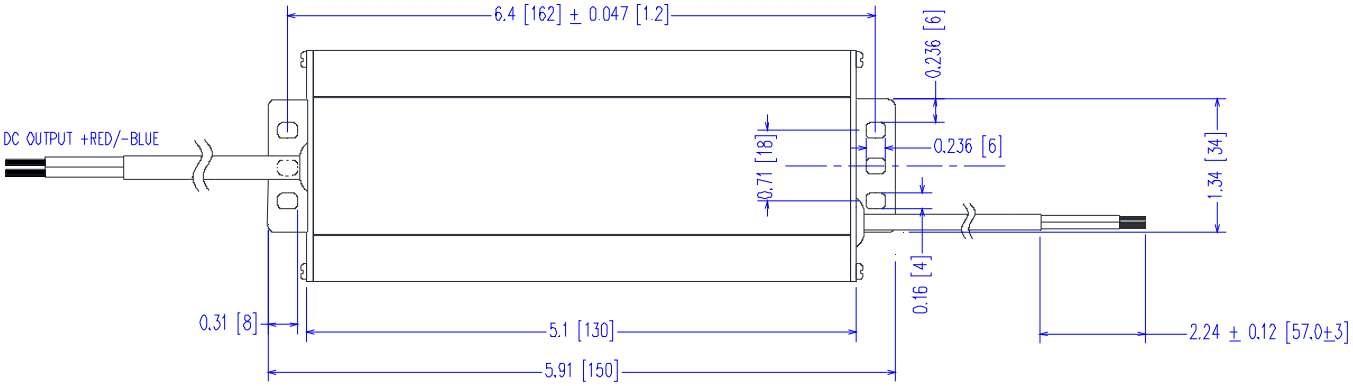
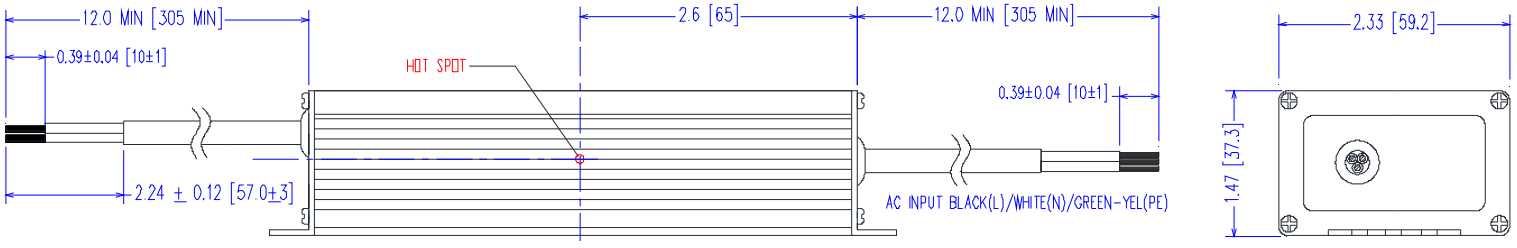
Mechanical Dimensions: Inches [mm]

Material: Black Aluminum Housing
Fully Encapsulated
Weight: 19 oz (538 grams) Typical

UL Class P Listed Labeling Example







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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	——	——	1.01 A	Measured at 120Vac/60Hz Input, Output Full load.
	——	——	0.50 A	Measured at 277Vac/60Hz Input, Output Full load.
Inrush Current (Peak) Ipk 10%Pw @120V≤340usec Ipk 10%Pw @277V≤660usec	——	——	55 A	Measured at 120Vac/60Hz Input, Output Full Load, Ta 25^{O}C, Cold Start
	——	——	70 A	Measured at 277Vac/60Hz Input, Output Full Load, Ta 25^{O}C, Cold Start
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 ≥ 60% Load
Power Factor (PF)	0.90	——	——	Measured at 120/230/277Vac ≥ 60% Load

Output Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
DC Output Voltage	Per Table	——	Per Table	Per Table on Page 1
DC Output Current	Per Table	Per Table	+5%	Per Table on Page 1
Output Power	——	——	Per Table	Per Table 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.
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	——	——	500 mS	Measured at 120Vac/60Hz Input, Output Full load.
Hold-up Time	——	40 mS	——	Typical @ 277Vac Input, Output Full load.

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	474,000 Hours	——	——	MIL-HDBK-217F Notice 2, Ta = 25C, 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)	——	——	+8% Io	Constant Current Limiting circuit.
Output Over Voltage (OVP)	——	——	120% Vo	No Damage, Auto recovery after fault is removed.

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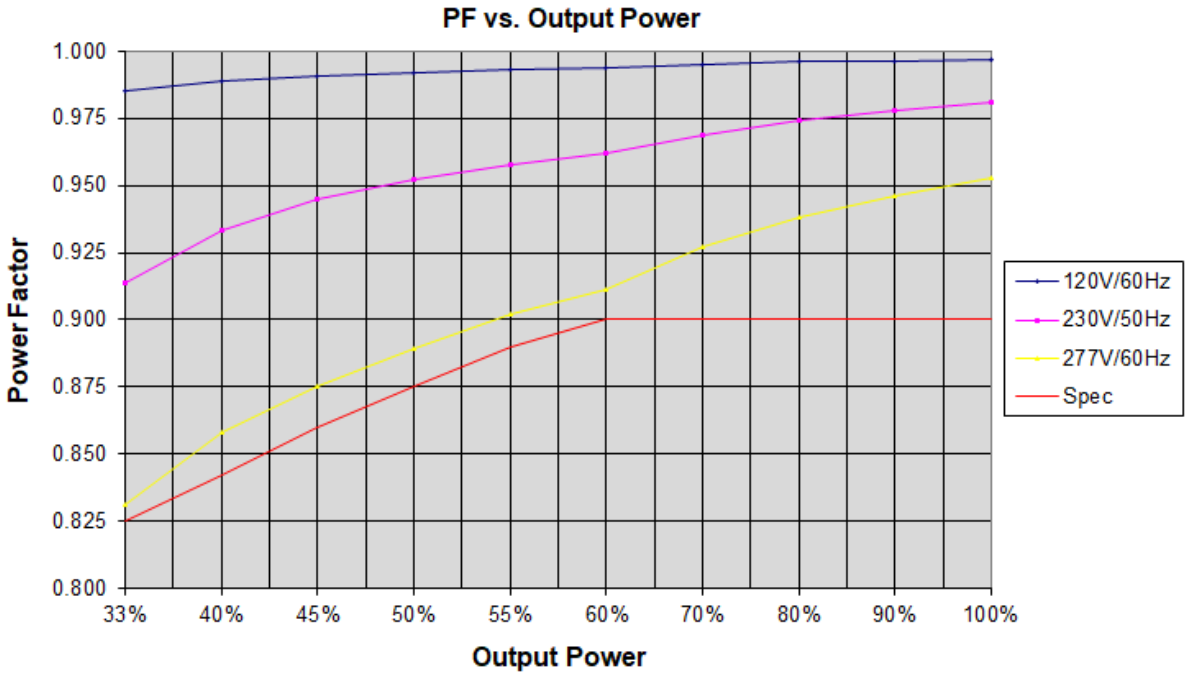
Safety Compliance

Safety	Notes/Standards
UL/CUL Listed UL Class P	UL8750 & CAN/CSA C22.2 No. 250.13, UL Class P, UL Type HL
CE	EN61347-1, EN61347-2-13, EN62493
Dielectric Withstand Voltage	Input to Output: 3750 Vac (CE, ENEC covers UL 2000V requirement)
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.
FG	The metal case of the driver must be connected to earth ground (FG) in the end-use application.
Sound Rating	<24dB Class A @ 1 Meter

EMC Compliance

Standard	Notes/Conditions
FCC, 47 CFR 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, ≥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, 4kV L-N, 6kV 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. 2.5kV L-N, 5.0kV L-G & N-G

Power Factor Curves (Typical)



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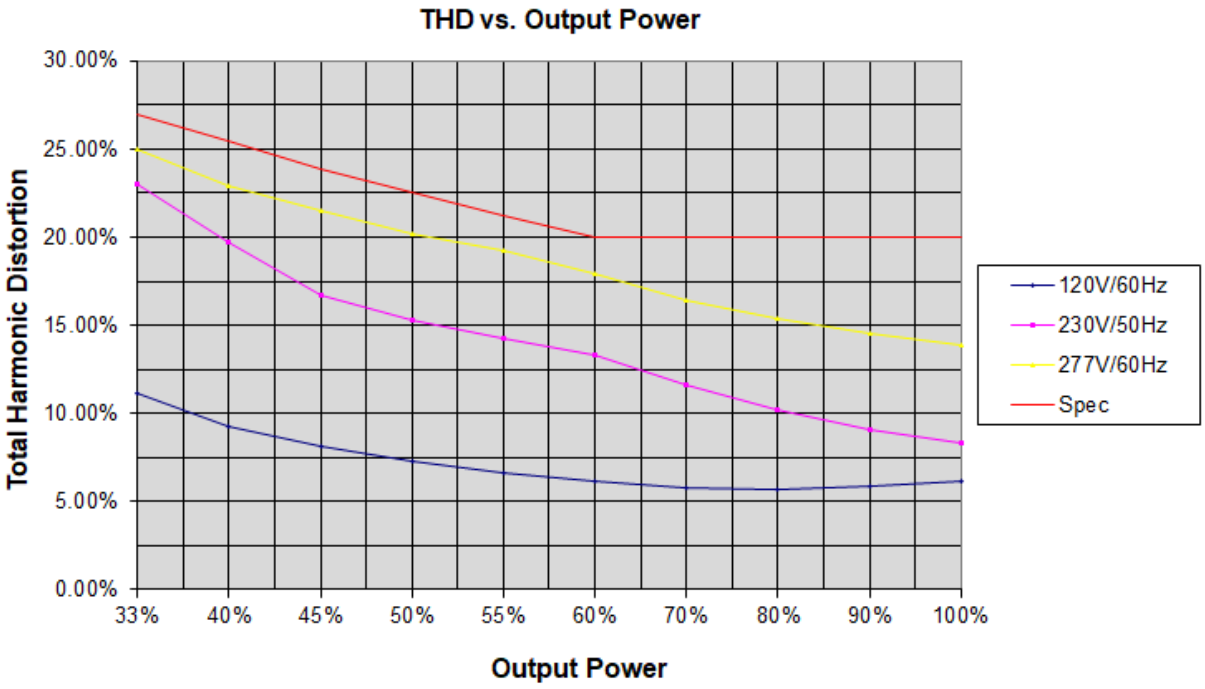
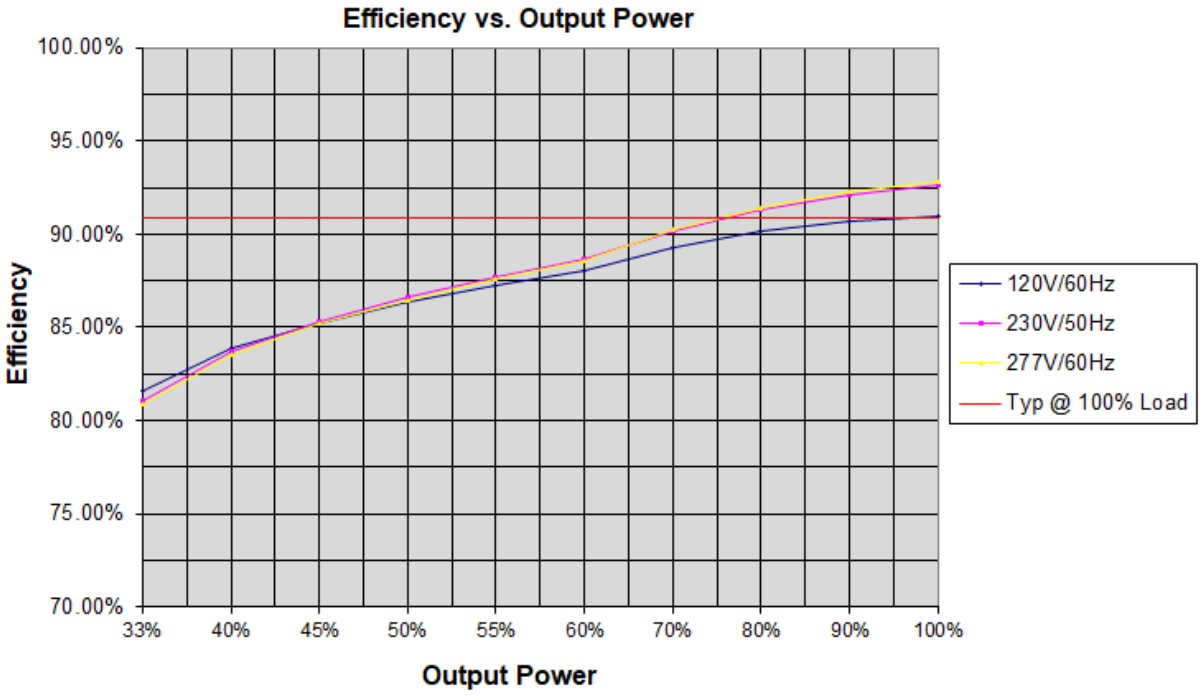
THD Curves (Typical)



Efficiency Curve (Typical)



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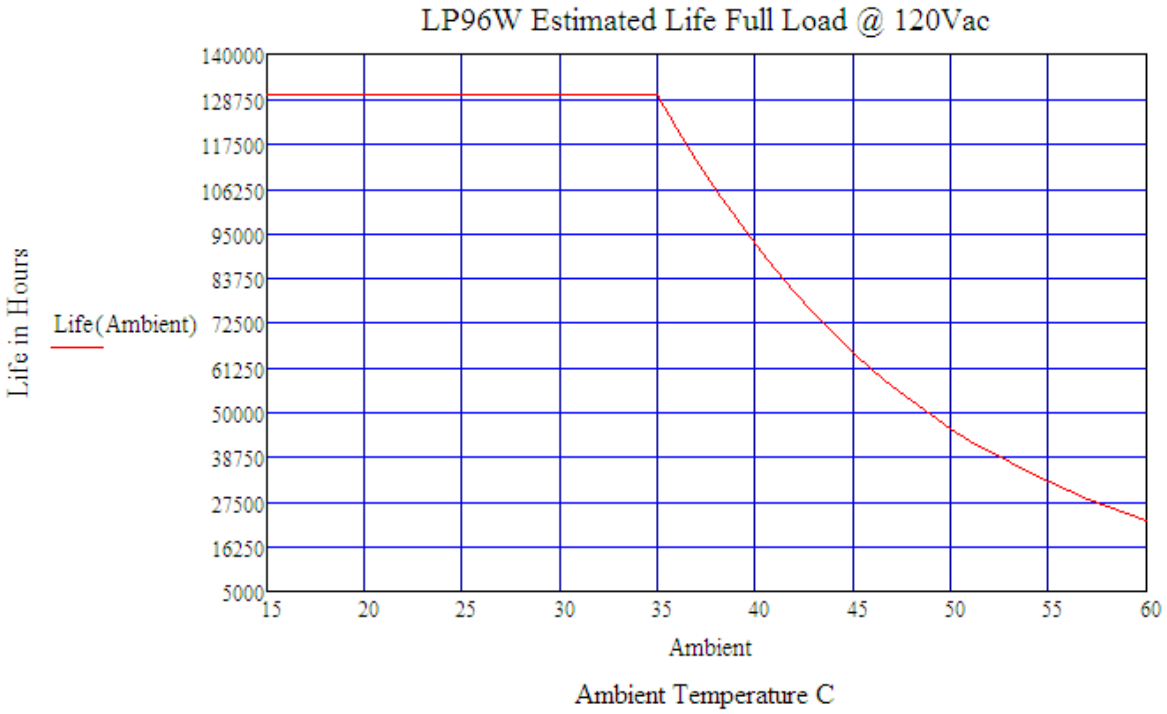
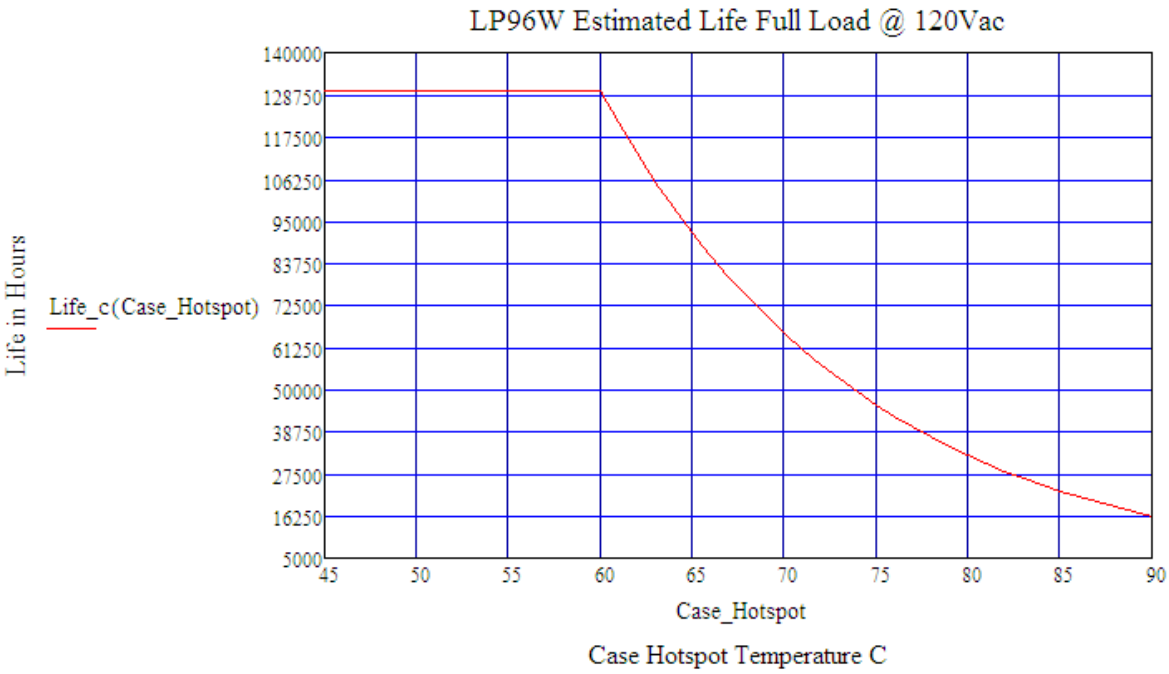
Life vs. Ambient Temperature



Life vs. Case (Tc) Temperature



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Revision History

REV - Change Date	Description of Changes		
	Items	Changed From	Changed To
REV B - 11/01/2020	Initial preliminary spec release	REV A1.3	REV B Output lead position changed
REV B - 12/20/2021	Inrush Current Page 1 & 3	Old Values	Corrected to proper values